Part

1

Obstetrics

CHAPTER

1

Anatomy and Physiology of Pregnancy

1. The right uterine artery:

A. Anastomoses with the ovarian artery in the broad ligament.
B. Crosses the ureter in the cardinal ligament.
C. Is a branch of the internal iliac artery.
D. Passes through the deep inguinal ring.
E. Supplies a vaginal branch.

2. In the female pelvis:

A. Measurements widen during labour due to the laxity of the ligaments.
B. Soft tissues of the pelvic floor do not play any role in labour.
C. The inlet is wider in the transverse diameter than in the antero-posterior diameter.
D. The outlet is wider in the antero-posterior diameter than in the transverse diameter.
E. The pelvic floor is formed by the levator ani muscle.

3. In the female pelvis:

A. Deep transverse arrest occurs if the ischial spines are prominent.
B. The posterior boundary of the inlet is the sacral promontory.
C. The antero-posterior diameter of the inlet is 12 cm.
D. The pudendal nerve passes behind and below the ischial spine.
E. Vaginal delivery of a brow presentation occurs in an anthropoid pelvis.

4. Which of the following is true regarding the female pelvis?

A. An android pelvis has prominent ischial spines.
B. An anthropoid pelvis is wider in the transverse than in the antero-posterior diameter.
C. Deep transverse arrest occurs in a gynaecoid pelvis.
D. Face to pubes delivery occurs in an anthropoid pelvis.
E. Vaginal delivery of a brow presentation occurs in a gynaecoid pelvis.

(Ref. for questions 2–4: Obstetrics by Ten Teachers, 19th edition, chapter 14, pages 186–187).

5. The lower uterine segment:

A. Has weaker contractions than the upper segment after delivery.
B. Includes a part of the uterus and the upper cervix.
C. Is more vascular than the upper segment.
D. Is recognised at caesarean section by the loose peritoneal attachment.
E. Lies between attachment of the peritoneum of the uterovesical pouch and the internal os.

(Ref: Obstetrics by Ten Teachers, 19th edition, chapter 3, page 30).

6. In the fetal skull:

A. Mento-vertical diameter presents in the occipito-posterior position.
B. Moulding during labour reduces the diameters.
C. Submento-bregmatic diameter presents in the mento-anterior face presentation.
D. The coronal suture extends from the anterior fontanelle.
E. The largest diameter is the occipito-frontal diameter.

7. Which of the following statements is true regarding the fetal skull?

A. Mento-vertical diameter presents in a brow presentation.
B. Suboccipito-frontal diameter presents in an occipito-posterior position.
C. Suboccipito-bregmatic diameter measures 12 cm.
D. Suboccipito-bregmatic diameter presents with deflexion of the head.
E. The biparietal diameter has the same measurements as the occipito-frontal diameter.

8. Which of the followings is true regarding the fetal skull?

A. Delivery by Kielland's forceps is carried out when the presenting diameter is mento-vertical.
B. Frontal bones are felt by vaginal examination in a brow presentation.
C. Obstetric forceps cannot be applied when the presenting diameter is submento-bregmatic.
D. Suboccipito-bregmatic diameter presents in the occipito-anterior position.
E. The suboccipito-bregmatic and submento-bregmatic diameters are equal.

9. The anterior fontanelle:

A. Allows moulding to occur during labour.
B. Is bounded by frontal and parietal bones.
C. Is felt in a well-flexed cephalic presentation.
D. Is at the junction of the sagittal and the lambdoidal sutures.
E. Is triangular in shape.

(Ref. for questions 6–9: Obstetrics by Ten Teachers, 19th edition, chapter 14, pages 189–191).

10. Physiological changes of pregnancy include:

A. Increased white cell count.
B. Increased renal clearance of folate.
C. Reduction of plasma fibrinolytic activity.
D. Rise in the extracellular fluid volume.
E. Rise in the plasma oncotic pressure.

11. Factors causing enhanced glomerular filtration during pregnancy are:

A. Decrease in serum albumin concentration.
B. Increase in the plasma oncotic pressure.
C. Increase in the renal blood flow.
D. Increased glomerular permeability.
E. Increased serum oestrogen levels.

12. Changes of pregnancy include:

A. Decreased cell division in the myometrium.
B. Decreased desquamation of vaginal epithelium.
C. Hypertrophy of the myometrium.
D. Increase in intracellular gap junctions of the myometrium.
E. Occurrence of an ectropian.

13. Changes of pregnancy include:

A. Decreased acidity of the vaginal discharge.
B. Increased ESR.
C. Increased renal protein excretion.
D. Reduced serum creatinine level.
E. Reduction in the ducts and alveoli in the mammary glands.

14. Physiological changes of pregnancy include:

A. Decreased mean arterial blood pressure.
B. Decreased peripheral resistance.
C. Increased fibrinogen concentration.
D. Increased heart rate.
E. Increased plasma folate concentration.

15. Physiological changes of pregnancy include a decrease in the:

A. Anti-natriuretic peptide.
B. Haemoglobin concentration.
C. Red cell count.
D. Serum albumin concentration.
E. Stroke volume.

16. Physiological changes of pregnancy include:

A. Decrease in the trans placental calcium transport.
B. Decreased level of 1, 25-dihydroxy-cholecalciferol.
C. Increase in the levels of parathormone.
D. Increase in the thyroid binding globulin levels.
E. Synthesis of corticotropin releasing factor by the fetal trophoblast.

17. Renal changes of pregnancy include:

A. Decreased clearance of urea.
B. Dilatation of the ureters.
C. Glycosuria.
D. Increased renal blood flow.
E. Reduced permeability of glomerular capillaries.

18. Physiological changes of pregnancy include:

A. A rise in plasma urea and creatinine concentration.
B. Increase in the stroke volume.
C. Increased corticosteroid levels.
D. Increased blood flow through the liver.
E. Increased loudness of both heart sounds (s_1 and s_2).

19. During pregnancy:

A. The affinity of maternal haemoglobin to oxygen is decreased.
B. The forced expiratory volume in one second (FEV_1) is increased.
C. The peak expiratory flow rate is unchanged.
D. The threshold of the respiratory centre to CO_2 is increased.
E. Ventilation increased.

20. Changes in the respiratory tract during pregnancy include:

A. Decreased blood pH.
B. Decreased functional residual capacity.
C. Increased bicarbonate excretion.
D. Increased partial pressure of CO_2.
E. Increased tidal volume.

21. Hormonal changes of pregnancy include:

A. Decreased insulin levels.
B. Decreased secretion of growth hormone by the maternal pituitary gland.
C. Increased human placental lactogen levels.
D. Increased LH levels.
E. Increased oestradiol levels.

22. Physiological changes of pregnancy include:

A. Decrease in the prolactin concentration.
B. Decreased secretion of TSH in the first trimester.
C. Development of insulin resistance.
D. Increase in the FSH levels.
E. Increase in the trans-placental transfer of calcium.

23. Hormones secreted by the fetoplacental unit are:

A. Adrenocorticotropic hormone.
B. Human placental lactogen.
C. Insulin.
D. Oestradiol.
E. Prolactin.

24. Human chorionic gonadotropin:

A. Has a specific beta subunit.
B. Has an alpha subunit similar to TSH.
C. Is not found in maternal plasma after the 20th week of gestation.
D. Reaches a peak value at the 14th week of gestation.
E. Suppresses the secretion of FSH and LH by the anterior pituitary gland.

25. Changes which occur in the carbohydrate metabolism during pregnancy include:

A. Decreased levels of human placental lactogen.
B. Increased blood glucose levels in response to oral glucose.
C. Increased plasma insulin levels.
D. Increased resistance to insulin.
E. Reduced renal clearance of glucose.

26. Changes which occur in the calcium metabolism during pregnancy include:

A. Decrease in the total plasma calcium concentration.
B. Increased calcitonin level.
C. Increased calcium excretion.
D. Increased 1, 25 dihydroxycholecalciferol level.
E. Reduced parathormone level.

27. Blood gas and acid-base changes of pregnancy are:

A. Decrease of pCO_2.
B. Increase of pO_2.
C. Increased excretion of bicarbonate.
D. Increased oxygen availability to the placenta.
E. Metabolic acidosis.

28. Human placenta secretes the following hormones:

A. An isoform of GnRH.
B. Human placental lactogen.
C. Insulin.
D. Oestradiol.
E. Progesterone.

(Ref. for questions 10–28: Obstetrics by Ten Teachers, 19th edition, chapter 3).

29. In the fetal cardiovascular system:

A. Oxygenation occurs in the placenta.
B. Right and left ventricles work in series.
C. The brain receives blood from the left ventricle.
D. The foramen ovale shunts blood from left to right atrium.
E. The placenta receives blood from the right and left ventricles.

(Ref: Obstetrics by Ten Teachers, 18th edition, chapter 6, page 65).

30. In the fetal blood:

A. Adult haemoglobin synthesis commences at 28 weeks.
B. Fetal haemoglobin has 2 gamma chains.
C. Fetal haemoglobin has a lesser affinity for oxygen than adult haemoglobin.
D. The mean haemoglobin concentration is higher than in the adult blood.
E. The spleen is the main source of red cells in the third trimester.

(Ref: Obstetrics by Ten Teachers, 18th edition, chapter 6, page 67).

31. Amniotic fluid:

A. Has no role in the development of the fetal lungs.
B. Is increased in anencephaly.
C. Is increased in polycystic kidneys.
D. Is produced by the fetal kidneys after 16 weeks.
E. Is produced by transudation of fluid from the fetal skin after 24 weeks.

(Ref: Obstetrics by Ten Teachers, 18th edition, chapter 6, page 69).

32. Oligohydramnios occurs in pregnancies complicated by:

A. Oesophageal atresia.
B. Placental insufficiency.
C. Postmaturity.
D. Renal agenesis.
E. Use of non-steroidal anti-inflammatory drugs.

33. Polyhydramnios occurs in pregnancies complicated by:

A. Chorioangioma of the placenta.
B. Fetal duodenal atresia.
C. Iron deficiency anaemia.
D. Pre-eclampsia.
E. Twin to twin transfusion syndrome.

34. Polyhydramnios occurs in pregnancies complicated by:

A. Anencephaly.
B. Diabetes.
C. Fetal hydrops.
D. Intrauterine growth restriction.
E. Trisomy.

(Ref. for questions 32–34: Obstetrics by Ten Teachers, 18th Edition, chapter 11, page 137).

35. Increased resistance to insulin occurs during pregnancy due to:

A. Decrease in insulin production.
B. Decreased glucose metabolism.
C. Increase in human placental lactogen.
D. Increased cortisol.
E. Increased prolactin.

(Ref: Obstetrics by Ten Teachers, 19th Edition, chapter 3, page 35)

36. In the fetal circulation well-oxygenated blood is found in the:

A. Ductus arteriosus.
B. Ductus venosus.
C. Left ventricle.
D. Umbilical vein.
E. Umbilical artery.

(Ref: Obstetrics by Ten Teachers, 18th edition, chapter 6, page 65).

37. The posterior fontanelle:

A. Is bounded by the parietal and temporal bones.
B. Is palpated during vaginal examination in labour if the head is well-flexed.
C. Is triangular in shape.
D. Lies at the junction of the lamboidal and sagittal sutures.
E. Plays no role in the occurrence of moulding during labour.

(Ref: Obstetrics by Ten Teachers 19th Edition page 189)

38. Consequences of fluid retention during pregnancy include:

A. Fall in the serum albumin concentration.
B. Increase in the renal blood flow.
C. Increase in the placental blood flow.
D. Increase in the stroke volume.
E. Rise in the blood pressure.

(Ref: Obstetrics by Ten Teachers, 19th edition, chapter 3, page 21).

ANSWERS AND EXPLANATIONS

Q. 1. A, B, C and E

The uterine artery arises from the anterior division of the internal iliac artery. It runs in the cardinal ligament and enters the uterus by crossing the ureter.

It commonly anastomoses with the ovarian artery.

The uterine artery is the major blood supply to the uterus. It gives branches to the ovary vagina and fallopian tubes.

Q. 2. A, C, D and E

The transverse diameter of the pelvic inlet is wider than the antero-posterior diameter.

The antero-posterior diameter of the pelvic outlet is wider than the transverse diameter.

The available space in the pelvis increases during labour due to

- Widening of the pelvic diameters caused by stretching of the lax ligaments and soft tissues.

- Reduction of the diameters of the fetal skull due to moulding and flexion.

Greater part of the pelvic floor is formed by the levator ani muscles.

Q. 3. A, B and D

Q. 4. A and D

Explanation for Questions 3–4

The posterior boundary of the pelvic inlet is formed by the sacral promontory. It is bounded in front by the symphysis pubis and on the sides by the upper border of the pubic bone, the ileopectineal line and the ala of the sacrum.

In the gynecoid pelvis the ischial spines are not prominent and the sacrospinous ligaments are wide. In the android pelvis the ischial spines are prominent and incurved. Deep transverse arrest can occur in an android pelvis due to partial rotation of an occipito-posterior position, which becomes arrested in the transverse position due to the prominent spines.

Normal delivery of a brow presentation cannot occur in any type of pelvis as the presenting diameter which is the mento-vertical diameter measures 13 cm.

An anthropoid pelvis has a wide antero-posterior diameter which allows delivery of an occipito-posterior position directly without rotation (face to pubes delivery).

The antero-posterior diameter of the inlet is 11 cm, while the antero-posterior diameter of the mid-cavity is 12 cm and the antero-posterior diameter of the outlet is 13.5 cm.

Q. 5. A, B, D and E

The uterus is divided into lower and upper segments. The lower segment includes part of the uterus and the upper cervix, which lie between the attachment of the uterovesical peritoneum and the internal os. It is recognised by the loosely attached uterovesical peritoneum. The lower segment is thinner and less vascular than the upper segment and has weaker contractions after delivery.

Q. 6. B, C and D

Q. 7. A and B

Q. 8. B, D and E

Q. 9. A and B

Explanation for Questions 6–9

- Suboccipito-bregmatic diameter (9.5 cm) presents in the occipito-anterior position. It is the smallest diameter of the fetal skull, which presents in a well-flexed head.
- Suboccipito-frontal diameter (10 cm) presents in the occipito-posterior position.
- Submento-bregmatic diameter (9.5 cm) presents in the mento-anterior face presentation.
- Mento-vertical diameter (13.5 cm) presents in the brow presentation. This is the largest diameter and vaginal delivery is not possible and therefore instrumental delivery cannot be carried out.

Obstetric forceps can be applied only when the presenting diameter is suboccipito-bregmatic or submento-bregmatic. Kielland's forceps can be applied for suboccipito-frontal diameter which presents in an occipito-posterior position.

The anterior fontanelle, the frontal bones, the forehead, the supraorbital ridges and the upper part of the bridge of the nose can be felt in a brow presentation.

The anterior fontanelle is at the junction of the sagittal, frontal and coronal sutures. It is diamond in shape and is bounded by the frontal and parietal bones. It allows moulding to occur during labour. It is felt when the head is partially extended in the occipito-posterior position. The posterior fontanelle is felt in a well-flexed head, is triangular in shape and is at the junction of the sagittal and lamboidal sutures.

Q. 10. A, B, C and D

Q. 11. A, C and D

Q. 12. C, D and E

Q. 13. B, C and D

Q. 14. A, B, C and D

Q. 15. B, C and D

Q. 16. C, D and E

Q. 17. B, C and D

Q. 18. B, C, D and E

Q. 19. A, C and E

Q. 20. B, C and E

Q. 21. B, C and E

Q. 22. B, C and E

Q. 23. A, B, D and E

Q. 24. A, B and E

Q. 25. B, C and D

Q. 26. A and D

Q. 27. A, B, C and D

Q. 28. A, B, D and E

Summary of the physiological changes in pregnancy and explanations for questions 10–28

Physiological parameters which increase in pregnancy

Cardiovascular system

- Extracellular fluid volume (increase is less in IUGR and pre-eclampsia)
- Stroke volume (10%)
- Heart rate (10–20%)
- Cardiac output (7L) (30–50%)
- Dilatation of the peripheral blood vessels
- Placental blood flow
- Liver blood flow
- Renal blood flow (60–75%)
- Production of red blood cells
- Total white cell count (mainly polymorphs)
- ESR
- Fibrinogen concentration
- Blood coagulation

Renal system

- Renal blood flow (60–70%)
- Permeability of glomerular capillaries
- Glomerular filtration rate (50%)
- Clearance of most substances
- Protein excretion (up to 0.3 g/day)
- Dilatation of ureters
- Bicarbonate excretion

Respiratory system

- Pulmonary blood flow
- Tidal volume
- Minute ventilation
- Airflow to the lungs (Rib cage is displaced upwards)
- Efficiency of lung function
- 2, 3 DPG in red cells
- Release of oxygen from red cells to tissue (shift of oxygen dissociation curve to the right)
- Gas transfer to and from the foetus
- Carbonic anhydrase concentration
- Oxygen consumption
- Bicarbonate excretion

Carbohydrate metabolism

- Plasma insulin levels
- Clearance of glucose
- Blood glucose level
- Insulin resistance

Thyroid function remains normal but there is an increase in

- T4 levels in first trimester
- Maternal iodine requirement
- Iodine excretion in urine
- Thyroid binding globulin
- Bound T3 and T4
- Free T3 and T4 levels are not altered.

Calcium metabolism

- Calcium absorption
- Trans placental transfer of calcium
- Parathormone levels
- 1,25 dihydroxycholecalciferol
- Circulating unbound ionised calcium level will not change

Iron metabolism

- Iron absorption

Endocrine system

- All placental hormones-oestrogen, progesterone, human placental lactogen, human chorionic gonadotropin
- Prolactin
- Insulin like growth factor

Structural changes

- Intercellular gap junctions in the myometrium
- Cell division in the myometrium
- Acidity of the vaginal discharge
- Ducts and alveoli in the breast

Physiological parameters which decrease in pregnancy

Cardiovascular system

- Plasma osmolarity
- Colloid osmotic pressure
- Plasma albumin (20%)
- Haemoglobin concentration
- Haematocrit
- Red cell count
- Plasma folate concentration
- Serum ferritin
- Plasma fibrinolytic activity
- Mean arterial blood pressure (10%)
- Peripheral resistance (35%)
- Thirst threshold

Renal system

- Plasma creatinine, urea, urate levels

Respiratory system

- pCO_2 (15–20%)
- Vital capacity
- Functional residual capacity

Endocrine system

- FSH
- LH
- TSH
- Human growth hormone

Further information can be obtained from: Obstetrics by Ten Teachers, 19th Edition, chapter 3,

Q. 29. A, C and E

In the fetal circulation

- Oxygenation of blood occurs in the placenta.
- Right and left ventricles work in parallel.
- The left ventricle pumps blood to the heart, brain and upper body while the placenta and the lower body receives blood from the right and left ventricles.
- Ductus venosus shunts blood away from the liver.
- Foramen ovale shunts blood from the right to the left atrium.
- Ductus arteriosus shunts blood from the pulmonary artery to the aorta below the origin of the head and neck vessels. Therefore, less oxygenated blood from the ductus arteriosus flows to the lower part of the body.

The latter 3 shunts allow well-oxygenated blood from the placenta to reach the brain.

Well-oxygenated blood is found in the umbilical vein, ductus venosus, left atrium and left ventricle. Less oxygenated blood is found in the ductus arteriosus, umbilical arteries, inferior vena cava, descending aorta, right atrium and right ventricle.

Q. 30. A, B and D

Fetal haemoglobin (HbF) has two gamma chains. From 10–28 weeks 90% of haemoglobin in the fetal blood is HbF. Synthesis of adult haemoglobin (HBA) commences at 28 weeks and at birth the ratio of HbA: HbF is 80 : 20. Fetal haemoglobin has a higher affinity for

oxygen than adult haemoglobin. This together with the high haemoglobin concentration (18 g/dl) in the foetus facilitates transfer of oxygen across the placenta. Bone marrow starts to produce red cells from 7 weeks and is the main source of red cells from 26 weeks.

Q. 31. B and D

Q. 32. B, C, D and E

Q. 33. A, B and E

Q. 34. A, B, C and E

Explanation for Questions 31–34

Amniotic fluid is first secreted by the amnion. By the 10th week it is a transudate from the skin. By the 16th week the skin becomes impermeable and the amniotic fluid is formed from fluid contributions by the kidneys and lungs and is removed by fetal swallowing. It plays a role in the development of the fetal lungs.

Oligohydramnios occurs in

- Renal agenesis, polycystic kidneys and renal tract obstruction (due to decreased urine formation).
- Intrauterine growth restriction
- Placental insufficiency
- Use of non-steroidal anti-inflammatory drugs
- Postdates pregnancy

Polyhydramnios occurs in

- Oesophageal atresia and anencephaly due to impaired fetal swallowing
- Neuromuscular fetal conditions which prevent swallowing
- Duodenal atresia
- Twin pregnancy
- Chorioangioma of the placenta
- Maternal diabetes

Q. 35. C, D and E

Q. 36. B, C and D

Explanation for Question 36

Well-oxygenated blood is found in the umbilical vein, ductus venosus, left atrium and left ventricle. Less oxygenated blood is found in the ductus arteriosus, umbilical arteries, inferior vena cava, descending aorta, right atrium and right ventricle.

Q. 37. B, C and D

The posterior fontanelle is triangular in shape. It lies at the junction of the lamboidal and sagittal sutures and is bounded by the parietal and occipital bones. It is palpated by vaginal examination during labour only in an occipito-anterior position with a well-flexed head. It plays an important role in the occurrence of moulding during labour.

Q. 38. A, B, C and D

Fluid retention during pregnancy results in fall in the haemoglobin concentration, haematocrit and serum albumin levels. There is a consequent rise in the stroke volume, placental and renal blood flow.

CHAPTER

2

Normal and Abnormal Labour

1. The descent of the head during labour is assessed by:

A. Abdominal examination.
B. The relationship to the ischial spines on vaginal examination.
C. The degree of caput formation.
D. The degree of moulding.
E. The relationship to the ischial tuberosities on vaginal examination.

(Ref: Single Best Answer Questions in obstetrics with Answers, Explanations and Basic Clinical Principles for Undergraduates and Postgraduates, 01st Edition, by Dr. Eranthi Samarakoon.(SBA Questions in Obstetrics) chapter 1, page 2).

2. The progress of labour is determined by:

A. Assessment of cervical dilatation.
B. Assessment of the descent of the head.
C. Measurement of the amount of caput formation.
D. Monitoring the frequency of contractions.
E. Performing an amniotomy.

(Ref:SBA Questions in Obstetrics, chapter 1, page 2).

3. Onset of labour is diagnosed when there is:

A. Backache and mucoid vaginal discharge.
B. Lower abdominal pain.
C. Progressive dilatation of the cervix.
D. Regular painful uterine contractions.
E. Spontaneous rupture of the membranes.

(Ref:SBA Questions in Obstetrics, chapter 1, page 1).

4. Which of the following is true regarding the stages of labour?

A. Labour is divided into 4 stages.
B. The latent phase is the time between the onset of labour and 4 cm dilatation of the cervix.
C. The second stage is subdivided into two phases.
D. The first stage is divided into 3 phases.
E. The second stage is diagnosed by demonstrating full dilatation of the cervix by vaginal examination.

(Ref:SBA Questions in Obstetrics, chapter 1, page 1).

5. Which of the following parameters are assessed during management of normal labour?

A. Abdominal examination for the descent of the head every 4 hours.
B. Abdominal examination for frequency of uterine contractions once in 4 hours.
C. Auscultation of fetal heart sounds every 15 minutes.
D. Inspection of pads for meconium staining half hourly.
E. Vaginal examination to assess cervical dilatation once in 4 hours.

(Ref: SBA Questions in Obstetrics, chapter 1, page 2).

6. The latent phase of labour:

A. Is difficult to diagnose in multiparous women.
B. Is managed by performing an amniotomy.
C. Is prolonged in primary dysfunctional labour.
D. Lasts for 6 hours.
E. Requires epidural analgesia for pain relief.

(Ref:SBA Questions in Obstetrics, chapter 1, page 2).

7. Causes of prolonged first stage of labour include:

A. Brow presentation.
B. Epidural anaesthesia.
C. Fundal fibroid.
D. Occipito-posterior position.
E. Twin pregnancy.

8. Delay in the second stage of labour is caused by:

A. Android pelvis.
B. Deep transverse arrest.
C. Epidural anaesthesia.
D. Persistent occipito-posterior position.
E. Presence of a caput.

9. Primary dysfunctional labour is caused by:

A. Brow presentation.
B. Dysfunctional uterine action.
C. Mento-posterior face presentation.
D. Occipito-posterior position.
E. Twin pregnancy.

10. Primary dysfunctional labour:

A. Begins in the first stage of labour.
B. Is caused by inadequate uterine contractions.
C. Is treated by amniotomy and oxytocin infusion.
D. Occurs only in primiparous patients.
E. Requires caesarean section in the presence of a previous caesarean section scar.

11. Secondary arrest is caused by:

A. Brow presentation.
B. Cephalo-pelvic disproportion.
C. Epidural analgesia.
D. Mento-anterior face presentation.
E. Shoulder presentation.

12. Secondary arrest:

A. Causes uterine rupture in primiparous women.
B. Is caused by an obstruction to the forward passage of the foetus.
C. Is diagnosed when labour fails to progress in the presence of strong uterine contractions.
D. Is treated by application of obstetric forceps during the second stage of labour.
E. Is treated by caesarean section.

Ref. for questions 7–12:

- *Obstetrics by Ten Teachers, 19th edition, chapter 14, pages 208–212.*
- *SBA Questions in Obstetrics, chapter 1, pages 4–5.*

13. The first stage of labour:

A. Ends at full dilatation of the cervix.
B. Begins when the membranes rupture.
C. Is augmented by the use of oxytocin.
D. Has a duration of 24 hr in primigravid women.
E. Is shortened by the use of obstetric forceps.

Ref.:

- *SBA Questions in Obstetrics, chapter 1, pages 1–3.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 14, pages 191–192.*

14. The third stage of labour:

A. Begins as soon as the infant's head is delivered.
B. Ends with the delivery of the placenta and membranes.
C. Is prolonged by an epidural block.
D. Is shortened by the use of oxytocic drugs.
E. Should not last longer than 5 min.

15. Active management of the third stage of labour includes:

A. Application of controlled cord traction only if the uterus is well-contracted.
B. Uterine massage during controlled cord traction.
C. Intravenous injection of 5 units of oxytocin after delivery of the placenta.
D. Intravenous injection of 5 units of oxytocin with the delivery of the anterior shoulder.
E. Waiting for 20 min before applying controlled cord traction.

16. Active management of the third stage of labour includes:

A. Application of gentle traction on the cord.
B. Applying controlled cord traction soon after delivery of the baby.
C. Drainage of blood from the placenta through the cord.
D. Pushing the uterus up with the ulnar border of the hand.
E. Waiting for signs of placental separation.

17. Active management of the third stage of labour requires:

A. Clamping the cord soon after delivery.
B. Insertion of rectal misoprostol if there is delay in delivery of the placenta.
C. Inspection of the placenta and membranes for completeness.
D. Intravenous injection of 5 units of ergometrine as the first-line oxytocic drug.
E. Preparing for manual removal if the placenta is not delivered within 30 minutes.

18. Inversion of the uterus is prevented during active management of the third stage of labour by:

A. Applying controlled cord traction only if the uterus is well-contracted.
B. Applying gentle traction on the cord.
C. Intravenous administration of 5 units of oxytocin with the delivery of the anterior shoulder.
D. Pushing the uterus up during delivery of the placenta.
E. Waiting for signs of placental separation to deliver the placenta.

Ref. for questions 14–18:

- *SBA Questions in Obstetrics, chapter 1, pages 3–4.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 14 pages 202–203.*

19. Amniotomy:

A. Is delayed in breech presentation.
B. Is immediately preceded by 'sweeping' the membranes.
C. Is more efficient if the hind water sac is ruptured.
D. Is performed in normal labour at a cervical dilatation of 5 cm.
E. Is performed in the antenatal ward.

20. Artificial rupture of the membranes:

A. Is confirmed by the presence of fetal hair in the artery forceps.
B. Is not required to commence an oxytocin infusion.
C. Is performed with the patient placed in the dorsal position.
D. Is preceded by exclusion of cord presentation.
E. Is preceded by perineal infiltration with a local anaesthetic.

21. Amniotomy:

A. Is contraindicated for induction of labour in a macerated stillbirth.
B. Is performed in placental abruption.
C. Is performed in shoulder presentation.
D. Is performed to augment labour.
E. Should be followed by delivery within 12 hours.

(Ref. for questions 19–21: SBA Questions in Obstetrics, chapter 1, pages 2–3).

22. A grand multipara:

A. Develops primary dysfunctional labour.
B. Is at risk of anaemia.
C. Is at risk of postpartum haemorrhage due to increased fibrous tissue in the uterus.
D. Is in her fourth pregnancy.
E. Ruptures the uterus if labour is prolonged.

23. Extension of the fetal head occurs in:

A. Brow presentation.
B. Face presentation.
C. Footling breech presentation.
D. Primipara.
E. Occipito-posterior position.

24. Which of the following are normal findings, on abdominal examination, in a woman, in the first stage of labour, at a period of amenorrhoea (POA) of 39 weeks?

A. A symphysis fundal height of 34 cm.
B. An occipito-anterior position.
C. Longitudinal lie.
D. Non-engaged head.
E. Occurrence of 3–4 uterine contractions per 10 minutes.

25. Which of the following are normal findings, on vaginal examination, in a woman, in the first stage of labour, at a period of amenorrhoea (POA) of 39 weeks?

A. A concave sacrum and wide sacro-spinous ligaments.
B. Grade 1 moulding.
C. Palpation of the posterior fontanelle.
D. Palpation of the supraorbital ridges and the frontal bones.
E. Station of the presenting part 1 cm above the ischial spines.

(Ref. for questions 24–25: Obstetrics by Ten Teachers, 18th Edition, chapter 17, page 232).

26. Prolonged labour:

A. Causes postpartum haemorrhage.
B. Due to cephalo-pelvic disproportion is treated with an oxytocin infusion.
C. Due to brow presentation is treated with caesarean section.
D. Due to shoulder presentation is treated by external cephalic version.
E. Is a cause of puerperal sepsis.

27. Prolonged labour:

A. Due to primary dysfunctional labour is treated with amniotomy and oxytocin infusion.
B. Due to secondary arrest is treated by caesarean section.
C. In the first stage is diagnosed if the rate of cervical dilatation is less than 2 cm in 4 hours.
D. In the second stage is diagnosed if the duration exceeds 2 hours in a primipara.
E. Is treated with amniotomy and oxytocin infusion in a grand multipara.

28. Prolonged labour:

A. Carries a risk of uterine rupture in primiparous women.
B. Due to breech presentation is treated with amniotomy followed by an oxytocin infusion
C. Due to inadequate uterine contractions results in primary dysfunctional labour.
D. Due to deep transverse arrest is treated with an oxytocin infusion.
E. Requires immediate delivery by caesarean section in a woman with a scarred uterus.

29. Cephalo-pelvic disproportion is suspected if:

A. Deep transverse arrest occurs.
B. Secondary arrest occurs.
C. The head is poorly applied to the cervix.
D. The latent phase is prolonged.
E. There is primary dysfunctional labour.

30. Obstructed labour is the outcome of:

A. Brow presentation.
B. Mento-posterior face presentation.

C. Occipito-posterior position in a gynecoid pelvis.
D. Transverse lie.
E. Twin pregnancy.

Ref. for questions 26–30:
- *SBA Questions in Obstetrics, chapter 1, pages 4–5.*
- *Obstetrics by Ten Teachers, 18th edition, chapter 17, pages 238–241.*

31. Management of shoulder dystocia requires:

A. Application of fundal pressure.
B. Delivery of the posterior arm first.
C. Hyperflexion and abduction of the mother's hips.
D. Traction on the fetal head.
E. Turning the patient to the left lateral side.

32. Management of shoulder dystocia requires:

A. Advising the patient to bear down.
B. Application of suprapubic pressure.
C. Application of traction on the anterior arm.
D. Extension of the episiotomy.
E. Performing Wood screw manoeuvre.

33. Risk factors for shoulder dystocia include:

A. Arcuate uterus.
B. Maternal obesity.
C. Post-maturity.
D. Previous history of shoulder dystocia.
E. Prolonged second stage of labour.

Ref. for questions 31–33
- *Obstetrics by Ten Teachers, 18th edition, chapter 19, page 283–284.*
- *SBA Questions in Obstetrics, chapter 1, pages 16–17.(answers to questions 13–15)*

34. Which of the following are contraindications for epidural analgesia?

A. Abruptio placentae.
B. Breech presentation.
C. Mitral stenosis.
D. Occipito-posterior position.
E. Placenta praevia.

35. Which of the following are contra-indications for epidural analgesia?

A. Eclampsia.
B. HELLP syndrome.
C. Obstetric cholestasis.
D. Primary dysfunctional labour.
E. Sepsis.

36. Epidural analgesia:

A. Causes prolonged first stage of labour.
B. Causes prolonged second stage of labour.
C. Increases the caesarean section rate.
D. Is commenced in the first stage of labour.
E. Is contraindicated in severe aortic stenosis.

37. Which of the following is true regarding pain relief in labour?

A. Entanox is given for pain relief during the first and second stages.
B. Nalorphine should be available to treat neonatal respiratory depression caused by pethidine.
C. Pain relief is contraindicated in the presence of a scarred uterus.
D. Pethidine is given during the second stage.
E. Pethidine or morphine is suitable for women with heart disease.

(Ref. for questions 34–37: SBA Questions in Obstetrics, chapter 1, pages 2–3 and chapter 19).

38. Which of the following should be carried out in a woman who complains of reduced fetal movements at 38 weeks?

A. Auscultation of fetal heart sounds using a hand Doppler.
B. Immediate delivery by caesarean section.
C. Induction of labour.
D. Perform a biophysical profile.
E. Perform a cardiotocograph.

Ref. for questions 38:
- *SBA Questions in Obstetrics, chapter 1, page 18–19.*
- *Reduced fetal movements, RCOG Green Top Guideline, No. 57.*

39. Obstructed labour:

A. Causes uterine rupture in a second para.
B. Is treated by application of obstetric forceps in the second stage.
C. Is caused by formation of a Bandle's ring.
D. Is treated by upper segment caesarean section in the first stage.
E. Is caused by an occipito-posterior position in a woman with an android pelvis.

Ref.:

- *SBA Questions in Obstetrics, chapter 1, pages 4–5.*
- *Obstetrics by Ten Teachers, 18th edition, chapter 17, pages 238–241.*

40. Which of the following are normal findings, on vaginal examination, in a woman, in the second stage of labour?

A. A wide subpubic angle.
B. Absence of membranes.
C. Grade 2 moulding.
D. Palpation of the anterior fontanelle.
E. Station of the presenting part at or below the ischial spines.

(Ref: Obstetrics by Ten Teachers, 18th Edition, chapter 17, page 231 and 232).

41. Clinical pelvic assessment is carried out:

A. After 38 weeks
B. Before allowing vaginal birth after a previous caesarean section
C. Before allowing vaginal delivery in breech presentation.
D. In all primigravid women.
E. Only in the labour ward.

42. Which of the following is true regarding clinical pelvic assessment?

A. An accurate assessment is not possible in the second stage of labour.
B. Is more accurate if combined with radiological pelvimetry.
C. It is not routinely performed as the available space in the pelvis increases during labour.
D. The inlet is adequate if the head is engaged.
E. The pelvis is assessed at the inlet, mid-cavity and the outlet.

43. The pelvis is clinically adequate if:

A. The ischial spines are not prominent.
B. The sacral promontory is felt.
C. The sacrospinous ligaments accommodate 3 fingers.
D. The sacrum is concave.
E. The subpubic angle is less than 90 degrees.

44. The available space in the pelvis increases during labour due to:

A. Laxity and stretching of the ligaments.
B. Moulding of the fetal skull bones.
C. Performing an episiotomy.
D. Placing the patient in the lithotomy position.
E. Rotation of the fetal head.

(Ref. for questions 41–42: Obstetrics by Ten Teachers, 18th Edition, chapter 17, page 221 and 222).

ANSWERS AND EXPLANATIONS

Q. 1. A and B

Q. 2. A and B

Explanation for Questions 1–2

The progress of labour is determined by performing:

- Abdominal examination once in 4 hours to assess the descent of the head, and
- Vaginal examination 4 hourly to assess the cervical dilatation and the station of the head in relation to the ischial spines.

Even though contractions are essential for the progress of labour the frequency of

contractions is not a parameter of progress of labour. Labour can fail to progress in the presence of strong uterine contractions if an obstruction is present.

Q. 3. C and D

Labour is diagnosed by the presence of regular painful uterine contractions which increase in frequency, intensity and duration with the passage of time. The pain is not relieved by common analgesics. This should be accompanied by progressive effacement and dilatation of the cervix. Show though a symptom of labour may not be always present.

Q. 4. B, C and E

Labour is divided into the first, second and third stages.

The first stage is divided into the latent and active phases and the second stage is divided into passive and active phases.

The latent phase is the time between the onset of labour and 4 cm dilatation of the cervix. It is a slow phase and takes 6 hours. The second stage is diagnosed by performing a vaginal examination to demonstrate full dilatation of the cervix.

Q. 5. A, C, D and E

The following parameters are assessed during management of normal labour:

- The fetal heart rate and the maternal pulse rate every 15 minutes.
- The frequency of uterine contractions, inspection of pads for meconium and adjustment of the oxytocin drip rate half hourly.
- Abdominal and vaginal examination for progress of labour 4 hourly.
- Measurement of temperature and blood pressure 4 hourly.

Q. 6. A, C and D

Latent phase is from 0–4 cm dilatation of the cervix. It is a slow phase and the duration is 6–8 hours. The diagnosis is difficult as the contractions are infrequent during this phase and the cervical dilatation may reach 2–3 cm before the onset of labour, especially in multiparous women. In primary dysfunctional labour, the progress is slow from the beginning. Amniotomy is performed at the beginning of the active phase (at 4–5 cm dilatation of the cervix), once the diagnosis of labour is confirmed. Analgesics are not required during the latent phase as the pain is very mild.

Q. 7. A, D and E

Q. 8. A, B, C and D

Q. 9. B, D and E

Q. 10. A, B, C and E

Q. 11. A, B and E

Q. 12. B, C and E

Explanation for Questions 7–12

Prolonged first and second stages of labour are caused by

- Inadequate uterine contractions
- Cephalo-pelvic disproportion
- Malpresentations and malpositions
- Fetal abnormalities
- Lower segment fibroids
- Uterine over distension due to twins and hydramnios
- Epidural analgesia—prolonged second stage only

Primary dysfunctional labour is caused by inadequate uterine contractions. Occipito-posterior position, uterine over distension (due to uterine atony) and mento-anterior face presentation (because the soft presenting part is a poor cervical stimulator) could be contributory factors. Labour is slow from the start. Treatment is by amniotomy followed by an oxytocin infusion in the absence of cephalo-pelvic disproportion, a scarred uterus, fetal or maternal distress or any other obstetric risk factors.

Secondary arrest is diagnosed when labour fails to progress at a later stage, in the presence of strong uterine contractions. It is caused by

an obstruction to the forward passage of the foetus due to a malpresentation, (such as brow, shoulder or mento-posterior face) cephalopelvic disproportion, fetal abnormality or a lower segment fibroid. It should be treated by immediate caesarean section during the first or second stages of labour. Instrumental delivery is not advisable during the second stage as there could be undiagnosed cephalopelvic disproportion or a malpresentation such as a brow presentation. Delay in treatment can cause fetal distress, fetal death, uterine rupture in multiparous women, and uterine atony in primipara.

Q. 13. A and C

The first stage of labour begins with the onset of the latent phase. However, it is difficult to diagnose the onset of the latent phase, as the contractions are infrequent during this phase and the cervical dilatation may reach 2–3 cm before the onset of labour, especially in multiparous women. The first stage ends at full dilatation of the cervix. There is no fixed duration for the first stage. However, it should be shorter than 12 hours. Oxytocin can be used to augment labour if contractions are inadequate, in the absence of other contraindications. Obstetric forceps or other instruments cannot be applied in the first stage.

Q. 14. B and D

Q. 15. A, B and D

Q. 16. A, D and E

Q. 17. C and E

Q. 18. A, B, C, D and E

Explanation for Questions 14–18

1. Third stage begins after completion of the delivery of the baby and ends once the placenta and membranes are delivered. The third stage is managed actively. The duration is 5–10 minutes.
2. Oxytocin 5 units (or 0.5 mg of ergometrine) is administered intravenously, with the delivery of the anterior shoulder. Ergometrine can also be given but causes vomiting and other side effects. Therefore, oxytocin is the preferred first-line drug.
3. Clamping of the cord should be delayed for 2 minutes to allow blood to drain into the foetus.
4. Once the delivery of the baby is completed, an abdominal examination is performed to confirm whether the uterus is well-contracted. The uterus can be massaged to stimulate contraction.
5. Next controlled cord traction is applied to deliver the placenta after observing for signs of placental separation.
6. Strong uterine contractions caused by the oxytocic drug, administered intravenously with the delivery of the anterior shoulder, cause a normal placenta to separate soon after delivery of the baby.
7. The uterus is pushed up with the ulnar border of the hand and gentle traction is applied on the cord.
8. 2, 4, 5 and 7 prevent inversion of the uterus.
9. The placenta and membranes should be inspected after delivery to confirm that they are complete.
10. Oxytocin can be given after the delivery of the placenta but is not an essential component of the third stage. Misoprostol is used in the management of atonic postpartum haemorrhage.
11. Manual removal of the placenta is carried out if the placenta is not delivered within 30 minutes after birth of the baby.

Q. 19. A, B and D

Q. 20. A, C and D

Q. 21. A, B, D and E

Explanation for Questions 19–21

Amniotomy

- is done early at a cervical dilatation of 4–5 cm, to accelerate labour and to exclude the presence of meconium.

- is delayed in the presence of a high head and breech presentation, due to the risk of cord prolapse. It is contraindicated in shoulder presentation as vaginal delivery is not possible and cord and hand prolapse can occur.
- is carried out for induction and augmentation of labour but is contraindicated in a macerated intrauterine death till the delivery is imminent, due to the risk of infection.
- is done in the labour ward under strict aseptic techniques with the patient placed in the dorsal position. Analgesia is not required.

It should be preceded by 'sweeping' the membranes and exclusion of cord presentation and the liquor should be drained slowly to prevent cord prolapse.

An oxytocin infusion should not be commenced in a live pregnancy or a fresh stillbirth without performing an amniotomy, because of the risk of amniotic fluid embolism. Only the forewater bag is ruptured. The amniotomy delivery interval should be short to avoid the risk of infection.

Q. 22. B, C and E

A grand multipara is in her fifth pregnancy and is at risk of

- Anaemia.
- Medical disorders such as hypertension and diabetes.
- Large babies and cephalo-pelvic disproportion.
- Malpresentations due to laxity of the abdominal wall.
- Precipitate labour.
- Postpartum haemorrhage and uterine rupture due to increased fibrous tissue in the uterus.

Q. 23. A, B and E

Extension of the fetal head occurs in brow and face presentation and in occipito-posterior position.

Q. 24. B, C and E

Q. 25. A, B, C and E

For Explanations for Questions 24 and 25

(Ref: Obstetrics by Ten Teachers, 18th Edition, chapter 17, page 232).

Q. 26. A, C and E

Q. 27. A, B, C and D

Q. 28. C and E

Explanations for Questions 26–28

- There is no definite fixed time duration for the first stage. However, labour is considered to be prolonged if it lasts for more than 12 hours in a primipara and more than 8 hours in a multipara.
- In the active phase the cervix dilates at the rate of 1 cm per hour. Delayed progress is diagnosed when the rate of cervical dilatation is less than two cm in four hours.
- The second stage is prolonged if the duration exceeds 2 hours in a primipara and 1 hour in a multipara. An additional hour is added if epidural analgesia is given.
- Prolonged labour could be due to primary dysfunctional labour or secondary arrest.
- The former is due to inadequate uterine contractions and is treated by amniotomy followed by an oxytocin infusion in the absence of cephalo-pelvic disproportion, a scarred uterus, fetal or maternal distress or any other obstetric risk factors. The latter is treated by caesarean section.
- Prolonged labour due to brow presentation, shoulder presentation, deep transverse arrest and cephalo-pelvic disproportion is treated by caesarean section as vaginal delivery is not possible in these conditions. Caesarean section is preferred in prolonged labour due to breech presentation because of the possibility of cephalo-pelvic disproportion. Oxytocin is best avoided in grand multipara and in the presence of uterine scars because of the risk of uterine rupture.
- Prolonged labour can cause fetal distress, fetal death, fetal and maternal sepsis and postpartum haemorrhage. Uterine rupture can occur in multiparous women.

Q. 29. A, B and C

Cephalo-pelvic disproportion is suspected if

- The estimated fetal weight is larger than 3.8 kg.
- Head is not engaged at term in a primipara.
- The head is deflexed.
- The descent of the head is slow during labour.
- The presenting part is poorly applied to the cervix.
- Secondary arrest occurs.
- Deep transverse arrest occurs.
- There is delayed progress in the first and second stages of labour.

Prolonged latent phase and primary dysfunctional labour occur due to inadequate uterine contractions.

Q. 30. A, B and D

Obstructed labour is the outcome of brow presentation, mento-posterior face presentation, occipito-posterior position in an android pelvis, transverse lie, fetal abnormalities, lower segment fibroids and cephalo-pelvic disproportion.

Labour may be slow in twin pregnancy and in occipito-posterior position but obstruction will not occur if the pelvis is adequate.

Q. 31. B and C

Q. 32. B, D and E

Explanations for Questions 31and 32

1. The first step in the management of shoulder dystocia is to hyperflex and abduct the patient's hips, with the thighs touching the mother's abdomen. (Place in Mac Robert's position.)
2. Next apply suprapubic pressure in a downward and lateral direction just above the symphysis pubis.
3. Apply axial traction on the foetus at each step.
4. Perform an episiotomy or extend an existing one.
5. If the above measures are not successful, next insert the operators hand into the posterior aspect of the vagina, because there is more space in the sacral hollow for internal manipulations.
6. Adduct and rotate the shoulders into the wider oblique diameter using the Wood's screw manoeuvre.
7. However, the delivery can be completed in most cases of established shoulder dystocia, only by inserting the hand into the sacral hollow and delivering the posterior arm first.
8. It is easier to deliver the posterior arm first, because there is more space in the posterior aspect due to the sacral hollow. Space is restricted in the anterior aspect due to the presence of the pubic arch. Therefore, attempting to deliver the anterior arm first can cause fracture of the clavicle. For the same reason downward traction on the head alone will not be successful, once shoulder dystocia is established. Maternal bearing down is prevented, as this may exacerbate impaction of the shoulders. Fundal pressure should not be used, as it is associated with a high neonatal complication rate and may result in uterine rupture.

Q. 33. B, C, D and E

Risk factors for shoulder dystocia include

- Fetal macrosomia
- Maternal obesity
- Diabetes mellitus
- Postmaturity
- Previous shoulder dystocia
- Prolongation of the first stage of labour
- Prolonged second stage of labour

Q. 34. A, B and E

Q. 35. A, B, C and E

Q. 36. B, D and E

Q. 37. A, B and E

Explanation for Questions 34–37

Epidural analgesia is the best form of pain relief during the first and second stages of labour.

Contraindications for epidural analgesia are antepartum haemorrhage, coagulopathy, hypovolaemia, sepsis, heart disease with gross reduction of the ejection fraction, breech presentation (relative contraindication due to impairment of maternal bearing down efforts during the second stage) and spinal deformities.

Mitral stenosis and other forms of heart disease require adequate pain relief and epidural analgesia is the best option if the ejection fraction is not seriously impaired.

Epidural analgesia has no effects on uterine contractions. Therefore, it does not cause prolonged first stage of labour and can be used to provide effective analgesia in primary dysfunctional labour and in occipito-posterior position. It causes second stage delay due to impairment of maternal bearing down efforts.

Intramuscular pethidine may be given for pain relief, but should not be used if delivery is anticipated within 4 hours. Naloxone should be available to reverse the effects of pethidine on the newborn. Pethidine is given with intramuscular promethazine or metoclopramide to prevent nausea and vomiting.

Entonox can be given in the first and second stages to patients who are not on epidural analgesia.

Q. 38. A, D and E

- When a woman presents with decreased fetal movements, the first and the most important step in the management is to confirm fetal viability, by auscultating the fetal heart sounds using a hand held Doppler.
- The next step is to perform a cardiotocograph for 30 minutes. If the cardiotocograph is normal the woman can be reassured.
- If the reduction in fetal movements persist, the next step is to perform an ultrasound scan to assess the abdominal circumference, estimated fetal weight, liquor volume and fetal morphology.
- Umbilical artery Doppler studies is not useful in the investigation of reduced fetal movements. Ultrasound scan should be done within 2 hours if there are no fetal movements and within 12 hours if the fetal movements are reduced.
- Although the biophysical profile is not regarded as a reliable test for fetal well-being, it has a negative predictive value. Stillbirth is rare if the biophysical profile is normal.
- If the CTG, the biophysical profile and the liquor volume are normal and there is no fetal growth restriction, the woman can be discharged, with advice to report back if there is recurrence of reduced movements. Induction of labour is carried out only if there is recurrence of reduced fetal movements in the absence of any abnormalities.

Q. 39. A and E

Obstructed labour causes uterine atony in a primipara but can cause uterine rupture in women in the second pregnancy and above.

It is treated by lower segment caesarean section during the first and second stages of labour.

It is dangerous to apply forceps once labour is obstructed, because undiagnosed cephalo-pelvic disproportion or a malpresentation such as brow presentation may be present.

Formation of a Bandle's ring is the result of obstructed labour. The upper segment becomes thicker and the lower segment becomes thinner due to strong uterine contractions and the Bandle's ring is formed at the junction of the two.

Obstructed labour can be caused by an occipito-posterior position in the presence of an android pelvis.

Q. 40. A, B, C and E

A wide subpubic angle is found in a gynaecoid pelvis with an adequate outlet.

Grade 2 moulding is normal during the second stage but grade 3 moulding is abnormal and may be found if the labour is obstructed.

If labour is progressing normally the head should not be palpable abdominally and should be felt at or below the ischial spines vaginally, during the second stage.

The presence of membranes is not regarded as an abnormality. However, the membranes should be ruptured if they are still present.

The posterior fontanelle is palpated in the occipito-anterior position which is normal. The anterior fontanelle is palpated in an occipito-posterior position.

Q. 41. A, B and C

Q. 42. B, C, D and E

Q. 43. A, C and D

Q. 44. A, B, C and E

Explanation for Questions 41–44

The adequacy of the pelvis is determined during labour. This is because the available space in the pelvis increases during labour due to laxity and stretching of the ligaments, rotation of the fetal head and moulding of the fetal skull bones. Therefore, pelvic assessment is not performed routinely as it is of minimal value to predict the outcome of labour. However, pelvic assessment is performed in certain situations, where it is essential to confirm the adequacy of the pelvis. Hence, it is performed before allowing vaginal birth after a previous caesarean section and in breech presentation. It is also performed when labour becomes prolonged and prior to instrumental deliveries. It is performed after 38 weeks when the fetal growth is complete. It can be performed before the onset of labour or during the first or second stages of labour. Radiological pelvimetry may be performed before allowing vaginal delivery in breech presentation.

Pelvic assessment is carried out in the antenatal or labour wards by performing a vaginal examination.

- The pelvis is assessed at the inlet, mid-cavity and the outlet.
- The inlet is adequate if the head is engaged or if the sacral promontory is not felt.
- The mid-cavity is adequate if the sacrum is concave, the ischial spines are not prominent and the sacrospinous ligaments accommodate 3 fingers.
- The outlet is adequate if the sub-pubic angle is more than 90 degrees. The posterior boundary of the outlet is not bony and the diameter can be increased by performing an episiotomy.

CHAPTER

3

Fetal Distress

1. Fetal distress is diagnosed:

A. By the presence of recurrent type 2 decelerations.
B. By the presence of type 1 decelerations.
C. By the presence of recurrent variable decelerations.
D. If the baseline fetal heart rate is lower than 120 bpm.
E. If the fetal scalp blood pH is less than 7.2.

2. Which of the following are regarded as abnormalities in an antepartum cardiotocograph?

A. Absence of accelerations.
B. Baseline fetal heart rate less than 110 bpm.
C. Baseline fetal heart rate more than 150 bpm.
D. Baseline variability more than 15 beats per minute.
E. Presence of recurrent decelerations.

3. Which of the following is true regarding the cardiotocogram?

A. It should be repeated if the baseline variability is below 10 beats per minute.
B. It is included in the biophysical profile.
C. A sinusoidal pattern occurs in acute fetal hypoxia.
D. Occurrence of recurrent variable decelerations indicates fetal hypoxia.
E. It is used to assess the severity of intrauterine growth restriction.

Ref. for questions 1–3:

- *Obstetrics by Ten Teachers, 18th edition, chapter 8, page 96, table 8.2.*
- *SBA Questions in Obstetrics, chapter1, page 8.*

4. First-line management of fetal distress includes:

A. Commencing continuous fetal heart rate monitoring.
B. Filling the bladder with normal saline.
C. Oxygen inhalation.
D. Placing the patient in the left lateral position.
E. Stopping the oxytocin infusion.

5. Which of the following should be carried out if the fetal heart rate drops to 105 bpm?

A. Commence a 10% dextrose infusion.
B. Perform a vaginal examination.
C. Perform fetal scalp blood sampling.
D. Perform vacuum extraction if the cervical dilatation is 9 cm.
E. Inspect the pad for the presence of meconium.

6. Which of the following is carried out to treat fetal distress at a cervical dilatation of 8 cm?

A. Administer intravenous tocolytic drugs.
B. Apply Neville Barnes forceps.

C. Perform a caesarean section.
D. Perform ventouse delivery.
E. Stop the oxytocin infusion.

Ref. for questions 4–6:

- *Obstetrics by Ten Teachers, 18th edition, chapter 17, pages 241–243*
- *SBA Questions in obstetrics chapter 1 pages 7–8*

7. Which of the following are indications for continuous fetal heart rate monitoring?

A. Prematurity.
B. Primary dysfunctional labour.
C. Secondary arrest.
D. Use of epidural anaesthesia.
E. Primiparity.

(Ref: Obstetrics by Ten Teachers, 19th edition, chapter 14, page 198).

8. Risk factors for occurrence of meconium stained liquor include:

A. Advanced maternal age.
B. Grand multiparity.
C. Oligohydramnios.
D. Postmaturity.
E. Prematurity.

9. Management of a woman in labour with meconium stained liquor requires:

A. Avoiding sucking the mouth and nostrils before the delivery is completed.
B. Amnioinfusion if fetal distress is present.
C. Continuous fetal heart rate monitoring.
D. Fetal scalp blood sampling.
E. Immediate caesarean section.

Ref. for questions 8–9:

- *Obstetrics by Ten Teachers, 18th edition, chapter 17 page 241–243*
- *SBA Questions in obstetrics, chapter 1, pages 16 (answer to question 10)*

10. Management of cord prolapse requires:

A. Caesarean section if the foetus is dead and the lie is transverse.
B. Caesarean section if the foetus is dead and the presentation is breech.
C. Filling the bladder with saline if it occurs at pre-labour rupture of membranes.
D. Placing the patient in the knee chest position.
E. Replacing the cord in the uterus.

11. Management of cord prolapse at a cervical dilatation of 7 cm, in the presence of a vertex presentation requires:

A. Commencing intravenous ritodrine.
B. Filling the bladder with saline.
C. Frequent palpation for cord pulsations.
D. Immediate caesarean section.
E. Vacuum extraction.

12. Cord prolapse during the second stage of labour is managed by:

A. Application of Kielland's forceps if an occipito-posterior position is present.
B. Application of Simpson's forceps if the vertex is 1 cm below the ischial spines in the occipito-anterior position.
C. Breech extraction in a singleton breech presentation.
D. Caesarean section if one-fifth of the head is felt abdominally.
E. Ventouse delivery if the vertex is 1 cm below the ischial spines.

13. Initial management of cord prolapse includes:

A. Commencing an intravenous infusion of ritodrine if the patient is in advanced labour.
B. Commencing continuous fetal heart rate monitoring.
C. Filling the bladder with saline if the patient is in advanced labour.
D. Placing in the knee chest position.
E. Replacing the cord in the vagina.

Ref. for questions 10–13:

- *SBA Questions in obstetrics, chapter 4.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 16, pages 253–254.*

14. Pathophysiological changes which occur in the foetus due to hypoxia include:

A. Elevation of blood pressure.
B. Excessive fetal movements.
C. Increased lactic acid levels due to anaerobic metabolism.
D. Peripheral vasoconstriction.
E. Redistribution of blood to the brain and the heart.

ANSWERS AND EXPLANATIONS

Q. 1. A, C and E

The following indicate the occurrence of fetal distress in labour

- Fetal tachycardia more than 160 beats per minute.
- Fetal bradycardia less than 110 beats per minute.
- Presence of moderate or thick meconium in liquor.
- Occurrence of recurrent type 2 decelerations.
- Occurrence of recurrent variable decelerations.
- A sinusoidal pattern which occurs in the presence of severe fetal distress, caused by fetal exsanguination due to rupture of vasa previa.

In the presence of one or more of the above abnormalities, fetal scalp blood sampling will confirm fetal distress, if the pH of the fetal blood is less than 7.2.

Q. 2. A, B and E

Q. 3. A, B, C and D

Explanation for Questions 2–3

Abnormal cardiotocograph (CTG) findings

- Fetal tachycardia more than 160 beats per minute.
- Fetal bradycardia less than 110 beats per minute.
- Occurrence of recurrent type 2 decelerations.
- Occurrence of recurrent variable decelerations.
- Occurrence of a sinusoidal pattern.
- Poor baseline variability of less than 10 beats per minute and absence of at least 2 accelerations of 15–20 beats in a 30 minute CTG. The baseline rate, variability and accelerations are of importance in an antepartum CTG.

CTG is not used to diagnose or to assess the severity of intrauterine growth restriction. It is not routinely used to assess the wellbeing of growth restricted foetuses, which is carried out by performing umbilical artery Doppler studies. However, it may be used to diagnose fetal distress and to arrive at a decision to deliver a growth restricted foetus.

Q. 4. A, C, D and E

Q. 5. B, C and E

Q. 6. A, C and E

Explanations for Questions 4–6

First-line treatment of fetal distress includes the following:

- The first step in the management is to stop the oxytocin drip.
- Improve hydration with intravenous normal saline infusion.
- Give oxygen by face mask.
- Turn to the lateral position or change the position to relieve cord compression.
- Commence continuous fetal heart rate monitoring.
- Commence intravenous tocolytic drugs if the woman is in advanced labour with strong uterine contractions.

Definitive treatment is delivery if the condition does not improve with the first-line treatment.

- Perform a vaginal examination to assess the cervical dilatation, presence of meconium, descent of the head and adequacy of the pelvis.
- Caesarean section is performed if the patient is in the first stage of labour.

- Forceps can be applied if the cervix is fully dilated and all criteria for instrumental delivery are satisfied; otherwise caesarean section has to be performed. Vacuum extraction can be performed using a Kiwi cup.

Q. 7. A, B and D

Continuous fetal heart rate monitoring is indicated, if there is

- Significant meconium staining of amniotic fluid.
- Abnormal fetal heart rate detected by intermittent auscultation. (< 110 beats per minute; > 160 beats per minute; any decelerations after a contraction)
- Fresh vaginal bleeding.
- Maternal pyrexia.
- Pregnancy induced hypertension.
- Fetal growth restriction.
- Prematurity or postmaturity.
- Induction or augmentation of labour. Continuous fetal heart rate monitoring is indicated in primary dysfunctional labour if augmentation is carried out with oxytocin.
- Use of epidural analgesia for pain relief.

Secondary arrest is an indication for immediate caesarean section.

Q. 8. A, C and D

Risk factors for occurrence of meconium stained liquor include:

- Advanced maternal age,
- Hypertension/pre-eclampsia,
- Oligohydramnios,
- Postmaturity,
- Prolonged labour,
- Placental insufficiency,
- Cord complications.

Q. 9. A, C and D

Presence of meconium in the liquor indicates the possibility of fetal distress. Fetal distress is best confirmed by detecting fetal acidosis. If facilities for fetal scalp blood samplings are not available, fetal distress is confirmed by continuous fetal heart rate monitoring and demonstrating the presence of recurrent type 2 decelerations or variable decelerations. Fetal bradycardia or tachycardia may also indicate fetal distress. Immediate delivery is needed in the presence of meconium and fetal distress.

Q. 10. A and D

Q. 11. A, B and D

Q. 12. A, B and D

Q. 13. A, C, D and E

Explanation for Questions 10–13

First-line management of cord prolapse includes the following:

1. If the cord is outside gently replace the cord in the vagina (but not in the uterus) to prevent spasm of the cord blood vessels. Minimise handling of the cord for the same reason.
2. If the patient is in advanced labour with a cephalic presentation, cord compression can be caused by the head. Therefore, the head should be pushed up manually and prevented from descending by filling the bladder with 500 ml of saline. Intravenous tocolysis may be commenced.
3. Next, place the patient in the knee chest position.
4. Delivery should be done as soon as possible if the foetus is alive.

Definitive management of cord prolapse includes the following:

- Immediate caesarean section should be done if the patient is in the first stage of labour. The fetal heart should be auscultated with a hand Doppler just before commencing the operation, as sudden fetal death may have happened. The bladder should be emptied.
- Forceps delivery is a quick procedure and is the best option, if the patient is in the second stage of labour and all criteria

for instrumental delivery are satisfied; otherwise caesarean section should be done. Kjelland's forceps delivery can be performed in the presence of an occipito-posterior position.

- Vacuum extraction is not recommended as it takes more time.
- Caesarean section should be done if cord prolapse occurs during the second stage in a live singleton breech presentation.
- Breech extraction is recommended only in the case of second of twins.
- If the foetus is dead and the lie is longitudinal vaginal delivery can be allowed, if there are no contraindications for vaginal delivery. Labour can be augmented with oxytocin. Caesarean section is the only option if the lie is transverse even if the foetus is dead.

Q. 14. A, C, D and E

When fetal hypoxia occurs, fetal blood pressure will become elevated due to constriction of fetal peripheral vessels, and this results in bradycardia and respiratory compromise. During moderate hypoxemia, circulating blood is redistributed to the brain, heart and adrenals at the expense of peripheral organs (lung, skin, etc.). If hypoxia is prolonged, blood flow to the brainstem is maintained more than that in other brain regions because function of the brainstem, an autonomic centre, is important for survival of a foetus. As hypoxia progresses, glucose is metabolised anaerobically and lactate acid levels increase. The concentration of high-energy phosphates in the cerebrum will decrease. Finally, neuronal membranes depolarise, voltage-gated Ca^{+2} channels open and Ca^{+2} flux into the cytoplasm increases. These changes result in neuronal death.

CHAPTER

4

Instrumental Delivery

1. Simpson's forceps are applied to treat delayed second stage of labour in:

A. All cases of cephalic presentation.
B. Brow presentation if the pelvis is adequate.
C. Mento-anterior face presentation.
D. Occipito-posterior position in a patient with a gynaecoid pelvis.
E. Vertex presentation with the occiput anterior.

2. Delivery with the ventouse:

A. Does not require full dilatation of the cervix.
B. Is contraindicated if the period of amenorrhoea is less than 34 weeks.
C. Is performed if the head is above the ischial spines.
D. Requires voluntary effort by the mother.
E. Should be completed within 15 minutes of application of the cup.

3. Contraindications for delivery with the ventouse are:

A. Brow presentation.
B. Face presentation.
C. Heart disease complicating pregnancy.
D. Occipito-posterior position.
E. Twin pregnancy.

4. Contraindications for ventouse delivery are:

A. Bleeding from the fetal scalp.
B. Cephalo-pelvic disproportion.
C. Grand multiparity.
D. Occipito-anterior position of the fetal head.
E. Previous caesarean section.

5. Ventouse delivery is performed during the second stage of labour for:

A. After-coming head of breech presentation.
B. Cord prolapse.
C. Fetal distress.
D. Delay in the second stage in occipito-transverse position.
E. Rupture of vasa praevia.

6. Delayed second stage in occipito-posterior position in the absence of cephalo-pelvic disproportion is treated with:

A. Application of Kielland's forceps.
B. Application of Simpson's forceps.
C. Application of Wrigley's forceps.
D. Manual rotation and application of Simpson's forceps.
E. Vacuum extraction.

7. Which of the following criteria should be satisfied to perform an instrumental delivery?

A. An oxytocin infusion should be commenced.
B. No part of the fetal head should be felt on abdominal palpation.
C. The bladder should be empty.

D. The cervical dilatation should be more than 8 cm.
E. The head should be at or below the level of the ischial spines.

8. Forceps delivery is preferred to delivery by ventouse in:

A. Bleeding from the fetal scalp blood sampling site.
B. Brow presentation.
C. Face presentation.
D. Fetal distress.
E. Pre-term labour.

9. Which of the following is true regarding application of obstetric forceps?

A. A matching pair of forceps should be selected.
B. Simpson's forceps are applied for mento-posterior face presentation.
C. The blades should be locked without exerting force.
D. The left bade should be applied first.
E. Wrigley's forceps are applied if the head is at the level of the ischial spines.

10. Which of the following is true regarding application of obstetric forceps?

A. An episiotomy is performed at crowning of the head.
B. It should not be performed in the labour ward.
C. The direction of the pull is first downward and then upwards at the crowning of the head.
D. The genital tract should be inspected for tears after the procedure.
E. The procedure should be abandoned if an undue force is required for descent of the head.

11. Which of the following is true regarding delivery with the ventouse?

A. Delivery is completed mainly by the traction applied by the operator.
B. Obstetric forceps are applied if ventouse delivery fails.
C. The cervix should be fully dilated and the head should be at or below the ischial spines.
D. The cup should not be reapplied more than twice.
E. The vacuum should be built-up slowly over 15–20 minutes.

12. Application of obstetric forceps during the second stage of labour is contraindicated:

A. If one-fifth of the head is palpable above the pelvic brim.
B. In eclampsia.
C. In mento-posterior face presentation.
D. In the presence of a previous myomectomy scar.
E. In NYHA grade 3 heart disease.

Ref. for questions 1–12:

- *Obstetrics by Ten Teachers, 19th edition, chapter 15, page 228–234.*
- *SBA Questions in obstetrics, chapter 1, pages 5–6.*

ANSWERS AND EXPLANATIONS

Q. 1. C and E

- Wrigley's and Simpson's forceps can be applied for vertex presentation with occipito-anterior position, face presentation with mento-anterior position and aftercoming head of breech presentation.
- Kielland's forceps or vacuum is applied for occipito-posterior position.
- Obstetric forceps cannot be applied for brow presentation and mento-posterior face presentation as vaginal delivery is not possible. Therefore, forceps cannot be applied for all cases of cephalic presentation.

Q. 2. B, D and E

Q. 3. A and B

Q. 4. A and B

Q. 5. D

Explanation for Questions 2–5

Ventouse delivery is contraindicated for face presentation, aftercoming head of breech presentation, prematurity (as the cup can damage the tender scalp) and bleeding from the scalp. It is not recommended for cord prolapse, fetal distress and ruptured vasa praevia because it takes time to build the vacuum and traction can be applied only during an uterine contraction.

All forms of instrumental deliveries are contraindicated in brow presentation and in the presence of cephalopelvic disproportion.

All forms of instrumental deliveries are contraindicated if the cervix is not fully dilated and if the head is above the ischial spines.

Vacuum extraction is the method of choice for occipito-posterior and occipito-transverse positions. It can be used to shorten the second stage in heart disease complicating pregnancy. It can be applied to the first or second of twins. It is not contraindicated in grand multipara.

The operator exerts minimal traction and the delivery is completed by voluntary efforts of the mother.

Q. 6. A, D and E

Delayed second stage in occipito-posterior position in the absence of cephalo-pelvic disproportion is treated with application of Kielland's, forceps, vacuum extraction or manual rotation of the head and application of Simpson's forceps.

Simpson's, Wrigley's and Neville Barne's forceps cannot be applied without manual rotation of the head, for occipito-posterior and occipito-transverse positions.

Q. 7. B, C and E

The following criteria should be satisfied for instrumental delivery:

- Cervix should be fully dilated.
- Head should be fully engaged. Even though instruments may be applied when one-fifth of the head is palpable per abdomen, for the procedure to be very safe, we advise that no part of the head should be palpable per abdomen and it should be at or below the level of the ischial spines vaginally.
- Presentation and position should be suitable. [*Refer question 12.*]
- Pelvis should be adequate.
- Bladder should be empty.
- Analgesia should be provided with an epidural block or a pudendal block.

Q. 8. A, C, D and E

Forceps delivery is preferred to delivery by ventouse in bleeding from the fetal scalp blood sampling site, face presentation, fetal distress, cord prolapse, rupture of vasa praevia and pre-term labour.

Q. 9. A, C and D

Q. 10. A, C, D and E

Explanation for Questions 9–10

- A matching pair of forceps should be selected and the left blade should be applied first.
- Undue force should not be applied to lock the blades.
- Undue force should not be applied during the delivery and the procedure should be abandoned if the head fails to descend.
- Wrigley's forceps are short and can be applied only if the head is at least 2 cm below the ischial spines.
- An episiotomy should be performed at the crowning of the head in all instrumental deliveries. The genital tract should be carefully inspected for tears soon after an instrumental delivery. Instrumental deliveries are usually performed in the labour ward. They are performed in the operating theatre only if difficulties are anticipated.

Q. 11. C, D and E

- Ventouse delivery should be completed within 15 minutes of application of the cup.

The vacuum should be built-up slowly over 15–20 minutes.

- The cup should not be reapplied more than twice.
- Voluntary efforts of the mother are necessary to complete the delivery.
- The cervix should be fully dilated and the head should be fully engaged and at or below the level of the ischial spines.
- Forceps should not be applied if ventouse delivery fails unless if the head is close to the introitus.

Q. 12. A and C

Wrigley's and Simpson's forceps can be applied for vertex presentation with occipito-anterior position, face presentation with mento-anterior position and after coming head of breech presentation. It is contraindicated in mento-posterior face presentation, occipito-posterior position and brow presentation. Kielland's forceps can be used in occipito-posterior position.

Application of obstetric forceps is indicated to shorten the second stage in situations where prolonged straining is not advisable such as in women with heart disease or a scarred uterus. It is indicated in eclampsia as the woman is unconscious and unable to push.

Instruments should not be applied if the head is not fully engaged.

CHAPTER

5

Induction of Labour

1. Bishop score involves assessment of the:

A. Dilatation of the cervix.
B. Fetal presentation.
C. Maternal pelvis.
D. Position and consistency of the cervix.
E. Station of the presenting part.

2. The Bishop score is:

A. 0 if the station of the presenting part is 3 cm above the ischial spines.
B. 2 if the cervix is soft.
C. 2 if the length of the cervix is 1 cm.
D. 3 if the cervical dilatation is 3 cm.
E. 3 if the pelvic type is gynecoid.

(Ref. for questions 1–2: Obstetrics by Ten Teachers, 19th edition, chapter 14, page 220–221).

3. Which of the following methods are used to improve the Bishop score before induction of labour at term?

A. Administration of an oxytocin infusion.
B. Insertion of a Foley catheter.
C. Insertion of vaginal dinoprostone (PGE2).
D. Insertion of vaginal misoprostol.
E. Sweeping of membranes.

4. Induction of labour with amniotomy followed by an oxytocin infusion is indicated at 39 weeks for a woman with:

A. A Bishop score of 2.
B. A macerated stillbirth.
C. Breech presentation and diabetes mellitus.
D. NYHA grade 3 heart disease complicating pregnancy.
E. Pregnancy induced hypertension.

5. Labour is induced by insertion of vaginal dinoprostone in a woman with:

A. A macerated stillbirth at term.
B. A missed abortion at 19 weeks.
C. An unfavourable cervix and moderately severe hypertension at 38 weeks.
D. Breech presentation at term.
E. Pre-labour rupture of membranes at 38 weeks.

6. Which of the following methods should not be used to induce labour at term?

A. Extra-amniotic dinoprostone.
B. An oxytocin infusion alone.
C. Vaginal misoprostol.
D. Vaginal dinoprostone.
E. Amniotomy followed by an oxytocin infusion.

7. The methods used to augment labour include:

A. Amniotomy alone.
B. Amniotomy followed by an oxytocin infusion.
C. An oxytocin infusion in the presence of intact membranes.
D. Sweeping of membranes.
E. Vaginal misoprostol.

8. Which of the following is true regarding induction of labour?

A. Induction is carried out in a peripheral hospital.
B. Induction should be preceded by cervical ripening if the Bishop score is less than 7.
C. Use of epidural analgesia for pain relief of labour is contraindicated.
D. Vaginal misoprostol is contraindicated for induction of labour after 28 weeks.
E. Vaginal PGE2 is the preferred method of induction of labour at term if the cervix is unfavourable.

9. Which of the following is true regarding induction of labour?

A. A second dose of dinoprostone is inserted 6 hours after the first.
B. In heart disease complicating pregnancy oxytocin should be given via an infusion pump.
C. In heart disease complicating pregnancy vaginal dinoprostone is used if the Bishop score is less than 7.
D. Oxytocin is commenced without performing an amniotomy in breech presentation.
E. Oxytocin should not be given for at least 6 hours after insertion of prostaglandin.

10. Induction of labour is best avoided in:

A. A scarred uterus.
B. Breech presentation.
C. Intrauterine growth restriction.
D. NYHA grade 3 heart disease.
E. Occipito-posterior position.

11. Induction of labour is best avoided in:

A. Anencephaly.
B. Eclampsia.
C. Fetal hydrops.
D. Monochorionic twins.
E. Polyhydramnios.

12. Induction of labour at 39 weeks is contraindicated in:

A. Brow presentation.
B. HIV infected women with a viral load of more than 50 copies per ml.
C. Mento-posterior face presentation.
D. Shoulder presentation.
E. The presence of moderately severe pregnancy induced hypertension.

13. Induction of labour at 38 weeks is indicated in a woman with:

A. A dichorionic twin pregnancy.
B. A previous myomectomy scar.
C. Diabetes mellitus.
D. Obstetric cholestasis.
E. Pregnancy induced hypertension.

14. Methods used to treat an intrauterine fetal death at 38 weeks include:

A. Administration of an oxytocin infusion alone.
B. Amniotomy followed by an oxytocin infusion.
C. Expectant management.
D. Insertion of vaginal dinoprostone.
E. Insertion of vaginal misoprostol.

15. Expectant management is contraindicated in an intrauterine death if there is:

A. Dribbling.
B. Impending eclampsia.
C. Infection.
D. NYHA grade 2 heart disease.
E. Placental abruption.

Ref. for questions 3–15:

- *Obstetrics by Ten Teachers, 19th edition, chapter 14, page 219–222.*
- *SBA Questions in Obstetrics, chapter 1, pages 6–7.*
- *Inducing labour, NICE Clinical Guideline [CG70] Published date: July 2008.*

ANSWERS AND EXPLANATIONS

Q. 1. A, D and E

Q. 2. A, B and C

Explanation for Questions 1–2

Obstetrics by Ten Teachers, 19th edition, chapter 14, page 221, table 14.1

Q. 3. B, C and E

Induction is preceded by ripening the cervix by inserting prostaglandin E2 vaginally, if the Bishop's score (refer Obstetrics by Ten Teachers, 19th Edition, page 221) is less than 7. This is the standard method of ripening the cervix, although in some units a Foley catheter with a 30 cc bulb may be inserted through the cervix for this purpose. Artificial separation of membranes may be done but is less effective. Oxytocin is not effective to ripen the cervix. Misoprostol is contraindicated in the third trimester.

Q. 4. E

Induction of labour with amniotomy and oxytocin infusion is best avoided

- In severe heart disease due to risk of fluid overload.
- In breech presentation due to risk of undiagnosed cephalo-pelvic disproportion. Cord prolapse can be caused by early amniotomy.
- If the Bishop score is less than 7 as prolonged labour can occur.

Amniotomy is contraindicated in a macerated stillbirth as infection can occur.

Q. 5. A, C and E

Vaginal dinoprostone is the preferred method of induction

- For a macerated stillbirth as amniotomy is not necessary and treatment can be repeated.
- If the cervix is unfavourable as it causes cervical ripening as well.

It can also be inserted after pre-labour rupture of membranes. Induction is best avoided in breech presentation due to risk of undiagnosed cephalo-pelvic disproportion. Vaginal misoprostol is the preferred method of inducing a missed abortion.

Q. 6. A, B and C

Q. 7. A and B

Q. 8. B, D and E

Explanation for Questions 6–8

- Induction of labour should be carried out only in hospitals with facilities to perform a caesarean section.
- Extra-amniotic dinoprostone is not used as it can cause strong uterine contractions.
- An oxytocin infusion is not used without amniotomy because of the risk of amniotic fluid embolism.
- Amniotomy alone can be used to induce or augment labour. However, amniotomy followed by an oxytocin infusion is a better method of induction. Amniotomy alone or amniotomy followed by an oxytocin infusion are the only methods used to augment labour.
- Sensitivity of the uterus to misoprostol increases markedly with advancing pregnancy. It is not recommended for induction or augmentation of labour at term/third trimester as a very low dose has to be used.
- Sweeping of membranes can be used for cervical ripening, but not for induction or augmentation of labour.
- Vaginal dinoprostone is the preferred method of induction if the Bishop score is less than 7, as it causes cervical ripening. If induction is not preceded by cervical ripening there will be a long induction delivery interval and the failure rate will be high.

- Effective pain relief is essential in induced labour and epidural analgesia is the preferred method.

Q. 9. A, B, C and E

A second dose of dinoprostone may be inserted 6 hours later, after assessing the change of Bishop's score, the condition of the foetus and frequency of contractions.

PGE2 carries a risk of hyperstimulation and should not be used together with oxytocin. Oxytocin should not be commenced till at least a minimum of 6 hours after insertion of prostaglandin.

If oxytocin is used to induce or augment labour in heart disease complicating pregnancy, it should be delivered via an infusion pump to avoid fluid overload. Vaginal dinoprostone can be used to ripen the cervix and to induce labour in heart disease complicating pregnancy.

Oxytocin is not given without amniotomy in any condition because of the risk of amniotic fluid embolism.

Q. 10. A, B, C and D

Q. 11. B, C and D

Q. 12. A, B, C and D

Explanation for Questions 10–12

Absolute contraindications for induction of labour include

Contraindications for vaginal delivery such as

- Cephalo-pelvic disproportion, major degree placenta praevia, and lower segment fibroids.
- Shoulder, brow and mento-posterior face presentation.
- Primary genital herpes, HIV infection with a viral load of more than 50 copies/ml.
- Carcinoma of the cervix.
- Classical caesarean section.
- Cord presentation.
- Monochorionic twin pregnancy.
- Serious maternal diseases such as eclampsia, acute liver necrosis, severe antepartum haemorrhage.
- Fetal compromise such as fetal hydrops, severe intrauterine growth restriction.

Relative contraindications include

- Maternal heart disease.
- Breech presentation.
- Poor biophysical profile and Doppler studies.
- Grand multipara.
- Previous myomectomy and lower segment caesarean section scars.
- A history of prior difficult or traumatic delivery.

Q. 13. A, C, D and E

Induction of labour is carried out in conditions where early delivery is required such as dichorionic twin pregnancy, diabetes mellitus, obstetric cholestasis, and pregnancy induced hypertension. Contraindications for induction should be excluded.

Q. 14. A, C and D

Q. 15. A, C and E

Explanation for Questions 14–15

During the management of intrauterine death

- Immediate induction is necessary if there are ruptured membranes, infection or bleeding.
- In others expectant management upto one week is preferred to immediate induction.
- Labour is induced with vaginal PGE2 if expectant management fails.
- Misoprostol is more effective than PGE2 in mid-trimester fetal death. PGE2 is preferred for term stillbirths.
- Amniotomy is not done because of the risk of infection and the need for intervention if there is a delay in delivery. Most of the amniotic fluid is absorbed in macerated stillbirths, thereby excluding the risk of amniotic fluid embolism.
- Vaginal examination should be avoided till delivery is imminent, because of the risk of introducing infection.

CHAPTER

6

Postpartum Haemorrhage

1. Manual removal of retained placenta:

A. Increases the possibility of rhesus isoimmunisation in a rhesus negative mother who has delivered a rhesus positive foetus.

B. Is attempted even if there is no plane of cleavage between the placenta and the myometrium.

C. Is carried out by the consultant obstetrician.

D. Is not carried out in a peripheral hospital.

E. Is performed if the placenta is not delivered 30 minutes after delivery of the baby.

2. Which of the following precautions should be taken when carrying out manual removal of retained placenta?

A. An oxytocin infusion should be commenced before the procedure.

B. An anaesthetist should be present.

C. Broad spectrum antibiotics should be given intravenously before the procedure.

D. Patient should be observed in the labour ward for 4h after the procedure.

E. The placenta should be inspected after removal by placing it on the palms of both hands.

3. Manual removal of retained placenta is preceded by:

A. Administration of pudendal block analgesia.

B. Attempting controlled cord traction.

C. Catheterizing the bladder.

D. Intramuscular administration of 75 mg of pethidine.

E. Setting up an intravenous infusion of oxytocin.

4. Manual removal of retained placenta:

A. Causes uterine perforation.

B. Is carried out in a peripheral hospital only if a plane of cleavage is found.

C. Is carried out one hour after the delivery of the baby.

D. Is preceded by cutting and clamping the cord at the level of the introitus.

E. Require stabilizing the fundus and application of downward pressure on the uterus by the left hand.

(Ref. for questions 1–4: SBA Questions in Obstetrics, chapter 2, page 26. (answer to Q. 1 and 2))

5. Postpartum haemorrhage occurs in:

A. Acute hepatitis.

B. Amniotic fluid embolism.

C. Deep vein thrombosis.

D. Polyhydramnios.

E. Rhesus isoimmunisation.

6. Causes of atonic postpartum haemorrhage include:

A. Placenta praevia.
B. Pre-labour rupture of membranes.
C. Prolonged labour.
D. Twin pregnancy.
E. Use of thiopentone for general anaesthesia.

Ref. questions 5–6:

- *Prevention and Management of Postpartum Haemorrhage, RCOG Green-top Guideline, No. 52, page 5, table 1*
- *Obstetrics by Ten Teachers, 19th edition, chapter 16, page 248.*
- *SBA Questions in Obstetrics, chapter 2, page 20.*

7. Which of the following methods are used in the treatment of atonic postpartum haemorrhage?

A. Exploration of the uterus when retained placental tissue is suspected.
B. Intravenous infusion of oxytocin.
C. Intravenous infusion of prostaglandin.
D. Intravenous injection of 0.5 mg of ergometrine.
E. Ligation of the external iliac arteries.

8. Immediate management of atonic postpartum haemorrhage requires:

A. Balloon tamponade.
B. Blood transfusion.
C. Insertion of a B-Lynch suture.
D. Intravenous infusion of oxytocin.
E. Uterine massage and bimanual compression.

9. Oxytocic drugs used in the management of atonic postpartum haemorrhage are:

A. Carboprost
B. Dinoprostone
C. Ergometrine
D. Misoprostol
E. Oxytocin

10. Second line treatment of atonic postpartum haemorrhage when oxytocic drugs fail to arrest bleeding includes:

A. Balloon tamponade.
B. Insertion of B-Lynch sutures.
C. Bilateral uterine artery ligation.
D. Packing the vagina and the uterus.
E. Intramyometrial injection of ergometrine.

Ref. for questions 7–10:

- *Prevention and Management of Postpartum Haemorrhage, RCOG Green-top Guideline, No. 52, page 12.*
- *SBA Questions in Obstetrics, chapter 2, pages 20–22.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 16, pages 247–249.*

11. The therapeutic goals in managing severe postpartum haemorrhage are to maintain:

A. The activated partial thromboplastin time less than 1.5 × mean control.
B. The fibrinogen level less than 1.0 g/l.
C. The haemoglobin level more than 8 g/dl.
D. The platelet count more than 50×10^9/l.
E. The prothrombin time more than 1.5 × mean control.

(Ref: Prevention and Management of Postpartum Haemorrhage, RCOG Green-top Guideline, No. 52, page 16).

12. DIC due to transfusion of more than 5 units of blood is prevented by giving:

A. Two 5 unit pools of cryoprecipitate.
B. 12–15 ml/kg of fresh frozen plasma for every 6 units of blood.
C. A starch infusion.
D. Platelet transfusion if the platelet count is below 50×10^9/l.
E. Replacement of factor Xa.

(Ref: Prevention and Management of Postpartum Haemorrhage, RCOG Green-top Guideline, No. 52, page 7).

13. Initial management of postpartum haemorrhage requires:

A. Transfusion of platelets.
B. Palpation of the uterus to differentiate between atonic and traumatic haemorrhage.
C. Cross-matching 6 units of blood.
D. Exclusion of retained placental tissue.
E. Transfusion of factor Xa.

(Ref: SBA Questions in Obstetrics, chapter 2, page 21).

14. In traumatic postpartum haemorrhage:

A. Adequate blood transfusion is necessary.
B. General or epidural analgesia are essential to inspect the genital tract for tears.
C. Oxytocic drugs are administered.
D. The cervix and the vagina are inspected for tears in the operating theatre.
E. The uterus remains well-contracted.

(Ref: SBA Questions in Obstetrics, chapter 2, pages 22).

15. Injuries of the cervix:

A. Are caused by ventouse delivery prior to full dilatation of the cervix.
B. Are diagnosed by inspecting the cervix using four vulsellum forceps.
C. Are not sutured in the labour ward.
D. Are sutured after identifying the apex.
E. Cause cervical incompetence.

(Ref: Obstetrics by Ten Teachers, 18th edition, chapter 18, pages 270–271).

16. Which of the following is true regarding perineal tears?

A. Non-absorbable suture materials are used to repair the perineal skin.
B. Only the external anal sphincter is damaged in 3b perineal tears.
C. Second degree perineal tears are sutured under local anaesthesia.
D. Suturing of the vaginal mucosa is commenced at the fourchette.
E. The internal anal sphincter and the anal mucosa are damaged in fourth degree perineal tears.

17. Management of perineal tears requires:

A. Postoperative administration of lactulose in third degree perineal tears.
B. Postoperative antibiotic treatment.
C. Suturing of the anal sphincter with interrupted absorbable sutures.
D. Suturing of fourth degree perineal tears under general or epidural anaesthesia.
E. Suturing of third degree perineal tears under local anaesthesia.

(Ref. for questions16-17: Obstetrics by Ten Teachers, 18th edition, chapter 18,pages 257–258).

18. Which of the following is true regarding an infra-levator haematoma?

A. A vaginal pack is inserted to achieve haemostasis.
B. Bleeding vessels should be ligated.
C. Cause postpartum collapse.
D. Haemostasis is achieved by a figure of eight suture.
E. Require immediate drainage if less than 5 cm in size.

19. Infra-levator haemotoma include those of the:

A. Broad ligament.
B. Ischio-rectal fossa.
C. Paravaginal tissues.
D. Perineum.
E. Vulva.

(Ref. for questions18–19: Obstetrics by Ten Teachers, 18th edition, chapter 18, pages 269–270).

20. Which of the following is true regarding morbid adhesion of the placenta?

A. In placenta accreta the placenta is abnormally adherent to the uterine muscle.
B. In placenta increta the placenta invades into the uterine wall.
C. In placenta percreta the placenta reaches the outer surface of the uterine wall.
D. Morbid adhesion should be excluded by performing a MRI scan in women with a previous caesarean section scar and placenta previa.
E. Manual removal of the placenta is done as there is a deep plane of cleavage between the placenta and the myometrium.

21. Placenta increta:

A. Causes placental abruption.
B. Is treated by caesarean hysterectomy in a multiparous woman.

C. Is treated by piecemeal removal of the placenta in a primipara.
D. Is treated conservatively with methotrexate injections in a primipara.
E. Is treated conservatively with uterine artery embolisation in a primipara.

22. Morbid adhesion of placenta occurs in women with:

A. Placenta praevia.
B. Previous caesarean section.
C. Previous myomectomy scar.
D. Previous term stillbirth.
E. Previous uterine curettage.

(Ref. for questions 20–22: Obstetrics by Ten Teachers, 19th edition, chapter 16, page 246).

23. Acute inversion of uterus is caused by:

A. Application of traction on the cord when the uterus is atonic.
B. Application of vigorous fundal pressure.
C. Morbid adherence of the placenta.
D. The presence of a long umbilical cord.
E. Use of intravenous ergometrine in the third stage.

24. Acute inversion of the uterus:

A. Causes neurogenic shock.
B. Causes postpartum haemorrhage.
C. Is complete if the fundus has descended outside the cervix.
D. Is prevented by passive management of the third stage.
E. Is replaced after the oedema subsides.

25. Management of uterine inversion requires:

A. Commencing an oxytocin infusion before the uterus is replaced.
B. Commencing intravenous tocolytic drugs.
C. Keeping the placenta attached till the uterus is replaced.
D. Placing the patient in the knee chest position.
E. Replacing the uterus immediately by manual compression.

26. During management of uterine inversion:

A. Hysterectomy is performed in multiparous women.
B. Immediate resuscitation is commenced with blood and fluid replacement.
C. Oxytocic drugs are commenced after the uterus is replaced.
D. Surgical repositioning of the uterus is the first-line procedure.
E. The uterus is replaced by filling the vagina with warm saline under pressure.

27. Risk factors for uterine rupture during labour include:

A. High parity.
B. Obstructed labour in a primiparous woman.
C. Placental abruption.
D. Previous myomectomy scars.
E. Previous uterine perforation.

(Ref: Obstetrics by Ten Teachers, 19th edition, chapter 16, page 251, table 16.5).

28. Excessive vaginal bleeding within the first 24 h after a caesarean section in a second para is treated by:

A. Balloon tamponade.
B. Hysterectomy as the first-line procedure.
C. Immediate laparotomy to ligate the bleeding vessels.
D. Insertion of 800 mcg of misoprostol into the rectum.
E. Intravenous injection of 5 units of oxytocin and an infusion of 40 units of oxytocin.

ANSWERS AND EXPLANATIONS

Q. 1. A, and E

Q. 2. A, C and D

Q. 3. B, C, D and E

Q. 4. A, B, D and E

Explanation for Questions 1–4

If the placenta is not delivered by controlled cord traction, within half an hour of the delivery of the baby, manual removal should be done, without further observation. All medical officers working in developing countries should be competent to carryout this procedure, in the labour ward of any hospital, under intramuscular pethidine. If the patient is transferred to a specialised unit, the delay can cause haemorrhage, shock and infection.

Manual removal of retained placenta is preceded by, attempting controlled cord traction once, if the uterus is contracted. An intramuscular injection of 75 mg of pethidineis given and an intravenous infusion of oxytocin is commenced. The patient is placed in the lithotomy position, cleaned and draped and the bladder is catheterised. Intravenous broad spectrum antibiotics are commenced. Blood should be cross-matched in hospitals where facilities are available.

The cord is clamped and cut at the level of the introitus. The right hand is inserted into the uterus. The fundus is stabilised by application of downward pressure on the uterus by the left hand. The placenta is removed completely by commencing from the plane of cleavage. The fingers should be directed inwards as perforation of the uterus can occur.The placenta should be inspected for completeness by placing it on a flat surface. A bolus dose of oxytocin is given and the oxytocin infusion is continued. The patient is observed in the labour ward for four hours. Anti-D is given for a rhesus negative woman after performing a Kleihaur test as a larger fetomaternal transfusion can occur.

The absence of a plane of cleavage indicates morbid adherence of the placenta. Therefore manual removal should be done in the operating theatre, with all preparations ready for hysterectomy or uterine artery embolisation, if required. Manual removal should not be attempted in the labour ward, as partial removal can result in profuse bleeding. Therefore, the patient should be transferred to a specialised unit, after commencing intravenous oxytocic drugs, without attempting manual removal. The chances of bleeding are less if the placenta remains totally adherent.

Complications of manual removal include haemorrhage, perforation of the uterus, sepsis and incomplete removal.

Q. 5. A, B and D

Q. 6. A, C and D

Explanation for Questions 5–6

Causes of postpartum haemorrhage

Atonic postpartum haemorrhage

- Retained placenta or placental parts (tissue)
- Multiple pregnancy (uterine atony due to over distension and a large placental site)
- Polyhydramnios (uterine atony due to over distension)
- Prolonged labour (uterine atony)
- Placental abruption (uterine atony and coagulation failure)
- Placenta previa
- Grand multiparity (Uterine atony due to the presence of more fibrous tissue)
- Deep general anaesthesia (uterine atony due to halothane. Thiopentone and other anaesthetic drugs do not cause uterine atony.)
- Submucous fibroids
- Uterine abnormalities
- Anaemia.

Traumatic postpartum haemorrhage

- Normal labour/precipitate labour
- Instrumental delivery

- Caesarean section
- Episiotomy
- Uterine rupture
- Uterine inversion.

Coagulation failure

- Placental abruption
- Eclampsia
- Sepsis
- Prolonged intrauterine death
- Amniotic fluid embolism
- Anti-coagulant therapy
- Impaired liver function
- Pre-existing coagulation problems.

Q. 7. A, B and D

Oxytocin and ergometrine are the first-line oxytocic drugs used in the treatment of atonic postpartum haemorrhage. Prostaglandins are not administered intravenously in the management of postpartum haemorrhage. Exploration of the uterus is done if the placenta is incomplete. Ligation of internal iliac arteries is done if other methods of treatment fail to control bleeding. Uterine arteries are branches of internal iliac arteries therefore, ligation of the external iliac arteries will not control postpartum haemorrhage.

Q. 8. B, D and E

Q. 9. A, C, D and E

Q. 10. A, B and C

Explanation for Questions 8–10

The first step is to insert two 14 gauge cannulae and commence intravenous crystalloids (2 litres of Hartman's solution) and colloids (1.5 litres), till blood is available.

Assess airway and breathing. Give oxygen by face mask at 10–15 litres/minute.

Cross-match 6 units of blood. Commence transfusion as soon as possible, because the circulating volume should be restored with blood.

In atonic postpartum haemorrhage the first step in the management is to inspect the placenta and membranes for completeness.

If the placenta and membranes have been completely expelled and the uterus is empty, the first-line treatment is to administer intravenous oxytocic drugs.

- Commence with an intravenous bolus of 5 units of oxytocin. Can be repeated once.
- Administer an intravenous infusion of 40 units of oxytocin in 500 ml of normal saline.
- Administer an intravenous bolus of 0. 5 mg of ergometrine. Can be repeated once.
- Insert 800 mcg of misoprostol into the rectum if bleeding still continues.
- Administer an intramuscular injection of 0.25 mg of carboprost. Can be repeated once in 15 minutes up to a maximum of 8 doses.
- Administer an intramyometrial injection of 0.5 mg of carboprost. (Carboprost is contraindicated in those with bronchial asthma).

Continually massage the uterus/perform bimanual compression to facilitate contraction.

If bleeding continues despite medical management the next step is to insert a condom catheter—balloon tamponade.

If bleeding still continues, perform a laparotomy and carry out the following procedures in the given order till the bleeding is controlled.

1. Insert B Lynch sutures.
2. Ligate the uterine arteries.
3. Ligate the internal iliac arteries.

The final option is to perform a hysterectomy if bleeding cannot be controlled.

Q. 11. A, C and D

The main therapeutic goals of management of massive blood loss are to maintain

- The blood volume and haemodynamic stability.
- Haemoglobin greater than 8 g/dl.
- Platelet count more than 50×10^9/l.
- Prothrombin time less than 1.5 × mean control.

- Activated partial thromboplastin time less than 1.5 × mean control.
- Fibrinogen greater than 2.0 g/l.

Q. 12. A, B and D

- Fresh frozen plasma (12–15 ml/kg) should be administered for every 6 units of blood, aiming to maintain prothrombin time (PT)/activated partial thromboplastin time (APTT) ratio at less than 1.5 × normal.
- Two 5 unit pools of cryoprecipitate are given to maintain the fibrinogen levels above 1.5 g/l
- A platelet transfusion is recommended if the count is below 50×10^9 /l.
- The FFP and cryoprecipitate should ideally be group compatible. FFP of a different ABO group is acceptable if it does not have a high titer of anti-A or anti-B activity.

Recombinant factor seven is used to control life-threatening massive PPH. To obtain an optimal response fibrinogen should be above 1 g/l and platelets greater than 20×10^9/l before recombinant factor seven a is given.

Q. 13. B, C and D

- The first step in the management is to insert two 14 gauge cannulae and commence intravenous crystalloids (2 liters of Hartman's solution) and colloids
- Cross-match 6 units of blood. Commence transfusion as soon as possible, because the circulating volume should be restored with blood.
- The first step in the diagnosis is to inquire whether the placenta has been expelled. If the placenta is retained perform manual removal of the placenta.
- If the placenta is expelled and is complete, the next step in diagnosing the cause of haemorrhage is palpation of the abdomen to determine the consistency of the uterus and the level of the fundus. The fundus should be at or below the umbilicus soon after delivery.
- If the uterus is relaxed and the fundus is above the umbilicus, the bleeding is due to uterine atony. If the uterus remains well-contracted the bleeding is due to trauma of the genital tract.

Q. 14. A and E

Q. 15. A, D and E

Q. 16. B, C and E

Q. 17. A, B, C and D

Explanation for Questions 14–17

- Traumatic haemorrhage can be due to vaginal/cervical lacerations, para vaginal haematoma, perineal tears, ruptured uterus or broad ligament haematoma.
- If the uterus is well-contracted a diagnosis of traumatic haemorrhage is made.
- Blood transfusion should be commenced.
- The next step in the management is to inspect the genital tract for tears commencing from the cervix. This is usually carried out in the labour ward.
- Any tears are sutured immediately in the labour ward under sedation/local or epidural analgesia.
- Suturing should begin at the apex of the tear.
- Cervical tears can be caused by performing forceps or ventouse delivery before full dilatation of the cervix or due to precipitate labour. The cervix is held with Green-Armytage forceps or sponge holding forceps during inspection and suturing. Vulsellum forceps are traumatic and are not used to hold the pregnant cervix. The tear is sutured with interrupted sutures. Cervical injuries can later cause cervical incompetence or stenosis.
- Second degree perineal tears are sutured under local anaesthesia.
- Genital tract tears are sutured using absorbable suture material.
- Third degree perineal tears involve the anal sphincter. (3a and 3b involve the external

sphincter and 3c the internal sphincter.) In fourth degree tears the anal mucosa is also torn.

- Third and fourth degree perineal tears are sutured under general or epidural anaesthesia. Second degree tears are sutured under local anaesthesia.
- After suturing third and fourth degree perineal tears lactulose is given to keep the stools soft. Antibiotics are given to prevent infection.

Q. 18. A, C and D

Q. 19. B, C, D and E

Explanation for Questions 18–19

Infra-levator haematoma include those of the vulva, perineum and collection of blood in the paravaginal tissue and in the ischiorectal fossa.

Resuscitation may be necessary as large haematoma can cause haemodynamic compromise.

Analgesics are necessary.

Large infra-levator haematoma are drained, a figure of eight sutures is applied and a tight vaginal pack is inserted. It is not possible to locate and ligate bleeding vessels. Those less than 5 cm in diameter are managed conservatively.

Q. 20. A, B, C and D

Q. 21. B, D and E

Q. 22. A, B, C and E

Explanation for Questions 20–22

- Morbid adherence is more likely in placenta praevia because the lower segment is thin and less vascular and thus the placenta has to penetrate deeper to obtain the required blood supply.
- This is more likely in a woman with a previous caesarean section scar as the placenta tends to adhere and penetrate into the scar. Penetration increases with the number of caesarean sections.
- Morbid adhesion is also likely to happen in the presence of a myomectomy scar and endometrial damage caused by previous vigorous curettage or endometritis.
- Morbid adhesion can be suspected by USS, but the best diagnostic tool is MRI scanning.
- Morbid adhesion should be excluded by ultrasound or MRI scanning in placenta praevia, especially in the presence of a previous lower segment caesarean section scar.
- The best treatment option is caesarean hysterectomy with the placenta *in situ*. Piecemeal removal is dangerous as profuse bleeding can occur.
- If the woman desires future fertility the best option would be to leave the placenta *in situ* and to treat with intramuscular methotrexate or uterine artery embolisation. There is always the risk of bleeding and sepsis.

Q. 23. A, B and C

Q. 24. A, B and C

Q. 25. B, C and E

Q. 26. B, C and E

Explanation for Questions 23–26

Uterine inversion is a life-threatening complication which occurs during the third stage of labour. The uterine fundus descends into the uterine cavity (incomplete) or through the cervix (complete) and may even protrude through the introitus.

Risk factors include

- Application of traction on the cord when the uterus is atonic.
- Application of vigorous fundal pressure.
- Morbid adherence of the placenta.
- The presence of a short umbilical cord.
- Passive management of the third stage.
- Use of magnesium sulphate.

The uterus stretches the cervix and causes vagal stimulation resulting in shock and collapse. Postpartum haemorrhage occurs

but the shock is out of proportion to the haemorrhage. The uterus may be seen at the introitus or felt in the vagina and the fundus cannot be palpated on abdominal examination.

Resuscitation is carried out with intravenous fluids and blood transfusion. If the placenta is still attached it should not be removed. Removal of the placenta before the uterus is replaced will increase the bleeding.

The first step in the management is to attempt immediate replacement by manual compression. This may be successful soon after inversion occurs. It can be facilitated by relaxing the uterus with intravenous tocolytics such as Ritodrine.

If manual compression fails replacement is attempted under anaesthesia by filling the vagina with warm saline under hydrostatic pressure.

Surgery to reposition the uterus from above should be the last resort. Hysterectomy is not performed.

Oxytocic drugs are commenced after replacement to maintain uterine contraction. Oxytocin should not be commenced till the replacement is complete.

The incidence of uterine inversion is reduced by the active management of the third stage. The following precautions are taken during this procedure to minimise the occurrence of uterine inversion.

- Administering 5 units of oxytocin intravenously with the delivery of the anterior shoulder.
- Application of controlled cord traction after the uterus is well-contracted.
- Applying upward pressure on the uterus during cord traction.

Q. 27. A, D and E

Risk factors for uterine rupture include:

- Previous caesarean section
- Previous myomectomy scars
- Previous uterine perforation
- High parity (Uterine rupture will not occur in a primipara).
- Induction and augmentation with oxytocin
- Placenta percreta
- External cephalic version
- Uterine abnormalities
- Manual removal of a retained placenta.

Q. 28. A, D and E

Bleeding within the first 24 hours after a caesarean section is primary postpartum haemorrhage. The commonest cause is uterine atony. Retained placental tissue is less likely because the placenta is removed under direct vision. Bleeding from the site of the incision is a rare occurrence.

Intravenous oxytocic drugs form the first-line treatment for postpartum haemorrhage after caesarean section. However, the rare possibility of intraperitoneal haemorrhage due to bleeding from the uterine wound should be clinically excluded. Misoprostol is inserted if bleeding is not controlled with intravenous oxytocin and ergometrine. Balloon tamponade is the next step. Hysterectomy is performed only as the final option after inserting B Lynch sutures and ligation of the uterine and internal iliac arteries.

CHAPTER

7

Antepartum Haemorrhage

1. Contraindications for digital vaginal examination in pregnancy are:

A. Abruptio placentae.
B. Cord prolapse.
C. Intrauterine death.
D. Placenta praevia.
E. Pre-labour rupture of membranes.

2. Coagulation failure is a direct complication of:

A. Abruptio placentae.
B. Amniotic fluid embolism.
C. Eclampsia.
D. Massive blood transfusion.
E. Placenta praevia.

3. Coagulation failure is a complication of:

A. Anaemia.
B. Intrauterine death.
C. Missed abortion.
D. Postpartum haemorrhage.
E. Septic abortion.

4. Abruptio placentae:

A. Causes fetal death.
B. Causes postpartum haemorrhage.
C. Is associated with lower maternal morbidity and mortality than placenta praevia.
D. Requires immediate delivery.
E. Results in renal failure.

5. In placental abruption:

A. Caesarean section is not performed.
B. Liver failure occurs.
C. The uterus is tense and tender.
D. The CTG is abnormal.
E. The lie and presentation are normal.

Reference for questions 4–5:

- *SBA Questions in Obstetrics, chapter 3, page 30–31.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 10, page 129.*

6. Placental abruption occurs in:

A. Cocaine addiction.
B. Teenage pregnancies.
C. Maternal obesity
D. Pre-eclampsia.
E. Road traffic accidents.

7. Aetiological factors for placental abruption include:

A. Advanced maternal age.
B. Chorioamnionitis.
C. Occipito-posterior position.
D. Pre-labour rupture of membranes.
E. Previous caesarean section.

8. Placental abruption is caused by:

A. Amniocentesis.
B. Amniotomy.
C. Chorionic villous sampling.
D. External version.
E. Vaginal delivery of monochorionic twins.

(Ref. for questions 6–8: RCOG Green Top Guideline, No. 63, page 3–4).

9. In placental abruption:

A. Blood stained liquor is found at amniotomy.
B. Continuous abdominal pain is present.
C. External blood loss may be absent.
D. Fetal exsanguination occurs.
E. The haemodynamic condition of the patient depends on the external blood loss.

10. In abruptio placentae:

A. Caesarean section is contraindicated.
B. Concealed haemorrhage occurs.
C. Delivery is postponed till 38 weeks.
D. Malpresentations occur.
E. Vaginal examination is not contra-indicated.

11. Management of placental abruption includes:

A. Avoiding augmentation with oxytocin.
B. Caesarean section if bleeding is profuse.
C. Commencing treatment for liver failure.
D. Observation if bleeding is mild and the POA is less than 34 weeks.
E. Vaginal delivery if the patient is stable and is in labour.

12. Management of placental abruption includes:

A. Active management of the third stage of labour.
B. Avoiding vaginal examination.
C. Performing a coagulation profile.
D. Prevention of renal failure.
E. Vaginal delivery if the foetus is dead and the bleeding is profuse.

Ref. for questions 9–12:

- *SBA Questions in obstetrics, chapter 3, page 30–31.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 16, page 247 and chapter 10, page 129.*
- *RCOG Green Top Guideline, No. 63.*

13. Risk factors for placenta praevia include:

A. Assisted conception.
B. Intrauterine death.
C. Multiple gestation.
D. Previous caesarian section.
E. Uterine abnormalities.

Ref: RCOG Green Top Guideline, No. 63, page 4.

14. Clinical features of placenta praevia include:

A. Fetal bradycardia.
B. Fetal death.
C. Non-engaged fetal head.
D. Recurrent haemorrhages.
E. Soft non-tender uterus.

15. Clinical features of placenta praevia include:

A. Blood stained liquor at amniotomy.
B. Breech presentation.
C. Haematuria.
D. Normal CTG.
E. Presence of pre-eclampsia.

16. Postpartum haemorrhage occurs in placental abruption due to:

A. Caesarean section.
B. Coagulation failure.
C. Large placental site.
D. Uterine atony.
E. Uterine rupture.

17. Postpartum haemorrhage occurs in placenta praevia due to:

A. Disseminated intravascular coagulation.
B. Decreased contractility of the lower segment.
C. Large placental area.
D. Morbid adhesion of the placenta.
E. Thrombocytopenia.

18. Placenta praevia:

A. Carries a high-risk to the foetus.
B. Causes oligohydramnios.
C. Causes recurrent episodes of haemorrhage.

D. Occurs in multiple gestation.
E. Results in DIC.

19. Antepartum haemorrhage due to placenta praevia:

A. Causes fetal anaemia.
B. Causes postpartum haemorrhage if DIC occurs.
C. Causes severe bleeding with the onset of labour.
D. Is recurrent.
E. Is always treated by immediate caesarean section.

20. Management of major degree placenta praevia includes:

A. Excluding intrauterine growth restriction.
B. Expectant management at 32 weeks if the bleeding is mild.
C. Observation as an out-patient till 38 weeks.
D. Performing a caesarean section at 38 weeks in the absence of bleeding.
E. Performing a caesarean section if mild bleeding occurs at 36 weeks.

21. Clinical features of placenta praevia include:

A. Coagulation failure.
B. Fetal distress.
C. Malpresentation or a high head.
D. Soft non-tender uterus.
E. Spontaneous pre-term labour.

Ref. for questions 14–21:

- *SBA Questions in Obstetrics, chapter 3, page 30–31.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 16, pages 245–247*

22. Vasa praevia:

A. Is diagnosed by trans-abdominal ultrasound scanning in the third trimester.
B. Causes exsanguination of the foetus if rupture occurs.
C. Causes recurrent bleeding in the third trimester.
D. Causes severe bleeding when the membranes rupture.
E. Requires immediate delivery of the foetus.

Ref:

- *SBA Questions in Obstetrics chapter 3 page 32*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 8, pages 103–04.*

23. Painless antepartum haemorrhage in a woman with a soft and non-tender uterus is due to:

A. Abruptio placenta.
B. Incidental causes.
C. Intrauterine fetal death.
D. Placenta praevia.
E. Vasa praevia.

(Ref: SBA Questions in Obstetrics, chapter 3, page 30).

24. Complications of placental abruption include:

A. Cerebrovascular accident.
B. Disseminated intravascular coagulation.
C. Liver failure.
D. Postpartum haemorrhage.
E. Renal failure.

Ref:

- *SBA Questions in Obstetrics, chapter 3, page 30.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 10, page 129.*

ANSWERS AND EXPLANATIONS

Q. 1. C, D and E

Contraindications for digital vaginal examination in pregnancy are, intrauterine death, placenta praevia and pre-labour rupture of membranes.

Q. 2. A, B, C and D

Q. 3. B, C, D and E

Explanation for Questions 2 and 3

Coagulation failure is a complication of

- Abruptio placentae.
- Amniotic fluid embolism.

- Massive blood transfusion.
- Intrauterine death.
- Missed abortion.
- Acute liver necrosis
- Eclampsia and severe pre-eclampsia
- Postpartum haemorrhage.
- Septic abortion, severe chorioamnionitis and puerperal sepsis

Q. 4. A, B, D and E

Q. 5. C, D and E

Explanation for Questions 4 and 5

- In placental abruption the uterus will be tense and tender, the presentation will be cephalic with a longitudinal lie, the head will be engaged, and there may be fetal distress or fetal death.
  - Placental abruption carries a high maternal mortality and morbidity not only from revealed haemorrhage, but also from concealed haemorrhage, disseminated intravascular coagulation, renal compromise and postpartum haemorrhage. It also carries a great risk to the foetus from further abruption causing fetal hypoxia or fetal death. Therefore, immediate delivery is indicated except in cases where bleeding is very mild and the foetus is premature (less than 34 weeks).
  - The basic clinical principle of management is to allow vaginal delivery, especially when the cervix is favourable and the patient is already in labour. Delivery is expedited by artificial rupture of membranes and oxytocin infusion.
  - Caesarean section is avoided if possible because of the risk of bleeding, as disseminated intravascular coagulation may be present.
  - However, caesarean section is performed if the maternal condition is compromised due to profuse bleeding and quick delivery cannot be anticipated or if fetal distress occurs.

Q. 6. A, D and E

Q. 7. A, B and D

Q. 8. A, B and D

Explanation for Questions 6–8

Risk factors for placental abruption include two previous pregnancies complicated by abruption, pre-eclampsia, fetal growth restriction, non-vertex presentations, polyhydramnios, advanced maternal age, multiparity, low body mass index (BMI), pregnancy following assisted reproductive techniques, intrauterine infection, premature rupture of membranes, abdominal trauma (both accidental and resulting from domestic violence), external version, amniotomy with sudden release of a large volume of liquor, amniocentesis, smoking and drug misuse (cocaine and amphetamines).

Q. 9. A, B and C

Q. 10. B and E

Explanation for Questions 9–10

In abruption continuous abdominal pain will be present.

In placental abruption leakage of blood from the retro-placental clot can cause blood staining of the amniotic fluid.

The patient's general condition can be worse than the amount of external blood loss if a large amount of blood accumulates in the retro-placental clot. In worst cases there may be no external blood loss.

The presentation will be cephalic with a longitudinal lie and the head will be engaged.

Vaginal examination should be performed to determine the cervical dilatation and the station of the head after placenta praevia is excluded by USS.

Immediate delivery is indicated except in cases where bleeding is very mild and the foetus is premature (less than 34 weeks).

Fetal exsanguination will not occur as the blood is maternal in origin.

Liver failure does not occur but renal failure and coagulation failure can occur.

Q. 11. B, D and E

Q. 12. A, C and D

Explanation for Questions 11–12

- The basic clinical principle of management is to allow vaginal delivery, especially when the cervix is favourable and the patient is already in labour. Delivery is expedited by artificial rupture of membranes and oxytocin infusion.
- Caesarean section is avoided if possible because of the risk of bleeding, as disseminated intravascular coagulation may be present.
- However, caesarean section is performed if the maternal condition is compromised due to profuse bleeding and quick delivery cannot be anticipated or if fetal distress occurs.
- The patient should be delivered as soon as possible, because of the risk of further abruption, which may be concealed and hence not detected, till maternal and fetal compromise occurs.
  - Delivery is delayed only in cases of very mild bleeding where the foetus is premature.
- If the foetus is dead vaginal delivery is usually allowed. Delivery is expedited by artificial rupture of membranes and oxytocin infusion.
- However, if the maternal condition is compromised due to severe bleeding and the cervix is unfavourable precluding quick delivery, immediate caesarean section is performed even if the foetus is dead.
- A platelet count and a coagulation profile should be performed as DIC is a complication. Fresh frozen plasma and platelets should be available.
- An intake output chart should be maintained and renal function tests should be done for early detection of renal failure.
- Postpartum haemorrhage can occur due to uterine atony (caused by blood tracking into the myometrium in the presence of a large retro placental clot) and coagulation failure. The third stage should be managed actively with liberal use of oxytocic drugs. At least 5 units of blood should be available.

Q. 13. A, C, D and E

Risk factors for placenta praevia include previous caesarean section, assisted reproduction, previous termination of pregnancy, multiparity, advanced maternal age (> 40 years), multiple pregnancy, uterine abnormalities, smoking and deficient endometrium (due to presence of an uterine scar, endometritis, manual removal of placenta, curettage or submucous fibroid).

Q. 14. C, D and E

Q. 15. B and D

Explanation for Questions 14–15

Placenta praevia causes sudden onset of painless bleeding. There may be recurrent episodes.

If on examination the uterus is soft and non-tender placenta praevia, vasa praevia or incidental causes is suspected.

In placenta praevia there may also be a malpresentation or a high head.

There is no fetal distress or fetal death. The CTG will be normal.

Bleeding is due to separation of the placenta from the lower uterine segment. Therefore, the blood will escape through the os into the vagina and will not track into the uterus causing blood stained amniotic fluid.

In placenta praevia the danger to the mother is from external blood loss. Haematuria will not occur as there is no DIC or renal failure.

Q. 16. B and D

Postpartum haemorrhage can occur in placental abruption due to uterine atony (caused by blood tracking into the myometrium in the presence of a large retroplacental clot) and coagulation failure. The third stage should be managed actively with liberal use of oxytocic drugs and at least 5 units of blood should be available.

Q. 17. B, C and D

Postpartum haemorrhage is likely to occur in placenta praevia due to morbid adherence of the placenta, larger placental site and poor contractility of the lower segment. Morbid

adherence is more likely because the lower segment is thin and less vascular. Morbid adhesion should be excluded by ultrasound or MRI scanning, especially in the presence of a previous lower segment caesarean section scar.

Q. 18. C and D

Q. 19. C and D

Q. 20. B, D and E

Q. 21. C and D

Explanation for Questions 18–21

In placenta praevia bleeding occurs due to placental separation which begins in the third trimester with the formation of the lower segment. This results in recurrent bleeding episodes. Profuse bleeding occurs when the cervix dilates with the onset of labour.

The blood is maternal in origin and there are no fetal effects. Fetal anaemia or growth restriction will not occur.

Placenta praevia can occur in twin pregnancy because the placental area is large and hence it can encroach into the lower segment.

In placenta praevia delivery is by caesarean section if the placental edge is within 04 cm from the internal os.

If diagnosed by ultrasound scanning and there is no bleeding deliver at 38 weeks. If there is even mild bleeding after 36 weeks deliver immediately.

In cases where the foetus is premature

- If bleeding is severe with maternal compromise and if bleeding fails to stop deliver immediately.
- If bleeding is mild keep under observation in a tertiary care hospital.
- Even if the bleeding is severe but stops after admission and the maternal condition is satisfactory keep under observation.

These patients are kept under observation preferably in hospital and caesarean section is performed at 37 weeks or earlier if bleeding recurs.

Spontaneous pre-term labour is not a complication of placenta praevia, but iatrogenic pre-term delivery will be required if the bleeding is severe. Oligohydramnios coagulation failure or intrauterine growth restriction do not occur.

Q. 22. B, D and E

- In the antenatal period, in the absence of vaginal bleeding, there is no method to diagnose vasa praevia clinically.
- Vasa praevia can be accurately diagnosed by performing transvaginal colour Doppler ultrasound, but this procedure is not routinely performed.
- However, diagnosis is almost never possible until sudden unexpected bleeding occurs, at spontaneous or artificial rupture of membranes. This is accompanied by sudden severe fetal distress due to loss of fetal blood. There are no recurrent episodes of bleeding.
- In the presence of vaginal bleeding, associated with rupture of membranes and fetal compromise, vasa praevia should be strongly suspected and immediate caesarean section should be done without wasting time to confirm the diagnosis, as fetal exsanguination can occur. Diagnosis can be confirmed by demonstrating fetal haemoglobin in the blood. The cord should be clamped soon after delivery.
- Rare cases diagnosed during the antenatal period by ultrasound scan should be kept under close observation and caesarean section should be done before onset of labour.

Q. 23. B, D and E

If on examination the uterus is soft and non-tender in a woman with painless antepartum haemorrhage placenta praevia, vasa praevia or incidental causes are suspected.

Q. 24. B, D and E

Placental abruption carries a great risk to the mother not only from revealed haemorrhage, but also from concealed haemorrhage, disseminated intravascular coagulation, postpartum haemorrhage and renal compromise. It also carries a great risk to the foetus from further abruption causing fetal hypoxia or fetal death.

CHAPTER

8

Malpresentations and Malpositions

1. In occipito-posterior position:

A. Deep transverse arrest occurs in an android pelvis.
B. Diagnosis is confirmed only after the onset of labour.
C. Low forceps delivery is preferred to vacuum extraction.
D. Normal vaginal delivery cannot occur.
E. The head is deflexed.

2. In occipito-posterior position:

A. An oxytocin infusion is administered if the contractions are inadequate.
B. Eyebrows are felt on vaginal examination.
C. Neville Barnes forceps are applied if the second stage is prolonged.
D. The anterior fontanelle is felt on vaginal examination.
E. The head engages by 38 weeks.

3. Second stage delay due to occipito-posterior position is treated with:

A. Application of Kielland's forceps.
B. Application of Neville Barnes forceps.
C. Lower segment caesarean section.
D. Manual rotation and application of Simpson's forceps.
E. Vacuum extraction.

4. Occipito-posterior position results in:

A. Face to pubes delivery.
B. Non-engaged head at term.
C. Prolonged first and second stages of labour.
D. Rotation to face presentation.
E. Shoulder dystocia.

5. Deep transverse arrest:

A. Is treated by application of Kielland's forceps.
B. Is treated by caesarean section.
C. Occurs due to partial rotation of an occipito-posterior position.
D. Occurs in an android pelvis.
E. Occurs in the first stage of labour.

6. Occipito-posterior position results in:

A. Perineal tears if face to pubes delivery occurs.
B. Face to pubes delivery in an anthropoid pelvis.
C. Hand prolapse.
D. Rotation to the brow presentation.
E. Rotation to the occipito-anterior position and vaginal delivery in a gynaecoid pelvis.

7. Complications of occipito-posterior position include:

A. Deep transverse arrest.
B. Prolonged labour.
C. Obstructed labour.
D. Third degree perineal tears.
E. Shoulder dystocia.

(Ref. for questions 1–7: SBA Questions in Obstetrics, chapter 5, page 44 and pages 51–52).

8. In breech presentation:

A. A footling breech is delivered vaginally.
B. Labour is induced if postmaturity occurs.
C. Loveset's manoeuvre is carried out if the arms are flexed.
D. Pinard manoeuvre is used to deliver extended legs.
E. Vaginal delivery is recommended at 32/52 weeks of gestation.

(Reference: SBA Questions in Obstetrics, chapter 5, page 42–43).

9. External cephalic version:

A. Causes fetal bradycardia.
B. Is attempted in the presence of oligohydramnios.
C. Is contraindicated in patients with antepartum haemorrhage.
D. Is performed after administration of 75 mg of pethidine.
E. Is performed at 34 weeks of gestation.

10. External cephalic version is contraindicated:

A. At 39 weeks in a breech presentation.
B. If the foetus has hydrocephalus.
C. In a patient with a myomectomy scar.
D. In the presence of a twin pregnancy.
E. In the presence of a flexed breech.

11. External cephalic version is contraindicated in a woman with:

A. A bicornuate uterus.
B. A breech presentation at 40 weeks.
C. Diabetes mellitus.
D. Fetal growth restriction.
E. Premature pre-labour rupture of membranes.

(Ref. for questions 9–11:RCOG Green Top Guideline, No. 20a, page, 4).

12. External cephalic version:

A. Causes fetal distress due to cord complications.
B. Causes premature onset of labour.
C. Is best avoided in a 40-year old primigravida who has been infertile for 8 years.
D. Is performed several times till the onset of labour in a primigravida with breech presentation.
E. Is performed under general anaesthesia in a primigravida.

13. Risks of external cephalic version include:

A. Fetal anaemia.
B. Intracranial injuries of the foetus.
C. Placental abruption.
D. Pre-labour rupture of membranes.
E. Rupture of the uterus.

Ref. for questions 12-13:

- *RCOG Green Top Guideline, No. 20a, page 3.*
- *SBA Questions in Obstetrics, chapter 5, page 41.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 8, page 98.*

14. The after coming head of a breech presentation is delivered by:

A. Application of Simpson's forceps.
B. The Burns-Marshall technique.
C. The Lovset's manoeuvre.
D. The Mauriceau-Smellie-Veit manoeuvre.
E. Voluntary efforts of the mother only.

(Ref: RCOG Green Top Guideline, No. 20b, page 7, 6.10).

15. Contraindications for vaginal breech delivery are:

A. Estimated fetal weight greater than 3.8 kg.
B. Extended breech presentation.
C. Flexed breech presentation.
D. Footling breech presentation.
E. Hyper-extended fetal neck in labour.

16. Caesarean section is recommended in breech presentation:

A. If fetal distress occurs in the second stage of labour.

B. If the arms are extended.
C. If the estimated fetal weight is 2000 g at 38 weeks.
D. In a fourth para with previous uncomplicated normal deliveries.
E. In a woman with pre-eclampsia at 39 weeks.

Ref. for questions 15–16:

- *RCOG Green Top Guideline, No. 20b, page, 4.*
- *SBA Questions in Obstetrics chapter 5, page 42.*

17. Management of labour in breech presentation requires:

A. Augmentation of labour with oxytocin.
B. Breech extraction if the second stage is prolonged.
C. Caesarean section if first or second stages are prolonged.
D. Continuous fetal heart rate monitoring.
E. Pain relief with epidural analgesia.

18. During labour in breech presentation:

A. Amniotomy is delayed till the breech is well-descended.
B. Breech extraction is carried out if fetal distress occurs in the second stage.
C. Five units of oxytocin is given intravenously after delivery of the head.
D. Intramuscular pethidine is given for pain relief.
E. Oxytocin is given to augment labour if the first stage is prolonged.

19. Vaginal breech delivery requires:

A. An adequate episiotomy.
B. Application of jaw flexion and shoulder traction if there is a delay in the delivery of the head.
C. Application of the Loveset manoeuvre if the arms are extended.
D. Application of traction on the fetal limbs.
E. Placing the patient in the lithotomy position.

20. During vaginal breech delivery:

A. Buttocks should be anterior.
B. Delivery of the arms are attempted when the inferior angle of the scapula is seen.
C. Delivery of the head is attempted when the inferior hairline is seen.
D. Maternal bearing down efforts are not essential.
E. Traction is applied on the fetal limbs to deliver the body.

Ref. for questions 17–20:

- *RCOG Green Top Guideline, No. 20b, pages 5–7, 6.1–6.11.*
- *SBA Questions in Obstetrics, chapter 5, page 42–43.*

21. In a woman who has a breech presentation at 37 weeks:

A. A clinical pelvic assessment is performed if vaginal delivery is allowed.
B. An ultrasound scan is performed to exclude placenta praevia.
C. External cephalic version is carried out.
D. Labour is induced at 40 weeks.
E. Risk of cord prolapse is present when the membranes rupture.

(Ref: SBA Questions in Obstetrics, chapter 5, page 41–42).

22. The diagnosis of following presentations/positions can be confirmed only after the onset of labour:

A. Brow presentation.
B. Face presentation.
C. Footling breech presentation.
D. Occipito-posterior position.
E. Shoulder presentation with transverse lie.

(Ref: SBA Questions in Obstetrics, chapter 5, page 41).

23. Breech extraction is carried out during the second stage of labour with a live foetus for:

A. Antepartum haemorrhage after birth of the first twin.
B. Cord prolapse in a singleton breech presentation.

C. Cord prolapse of the first twin.
D. Delay in the second stage in a singleton breech presentation.
E. Fetal distress in the second of twins.

Ref:

- *SBA Questions in Obstetrics, chapter 5, page 49 (answer to question 5).*
- *RCOG Green Top Guideline, No. 20b, 6.7 and 7.3*

24. In brow presentation:

A. Caesarean section is the only method of delivery.
B. Engagement of the head occurs in the second stage of labour.
C. The diagnosis is confirmed before the onset of labour.
D. The mouth is palpated during vaginal examination.
E. The presenting diameter measures 13 cm.

25. In brow presentation:

A. External version is carried out at 37 weeks.
B. Obstructed labour occurs.
C. The diagnosis is confirmed by ultrasound scanning at 37 weeks.
D. The posterior fontanelle and the sagittal suture are felt at vaginal examination.
E. The presenting diameter is the mento-vertical diameter.

26. In brow presentation:

A. Delivery with the ventouse is carried out if there is delayed second stage.
B. Rotation to face presentation occurs in the presence of strong uterine contractions.
C. The anterior fontanelle and frontal bones are felt by vaginal examination.
D. Kielland's forceps are applied if the second stage is delayed.
E. There is extension of the fetal neck.

Ref. for questions 24–26:

- *SBA Questions in Obstetrics, chapter 5, page 43–44.*
- *Obstetrics by Ten Teachers,19th edition, chapter 14, page 218.*

27. In face presentation:

A. Caesarean section is required if the chin is posterior.
B. Diagnosis is confirmed before the onset of labour.
C. Moulding of the fetal skull bones occur.
D. The fetal head is fully extended.
E. Submento-bregmatic diameter presents in the mento-anterior position.

28. Which of the following structures are palpated at vaginal examination in face presentation?

A. Anterior fontanelle.
B. Eyes.
C. Frontal bone.
D. Frontal suture.
E. Mouth.

29. In mento-anterior face presentation:

A. Epidural analgesia is given for pain relief.
B. Labour is augmented with an oxytocin infusion.
C. Simpson's forceps are applied if the second stage is prolonged.
D. The progress of labour will be slow.
E. Ventouse extraction is carried out if the second stage is delayed.

Ref. for questions 27–29:

- *SBA Questions in Obstetrics, chapter 5, page 44.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 14, page 218.*

30. Which of the following structures are palpated during vaginal examination in brow presentation?

A. Eyes.
B. Forehead.
C. Frontal bones.
D. Posterior fontanelle.
E. Supraorbital ridges.

(Ref: SBA Questions in Obstetrics, chapter 5, page 44).

31. Which of the following structures are palpated during vaginal examination in occipito-posterior position?

A. Anterior fontanelle.
B. Coronal sutures.
C. Forehead.
D. Sagittal suture.
E. Supraorbital ridges.

(Ref: SBA Questions in Obstetrics, chapter 5, page 44).

32. In transverse lie:

A. Caesarean section is the only method of delivery if external version fails.
B. External cephalic version is carried out till the onset of labour.
C. External version is carried out if diagnosed during labour.
D. Internal version is carried out during the second stage.
E. Placenta praevia should be excluded.

33. Transverse lie causes:

A. Hand prolapse.
B. Fetal growth restriction.
C. Obstructed labour.
D. Placental abruption.
E. Pre-labour rupture of membranes.

Reference for questions 32–33:

- *SBA Questions in Obstetrics, chapter 5, page 43.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 8, page 101.*

34. Transverse lie and breech presentation are caused by:

A. Placenta praevia.
B. Premature pre-labour rupture of membranes.
C. Prematurity.
D. Primiparity.
E. Uterine abnormalities.

35. Transverse lie and breech presentation are caused by:

A. *In vitro* fertilisation.
B. Large ovarian tumours.
C. Lower segment fibroids.
D. Oligo and polyhydramnios.
E. Twin pregnancy.

(Ref. for questions 34–35: Obstetrics by Ten Teachers, 19th edition, chapter 8, page 97).

ANSWERS AND EXPLANATIONS

Q. 1. A, B and E

Q. 2. A and D

Q. 3. A, C, D and E

Q. 4. A, B and C

Q. 5. B, C and D

Q. 6. A, B and E

Q. 7. A, B, C and D

Explanation for Questions 1–7

- In occipito-posterior position the head is deflexed. The diagnosis can be suspected before the onset of labour by, non-engagement of the head and by palpating the fetal back in the flank and by hearing the fetal heart sounds in the flank and in the midline. However, the diagnosis is confirmed by feeling the anterior fontanelle by vaginal examination, once the cervix has dilated to 3–4 cm, after the onset of labour.
- Vaginal delivery can be allowed in the absence of any other obstetric complications, if the pelvis is adequate. Good contractions are needed to facilitate rotation into the occipito-anterior position during labour.
- First and second stages will be slow due to the wider presenting diameter (suboccipito-frontal-10 cm) and the time taken for rotation of the head. Therefore, labour should be augmented with oxytocin if the contractions are inadequate.
- Partial rotation to the transverse position can occur. If the spines are prominent in an

android pelvis arrest can occur at the level of the spines, during the second stage–deep transverse arrest.

- Second stage delay can be treated by application of Kielland's forceps, vacuum extraction or manual rotation of the head and application of Simpson's forceps. However, the head should be at or below the level of the ischial spines and the pelvis should be adequate.
- If these criteria are not satisfied caesarean section should be done. Caesarean section should be done for deep transverse arrest.
- In a gynecoid pelvis with adequate diameters, if adequate contractions are present, rotation to the occipito-anterior position will occur, resulting in normal vaginal delivery.
- Rotation to face or brow presentation will not occur.
- In an anthropoid pelvis with a wide antero-posterior diameter, face to pubes delivery can occur.
- Third degree perineal tears can occur in face to pubes delivery due to the wider diameter of the head.
- Obstructed labour can occur in an android pelvis with reduced diameters and prominent spines.

Q. 8. D

A footling breech is delivered by caesarean section. The foot is a small poorly fitting presenting part. Therefore, there is a risk of cord prolapse. Also the foot can descend through a partially dilated cervix and the patient may get bearing down sensation. This is very dangerous, as bearing down before full dilatation of the cervix can result in obstruction of the head. Therefore, caesarean section is the best management option.

Induction of labour is best avoided because of the risk of cord prolapse and the risks of commencing oxytocin. Strong contractions produced by oxytocin or prostaglandin can cause descent of the soft breech, even in the presence of fetopelvic disproportion, with resultant difficulties in the delivery of the head.

Loveset manoeuvre is performed to deliver extended arms. Flexed arms can be easily eased out.

Vaginal delivery is best avoided for premature babies presenting by the breech, because they are prone to hypoxic brain damage and intracranial injuries.

Pinard's manoeuvre is used to deliver extended legs.

Q. 9. A and C

Q. 10. B, C and D

Q. 11. A, D and E

Q. 12. A, B and C

Q. 13. C, D and E

Explanation for Questions 9–13

ECV is performed after 36 weeks in primiparous women and after 37 weeks in multiparous women. There is no upper limit of the gestational age.

Absolute contraindications for ECV

- Contraindication for vaginal delivery of a cephalic presentation.
- Antepartum haemorrhage within the last 7 days.
- Abnormal cardiotocograph.
- Major uterine abnormality.
- Pre-labour rupture of membranes.
- Multiple pregnancies (except during delivery of the second twin).

Relative contraindications for ECV

- Small for gestational age foetus with abnormal umbilical artery Doppler parameters.
- Pre-eclampsia.
- Oligohydramnios.
- Major fetal anomalies.
- Scarred uterus.
- Unstable lie.

Complications of ECV include

- Fetal distress
- Cord complications
- Premature onset of labour
- Placental abruption
- Pre-labour rupture of membranes
- Rupture of the uterus

ECV is not performed under anaesthesia or pethidine as an undue force may be inadvertantly applied in an anaesthetised or sedated patient. However, an epidural block may be given if the patient refuses the procedure without anaesthesia. A maximum of three attempts are made. Several attempts may be made till the onset of labour in a multiparous patient with a transverse lie.

Q. 14. A, B and D

Delivery of the head is commenced when the hairline is seen. Voluntary efforts of the mother are essential for successful and safe delivery of the head. However, delivery of the head requires the use of one of the manoeuvres mentioned below.

The head may be delivered with obstetric forceps, the Burns-Marshall method or the Mauriceau-Smellie-Veit manoeuvre. The Burns-Marshall technique carries a risk of causing extension of the fetal neck.

Q. 15. A, D and E

Q. 16. A, C and E

Explanation for Questions 15–16

Contraindications for vaginal breech delivery include:

- Other contraindications to vaginal delivery (ex. placenta praevia, compromised fetal condition).
- Clinically inadequate pelvis. There should be no fetopelvic disproportion. This is difficult to assess in a primipara as the pelvis is previously untested. Therefore, primiparous women with breech presentation are preferably delivered by caesarean section.
- Footling or kneeling breech presentation diagnosed during labour. Only frank (extended) and complete (flexed) breech presentations are suitable for vaginal delivery.
- Large baby (estimated fetal weight more than 3800 g).
- Growth-restricted baby (estimated fetal weight less than 2000 g).
- Hyperextended fetal neck in labour (diagnosed with ultrasound).
- Previous caesarean section.
- Pregnancy complications which require early induction of labour such as hypertension 4, pre-eclampsia and diabetes mellitus.
- Postmaturity beyond 40 weeks as induction of labour is best avoided.
- Twin pregnancy where the first twin is in breech presentation.

Fetal distress in the second stage or prolonged second stage requires caesarean section as breech extraction is contraindicated in singleton breech presentation.

Vaginal delivery is recommended for multiparous women with previous uncomplicated normal deliveries and without any complications in the present pregnancy.

Q. 17. C and D

Q. 18. A, C and D

Q. 19. A, B, C and E

Q. 20. A, B and C

Explanation for Questions 17–20

During labour in breech presentation

- Augmentation with oxytocin is not advisable, as lack of progress may be due to fetopelvic disproportion.
- Membranes are not ruptured till the breech is well-descended and well-applied to the cervix because of the risk of cord prolapse.
- Epidural analgesia is best avoided because it may hinder voluntary efforts of the mother during the second stage. However, intramuscular pethidine can be used for pain relief.

- Delay in the first or second stage is regarded as a sign of fetopelvic disproportion and require caesarean section.

The following are carried out during vaginal breech delivery:

- The patient is placed in the lithotomy position at the edge of the bed once full dilatation is confirmed by vaginal examination. However, the dorsal position also can be used.
- The patient is advised to push with the contractions.
- The principle of 'masterly inactivity' is followed. The entire effort is by the mother and the operator will only assist. Traction is not applied on the foetus to expedite the delivary.
- When the breech is distending the introitus and the anterior buttock is seen a wide mediolateral episiotomy is given.
- Legs will deliver spontaneously if they are flexed. If extended Pinard's manoeuvre is done.
- Buttocks should always be anterior. Otherwise gentle rotation is carried out.
- The baby is wrapped in a sterile towel and is held gently by the pelvis, but traction should not be applied.
- A loop of the cord is pulled down to ensure that it is not too short and to prevent cord compression.
- Delivery of the arms is commenced when the inferior angle of the scapula is seen.
- If the arms are flexed they can be eased out.
- Loveset's manoeuvre is used to deliver extended arms.
- The baby is allowed to hang down from the edge of the bed and the mother is encouraged to push.
- Delivery of the head is commenced when the hairline is seen.
- The head may be delivered with obstetric forceps, the Burns-Marshall method or the Mauriceau-Smellie-Veit manoeuvre.
- Five units of oxytocin is given after delivery of the head in the active management of the third stage.

Q. 21. A, B, C and E

- Clinical diagnosis is made at 36 weeks.
- The first step is to perform an ultrasound scan to confirm the diagnosis, to confirm dates and to exclude causative factors such as placenta praevia, twins, poly and oligohydramnios, fetal abnormalities, uterine abnormalities and lower segment fibroids.
- The next step in the management after diagnosis is external cephalic version, (ECV) in the absence of contraindications.
- If external cephalic version fails a decision is taken regarding the mode of delivery at 37–38 weeks.
- A clinical pelvic assessment is performed to confirm adequacy of the pelvis if vaginal delivery is allowed.
- Membranes are not ruptured during labour, till the breech is well-descended and well-applied to the cervix because of the risk of cord prolapse.
- Induction of labour is best avoided.

Q. 22. A, B, C and D

Face and brow presentations and occipito-posterior position can be diagnosed only after onset of labour, when the cervix is dilated to about 3–4 cm. On abdominal examination they appear as cephalic presentations. Footling breech presentation is diagnosed when the cervix is dilated to about 3–4 cm by feeling the foot below the buttocks, at the level of the internal os. Transverse lie should be diagnosed before the onset of labour by clinical examination and confirmed by USS.

Q. 23. A and E

Caesarean section is the only method for the management of prolonged second stage and other second stage problems such as fetal distress, in breech presentation. Breech extraction is not performed for a singleton breech presentation, because of the risk of the head getting obstructed, if there is even mild cephalo-pelvic disproportion. The only indication for breech extraction is in the

management of second stage emergencies in second of twins.

Q. 24. A and E

Q. 25. B and E

Q. 26. C and E

Explanation for Questions 24–26

- Brow presentation occurs due to partial extension of the head and appears as a cephalic presentation with a non-engaged head before the onset of labour.
- The diagnosis can be suspected by USS performed at 37 weeks but the diagnosis is confirmed only after the onset of labour, by vaginal examination when the cervix is dilated to about 3–4 cm.
- The anterior fontanelle, frontal suture, frontal bones, supraorbital ridges and the bridge of the nose can be palpated. The diagnosis is confirmed by palpation of the supraorbital ridges and the bridge of the nose. The mouth is not felt.
- The presenting diameter is the mento-vertical diameter, which is 13 cm and is too large for vaginal delivery. Engagement of the head does not occur.
- External version is not possible.
- Spontaneous rotation will not occur. Manual rotation is not possible.
- Vaginal delivery is not possible due to the large presenting diameter and obstructed labour will occur in undiagnosed cases. Caesarean section is the only method of delivery. Instrumental delivery is not possible.
- Brow presentation should be suspected if labour becomes prolonged or obstructed. Brow presentation should be carefully excluded before applying forceps for second stage delay. The diagnosis can be missed in the presence of a large caput in obstructed labour.

Q. 27. A, D and E

Q. 28. B and E

Q. 29. A, B, C and D

Explanation for Questions 27–29

- Face presentation appears as a cephalic presentation before the onset of labour.
- The fetal neck is fully extended.
- On abdominal examination it appears as a cephalic presentation. The diagnosis is confirmed by vaginal examination after the onset of labour, when the cervix is dilated to about 3–4 cm. A soft presenting part with orbital ridges, mouth, nose and malar bones is felt. It can be differentiated from a breech, by palpating the nose and the mouth with alveolar margins. The mouth can be differentiated from the anus by the presence of alveolar margins. Face presentation has a triangular configuration of the mouth to the malar prominences compared to breech presentation where the anus and the ischial tuberosities are in one line.
- If the chin is anterior mento-anterior face presentation results. Vaginal delivery is possible because the presenting diameter is 9.5 cm (submento-bregmatic diameter).
- Labour will be slow because the soft face is a poor cervical stimulator. Moulding of the skull bones will not occur.
- Labour can be augmented with artificial rupture of membranes followed by an oxytocin infusion.
- Forceps can be applied in the second stage for mento-anterior face presentation. Vacuum cannot be applied to the soft face.
- If the chin is posterior mento-posterior face presentation results. Vaginal delivery is not possible.
- Epidural analgesia or pethidine can be used for pain relief.

Q. 30. B, C and E

In brow presentation the anterior fontanelle, frontal suture, frontal bones, supraorbital ridges and the bridge of the nose can be palpated on vaginal examination. The diagnosis is confirmed by palpation of the supraorbital

ridges and the bridge of the nose. The mouth is not felt.

Q. 31. A, B and D

The following structures can be palpated in an occipito-posterior position

- The anterior fontanelle,
- Frontal, sagittal and coronal sutures,
- Frontal and parietal bones.

Q. 32. A, B and E

Q. 33. A, C and E

Explanation for Questions 32–33

The first step in the management of transverse lie is to perform an ultrasound scan to confirm the diagnosis, and to exclude causative factors such as placenta praevia, twins, poly and oligohydramnios, uterine abnormalities, fetal abnormalities and lower segment fibroids.

If there are no contraindications (same as for breech presentation), external cephalic version can be attempted several times, from 37 weeks till onset of labour. Version carries a greater risk after onset of labour as the uterine tone is high.

If version fails, the only method of delivery of a term foetus is by caesarean section even if the foetus is dead (a fresh stillbirth or an intrapartum death). Internal version and destructive operations are traumatic and are best avoided even for the second of twins, after rupture of the membranes.

If not detected early and treated transverse lie can cause pre-labour rupture of membranes, cord prolapse and hand prolapse. Labour will be obstructed. Uterine rupture can occur in multiparous women. Fetal death can occur.

Q. 34. A, C and E

Q. 35. C, D and E

Explanation for Questions 34 and 35

Causes of breech presentation and abnormal lie include:

- Maternal causes
  - Lower segment fibroids
  - Uterine abnormalities
  - Placenta praevia
  - Poly and oligohydramnios
  - Uterine surgery
- Fetal causes
  - Prematurity
  - Congenital abnormalities such as anencephaly and hydrocephaly
  - Multiple pregnancy
  - Fetal neuromuscular conditions.

CHAPTER

9

Ultrasound Scanning

1. Accurate estimation of gestational age by ultrasound scan requires measurement of the:

A. Abdominal circumference at 28 weeks.
B. Biparietal diameter between 14–20 weeks.
C. Crown rump length before 12 weeks.
D. Femur length at 32 weeks.
E. The diameter of the gestational sac in the first trimester.

2. Accurate estimation of the gestational age at 20 weeks requires measurement of the:

A. Abdominal circumference.
B. Biparietal diameter.
C. Crown rump length.
D. Femur length.
E. Head circumference.

Ref. for questions 1–2:

- *SBA Questions in Obstetrics, chapter 1, page 19.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 6, page 63.*

3. An USS carried out at 12 weeks of gestation is used to:

A. Accurately estimate the gestational age.
B. Diagnose multiple gestation and to determine the chorionicity.
C. Diagnose placenta praevia.
D. Estimate the amniotic fluid volume.
E. Identify an increased risk of Down's syndrome by measuring the nuchal thickness.

Ref:

- *SBA Questions in Obstetrics, chapter 18, page 156.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 6, page 62.*

4. Ultrasound scanning between 18–22 weeks is used to:

A. Determine fetal well-being by assessing the biophysical profile.
B. Determine the fetal lie and the presentation.
C. Locate the placenta.
D. Measure the cervical length to assess the risk of preterm delivery.
E. Provide an accurate estimation of the gestational age.

5. Ultrasound scanning between 18–22 weeks is used to:

A. Detect twin to twin transfusion syndrome.
B. Detect structural anomalies of the heart.
C. Perform umbilical artery Doppler studies.
D. Perform ductus venosus Doppler studies.
E. Perform uterine artery Doppler studies.

Reference for questions 4–5:

- *SBA Questions in Obstetrics, chapter 18, pages 156–157.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 6, pages 63–66.*

6. Ultrasound scanning in the third trimester is used to asses:

A. Accuracy of the dates.
B. Fetal growth.
C. Fetal weight.
D. Fetal well-being.
E. Nuchal translucency.

7. A single ultrasound scan at 34 weeks can:

A. Assess fetal growth and well-being.
B. Diagnose fetal growth restriction.
C. Diagnose anencephaly.
D. Diagnose fetal ascites.
E. Diagnose hydrops fetalis.

Ref. for questions 6–7:

- *SBA Questions in Obstetrics, chapter 18, pages 157–158.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 6, pages 63–66.*

8. Measurements included in the biophysical profile include:

A. Biparietal diameter.
B. Fetal abdominal circumference.
C. Fetal movements.
D. Fetal tone.
E. Reactive fetal heart rate.

9. Which of the following is included in the normal fetal biophysical profile?

A. Fetal heart between 110–160 bpm.
B. More than 2 accelerations in the fetal heart rate within 40 minutes.
C. More than 3 fetal movements in 30 minutes.
D. More than 4 pools of fluid of at least 2 cm × 2 cm.
E. More than one fetal breathing movement for 30 seconds in 30 minutes.

(Ref. for questions 8-9:Obstetrics by Ten Teachers, 18th edition, chapter 8, page 98, table 8.3).

10. Which of the following parameters are used to diagnose a small for gestational age foetus by ultrasound scanning?

A. Abdominal circumference.
B. Biparietal diameter.
C. Estimated fetal weight.
D. Head circumference.
E. Liquor volume.

11. Which of the following is true regarding Doppler ultrasound examination?

A. Abnormal uterine artery Doppler flow at 22 weeks is of predictive value for the occurrence of pre-eclampsia.
B. Abnormal umbilical artery flow indicates poor placental perfusion.
C. Absence of umbilical artery blood flow at 34 weeks is an indication for delivery.
D. Ductus venosus blood flow is used for the surveillance of a growth restricted foetus after 36 weeks.
E. Fetal anaemia causes decreased middle cerebral artery peak systolic velocity.

ANSWERS AND EXPLANATIONS

Q. 1. B and C

Q. 2. B, D and E

Explanation for Questions 1–2

Accurate estimation of the gestational age by ultrasound scan should be carried out before 20 weeks; earlier the measurements are made more accurate is the prediction and measurements made by an early CRL is preferred to measurement of biparietal diameter at 20 weeks.

Ultrasound measurement of the crown rump length of the foetus in the first trimester

from 9 weeks up to 13 6/7 weeks of gestation is the most accurate method to confirm gestational age. It has an accuracy of ± 5–7 days. CRL should be measured in a true mid-sagittal plane, with the genital tubercle and fetal spine longitudinally in view and the maximum length from cranium to caudal rump measured as a straight line.

Measuring the gestational sac diameter is not an accurate method of confirming dates.

During the second trimester the biparietal diameter, head circumference and the femur length are measured to determine the gestational age. The accuracy of estimation is 7–10 days.

Measurements taken after 24 weeks are not accurate to estimate the gestational age.

Abdominal circumference is used to estimate fetal growth in the third trimester.

Q. 3. A, B and E

An ultrasound scan is performed in the first trimester to:

- Confirm fetal viability.
- Accurately estimate the gestational age by measuring the crown rump length. The accuracy of prediction is 5 days.
- Exclude pelvic pathology such as fibroids, ovarian tumours and uterine abnormalities.
- Diagnose multiple pregnancy and to determine the chorionicity (at 11–13 weeks).
- Measure the nuchal translucency which is a marker for Down's syndrome and other trisomies (at 11–13 weeks).
- Investigate bleeding in the first trimester and to diagnose missed abortion, hydatidiform mole and ectopic pregnancy.
- Perform chorionic villous sampling.

Placenta previa is diagnosed in the third trimester and estimation of amniotic fluid volume is possible from the second trimester onwards.

Q. 4. C, D and E

Q. 5. A, B and E

Explanation for Questions 4–5

USS between 18–22 weeks is used

- To confirm dates.
- To detect fetal structural abnormalities.
- To localise the placenta. A small number of women who have a low lying placenta at 20 weeks will develop a placenta praevia. Placenta praevia is confirmed in the third trimester.
- To measure the cervical length in patients at risk of preterm labour. A transvaginal scan is required for this purpose.
- To estimate the amniotic fluid volume.
- To diagnose multiple pregnancy.
- To perform amniocentesis and cordocentesis.
- For early detection and treatment of TTTS (refer chapter 14) in twin pregnancies, by performing serial scans.
- To perform uterine artery Doppler studies. A high resistance index and/or bilateral notching at 20–24 weeks are of predictive value for the occurrence of pre-eclampsia, intrauterine growth restriction and placental abruption.

Fetal lie and presentation are determined after 36 weeks. Biophysical profile and umbilical artery Doppler studies are performed in the third trimester to assess fetal well-being. Ductus venosus Doppler studies is performed to assess fetal well-being at 30–32 weeks.

Q. 6. B, C and D

Ultrasound scanning in the third trimester is used to:

- Assess fetal growth and the fetal weight—This is done by measuring the BPD, abdominal circumference (AC) and head circumference (HC). AC is reduced in both symmetrical and asymmetrical IUGR and is the most accurate parameter to predict fetal weight. It is also a predictor of asymmetrical IUGR as the AC is reduced while the BPD and HC are maintained.

Serial measurements of abdominal circumference or EFW should be carried out at least 3 weeks apart, to minimise false positive rates for diagnosing impaired growth.

- Assess fetal well-being by:
  - Measuring the amniotic fluid volume,
  - Estimating the biophysical profile (refer Obstetrics by Ten Teachers),
  - Doppler investigations.

In most cases serial ultrasound scans are carried out for this purpose.

Dates can be accurately confirmed before the 20th week.

The nuchal translucency is determined between 11–13 weeks.

Q. 7. B, C, D and E

A single ultrasound scan at 34 weeks is used to

- Confirm placenta praevia.
- Estimate the amniotic fluid volume.
- Perform amniocentesis and cordocentesis.
- Confirm fetal structural abnormalities.
- To diagnose fetal ascites and hydrops.

Fetal growth restriction can be diagnosed by a single scan if the estimated fetal weight is less than the 10th centile for the gestational age. However, serial scans are necessary to determine fetal growth and well-being.

Q. 8. C, D and E

Q. 9. B, C and E

Explanation for Questions 8–9

Obstetrics by Ten Teachers, 18th edition, chapter 8, page 98, Table 8.3.

Q. 10. A and C

A small for gestational age foetus is diagnosed if the abdominal circumference and the estimated fetal weight is less than the 10th centile for the gestational age. The biparietal diameter and the head circumference are used to determine the gestational age. The liquor volume is not used to assess fetal growth.

Q. 11. A, B and C

Ductus venosus blood flow is used for the surveillance of a growth restricted foetus or a foetus with absent umbilical artery Doppler studies before 32 weeks.

Fetal anaemia causes increased middle cerebral artery peak systolic velocity due to reduced viscosity of blood.

CHAPTER

10

Twin Pregnancy

1. Treatment with following drugs increase the risk of twin pregnancy:

A. Clomiphene citrate.
B. Danazol.
C. Gonadotropin releasing hormone.
D. Human chorionic gonadotropin.
E. Metformin.

2. Incidence of multiple pregnancy is increased in:

A. Gamete intrafallopian transfer (GIFT).
B. *In vitro* fertilisation.
C. Older women.
D. Polycystic ovarian syndrome.
E. Those with a family history of twin pregnancy.

(Ref. for questions 1–2:Obstetrics by Ten Teachers, 18th Edition, chapter 12, page 146)

3. Which of the following is true regarding twin pregnancy?

A. Conjoined twins occur when a fertilised ovum splits after 12 days of conception.
B. Dichorionic twins are identified by the T sign on ultrasound scanning at 28 weeks.
C. If the ovum splits within 3 days of fertilisation dichorionic diamniotic twins occur.
D. Splitting after 8 days of fertilisation result in monochorionic monoamniotic twins.
E. The incidence of monozygotic twins is increased by ovulation induction.

4. Dizygotic twins:

A. Are at risk of twin to twin transfusion syndrome.
B. Are dichorionic and diamniotic.
C. Can be of the same or different sexes.
D. Have different chromosomal compositions.
E. Should be delivered by elective caesarean section at 36 weeks.

5. Which of the following is true regarding twin pregnancy?

A. All dichorionic pregnancies are dizygotic.
B. All monochorionic pregnancies are monozygotic.
C. Monochorionic twins are of the same sex.
D. Monozygotic twins can be monochorionic or dichorionic.
E. The T sign is detected by ultrasound scanning at 11–13 weeks in monochorionic twins.

Ref. for questions 3–5:

- *SBA Questions in Obstetrics, chapter 14, page 132–133.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 9, page 110–111.*

6. Which of the following ultrasound characteristics are used to determine chorionicity?

A. Absence of communicating blood vessels in dichorionic twins.

B. Discordant fetal sexes in monochorionic twins.
C. The T-sign in monochorionic twins.
D. The lambda sign in dichorionic twins.
E. The presence of two placental masses in dichorionic twins.

(Ref: SBA Questions in Obstetrics, chapter 14, page 133).

7. In twin pregnancy:

A. Breech presentation of the first twin is an indication for caesarean section.
B. Chorionicity is determined by USS in the late first trimester.
C. Monochorionic diamniotic pregnancies have a thick dividing membrane.
D. Poor fetal growth occurs only in monochorionic twins.
E. Twin to twin transfusion syndrome occurs only in monochorionic twins.

(Ref: SBA Questions in Obstetrics, chapter 14).

8. Complications of twin pregnancy include:

A. Antepartum haemorrhage.
B. Fetal chromosomal abnormalities.
C. Intrauterine growth restriction.
D. Maternal anaemia.
E. Postmaturity.

9. Complications of twin pregnancy include:

A. Fetal macrosomia.
B. Obstetric cholestasis.
C. Pre-eclampsia.
D. Preterm labour.
E. Secondary arrest during labour.

Ref. for questions 8–9:

- *SBA Questions in Obstetrics, chapter 14, page 132–133.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 9, page 111 and 114.*

10. Which of the following complications occur only in monochorionic twin pregnancies?

A. Conjoined twins.
B. Intrauterine growth restriction in both foetuses.
C. Neural tube defects.
D. Occurrence of chromosomal abnormalities in both foetuses.
E. Twin to twin transfusion syndrome.

Ref:

- *SBA Questions in Obstetrics, chapter 14, page 134.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 9, page 111–114.*

11. Delivery of the second twin requires:

A. Amniotomy soon after the delivery of the first twin.
B. An intravenous infusion of oxytocin if contractions are absent.
C. An interval of 30 minutes after delivery of the first twin.
D. Caesarean section if fetal distress occurs.
E. Internal version if the lie is transverse.

12. During delivery of the second twin:

A. Amniotomy should be performed if the lie is longitudinal.
B. An external version should be performed if the lie is transverse.
C. Breech extraction is performed in all cases of breech presentation.
D. Forceps should be applied in all cases with vertex presentation.
E. The lie of the second twin should be determined soon after delivery of the first twin.

Ref. for questions 11–12:

- *SBA Questions in Obstetrics, chapter 14, page 135–136.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 9, page 116–117.*

13. Monochorionic monoamniotic twins:

A. Are at risk of cord complications.
B. Are not at risk of twin to twin transfusion syndrome.
C. Are of the same sex.
D. Do not develop intrauterine growth restriction.
E. Should be delivered by caesarean section at 33 weeks.

Ref:

- *SBA Questions in Obstetrics, chapter 14, page 134.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 9, page 114.*

14. Caesarean section is performed in twin pregnancy:

A. If premature delivery is required.
B. If the first twin is in breech presentation.
C. If the first twin is in the transverse lie.
D. In the presence of diabetes mellitus.
E. In women with a previous caesarean section.

(Ref: SBA Questions in Obstetrics, chapter 14, page 134–135).

15. Caesarean section is performed for the second of twins:

A. If the lie is transverse with ruptured membranes and reduced liquor.
B. If there is a delay in delivery with a partially closed cervix.
C. If there is antepartum haemorrhage.
D. If there is cord prolapse and vertex presentation.
E. If there is fetal distress and breech presentation.

(Ref: SBA Questions in Obstetrics, chapter 14, page 136).

16. Which of the following methods are used to manage complications which occur during delivery of the second twin?

A. Application of Simpson's forceps for antepartum haemorrhage, if the presentation is cephalic.
B. Augmentation with an oxytocin infusion for inadequate uterine contractions.
C. Breech extraction for fetal distress, if the presentation is breech.
D. Caesarean section for cord prolapse.
E. Caesarean section for hand prolapse.

(Ref: SBA Questions in Obstetrics, chapter 14, pages 135–136).

17. In twin pregnancy:

A. 5 units of oxytocin is given after delivery of the first twin.
B. Elective caesarean section is performed if the second twin is in the transverse lie.
C. Epidural analgesia is used for pain relief in labour.
D. Induction of labour is contraindicated.
E. There is an increased risk of postpartum haemorrhage.

(Ref: SBA Questions in Obstetrics, chapter 14, page 135).

18. In twin pregnancy:

A. Chorionicity is determined by examination of the placenta and membranes.
B. Conjoined twins occur in both monozygotic and dizygotic twins.
C. Death of one monochorionic twin require immediate delivery of the other twin.
D. Primary dysfunctional labour occur in the first stage.
E. Uniovular twins is complicated by polyhydramnios.

(Ref: SBA Questions in Obstetrics, chapter 14, page 133–135).

19. Ultrasound scanning is performed in twin pregnancy:

A. At 20 weeks for structural fetal abnormalities.
B. At 16 weeks to exclude Down's syndrome.
C. At 20 weeks to exclude placenta praevia.
D. Once in three weeks from 24 weeks for fetal growth and weight discordance.
E. Once in two weeks from the16th week to exclude twin to twin transfusion syndrome in monochorionic twins.

(Ref: SBA Questions in Obstetrics, chapter 14, page 134).

20. The methods of delivery recommended for twin pregnancy include:

A. Elective caesarean section at 36–37 weeks for monochorionic diamniotic twins.
B. Induction of labour at 37–38 weeks for dichorionic twins.

C. Elective caesarean section at 32–34 weeks for monochorionic monoamniotic twins.

D. Waiting for spontaneous onset of labour till 40 weeks for uncomplicated dichorionic twins.

E. Emergency caesarean section for primary dysfunctional labour.

(Ref: SBA Questions in Obstetrics, chapter 14, page 134).

21. Which of the following complications occur more frequently in monochorionic diamniotic twin pregnancies than in dichorionic twins?

A. Congenital abnormalities.
B. Gestational diabetes mellitus.
C. Intrauterine death.
D. Intrauterine growth restriction.
E. Pregnancy induced hypertension.

(Ref: Obstetrics by Ten Teachers, 19th Edition, chapter 9, page 112–113).

ANSWERS AND EXPLANATIONS

Q. 1. A, C and D

Q. 2. A, B, C and E

Explanation for Questions 1 and 2

All drugs used for ovulation induction such as clomiphene, FSH, HCG and GnRH analogues, increase the incidence of twinning due production of more than one ovum. Gamete intrafallopian transfer (GIFT) and *in vitro* fertilisation also increase the incidence due to fertilisation of more than one ovum. Other risk factors include high parity, increased maternal age, black race and maternal family history.

Q. 3. A, C and D

The type of monozygotic twins depends on how long after fertilisation the zygote splits.

- When splitting occurs within three days of conception dichorionic, diamniotic twins occur.
- If splitting occurs between 4–8 days, because only the chorion has differentiated by this time, monochorionic, diamniotic twins occur.
- Later splitting after the amnion has differentiated, results in monochorionic, monoamniotic twins, with both foetuses developing in a single amniotic cavity.
- If splitting occurs after 12 days conjoined twins will occur, because the embryonic disc has developed by this time.

A monozygotic twin will occur due to splitting of a single zygote and not due to production of two ova and is hence not affected by ovulation induction.

Monochorionic twins will have a thin separating membrane, the T-sign and a single placental mass. Dichorionic twins will have a thick dividing membrane, the lambda sign and two placental masses. This is diagnosed at 11–14 weeks.

Q. 4. B, C and D

Dizygotic twins, occur due to the release of two eggs at ovulation. The tendency to release two eggs may be familial, racial, ovulation induction, or advanced maternal age.

As they occur due to fertilisation of two eggs by two different sperms they can be of the same or different sexes and will have different chromosomal compositions. They are dichorionic and diamniotic. Since they are dichorionic they do not have communicating placental blood vessels. Therefore, twin to twin transfusion cannot occur. They should be delivered at 38 weeks. Labour can be induced in the absence of obstetric complications, if the first twin is in vertex presentation.

Q. 5. B, C, D and E

- All monochorionic pregnancies are monozygotic.
- Dichorionic pregnancies can be monozygotic or dizygotic.

- Monozygotic twins can be monochorionic or dichorionic.
- Dizygotic twins are always dichorionic.
- If the twins are of different sexes they are dizygotic. Same sex twins can be monozygotic or dizygotic.

Q. 6. C, D and E

The following ultrasound features are assessed to determine the chorionicity:

- The number of placental masses.
- The lambda or T-sign—Ultrasound diagnosis of chorionicity is mainly based on the presence of the 'lambda' or 'twin peak' sign in dichorionic twins or'T-sign' in monochorionic twins at the membrane-placenta interface.
- Membrane thickness.
- Discordant fetal sex in dichorionic twins.

Q. 7. A, B and E

Breech presentation of the first twin is an indication for elective caesarean section because of the risk of cephalo-pelvic disproportion and locked twins if the second twin is in cephalic presentation. Chorionicity is determined by USS between 11–14 weeks, by the presence of a thick membrane and lambda sign in dichorionic twins and a thin membrane and T-sign in monochorionic twins. Twin to twin transfusion syndrome occurs only in monochorionic twins due to the communicating placental blood vessels. Poor fetal growth occurs in both monochorionic and dichorionic twins due to relative placental insufficiency.

Q. 8. A, B, C and D

Q. 9. B, C and D

Explanation for Questions 8 and 9

The following complications occur in twin pregnancy:

- All pregnancy effects and complications are increased in twin pregnancy.
- Hyperemesis.
- Abortions.
- Intrauterine growth restriction (due to relative placental insufficiency).
- Polyhydramnios.
- Preterm labour (due to uterine over distension). More common in monochorionic twins.
- Antepartum haemorrhage. (Placenta praevia is more common due to larger placental area. Placental abruption is also more common.)
- Twin to twin transfusion in monochorionic twins.
- Increased perinatal mortality especially in monochorionic twins.
- Malpresentations as one twin prevents the version of the other twin.
- Pregnancy associated diseases such as anaemia, pregnancy induced hypertension, pre-eclampsia, obstetric cholestasis and GDM are more common.

Twins are relatively small, therefore macrosomia will not occur. Secondary arrest is unlikely because cephalo-pelvic disproportion does not occur.

Q. 10. A, D and E

The following complications occur only in monochorionic twins:

- Death of one twin results in death or handicap of the other twin, due to acute hypotension secondary to placental vascular anastomoses, between the two fetal circulations. This happens at the time of death of the twin. Therefore, if death of one twin is anticipated, due to growth restriction or any other cause, delivery should be carefully timed to save both foetuses.
- Chromosomal defects affect both or neither.
- Twin to twin transfusion syndrome, due to imbalanced blood flow in the placental vascular communications.
- Conjoined twins.

Intrauterine growth restriction occurs in both monochorionic and dichorionic twins

due to relative placental insufficiency. Structural fetal abnormalities can occur in one or both foetuses in both monochorionic and dichorionic twins.

Q. 11. B

Q. 12. A, B and E

Explanation for Questions 11 and 12

Method of delivering the second twin

1. Soon after delivery of the first twin perform an abdominal examination to determine the lie of the second twin. If in doubt you may perform an ultrasound scan to confirm the lie and the presentation. Amniotomy should not be performed till the lie is confirmed.
2. If the second twin is in the transverse lie perform an external cephalic version. If performed before the membranes rupture, this procedure is usually successful due to the space available in the uterus, after delivery of the first twin. Internal version is not necessary and should not be performed after the rupture of membranes. Caesarean section is a safer option.
3. If the second twin is in the longitudinal lie wait a few minutes for the descent of the presenting part.
4. Do a vaginal examination, exclude cord presentation, rupture the membranes and release the liquor carefully to prevent cord prolapse.
5. Commence an oxytocin infusion, if contractions do not return in 5–10 minutes.
6. Deliver the second twin as soon as possible after the first twin.
7. Give a bolus of 5 units of oxytocin after the delivery of the anterior shoulder and conduct active management of the third stage.
8. Commence an oxytocin infusion with 20–40 units in 500 cc of normal saline as prophylaxis against postpartum haemorrhage.

Fetal distress and other emergencies such as cord prolapse are treated with application of obstetric forceps if the presentation is vertex or breech extraction if the presentation is breech. These procedures are not routinely performed during delivery of the second twin.

Indications for caesarean section after the delivery of the first twin are hand prolapse or persistence of transverse lie after rupture of membranes or delay in delivery with partial closure of the cervix.

Q. 13. A, C and E

Monochorionic monoamniotic twins are at risk of all the complications of monochorionic twins. Because they are in the same amniotic sac they are at risk of cord complications and should be delivered by caesarean section at 32–34 weeks after giving dexamethasone. They are monozygotic and hence are of the same sex.

Q. 14. A, B, C and E

Indications for caesarean section in twin pregnancy:

- Monochorionic monoamniotic twins are delivered by caesarean section at 32–34 weeks due to the risk of cord complications.
- Caesarean section is preferred for monochorionic diamniotic twins, because delivery is advised at 36–37 weeks, higher risk of fetal hypoxia and the rare risk of TTTS in labour.
- Transverse lie of the first twin.
- Breech presentation of the first twin. (Because of the difficulties and delay in breech delivery and the rare possibility of locked twins if first twin is breech and the second twin is vertex.)
- Previous caesarean section due to the increased risk of scar rupture, as internal manipulations may be needed at the time of delivery of the second twin.
- Premature twins.
- Any other obstetric indications.

Early induction of labour can be carried out for diabetes mellitus and hypertension in dichorionic twins.

Q. 15. A and B

Indications for caesarean section after the delivery of the first twin include

- Hand prolapse or persistence of transverse lie after rupture of membranes.
- Delay in delivery with partial closure of the cervix.

Q. 16. A, B, C and E

The following methods are used to manage complications during the delivery of the second twin:

- Transverse lie of the second twin can be easily corrected by external cephalic version (ECV), if detected before membranes rupture, because there is enough space to carryout this procedure. However, ECV should not be done if liquor has drained away and there are frequent uterine contractions. Delivery by caesarean section is the safest option in this situation and for hand prolapse.
- Fetal distress, cord prolapse or antepartum haemorrhage requires immediate delivery. Forceps delivery or vacuum extraction is performed if the presentation is vertex. Breech extraction is performed if the presentation is breech.
- Breech extraction is done for footling breech.
- Breech extraction is done only for the second of twins. It is never done for second stage problems with a live foetus in a singleton breech.
- Breech extraction can be done for the second of twins because there is usually no risk of cephalo-pelvic disproportion, as twins are small.
- There is no fixed time interval between the delivery of the first and second twins. However, an oxytocin infusion is commenced if the contractions are inadequate and the delivery is expedited by forceps or ventouse delivery, or breech extraction, after the lapse of 30 minutes.

Q. 17. C and E

In twin pregnancy be prepared to deal with postpartum haemorrhage, which is common in twins due to uterine over distension, causing uterine atony and the presence of a larger placental site. The third stage is managed actively, but the bolus of oxytocin is given after the delivery of the anterior shoulder of the second twin. Labour can be induced in dichorionic twins at 38 weeks in the absence of obstetric contraindications. Epidural analgesia is indicated for pain relief.

Q. 18. C, D and E

Chorionicity is determined by ultrasound scanning in the first trimester.

Conjoined twins can occur only in monozygotic twins due to splitting of the embryo after 12 days because the embryonic disk has developed by this time.

Death of one monochorionic twin results in death or handicap of the other twin, due to acute hypotension secondary to placental vascular anastomoses, between the two fetal circulations. This happens at the time of death of the twin. Therefore, if death of one twin is anticipated, due to growth restriction or any other cause, delivery should be carefully timed to save both foetuses.

Uterine over distension in twins can cause uterine atony and poor uterine contractions during labour. This can cause primary dysfunctional labour.

Polyhydramnios occurs in both monochorionic and dichorionic twins, but the incidence is higher in monochorionic twins.

Q. 19. A, D and E

Ultrasound scanning in twin pregnancy

In the first trimester:

- To confirm twins.
- To confirm dates by measuring the crown rump length.
- To determine chronicity.
- To assess nuchal translucency.

In the second trimester

- For structural fetal abnormalities at 20 weeks.

- The placenta can be localised at 20 weeks, but placenta praevia is excluded after 28 weeks.
- Scanning is done once in two weeks from 16 weeks, in monochorionic twins, for early identification of TTTS, by the presence of infolding of the inter twin membrane and amniotic fluid discordance. There will be oligohydramnios with the maximum vertical pocket [MVP] less than 2 cm in one sac and polyhydramnios with the MVP greater than 8 cm in the other sac.
- Scanning is done once in 3–4 weeks from 24 weeks onwards, for growth and fetal weight discordance and amniotic fluid volume.
- Ultrasound scans are done at 16, 18, 20, 22, 24, 28, 32 and 36 weeks.

Q. 20. A, B and C

Offer women with uncomplicated

- monochorionic twin pregnancies delivery by elective caesarean section between 36–37 weeks, after a course of antenatal corticosteroids.
- dichorionic twin pregnancies elective delivery between 37–38 weeks.
- triplet pregnancies elective delivery by caesarean section from 35 weeks, after a course of antenatal corticosteroids.
- monochorionic monoamniotic twins caesarean section at 32–34 weeks.

Labour can be induced in uncomplicated dichorionic twins at 37–38 weeks, but pregnancy is not allowed to proceed beyond 38 weeks because of the presence of relative placental insufficiency. Primary dysfunctional labour is managed by amniotomy and oxytocin infusion.

Q. 21. A, C and D

Intrauterine death and intrauterine growth restriction occur more frequently in monochorionic twins due to relative placental insufficiency caused by a single placental mass.

CHAPTER

11

Medical Disorders

1. Acute fatty liver of pregnancy:

A. Causes disseminated intravascular coagulation.
B. Causes intrauterine death.
C. Causes acute liver failure.
D. Is treated with caesarean section under general analgesia.
E. Occurs in the second trimester.

2. Acute fatty liver of pregnancy:

A. Causes cirrhosis as a late sequelae.
B. Causes marked elevation of liver enzymes.
C. Is a cause of maternal death.
D. Is diagnosed by liver biopsy.
E. Requires transfusion of fresh frozen plasma and platelets.

(Ref. for questions 1 and 2: Obstetrics by Ten Teachers, 18th Edition, chapter 15, page 197).

3. Obstetric cholestasis:

A. Causes generalised pruritus.
B. Causes liver failure.
C. Causes pale stools and dark urine.
D. Is diagnosed by liver biopsy.
E. Occurs in the third trimester.

4. Obstetric cholestasis:

A. Causes postpartum haemorrhage.
B. Causes prolonged impairment of liver function after the puerperium.
C. Is caused by hepatitis A.
D. Recurs in subsequent pregnancies.
E. Requires induction of labour at 38 weeks.

5. Obstetric cholestasis causes:

A. Disseminated intravascular coagulation.
B. Deep jaundice.
C. Intrauterine death after 38 weeks.
D. Maternal death.
E. Mild elevation of liver enzymes.

6. Fetal effects of obstetric cholestasis include:

A. Intrapartum fetal distress.
B. Meconium staining of liquor.
C. Preterm labour.
D. Neonatal jaundice.
E. Biliary atresia.

7. Drugs used to treat obstetric cholestasis include:

A. Oral chlorpheniramine.
B. Oral corticosteroids.
C. Oral lactulose.
D. Oral vitamin K.
E. Transfusion of fresh frozen plasma.

(Ref. for questions 3–7: Obstetrics by Ten Teachers, 18th Edition, chapter 15, page 197–198).

8. Which of the following factors predispose to pregnancy-induced hypertension?

A. Anaemia.
B. Chronic renal disease.

C. Hydatidiform mole.
D. Multiparity.
E. Multiple pregnancy.

9. Which of the following is true regarding the use of antiepileptic drugs in pregnancy?

A. 1 mg of folic acid is given daily.
B. A single drug is the best treatment option.
C. Amniocentesis is done at 15 weeks to exclude fetal malformations.
D. Drugs are discontinued in women who are free of seizures for two years.
E. Sodium valproate is best avoided.

10. A woman who is on antiepileptic drugs:

A. Is at risk of developing chromosomal defects in the foetus.
B. Is at risk of developing neural tube defects and cleft palate in the foetus.
C. Requires an ultrasound scan at 20 weeks to exclude structural fetal abnormalities.
D. Requires increase of the dose in the second and third trimesters.
E. Requires review and readjustment of drugs at the pre-conception clinic.

Reference for questions 9–10:

- *Obstetrics by Ten Teachers, 19th Edition, chapter 12, pages 147–148.*
- *SBA Questions in Obstetrics, chapter 6, page 57.*

11. Risk factors for developing pre-eclampsia in a woman with chronic hypertension include the presence of:

A. Autoimmune diseases.
B. Chronic kidney disease.
C. Diabetes mellitus.
D. Multiparity.
E. Obesity with BMI more than 35 kg/m^2.

(Ref: Obstetrics by Ten Teachers, 19th edition, chapter 10, page 122).

12. (A). A woman who is found to have a blood pressure of 150/100 mm Hg at a POA of 34 weeks should be:

A. Admitted to hospital.
B. Commenced on oral frusemide.
C. Commenced on oral labetalol after 24 hours.
D. Commenced on oral losartan.
E. Monitored for fetal growth by performing serial ultrasound scans.

12. Which of the following is carried out in the management of a woman who is found to have a blood pressure of 150/100 mm Hg at a POA of 34 weeks?

A. Commence on oral labetalol or methyldopa or nifedepine
B. Give sublingual nifedepine
C. Induce labour at 38 weeks.
D. Perform full blood count, liver function tests, and renal function tests thrice a week.
E. Perform serial ultrasound scans once a week for fetal wellbeing.

13. A woman who is found to have a blood pressure of 170/110 mm Hg at a POA of 36 weeks will require:

A. Early delivery.
B. Intravenous magnesium sulphate if the reflexes are exaggerated.
C. Oral enalapril.
D. Oral labetalol.
E. Sublingual nifedepine.

14. Management of mild pregnancy induced hypertension (BP 140/90–149/99) includes:

A. Administration of antihypertensive drugs.
B. Delivery at 38–40 weeks.
C. Out-patient follow-up once a week.
D. Performing a coagulation profile once a week.
E. Performing umbilical artery Doppler studies once in 2 weeks from 28 weeks.

Ref. for questions 12–14:

- *Hypertension in pregnancy: diagnosis and management–NICE Clinical guideline [CG107], 1.4.1. 3, table 1. Published date: August 2010, last updated: January 2011.*
- *SBA Questions in Obstetrics, chapter 6, page 58–59.*

15. Which of the following drugs are used to reduce the blood pressure rapidly in severe pregnancy induced hypertension?

A. An oral dose of 1000 mg of methyldopa followed by 500 mg three times daily.
B. Intravenous hydralazine.
C. Intravenous labetalol.
D. Intravenous magnesium sulphate.
E. Sublingual nifedipine.

Ref:

- *Hypertension in pregnancy: diagnosis and management–NICE Clinical guideline [CG107], 1.8.2.1.*
- *SBA Questions in Obstetrics, chapter 6, page 59.*

16. Which of the following drugs are used to treat moderately severe pregnancy induced hypertension?

A. Enalapril.
B. Labetalol.
C. Losartan.
D. Methyldopa.
E. Oral nifedepine.

(Ref: SBA Questions in Obstetrics, chapter 6,page 58).

17. Diagnosis of pre-eclampsia requires:

A. Blood pressure of more than 140/90 mm Hg on two separate occasions 4 h apart.
B. Coagulation failure.
C. Excretion of more than 300 mg of protein in 24 hours.
D. Intrauterine growth restriction.
E. Liver failure.

Ref:

- *Obstetrics by Ten Teachers, 19th edition, chapter 10, page 122.*
- *SBA Questions in Obstetrics, chapter 6, page 58.*

18. The management of a woman who has a blood pressure of 150/95 mm Hg on two separate occasions 4 hours apart and significant proteinuria, at a POA of 32 weeks includes:

A. Admission to hospital.
B. Commencing oral antihypertensive drugs immediately.
C. Commencing oral aspirin.
D. Performing a coagulation profile twice a week.
E. Performing umbilical artery Doppler studies once a week.

Ref:

- *Hypertension in pregnancy: diagnosis and management–NICE Clinical guideline [CG107], 1.5.1.2, table 2.*
- *SBA Questions in Obstetrics, chapter 6, page 59.*

19. A diagnosis of impending eclampsia is made in a woman with pre-eclampsia if:

A. The 24 hour urine protein excretion is more than 300 mg.
B. The diastolic blood pressure is more than 110 mm Hg.
C. The reflexes are exaggerated.
D. The umbilical artery diastolic blood flow is absent.
E. There is impairment of coagulation.

Ref:

- *SBA Questions in Obstetrics, chapter 6, page 59.*
- *Hypertension in pregnancy: diagnosis and management–NICE Clinical guideline [CG107], 1.8.1.3.*

20. Management of eclampsia requires administration of:

A. Intravenous diazepam.
B. Intravenous frusemide.
C. Intravenous hydralazine.
D. Intravenous magnesium sulphate.
E. Sublingual nifedepine.

21. Management of eclampsia requires:

A. Admission to the ICU.
B. Continuing the pregnancy if the maturity is less than 34 weeks.
C. Excluding HELLP syndrome.
D. Maintenance of the airway.
E. Renal dialysis.

22. Management of eclampsia requires:

A. Delivery as soon as possible, if the foetus is alive, irrespective of the maturity.

B. Delivery after the fits are controlled.
C. Administration of intravenous hydralazine.
D. Early induction of labour.
E. Delivery after the patient is stable if the foetus is already dead.

22. (A) Which of the following methods are suitable to deliver a woman with eclampsia?

A. Augmentation of labour with amniotomy followed by an oxytocin infusion if the woman is in labour with a cervical dilatation of 6 cm.
B. Elective caesarean section after controlling fits.
C. Emergency caesarean section as soon as possible.
D. Induction of labour with amniotomy followed by an oxytocin infusion.
E. Induction of labour with vaginal prostaglandin.

23. The following drugs are used to control fits in eclampsia:

A. Diazepam.
B. Magnesium sulphate.
C. Phenobarbitone.
D. Phenytoin sodium.
E. Sodium valproate.

Reference for questions 20–23:

- *SBA Questionsin Obstetrics, chapter 6, page 60–61.*
- *Hypertension in pregnancy: diagnosis and management–NICE Clinical guideline [CG107], 1.8.*

24. Magnesium toxicity is determined by assessing the:

A. Level of consciousness.
B. Oxygen saturation in the maternal blood.
C. Patellar reflex.
D. Serum magnesium levels.
E. Urine magnesium levels.

24. (A) Magnesium toxicity is treated by:

A. Intravenous administration of 10 mg of 10% calcium gluconate.
B. Intravenous administration of normal saline and frusemide.
C. Plasmapheresis.
D. Stopping magnesium sulphate.
E. Transfusion of fresh frozen plasma.

(Ref: SBA Questions in Obstetrics, chapter 6, page 60).

25. Eclampsia and severe pre-eclampsia cause:

A. HELLP syndrome.
B. Intrauterine fetal death.
C. Neurological impairment.
D. Permanent liver damage.
E. Renal failure.

(Ref: SBA Questions in Obstetrics, chapter 6, page 60).

26. Management of labour in patients with New York Heart Association (NYHA) Grade 2 heart disease requires:

A. Administration of a bolus of 5 units of oxytocin in the third stage.
B. Administration of 0.5 mg of ergometrine in the third stage.
C. An oxytocin infusion to augment labour.
D. Application of obstetric forceps to shorten the second stage.
E. Epidural analgesia for pain relief.

Ref:

- *SBA Questions in Obstetrics, chapter 6, page 62–63.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 12, pages 152-153*

27. In heart disease complicating pregnancy:

A. Admission to hospital is recommended at 36 weeks in NYHA cardiac grades 1 and 2.
B. Caesarean section is the preferred method of delivery in NYHA cardiac grades 3 and 4.
C. Cervical ripening is carried out by inserting a Foley catheter.
D. Oral contraceptive pills are recommended for contraception.
E. The ideal interval between pregnancies is 2 years.

(Ref: Obstetrics by Ten Teachers, 19th Edition, chapter 12, pages 151–153).

28. Pregnancy is contraindicated in:

A. Cyanotic heart disease.
B. Eisenmenger's syndrome.
C. Marfan's syndrome.
D. Mitral incompetence.
E. Tight mitral stenosis.

(Ref: SBAQuestions in Obstetrics, chapter 6, page 61).

29. A woman with mitral stenosis who develops heart failure at a POA of 36 weeks requires:

A. Delivery by caesarean section after treating cardiac failure.
B. Induction of labour after treating cardiac failure.
C. Mitral valvotomy after treating cardiac failure.
D. Treatment with digoxin and frusemide.
E. Waiting for spontaneous onset of labour and normal vaginal delivery.

Ref:

- *SBA Questions in Obstetrics, chapter 6, page 63.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 12, page 153.*

30. In heart disease complicating pregnancy sterilisation:

A. Is best carried out in the immediate postpartum period.
B. Is carried out by minilaparotomy.
C. Is recommended after one child if severe pulmonary hypertension is present.
D. Is recommended after the birth of the second child in NYHA grade 2 disease.
E. Should be performed under spinal anaesthesia.

(Ref: SBA Questions in Obstetrics, chapter 6, page 63).

31. In mitral stenosis complicating pregnancy:

A. Atrial fibrillation increase the risk of pulmonary embolism.
B. Broad spectrum antibiotics are commenced at the onset of labour.
C. Intrauterine growth restriction occurs.
D. Mitral valvotomy by percutaneous catheterisation is indicated if heart failure occurs in the second trimester.
E. Oxytocin is given via an infusion pump to augment labour for patients in NYHA grades 1 and 2.

32. In heart disease complicating pregnancy:

A. Digoxin and frusemide are used to treat heart failure.
B. Intramuscular pethidine or morphine is used for pain relief in labour.
C. Mitral valve replacement is performed in the second trimester if severe mitral regurgitation is present.
D. Normal delivery is allowed in NYHA cardiac grades 1 and 2.
E. Oxytocic drugs are contraindicated to treat postpartum haemorrhage.

33. In heart disease complicating pregnancy:

A. An intravenous infusion is commenced at the onset of labour.
B. Anticoagulant drugs are routinely given in the puerperium.
C. Breastfeeding is allowed in NYHA cardiac grades 1 and 2.
D. Fetal echocardiogram should be performed if the mother has an atrial septal defect.
E. The greatest risk of heart failure occurs soon after delivery.

Ref. for question 31–33:

- *Obstetrics by Ten Teachers, 19th Edition, chapter 12, pages 151–153.*
- *SBA Questions in Obstetrics, chapter 6, page 61–63.*

34. Clinical features indicating the presence of heart disease include the occurrence of:

A. A pan systolic murmur.
B. A diastolic murmur.
C. An irregular heartbeat.
D. An ejection systolic murmur.
E. Occasional ectopic beats.

35. Which of the following should be done when a cardiac murmur is found in a woman at the first antenatal visit?

A. Perform a coagulation profile.
B. Perform a full blood count.
C. Perform an ECG.
D. Perform an exercise ECG.
E. Refer to the cardiologist for an echocardiogram.

(Ref. for questions 34–35: SBA Questions in Obstetrics, chapter 6, page 61).

36. Which of the following conditions will precipitate cardiac failure in a woman with heart disease complicating pregnancy?

A. Anaemia.
B. Arrhythmias.
C. Gestational diabetes mellitus.
D. Prolonged straining during the second stage of labour.
E. Upper respiratory tract infections.

Ref:

- *SBA Questions in Obstetrics, chapter 6, page 63.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 12, page 153.*

37. Which of the following maternal complications will occur in a patient with gestational diabetes mellitus?

A. Diabetic retinopathy.
B. Ketoacidosis.
C. Polyhydramnios.
D. Pregnancy induced hypertension.
E. Vaginal candidiasis.

Ref:

- *SBA Questions in Obstetrics, chapter 6, page 56.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 12, page 164.*

38. Which of the following fetal complications occur in gestational diabetes mellitus?

A. Fetal growth restriction.
B. Macrosomia.
C. Neonatal hypoglycemia.
D. Sacral agenesis.
E. Sudden intrauterine death after 38 weeks.

Ref:

- *SBAQuestions in Obstetrics, chapter 6, page 56.*
- *Obstetrics by Ten Teachers, 19th Edition, chapter 12, page 163.*

39. Which of the following tests are used to diagnose gestational diabetes mellitus?

A. Fasting blood sugar in the first trimester.
B. HbA1c.
C. Oral glucose challenge test.
D. Oral glucose tolerance test.
E. Postprandial blood sugar at the booking visit.

(Ref: SBA Questions in Obstetrics, chapter 6, page 54).

40. Which of the following tests should be carried out next in a woman who has an abnormal oral glucose tolerance test at 28 weeks?

A. Blood sugar series.
B. HbA1c.
C. Lipid profile.
D. Postprandial blood sugar.
E. Serum creatinine.

(Ref: SBA Questions in Obstetrics, chapter 6, page 54).

41. Which of the following blood sugar levels obtained from an OGTT would indicate the presence of gestational diabetes mellitus?

A. 1 hour PPBS value greater than 180 mg/dl.
B. 2 hour PPBS value greater than 140 mg/dl.
C. 2 hour PPBS value greater than 200 mg/dl.
D. FBS value greater than 126 mg/dl.
E. FBS value greater than 92 mg/dl.

(Ref: SBA Questions in Obstetrics, chapter 6, page 54). NICE Guideline on diabetes in pregnancy (NG3).

42. Which of the following should be done at the pre-conception clinic to optimise the pregnancy outcome in a woman with type 2 diabetes mellitus?

A. Diabetes should be controlled with metformin or insulin.
B. Genetic screening should be carried out on the couple.
C. HbA1c should be less than 6.5%.
D. She should be screened for nephropathy and retinopathy.
E. The BMI should be less than 30 kg/m^2.

(Ref: SBA Questions in Obstetrics, chapter 6, page 53).

43. A woman with gestational diabetes mellitus will require:

A. 6 value blood sugar series once in 2 weeks.
B. Delivery at 39–40 weeks if well-controlled.
C. Serial ultrasound scanning in the third trimester to exclude macrosomia.
D. Treatment with 3 pre-meal doses of soluble insulin if the FBS is more than 7 mmol/l.
E. Ultrasound scanning at 20 weeks to exclude sacral agenesis.

(Ref: SBA Questions in Obstetrics, chapter 6, page 55).

44. Indications to perform an oral glucose tolerance test at the booking visit include:

A. BMI more than 30 kg/m^2.
B. History of gestational diabetes mellitus in a previous pregnancy.
C. Past history of a small for gestational age foetus.
D. Past history of an unexplained stillbirth.
E. South Asian ethnic origin.

(Ref: SBA Questions in Obstetrics, chapter 6, page 53–54).

45. Fetal complications of type 2 diabetes mellitus include:

A. Congenital heart disease.
B. Fetal hydrops.
C. Intrauterine growth restriction.
D. Macrosomia.
E. Trisomy 13.

Ref:

- *SBA Questions in Obstetrics, chapter 6, page 56.*
- *Obstetrics by Ten Teachers, 18th Edition, chapter 15, page 188.*

46. Maternal effects of type 2 diabetes mellitus include:

A. Aggravation of retinopathy and nephropathy.
B. Anaemia.
C. Ketoacidosis.
D. Oligohydramnios.
E. Polyhydramnios.

Reference:

- *SBA Questions in Obstetrics, chapter 6, page 56.*
- *Obstetrics by Ten Teachers, 18th Edition, chapter 15, page 188.*

47. Neonatal effects of diabetes mellitus include:

A. Hyperbilirubinemia.
B. Hypermagnesemia.
C. Hypercalcemia.
D. Hypothermia.
E. Polycythaemia.

Ref:

- *SBA Questions in Obstetrics, chapter 6, page 56.*
- *Obstetrics by Ten Teachers, 18th Edition, chapter 15, page 188.*

48. In diabetes mellitus complicating pregnancy a six value blood sugar series:

A. Is not performed on patients who are controlled on diet only.
B. Is performed once in two weeks to assess the response to treatment.
C. Is performed prior to commencing or changing treatment.
D. Is regarded as normal if the pre-meal values are less than 5.3 mmol/l.
E. Is regarded as normal if the one hour postprandial values are less than 7.8 mmol/l.

(Ref: SBA Questions in Obstetrics, chapter 6, page 54–55).

49. Which of the following methods are used to treat diabetes mellitus complicating pregnancy?

A. Dietary control is not required if insulin is given.
B. Lente insulin is added at night if the fasting blood sugar values are not controlled with soluble insulin.
C. Oral metformin is commenced if adequate control is not achieved by diet alone.
D. Three pre-meal injections of soluble insulin is given if the fasting blood sugar is higher than 7 mmol/l.
E. Treatment is stopped after achieving good control.

Ref: SBA Questions in Obstetrics, chapter 6, page 54–55).

50. Investigations which are performed at the booking visit in a woman with a previous history of diabetes mellitus include:

A. HbA1c.
B. Oral glucose challenge test.
C. Oral glucose tolerance test.
D. Random blood sugar.
E. Six point blood sugar series.

(Ref: SBA Questions in Obstetrics, chapter 6, page 53).

51. Blood sugar control during labour in a woman with diabetes mellitus requires:

A. Commencing an insulin dextrose drip via an infusion pump.
B. Estimating blood sugar levels hourly.
C. Maintenance of blood sugar levels below 4 mmol/l after delivery.
D. Maintenance of blood sugar levels between 4–6 mmol/l.
E. Reducing the previous drug regime soon after delivery.

52. Which of the following is true regarding maintenance of an insulin dextrose drip during labour?

A. 1 unit of insulin is given hourly if the blood sugar is between 4–6 mmol/l.
B. Dextrose solution is omitted if the blood sugar is more than 4 mmol/l.
C. Insulin dextrose drip is continued for 48 hours after normal delivery.
D. The dose of insulin is doubled if the blood sugar is more than 6 mmol/l.
E. The dose of insulin is halved if the blood sugar is less than 4 mmol/l.

(Ref. for questions 51–52: SBA Questions in Obstetrics, chapter 6, page 55–56). Ref. for questions 37–52: NICE Guideline on diabetes in pregnancy (NG3).

53. Smoking in pregnancy carries a risk of developing:

A. Antepartum haemorrhage.
B. Childhood leukaemia.
C. Diabetes mellitus.
D. Intrauterine growth restriction.
E. Pre-eclampsia.

(Ref: Obstetrics by Ten Teachers, 18th Edition, chapter 11, page 136).

54. Thyrotoxicosis in pregnancy is treated with:

A. Carbimazole.
B. Propylthiouracil.
C. Radioactive iodine.
D. Surgery in cases resistant to medical treatment.
E. The lowest possible dose of antithyroid drugs.

55. Fetal complications of maternal thyrotoxicosis include:

A. Fetal anaemia.
B. Fetal tachycardia.
C. Intrauterine growth restriction.
D. Neonatal hypothermia.
E. Premature delivery.

56. Hypothyroidism in pregnancy:

A. Causes intrauterine growth restriction
B. Causes neonatal hypothyroidism and cretinism.
C. Is caused by low dietary intake of iodine.
D. Is caused by untreated Hashimoto's thyroiditis.

E. Requires thyroid replacement therapy with serial monitoring of thyroid hormone levels.

(Ref. for questions 54–56: Obstetrics by Ten Teachers, 18th Edition, chapter 15, page 190).

57. Women with sickle cell disease complicating pregnancy are at increased risk of:

A. Antepartum haemorrhage.
B. Fetal hydrops.
C. Miscarriage.
D. Preeclampsia.
E. Sickle cell crisis.

58. Women with sickle cell disease complicating pregnancy are at increased risk of:

A. Preterm labour.
B. Intrauterine growth restriction.
C. Infections.
D. Wernicke's encephalopathy.
E. Polyhydramnios.

59. Which of the following is true regarding sickle cell disease complicating pregnancy?

A. A haemoglobin concentration of 10 gm/dl with 60% HBA should be maintained.
B. Adequate pain relief is obtained during labour with epidural analgesia.
C. Heparin is commenced from the second trimester to prevent deep vein thrombosis.
D. There is a lower risk of sickle cell crisis during the puerperium.
E. Vaginal delivery is allowed.

(Ref. for questions 57–59: Obstetrics by Ten Teachers, 19th edition, chapter 12, page 144–145).

ANSWERS AND EXPLANATIONS

Q. 1. A, B, C and D

Q. 2. B, C and E

Explanation for Questions 1–2

- Acute fatty liver in pregnancy occurs in the third trimester or a few days after a still birth. There is perilobular fatty infiltration of the liver.
- It causes abdominal pain, headache, nausea, vomiting and progressive jaundice. Encephalopathy due to liver failure, DIC and renal failure can occur.
- Liver function tests, coagulation profile and renal function tests are markedly deranged.
- Diagnosis is confirmed by the clinical picture and biochemical tests.
- There is no place for liver biopsy as massive bleeding can occur.
- Maternal death occurs due to liver failure or haemorrhage and fetal death can occur due to metabolic disturbances caused by liver failure.
- Treatment is delivery by caesarean section under general anaesthesia as soon as possible.
- Supportive measures include transfusion of blood and blood products, treatment of liver failure and renal dialysis.
- Liver function returns to normal during the puerperium and there are no long-term sequelae.

Q. 3. A, C and E

Q. 4. A, D and E

Q. 5. C and E

Q. 6. A, B and C

Q. 7. A, B and D

Explanation for Questions 3–7

- Obstetric cholestasis develops in the third trimester.
- The prominent and usually the first symptom is generalised pruritus. Anorexia, pale stools

and dark urine may be present. Significant jaundice does not occur.
- Liver function tests are only mildly elevated. It is not associated with major maternal complications such as DIC or liver or renal failure.
- Diagnosis is by symptoms and mild elevation of liver function tests. There is no place for liver biopsy as bleeding can occur.
- Fetal effects include sudden intrauterine death at term, premature labour, meconium staining of liquor and intrapartum fetal distress.
- Management includes relief of pruritus with antihistamines and administration of oral vitamin K to the mother to prevent postpartum haemorrhage due to clotting defects. Oral corticosteroids may be needed if pruritus is resistant to treatment. It is not necessary to commence lactulose or fresh frozen plasma as there is no liver or coagulation failure.
- Labour should be induced at 38 weeks to prevent sudden intrauterine death.
- Liver function will return to normal during the puerperium.
- The condition tends to recur in subsequent pregnancies.

Q. 8. B, C and E

Predisposing factors for pregnancy induced hypertension include

Chronic renal disease, hydatidiform mole (early PIH), multiple pregnancy, pre-existing chronic hypertension, advanced maternal age, diabetes mellitus/GDM, autoimmune diseases and body mass index (BMI) of greater than 35 kg/m^2.

Q. 9. B, D and E

Q. 10. B, C and E

Explanation for Questions 9–10

All antiepileptic drugs are associated with development of structural fetal abnormalities such as cleft palate, neural tube defects and cardiac abnormalities. Therefore, ultrasound scanning should be performed at 20 weeks to exclude structural defects. These drugs do not cause chromosomal and genetic defects. Therefore, amniocentesis and CVS are of no value to exclude fetal abnormalities.

The least dose of antiepileptic drugs should be used to minimise the possibility of fetal abnormalities. Monotherapy is preferred. Sodium valproate is best avoided. Also the drug levels fall during pregnancy. However, the dose is not increased due to fetal risks. Therefore, it is important to review and readjust the drug regimen and to commence 5 mg of folic acid preconceptionally. Antiepileptic drugs could be stopped if the patient has been free of seizures for 2 years.

Q. 11. A, B, C and E

High-risk factors for developing pre-eclampsia include

- Hypertensive disease during a previous pregnancy.
- Chronic kidney disease.
- Autoimmune diseases such as systemic lupus erythematosus or antiphospholipid syndrome.
- Type 1 or type 2 diabetes.
- Chronic hypertension.

Moderate risk factors for developing preeclampsia include

- Age more than 40 years.
- Interval of more than 10 years after the last pregnancy.
- Body mass index (BMI) of 35 kg/m^2.
- Primiparity.
- Multiple pregnancy.

Q. 12. A, C and E Q. 12. (A). A, C and E

Explanation for Questions 12 and 12 A

The following should be carried out in a woman with moderately severe pregnancy induced hypertension (150/100–159/109 mm Hg):

- Admit to hospital. (Can even be managed as an outpatient with twice weekly follow-up if there are no complications or proteinuria.)

- Commence antihypertensive drugs if blood pressure remains elevated after 24 hours.
- Methyldopa (1–2 g daily in 3 divided doses) nifedipine (40 mg per day in 2 divided doses up to a maximum of 120 mg per day) and labetalol (300 mg per day in 3 divided doses up to a maximum of 1200 mg per day) are the recommended drugs. However, oral labetalol is preferred as the first-line treatment.
- The treatment should be adjusted to maintain the diastolic blood pressure between 80–100 mm Hg and the systolic blood pressure less than 150 mm Hg.
- Check for proteinuria daily. (Twice a week in outpatients)
- Monitor fetal growth by performing USS once in three weeks and well-being by performing serial weekly ultrasound scans.
- Perform full blood count, liver function tests, and renal function tests on admission. Do not repeat if there is no proteinuria.
- Discharge from hospital when the blood pressure drops to below 149\99 mm Hg and follow in the clinic once a week.
- Deliver at 38 weeks or earlier.

Diuretics and losartan are contraindicated in pregnancy induced hypertension. Sublingual nifedepine is given only for severe hypertension.

Q. 13. A, B, D and E

The following should be carried out in a woman with severe pregnancy induced hypertension (160/110 mm Hg or higher) at 36 weeks

- Admit to hospital.
- Commence antihypertensive drugs. Oral labetalol is the first-line drug. Oral nifedepine and methyldopa may be added to control the blood pressure.
- Sublingual nifedipine or intravenous hydralazine should be commenced.
- The treatment should be adjusted to maintain the diastolic blood pressure between 80–100 mm Hg and the systolic blood pressure less than 150 mm Hg.
- Give intravenous magnesium sulphate if reflexes are exaggerated.
- Check blood pressure 4 times a day.
- Test urine for protein.
- Do coagulation profile, liver function tests and renal function tests.
- Deliver as soon as possible.

Q. 14. B, C and E

The following should be carried out in a woman with mild pregnancy induced hypertension (140/90–149/99 mm Hg)

- Outpatient care.
- No antihypertensive drugs.
- Check blood pressure twice a week.
- Clinic visits once a week.
- Test for proteinuria once a week.
- Special tests not required. Perform only the routine antenatal investigations.
- Perform umbilical artery Doppler studies once in 2 weeks from 28 weeks to assess fetal wellbeing.
- Deliver at 38–40 weeks.

Q. 15. B, C and E

In the acute treatment of severe hypertension—DBP 110 mm Hg or higher

- One of the following drug regimens is used.
  - Intravenous hydralazine 5–10 mg bolus and repeated at 20–30 minute intervals. Can be followed with a hydralazine infusion containing 20 mg in 500 ml of saline.
  - Labetalol 20 mg intravenous bolus, repeated in increasing dose at 10–15 minute intervals.
  - Sublingual nifedipine 10 mg, repeated at 30 minute intervals.
- The Blood pressure should be checked every 10–15 minutes as all these drugs can cause a sudden, rapid fall in the blood pressure.

- Stop the treatment if the blood pressure reaches 140/90 mm Hg. Magnesium sulphate is given only for women with eclampsia or impending eclampsia.

Q. 16. B, D and E

- Methyldopa (1–2 g daily in 3 divided doses) nifedipine (40 mg per day in 2 divided doses up to a maximum of 120 mg per day) and labetalol (300 mg per day in 3 divided doses up to a maximum of 1200 mg per day) are the recommended drugs for moderately severe pregnancy induced hypertension. However, oral labetalol is preferred as the first-line treatment.
- The treatment should be adjusted to maintain the diastolic blood pressure between 80–100 mm Hg and the systolic blood pressure less than 150 mm Hg.
- Angiotensin converting enzyme inhibitors and angiotensin receptor blockers are contraindicated.

Q. 17. A and C

Diagnosis of pre-eclampsia require blood pressure of more than 140/90 mm Hg on two separate occasions 4 hours apart and excretion of more than 300 mg of protein in 24 hours. Coagulation failure, intrauterine growth restriction and liver failure are effects of severe pre-eclampsia.

Q. 18. A, D and E

This woman has pre-eclampsia and the management includes the following:

- Definitive treatment is delivery.
- The first step in the management is to admit to hospital.
- Next the patient's condition should be stabilised and complications should be prevented.
- Oral antihypertensive drugs are given if the DBP is above 100 mm Hg.
- The blood pressure is checked 4 hourly.
- Urine is tested for albumin daily and 24 hours protein excretion is tested once a week.
- Perform full blood count, coagulation profile, renal function tests and liver function tests twice or thrice weekly.
- Ultrasound scanning for umbilical artery Doppler studies and amniotic fluid volume is done once a week or more frequently if required. If umbilical artery blood flow is reduced or absent do a biophysical profile daily.

Oral aspirin is commenced at 12–16 weeks to prevent the occurrence of pre-eclampsia. It is of no value to treat pre-eclampsia.

Q. 19. B, C and E

Impending eclampsia is diagnosed if the blood pressure is more than 160/110 mm Hg with significant proteinuria and symptoms and signs such as headache, visual disturbances, epigastric pain, vomiting and brisk reflexes. There may be impairment of coagulation, oliguria and elevated liver enzymes.

Q. 20. C and D

Q. 21. A, C and D

Q. 22. A, C and E Q. 22. (A). A and C

Explanation for Questions 20–22 A

Definitive treatment of eclampsia is delivery as soon as possible after stabilising the patient, if the foetus is alive irrespective of the maturity. If the foetus is already dead eclampsia will improve and delivery is delayed till the maternal condition is stable.

- The first step in the immediate management is maintenance of the airway. Turn to the lateral side, suck out secretions, insert an oropharyngeal airway and give oxygen.
- The next step is to control fits by administering magnesium sulphate 4 g by slow intravenous infusion over 5–10 minutes, followed by a maintenance dose of 1 g hourly. Other antiepileptic drugs or sedatives are not used to control eclamptic fits.
- The blood pressure is reduced by giving intravenous hydralazine or labetalol. Sublingual nifedepine cannot be given as

the patient can have a fit and may be unconscious.

- Diuretics are contraindicated as they will further aggravate the intravascular dehydration which is already present in severe pregnancy induced hypertension.
- Admit to the intensive care unit (ICU). Fits can occur till 48 hours after delivery.
- Do a coagulation profile and liver function tests to exclude DIC and HELLP syndrome. Perform renal function tests and maintain an hourly intake output chart to exclude renal compromise. Renal dialysis is not necessary unless if acute renal failure occurs.
- Perform an ultrasound scan for fetal viability, umbilical artery Doppler flow studies and fetal maturity. Carryout continuous fetal heart rate monitoring.
- Deliver as soon as possible if the foetus is alive irrespective of the maturity.
- Caesarean section is the preferred method of delivery as the foetus is at risk. Also fits can occur during labour, thereby increasing the maternal and fetal risks.
- Vaginal delivery is allowed if the fits are under control, the foetus is mature and is in good condition, the patient is already in labour and a short labour can be anticipated. However, routine induction of labour is best avoided.

Q. 23. B

Q. 24. B, C and D Q. 24. (A). A and D

Explanation for Questions 23–24 A

Magnesium sulphate is the only drug which is used to control fits in eclampsia. Magnesium sulphate 4 g is given by slow intravenous infusion over 5–10 minutes, followed by a maintenance dose of 1 g hourly.

- Loss of deep tendon reflexes is the first sign of magnesium toxicity. This occurs when the serum levels exceed 5 mmol/litre and is followed by respiratory depression.
- Treatment is monitored by hourly assessment of the patellar reflex and oxygen saturation. Monitoring of serum levels are needed only if the patient has oliguria.
- The first step in treating magnesium toxicity is to stop the drug. The next step is to give 10 mg of 10% calcium gluconate intravenously.

Q. 25. A, B, C and E

Eclampsia and severe pre-eclampsia cause HELLP syndrome, intrauterine fetal death, neurological impairment, renal failure and impaired liver function. Liver function will return to normal during the puerperium.

Q. 26. A, D and E

During management of labour in a patient with heart disease complicating pregnancy:

- Adequate pain relief is essential as pain can precipitate cardiac failure. Pain relief is provided with epidural anaesthesia, pethidine or morphine.
- Avoid intravenous fluids due to the risk of fluid overload.
- Membranes can be ruptured once labour is established but an oxytocin infusion is best avoided due to the risk of fluid overload. Oxytocin can be given via an infusion pump if it is essential.
- If the second stage is longer than half an hour forceps or ventouse delivery is performed.
- Ergometrine is contraindicated as it causes vasoconstriction and increases the venous return and blood pressure. A bolus of 5 units of oxytocin can cause hypotension but is administered very slowly in the active management of the third stage. The uterus should be massaged to facilitate contraction.
- It is essential to prevent postpartum haemorrhage by the above methods as tachycardia caused by bleeding can precipitate cardiac failure. Oxytocic drugs such as ergometrine and misoprostol are routinely contraindicated, but may be used in cases of severe postpartum haemorrhage.

Q. 27. B, C and E

Patients in NYHA grade 1 and 2 heart disease are admitted at 39 weeks and those in grades 3 and 4 are admitted immediately. Caesarean section is the preferred mode of delivery in grade 3 and 4 heart disease with serious complications such as heart failure or arrhythmias, because the delivery can be planned under optimal conditions with minimal risk to the mother. If induction is planned in grade 1 and 2 disease, insertion of a Foley catheter is the preferred method of cervical ripening. Oral contraceptive pills are contraindicated because of the risk of thromboembolism. Family should be restricted to two children. The interval between pregnancies should be two years.

Q. 28. A, B and C

Pregnancy is contraindicated in Marfan's syndrome, cyanotic heart disease, cardiomyopathy, pulmonary stenosis, severe pulmonary hypertension and Eisenmenger's syndrome.

Q. 29. A and D

Cardiac failure is an emergency and should be treated effectively by the medical team. Since the foetus is mature delivery by caesarean section is the best option, as soon as the cardiac condition is optimised. Immediate caesarean section is contraindicated because the cardiac condition is poor. A planned caesarean section is safer than a vaginal delivery for a patient with serious cardiac disease, as it can be done under optimal conditions. Oxytocin causes fluid overload, hypotension and arrhythmias and is best avoided for induction and augmentation of labour in severe heart disease. Waiting for spontaneous onset of labour can cause deterioration of the cardiac condition again. Mitral valvotomy can be performed in the second trimester but is not done in the third trimester. This patient should be reassessed by the cardiologist and valvotomy should be performed after the puerperium.

Heart failure in pregnancy is treated with digoxin and frusemide. Metaprolol is added if arrhythmias are present.

Q. 30. B, C, D and E

Sterilisation is best performed by minilaparotomy under spinal anaesthesia after six weeks when the cardiovascular changes of pregnancy return to normal. Sterilisation is recommended after the birth of the second child, but should be performed after one child in cardiac conditions where pregnancy is contraindicated.

Q. 31. A, B, D and E

Q. 32. A, B and D

Q. 33. C, D and E

Explanation for Question 31–33

- Vaginal delivery is the preferred mode of delivery, over caesarean section for most women with congenital or acquired heart disease who are in NYHA grades 1 and 2, unless obstetric or specific cardiac considerations determine otherwise.
- Induction and augmentation of labour with oxytocin can be carried out in NYHA grades 1 and 2, if the Bishop score is more than 7. Oxytocin should be delivered via an infusion pump as fluid overload can occur if an infusion is used. Intravenous infusions are avoided during labour.
- Broad spectrum antibiotics are commenced at the onset of labour as prophylaxis against bacterial endocarditis. Antibiotics are continued for 5–7 days.
- Adequate pain relief is essential as pain can precipitate cardiac failure. Pain relief is provided with epidural anaesthesia, pethidine or morphine.
- A bolus of 5 units of oxytocin can cause hypotension but is administered very slowly in the active management of the third stage. Other oxytocic drugs should be avoided routinely, but can be used to control postpartum haemorrhage.
- The patient should be carefully observed in the labour ward for four hours, as heart failure is most likely to occur soon after

delivery. The venous return increases soon after delivery due to removal of caval compression by the pregnant uterus and release of blood from the placental sinuses due to contraction of the uterus.

- Breastfeeding is allowed in grade 1 and 2 cardiac disease.
- Mitral valvotomy and surgeries performed by percutaneous catheterisation can be done in the second trimester, if the cardiac status deteriorates in spite of medical treatment.
- Open heart surgery such as valve replacement is contraindicated, as it can cause fetal hypoxia.
- Atrial fibrillation increases the risk of pulmonary embolism. Anticoagulation is indicated only in women with arrhythmias and mechanical heart valves. Heparin is less effective than warfarin to prevent valve thrombosis, but warfarin carries the risk of teratogenicity. Heparin is given during the first trimester and warfarin during the second and third trimesters.
- Fetal echocardiography should be done at 22 weeks in women with congenital heart disease.

Q. 34. A, B and C

Pan systolic and diastolic murmurs are pathological, while ejection systolic murmurs occur due to the hyperdynamic circulation of pregnancy. Occasional ectopic beats are normal, but an irregular heartbeat may be due to atrial fibrillation.

Q. 35. B, C and E

Once a cardiac murmur is detected a full blood count is performed to exclude anaemia and an ECG is performed. An echocardiogram has to be performed to assess the cardiac function and to exclude a structural lesion. The patient is referred to a cardiologist.

Q. 36. A, B, D and E

Heart failure is precipitated by respiratory tract infection, anaemia, obesity, corticosteroids, tocolytics, multiple gestation, hypertension and arrhythmias. It is precipitated during labour by pain, fluid overload, prolonged straining during the second stage and increased venous return soon after delivery.

Q. 37. C, D and E

Maternal complications of gestational diabetes mellitus (GDM) include:

- Pregnancy induced hypertension
- Polyhydramnios
- Infections.

Ketoacidosis, retinopathy and nephropathy will occur in type 1 and 2 diabetics.

Q. 38. B, C and E

Fetal and neonatal problems of GDM include:

- Macrosomia
- Sudden intrauterine death
- Respiratory distress syndrome
- Hypothermia
- Hypoglycaemia
- Hyperbilirubinaemia
- Hypomagnesemia
- Polycythaemia

Fetal growth restriction and structural abnormalities occur in type 2 diabetes.

Q. 39. C and D

A 3 point OGTT is the best diagnostic test for GDM, but the one stage test is recommended for screening. Non-fasting one step oral glucose challenge test is also reliable. PPBS is a screening test and does not confirm the diagnosis of diabetes. HbA1c is used to assess the control in a patient who is known to have diabetes. FBS is not used to diagnose diabetes in pregnancy.

Q. 40. A and B

In patients with an abnormal glucose tolerance test a 6 sample blood sugar series (FBS, PPBS after breakfast, preprandial and postprandial blood sugar after lunch and dinner) is performed next, to assess the blood sugar levels throughout the day and

to plan the treatment regimen. HbA1c should be performed if the woman has not been previously screened to exclude pre-existing diabetes.

Q. 41. A, B and E

GDM is diagnosed if one or more values exceed the following thresholds:

- FBS> 92 mg/dl (5.1 mmol/litre)
- 1 hour PPBS > 180 mg/dl (10 mmol/litre)
- 2-hour PPBS >140 mg /dl (7.8 mmol/litre)

If the FBS is greater than 126 mg/dl (> than 7 mmol/litre) or the 2-hour PPBS is greater than 200 mg/dl (> than 11.1 mmol/litre) the possibility of type 1 or type 2 diabetes should be considered.

Q. 42. A, C, D and E

The following should be done at the pre-conception clinic in known diabetic patients:

- Diabetes should be well-controlled.
- Only metformin and insulin can be used as hypoglycemic agents.
- Stop smoking and alcohol.
- Folic acid 5 mg should be taken daily.
- Weight should be reduced. The BMI should be less than 30 kg/m^2.
- Retinal, renal and cardiac assessment should be done and any abnormalities should be treated.
- HbA1c should be 6.5% or lower as this indicates good control. Women whose levels are above 10% should be strongly advised against conception until good glycemic control is achieved, in view of higher risk of congenital anomalies.
- Angiotensin converting enzyme inhibitors, angiotensin II receptor antagonists and statins should be discontinued before conception, or as soon as pregnancy is confirmed.
- Genetic studies are not necessary as diabetes does not cause chromosomal or genetic defects.

Q. 43. A, B, C and D

A 6 value blood sugar series should be performed once in 2 weeks especially in the latter weeks of pregnancy to assess the control and response to treatment. It is better if the woman can perform these tests more frequently at home.

Sacral agenesis is a rare abnormality which occurs in diabetes. This and other structural abnormalities occur only in type 1 and 2 diabetes and can be diagnosed by performing an USS at 20 weeks. They do not occur in GDM.

Macrosomia occurs in GDM and in type 1 and 2 diabetes. Serial USS should be done once in 3 weeks from 26 weeks.

Even well-controlled patients are delivered between 38–40 weeks because of the risk of sudden intrauterine death in all diabetic patients. Earlier delivery is indicated if the control is poor.

Q. 44. A, B, D and E

Indications to perform an oral glucose tolerance test at the booking visit are:

- Gestational diabetes mellitus in a previous pregnancy.
- Diabetes in a first degree relative.
- Previous large-for-gestational-age infants, (more than 4.5 kg).
- Obesity-BMI greater than 30 kg/m^2.
- Older age at pregnancy.
- Previous unexplained intrauterine death.
- Women of South Asian origin.

Q. 45. A, C and D

Fetal complications of type 2 diabetes mellitus include structural abnormalities, intrauterine growth restriction, macrosomia and sudden intrauterine death. Genetic and chromosomal defects and hydrops is not caused.

Q. 46. A, C and E

Maternal effects of pre-existing diabetes are:

- Miscarriage.
- Pregnancy induced hypertension.

- Aggravation of retinopathy and nephropathy (assessed by serum creatinine and 24-hour protein excretion).
- Infections.
- Polyhydramnios.
- Ketoacidosis.

Q. 47. A, D and E

Neonatal effects of diabetes mellitus include:

- Respiratory distress syndrome
- Hypothermia
- Hypoglycaemia
- Hyperbilirubinaemia
- Hypomagnesemia
- Polycythaemia

Q. 48. B, C, D and E

- In patients with GDM or overt diabetes a 6 sample blood sugar series is performed to assess the blood sugar levels throughout the day and to plan the treatment regimen.
- A 6 point blood sugar series is done to assess control in all patients including those on diet control. This is done at least 4 weekly, with 2 weekly reviews in late pregnancy.
- The aim is to maintain FBS and premeal values between 3.5–5.3 mmol/l, 1 hour PPBS at or below 7.8 mmol/l and 2-hour PPBS at or below 6.5 mmol/l. It is better if the patient could do these tests more frequently at home.

Q. 49. B, C and D

- Metformin can be commenced in patients with GDM /DM, if blood glucose targets are not achieved with diet and exercise in 1–2 weeks. Metformincan be used alone in mild cases, or as an adjunct with insulin.
- Insulin with or without metformin, as well as changes in diet and exercise is the treatment of choice, if the fasting plasma glucose level is 7.0 mmol/litre or above at diagnosis.
- Three pre-meal injections of rapid acting insulin or soluble insulin are given. Women who have high FBS values can be given long acting insulin at night.
- Treatment has to be maintained after achieving good control. The drugs can be reduced after delivery in those with diabetes mellitus and may be omitted in women with GDM.

Q. 50. A and E

In a woman with a previous history of diabetes mellitus HbA1c is performed at the booking visit, to assess the diabetic control at the time of conception. The incidence of fetal abnormalities will be low, if good control is maintained, at the time of conception and in the first trimester. A blood sugar series is done to determine the treatment schedule. OGTT and OGCT are diagnostic tests for GDM and are not performed in a patient who is already known to have diabetes mellitus. RBS is not a reliable test in pregnancy.

Q. 51. A, B, D and E

Q. 52. A, D and E

Explanation for Questions 51 and 52

Blood sugar control during labour/LSCS/ immediate post-operative period:

- Blood glucose should be maintained between 4–6 mmol/l.
- Blood glucose is assessed hourly.
- Insulin dextrose drip is needed in resistant cases.
- Intravenous dextrose infusion at the rate of 10 g/h (100 ml) using a 10% solution and human actrapid insulin 6 units with 20 mmol/l of potassium chloride in 60 ml of normal saline (1 unit/10 ml) are delivered via an infusion pump.
- Insulin is commenced at the rate of 1 unit/h if the blood glucose level is between 4–6 mmol/l.
- Check the blood glucose hourly, if more than 6 double the insulin dose and if less than 4 halve the dose. Halve the dose soon after delivery.
- The drip is omitted after commencing oral feeds.

Q. 53. A, B and D

The effects of smoking depend on the number of cigarettes smoked per day. Effects are minimal if less than 5 cigarettes are smoked per day. Effects of smoking include reduced placental perfusion and intrauterine growth restriction, antepartum haemorrhage and childhood leukaemia.

Q. 54. A, B, D and E

Q. 55. B, C and E

Explanation for Questions 54–55

Fetal complications of maternal thyrotoxicosis include fetal growth restriction, stillbirth, fetal tachycardia and premature delivery. In autoimmune conditions maternal thyroid-stimulating antibodies can cross the placenta and cause fetal thyrotoxicosis and goiter. Antithyroid drugs form the first-line treatment in pregnancy. Carbimazole or propylthiouracil is used. Although both drugs can be used, propylthiouracil is safer for the foetus in the first trimester and carbimazole is preferred in the second and third trimesters as it is safer for the mother. The lowest dose should be used as high doses cross the placenta and cause fetal hypothyroidism. Radioactive iodine is contraindicated. Surgery may be needed in resistant cases.

Q. 56. B, C and E

The commonest cause of hypothyroidism in developing countries is low dietary intake of iodine. Other causes are autoimmune thyroiditis and over treatment of hyperthyroidism with radioactive iodine.

Serial thyroid function tests should be performed during pregnancy and adequate replacement therapy should be commenced prior to pregnancy.

If untreated neonatal hypothyroidism and cretinism can occur.

Q. 57. C, D and E

Q. 58. A, B and C

Explanation for Questions 57–58

Sickle cell disease complicating pregnancy causes sickle cell crisis, pre-eclampsia, miscarriage, preterm labour, intrauterine growth restriction, infections and increased fetal loss.

Q. 59. A, B and E

A haemoglobin concentration of 10 gm/dl with 60% HBA should be maintained throughout the pregnancy as this will minimise the risk of crisis. Blood transfusion or exchange transfusion may be needed to maintain the level of HBA. Vaginal delivery should be the aim. Adequate pain relief with epidural analgesia will reduce the stress of labour. Care should be taken to prevent hypoxia, hypothermia, dehydration and infection during labour as these and pain can precipitate a crisis. These women are at an increased risk of developing a crisis during the postnatal period.

CHAPTER

12

Fetal Growth Restriction

1. Major risk factors for occurrence of a small for gestational age foetus are:

A. Antiphospholipid syndrome.
B. Chronic hypertension.
C. Gestational diabetes mellitus.
D. Maternal age more than 34 years.
E. Previous small for gestational age foetus.

2. Which of the following tests are performed to predict the occurrence of a small for gestational age foetus?

A. Maternal antiphospholipid antibody levels.
B. Pregnancy associated plasma protein A levels at 16 weeks.
C. Pregnancy associated plasma protein A levels in the first trimester.
D. Umbilical artery Doppler studies at 20 weeks.
E. Uterine artery Doppler studies at 20–24 weeks.

3. Surveillance of a small for gestational age foetus at a POA of 28 weeks requires:

A. Serial measurement of the symphysis fundal height.
B. Ductus venosus Doppler flow studies if delivery is planned after 36 weeks.
C. Measurement of the umbilical artery Doppler flow once in two weeks.
D. Performing a cardiotocograph daily.
E. Serial measurement of fetal weight and abdominal circumference once in 3 weeks.

4. Diagnosis of a small for gestational age foetus is confirmed if the:

A. Abdominal circumference is less than the 10th centile for the gestational age.
B. Biparietal diameter is less than the 10th centile for the gestational age.
C. Estimated fetal weight is less than the 10th centile for the gestational age.
D. Liquor content is reduced.
E. Symphysis fundal height is reduced.

5. In a small for gestational age foetus umbilical artery Doppler studies are performed:

A. Once in two weeks if the values are normal.
B. Twice a week if the pulsatility index is increased.
C. Daily after admission to hospital if there is absent end diastolic flow.
D. Only in the presence of symmetrical growth restriction.
E. Only after 32 weeks.

6. Management of a small for gestational age foetus includes:

A. Administration of corticosteroids between 28–34 weeks.
B. Delivery at 40 weeks if the umbilical artery Doppler studies are normal.

C. Delivery at 41 weeks if there is symmetrical growth restriction.
D. Delivery between 30–32 weeks if the ductus venosus Doppler is abnormal.
E. Delivery by 32 weeks if the umbilical artery Doppler flow is absent or reversed.

Ref. for questions 1–6:

- Small-for-Gestational-Age Foetus, Investigation and Management, RCOG Green-top Guideline No. 31, Published: 22/03/2013, pages 1–5
- SBA Questions in obstetrics, chapter 8, page 78–79.

ANSWERS AND EXPLANATIONS

Q. 1. A, B and E

Major risk factors for occurrence of a SGA foetus are:

- Maternal age more than 40 years
- Heavy smoking and drug-addiction
- Previous SGA foetus
- Chronic hypertension
- Diabetes mellitus
- Renal impairment
- Antiphospholipid syndrome
- Maternal and paternal SGA
- Daily vigorous exercise.

Q. 2. A, C and E

- Pregnancy associated plasma protein A levels can be assessed in the first trimester in women who have three or more minor risk factors. A low level (< 0.415 MoM) is a major risk factor for delivery of a SGA neonate.
- Second trimester Down's syndrome markers are of limited value to predict the delivery of a SGA neonate.
- In patients with three or more minor risk factors, uterine artery Doppler can be performed at 20–24 weeks. Abnormal findings with a pulsatility index [PI] greater than the 95th centile and/or notching has a moderate predictive value for the birth of a SGA neonate. It is not necessary to perform predictive tests if the woman has a major risk factor for occurrence of a SGA foetus.

Q. 3. A, C and E

- Serial ultrasound measurement of fetal weight and abdominal circumference is carried out once in three weeks in a woman with a SGA foetus or in a woman with a major risk factor, or 3 minor risk factors.
- Umbilical artery Doppler studies is the best method to assess the well-being of a SGA foetus. If normal the test is repeated every 14 days and more frequently if an abnormal result is obtained.
- Symphysis fundal height (SFH) is measured at each clinic visit, from 24 weeks of pregnancy, to assess the growth, but may be inaccurate in those with BMI > 35, large fibroids or hydramnios. SFH should be plotted on a customised chart.
- Daily cardiotocography is not indicated in the surveillance of a SGA foetus.
- Ductus venosus Doppler studies is performed if delivery is required before 32 weeks due to absent or reversed umbilical artery blood flow.

Q. 4. A and C

Fetal abdominal circumference or estimated fetal weight (EFW) less than the 10th centile for the gestational age is used to diagnose a SGA foetus.

Biparietal diameter is a parameter to assess the gestational age and to diagnose symmetrical growth restriction.

Reduction of the symphysis fundal height will indicate that the baby is small, but the results will be inaccurate in those with BMI > 35, large fibroids or hydramnios.

Amniotic fluid volume should not be used to diagnose a small for gestational age foetus as it is not a measurement of the fetal weight.

Q. 5. A, B and C

- Umbilical artery Doppler studies is the best method to assess the well-being of a SGA foetus. It is carried out after 28 weeks. If normal the test is repeated every 14 days.
- If delivery is not indicated in foetuses with abnormal umbilical artery Doppler flow indices, repeat measurements are carried out twice weekly, if end-diastolic flow is present and daily if end-diastolic flow is reversed or absent.

Q. 6. A, B, D and E

- If preterm delivery is indicated between 24 and 35 + 6 weeks of gestation, a single course of antenatal corticosteroids should be given.
- Ductus venosus Doppler studies is used to time the delivery in the preterm SGA foetus, with absent or reversed end diastolic flow detected by umbilical artery Doppler studies. Delivery is recommended when DV Doppler becomes abnormal, provided the foetus is considered viable and after completion of steroids. Even when the ductus venous Doppler is normal, delivery is recommended for these foetuses by 32 weeks of gestation.
- A SGA foetus with normal umbilical artery Doppler values should be delivered by 40 weeks of gestation.

CHAPTER

13

Deep Vein Thrombosis

1. A woman who develops deep vein thrombosis at a POA of 36 weeks is treated with:

A. Intravenous unfractionated heparin during labour and for 48 hours postpartum.
B. Subcutaneous low molecular weight heparin 40 mg daily.
C. Subcutaneous low molecular weight heparin 60 mg twice daily.
D. Warfarin from the fifth postpartum day.
E. Warfarin till 38 weeks and LWMH thereafter.

Ref:

- *SBA Questions in Obstetrics, chapter 9, pages 84–85.*
- *Thromboembolic Disease in Pregnancy and the Puerperium: Acute Management, RCOG Green-top Guideline No. 37b, April 2015, page 3.*

2. Major and intermediate risk factors for developing venous thromboembolism include:

A. Gross varicose veins.
B. High-risk thrombophilia.
C. Obesity.
D. Previous episode of VTE after surgery.
E. Previous episode of VTE not related to surgery.

Ref:

- *SBA Questions in Obstetrics, chapter 9, page 85.*
- *Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium, RCOG Green-top Guideline No. 37a, April 2015, appendix 1*

3. Which of the following investigations are done to diagnose pulmonary embolism during pregnancy?

A. Coagulation profile.
B. Compression duplex ultrasound scanning of the lower limbs.
C. Computerised tomography pulmonary angiogram.
D. D-dimer testing.
E. Ventilation/perfusion lung scan.

Ref:

- *SBA Questions in Obstetrics, chapter 9, page 84.*
- *Thromboembolic Disease in Pregnancy and the Puerperium: Acute Management, RCOG Green-top Guideline No. 37b, April 2015, page 2.*

4. During treatment of deep vein thrombosis with low molecular weight heparin:

A. Fetal structural abnormalities occur.
B. No investigations are required to monitor the treatment in the absence of bleeding.
C. Sudden bleeding episodes are common.
D. Treatment should be stopped 24 hours before giving regional analgesia.
E. Treatment should be stopped at the onset of labour.

5. During treatment of venous thromboembolism with anticoagulant drugs:

A. Anti-Xa levels are done to monitor treatment with LMWH if bleeding occurs.
B. APTT is done to monitor treatment with unfractionated heparin.
C. D-dimer levels are done to monitor the efficacy of treatment.
D. INR is done to monitor the warfarin dose.
E. Platelet count is done to monitor the warfarin dose.

Ref. for questions 4 and 5:

- *SBA Questions in Obstetrics, chapter 9, pages 84–85.*
- *Thromboembolic Disease in Pregnancy and the Puerperium: Acute Management, RCOG Green-top Guideline No. 37b, April 2015, pages 3–4.*

6. Indications for prophylactic anticoagulant treatment during the antenatal period include:

A. Antiphospholipid syndrome.
B. Diabetes mellitus.
C. History of thromboembolism during a previous pregnancy.
D. Mitral stenosis.
E. Presence of prosthetic heart valves.

Ref:

- *SBA Questions in Obstetrics, chapter 9, pages 85–86.*
- *Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium, RCOG Green-top Guideline No. 37a, April 2015.*

7. A woman who develops pulmonary embolism during the antenatal period is treated with:

A. Anticoagulants till the D-dimer levels become normal.
B. Intravenous unfractionated heparin during labour and for 48 hours postpartum.
C. Intravenous unfractionated heparin in the acute phase.
D. Streptokinase for thrombolysis during the acute phase.
E. Subcutaneous low molecular weight heparin during the antenatal period.

Ref:

- *Thromboembolic Disease in Pregnancy and the Puerperium: Acute Management, RCOG Green-top Guideline No. 37b, April 2015, pages 3–4.*
- *SBAQuestions in Obstetrics, chapter 9, pages 84–85.*

8. Treatment with warfarin during pregnancy:

A. Does not cause bleeding.
B. Is indicated for women who develop pulmonary embolism.
C. Is indicated for women with prosthetic heart valves.
D. Is stopped at 36 weeks and substituted with LMWH.
E. Should be avoided and substituted with LMWH during the first trimester.

ANSWERS AND EXPLANATIONS

Q. 1. A, C and D

- In clinically suspected DVT or PE, treatment with low molecular weight heparin (LMWH) should be commenced immediately.
- The standard dose is 1.5 mg/kg once daily or 1 mg/kg twice daily. (The standard dose for a 50–90 kg woman is 60 mg twice a day.) A dose of 40 mg daily is given for thromboprophylaxis.
- The leg should be kept elevated and a graduated elastic compression stocking is applied to reduce oedema. Mobilisation should be encouraged.
- As this woman has developed acute DVT at 36 weeks, intravenous unfractionated heparin should be commenced during labour and continued for 48 hours. Intravenous unfractionated heparin is indicated

for women who are at high-risk of haemorrhage and in whom continued heparin treatment is essential.

- Warfarin can be commenced on the fifth day after delivery. Breastfeeding is not contraindicated. Warfarin is teratogenic if given during the first trimester. It has a longer half-life than LMWH and can cause bleeding. Therefore, warfarin is not recommended for treatment of acute VTE during the antenatal period.

Q. 2. B, D and E

Major risk factors for developing venous thromboembolism (VTE)

- Previous episode of VTE not related to surgery.

Intermediate risk factors for developing venous thromboembolism

- Hospital admission.
- Previous episode of VTE after surgery.
- High-risk thrombophilia.
- Medical comorbidities, e.g. cancer, heart failure, active SLE, inflammatory bowel disease or inflammatory polyarthropathy, nephrotic syndrome, type I DM with nephropathy, sickle cell disease.
- Any surgical procedure.

Minor risk factors for developing venous thromboembolism (VTE)

- Obesity.
- Age more than 35.
- Parity more than 3.
- Gross varicose veins.
- Smoking.
- Immobility.
- Family history of VTE.
- Current pre-eclampsia.
- *In vitro* fertilisation.

Q. 3. B, C and E

- Electrocardiogram and chest X-ray are screening tests which are done initially but they do not confirm PE.
- If symptoms and signs of DVT are present, a compression duplex ultrasound scan of the lower limbs should be performed first. If ultrasonography confirms the presence of DVT, treatment can be commenced. Further investigations are not indicated.
- In women with suspected PE without symptoms and signs of DVT, a ventilation/perfusion (V/Q) lung scan is done if the chest X-ray is normal.
- If the chest X-ray is abnormal a computerised tomography pulmonary angiogram (CTPA) should be performed.
- Ventilation/perfusion (V/Q) lung scan is not confirmatory as abnormal results can occur if chronic lung disease or chest infection is present.
- Computerised tomography pulmonary angiogram is the most reliable test to confirm acute PE.
- D-dimer testing should not be performed in the investigation of acute VTE in pregnancy. D-dimer levels rise in normal pregnancy and the postnatal period and are of no value to diagnose pulmonary embolism.
- A coagulation profile is not indicated.

Q. 4. B, D and E

Q. 5. A, B and D

Explanation for Questions 4 and 5

LMWH does not cross the placenta and is not teratogenic. It has a short half-life and does not cause bleeding. Treatment should be stopped at the onset of labour, or 24 hours before giving regional analgesia, planned induction of labour, or caesarean section. No tests are routinely done to monitor treatment with LMWH, as thrombocytopenia and bleeding occur rarely. If bleeding occurs anti-Xa levels should be done.

International normalisation ratio (INR) is done to monitor treatment with warfarin. INR is maintained between 2–2.5 during treatment.

APTT is done daily to monitor treatment with intravenous unfractionated heparin.

D-dimer levels rise in normal pregnancy and the postnatal period and are of no value to monitor the efficacy of treatment.

A baseline full blood count, platelet count and prothrombin time are done before commencing treatment, but are not used to monitor treatment with anticoagulant drugs.

Q. 6. A, C and E

Prophylactic LMWH should be commenced if one major or intermediate risk factor is present, or if 4 or more minor risk factors are present. *(Refer answer to question 2).* Women with prosthetic heart valves are treated with heparin during the first trimester and after 36 weeks. They are given warfarin during the rest of the antenatal period.

Q. 7. B, C, D and E

- Patients with massive pulmonary embolism are treated with intravenous unfractionated heparin during the acute phase.
- Thrombolysis with streptokinase should be commenced in massive life-threatening pulmonary embolism, or where there is a risk of limb ischaemia due to iliofemoral thrombosis.
- Treatment is continued with low molecular weight heparin (LMWH) during the antenatal period. The standard dose is 1.5 mg/kg once daily or 1 mg/kg twice daily.
- Intravenous unfractionated heparin is commenced during labour and is continued for 48 hours.
- Anticoagulation should be continued for at least 6 weeks after the delivery and until at least 3 months of treatment has been given.
- Warfarin can be commenced on the fifth day after delivery. Breastfeeding is not contraindicated. D-dimer levels are not used to monitor the treatment.

Q. 8. C, D and E

Warfarin is teratogenic if given during the first trimester. It has a longer half-life than LMWH and can cause bleeding. Therefore, warfarin is not routinely recommended during the antenatal period.

Warfarin is more efficacious than unfractionated or low molecular weight heparin for thromboembolic prophylaxis of pregnant women with mechanical valves and is recommended for women with prosthetic heart valves only.

However, it should be substituted with LMWH during the first trimester.

Warfarin has a longer half-life than heparin and should be stopped at 36 weeks and recommenced 5 days after partus.

CHAPTER

14

Iron Deficiency Anaemia

1. Iron deficiency anaemia in pregnancy is:

A. Diagnosed by the presence of a hypochromic microcytic blood picture.
B. Diagnosed if the serum ferritin is below 15 µg/l.
C. Prevented by giving a prophylactic dose of 60 mg of elemental iron daily from 12 weeks.
D. Treated with 120 mg of elemental iron daily before 36 weeks.
E. Treated with parenteral iron if the POA is more than 36 weeks.

2. Indications for blood transfusion in iron deficiency anaemia include:

A. Haemoglobin level below 7 g/dl.
B. Haemoglobin level of less than 10g/dl after 36 weeks.
C. Intolerance to oral iron.
D. Occurrence of signs of cardiac decompensation.
E. Serum ferritin below 15 µg/l.

Ref. for questions 1–2:

- *SBA Questions in Obstetrics, Chapter 7, page 75.*
- *Iron Deficiency Anaemia in Pregnancy: Diagnosis, Prevention and Treatment, Sri Lanka Journal of Obstetrics and Gynaecology, September 2014, pages 61–62.*

3. Indications for parenteral iron therapy in pregnancy are:

A. Haemoglobin level below 8 g/dl.
B. Intolerance to oral iron.
C. Malabsorption syndrome.
D. Non-compliance for oral iron therapy.
E. To obtain a quick restoration of the haemoglobin level.

Ref:

- *SBA Questions in Obstetrics, Chapter 7, page 75.*
- *Iron Deficiency Anaemia in Pregnancy: Diagnosis, Prevention and Treatment, Sri Lanka Journal of Obstetrics and Gynaecology, September 2014, pages 63–64.*

4. In iron deficiency anaemia complicating pregnancy:

A. Dietary advice is not required if treated with oral iron.
B. Estimation of the serum ferritin level is essential to commence treatment.
C. Haemoglobin level should rise by 1 gm/dl, 2 weeks after commencing treatment.
D. Oral iron is continued for three months after the haemoglobin level is restored.
E. The haemoglobin level should be more than 10 gm/dl before onset of labour.

Ref:

- *SBA Questions in Obstetrics, Chapter 7, page 74– 75.*
- *Iron Deficiency Anaemia in Pregnancy: Diagnosis, Prevention and Treatment Sri Lanka Journal of Obstetrics and Gynaecology, September 2014, pages 63–64.*

5. During prophylactic treatment with oral iron a pregnant woman should be advised to:

A. Avoid taking the iron tablets with tea or coffee.
B. Commence iron from the early first trimester.
C. Take iron and calcium tablets at the same time.
D. Take iron tablets one hour before a meal or two hours after a meal.
E. To take 100 mg of vitamin C with the iron.

6. Which of the following is true regarding iron metabolism in pregnancy?

A. A woman needs 1000 mg of iron during the pregnancy.
B. Maternal anaemia results in fetal anaemia.
C. The fetus and the placenta need 300 mg of iron.
D. The foetus receives iron by active transport across the placenta.
E. Total iron binding capacity decrease in pregnancy.

7. Which of the following is true regarding iron metabolism in pregnancy?

A. 6–8 mg of iron is required daily after 32 weeks.
B. Erythropoiesis is increased during pregnancy.
C. Increased red cell mass requires 500 mg of iron.
D. Iron absorption decreases in the third trimester.
E. Iron is absorbed in the ferric state.

ANSWERS AND EXPLANATIONS

Q. 1. A, B, C and D

- A full blood count is performed in all pregnant women at the booking visit and at 28 weeks to screen for anaemia.
- If a patient has a low haemoglobin level the next step in the management is to perform a blood picture.
- In IDA blood picture will show microcytic hypochromic red blood cells with aniso-poikilocytosis and pencil shaped cells.
- Serum ferritin level below 15 µg/l is diagnostic of IDA. Treatment is required if the level is below 30 µg/l.
- However, in patients with haemoglobin level below 11 g/dl presence of IDA is confirmed by the blood picture and treatment is commenced without performing further investigations.
- A supplementary prophylactic dose of 60 mg of oral iron with folic acid 400 µg per day is given from 12 weeks, to all pregnant women in Sri Lanka and in other developing low and middle income countries.
- A double dose of oral iron is given initially till the haemoglobin (Hb) level is restored in anaemic patients who are able to tolerate the dose, to ensure an adequate intake.

Q. 2. A B D

Indications for blood transfusion are:

- IDA after 36 weeks with a haemoglobin level below 10 g/dl, as there is no time to restore Hb levels with oral iron, before onset of labour.
- IDA with a haemoglobin level below 7 g/dl, due to the immediate risk of heart failure.
- IDA with symptoms of decompensation such as dyspnoea, even if the haemoglobin level is higher than 7 g/dl.

Intolerance to oral iron is an indication to treat with parenteral iron.

Serum ferritin levels are not regarded as a parameter to decide on the method of treatment.

Q. 3. B, C and D

Indications for parenteral iron are

- Non-compliance.
- Intolerance to oral iron.
- Malabsorption syndrome.

Parenteral iron is a better option than oral iron in patients with IDA who are close to term since it is more effective due to elimination of poor compliance.

Although parenteral iron has the ability to replenish the depleted iron stores more rapidly, the rate of improving the Hb level is similar to that with oral iron.

Q. 4. C, D and E

- The haemoglobin level is assessed after 2 weeks of commencing treatment to assess the therapeutic response.
- If the diagnosis of IDA is correct the haemoglobin level should rise by 1 gm/dl (between 0.5–2 gm/dl).
- Oral iron therapy should be continued for at least three months after normal haemoglobin levels are achieved, to replenish iron stores.
- Dietary advice is essential. She should be advised to eat food rich in iron. Red meat, fish and poultry contain haem iron which is absorbed more readily than non-haem iron. Eggs and dried sprats are cheap sources of haem iron. Good sources of non-haem iron are germinating cereals, legumes and green leaves.
- In patients with haemoglobin levels below 11 g/dl presence of IDA is confirmed by the blood picture and treatment is commenced without performing serum ferritin levels or any other further investigations.
- In Sri Lanka and other developing countries a haemoglobin level of 10 g/dl is regarded as the cut-off point before onset of labour.

Q. 5. A, D and E

The oral iron should not be taken with a main meal or with tea or coffee, as polyphenols found in these impair iron absorption. It should be taken at least one hour before a main meal with vitamin C or fruit juice. Antacids or calcium supplements should not be taken at the same time. Iron supplements are commenced early in the second trimester.

Q. 6. A, C and D

Q. 7. A, B and C

CHAPTER

15

Hyperemesis Gravidarum

1. Which of the following complications occur in severe hyperemesis gravidarum?

A. Delivery of low birth weight babies.
B. Hypokalaemia.
C. Liver failure.
D. Microcephaly in the foetus.
E. Wernicke's encephalopathy.

2. In Hyperemesis gravidarum:

A. A score of 13 in the pregnancy unique emesis quantification index indicates severe vomiting.
B. Dextrose and saline infusions are given.
C. Early termination of pregnancy should be considered.
D. Iron supplements should be avoided.
E. Ketonuria occurs in severe cases.

3. Which of the following supportive treatments are given in severe hyperemesis?

A. Early administration of intravenous corticosteroids.
B. Intravenous ranitidine.
C. Normal saline infusions with added potassium.
D. Oral diazepam.
E. Thiamine supplements.

4. First-line drugs used to control vomiting in hyperemesis gravidarum include:

A. Cyclizine.
B. Ondansetron.
C. Prochloperazine.
D. Promethazine.
E. Thiamine.

5. Second line drugs used to control vomiting in hyperemesis gravidarum include:

A. Corticosteroids.
B. Dextrose infusion.
C. Domperidone.
D. Metochlopramide.
E. Ondansetron.

6. Which of the following pathological entities should be excluded when excessive vomiting occurs in the first trimester of pregnancy?

A. Acute appendicitis.
B. Hydatidiform mole.
C. Rubella infection.
D. Twisted ovarian cyst.
E. Viral hepatitis.

(Ref. for questions 1–6: The Management of Nausea and Vomiting of Pregnancy and Hyperemesis Gravidarum, RCOG Green-top Guideline, No. 69, June 2016).

ANSWERS AND EXPLANATIONS

Q. 1. A, B and E

Women with hyperemesis gravidarum (HG) and low pregnancy weight gain (less than 7 kg during pregnancy) are at an increased risk of preterm delivery and low birth weight babies. Wernicke's encephalopathy due to vitamin B1 (thiamine) deficiency can occur in severe cases. Wernicke's encephalopathy is a potentially fatal but reversible medical emergency which is preventable. There is an association between Wernicke's encephalopathy and administration of intravenous dextrose and parenteral nutrition. Therefore, thiamine supplementation is recommended for all women with protracted vomiting. HG causes hyponatraemia, hypokalaemia, low serum urea, raised haematocrit and ketonuria with a metabolic hypochloraemic alkalosis. Liver function tests are abnormal in up to 40% of women with HG, but these improve and liver failure does not occur. Fetal structural abnormalities are not caused by HG.

Q. 2. A, D and E

Q. 3. B, C and E

Explanation for Questions 2 and 3

A pregnancy unique emesis quantification index score of less than 6 indicates mild vomiting, a score of 7–12 indicates moderate vomiting and a score of 13–15 indicates severe vomiting. (RCOG Green-top-Guideline No. 69, June 2016, page 24). Normal saline with added potassium chloride is the most appropriate intravenous hydration. Dextrose infusions are not recommended unless the serum sodium levels are normal and thiamine has been administered. Fluid administration is guided by daily monitoring of electrolytes. Termination of pregnancy is recommended only in cases where all forms of treatment has failed. Iron supplements should be avoided as these can exacerbate vomiting. Ketonuria can occur in severe cases. Thiamine supplementation is recommended for all women with protracted vomiting, to prevent the occurrence of Wernicke's encephalopathy, which is a rare but a potentially fatal complication. Corticosteroids should be reserved for cases where standard therapies have failed. Histamine H_2 receptor antagonists or proton pump inhibitors may be used for women developing gastroesophageal reflux disease, oesophagitis or gastritis. Use of diazepam is not recommended.

Q 4. A, C, and D

Q. 5. C, D and E

Explanation for Questions 4 and 5

The Management of Nausea and Vomiting of Pregnancy and Hyperemesis Gravidarum, RCOG Green-top-Guideline No. 69 June 2016, page 25, appendix 3.

Q. 6. A, B, D and E

Other pathological causes of nausea and vomiting include appendicitis, urinary tract infections, gastroenteritis, hepatitis, twisted ovarian cysts, peptic ulcers, cholecystitis, pancreatitis, metabolic conditions, neurological conditions and drug-induced nausea and vomiting.

CHAPTER

16

Perinatal Infections

1. When a woman is exposed to chickenpox at a POA of 10 weeks:

A. Acyclovir is given if she develops the infection.
B. Her serum is first tested for IgG antibodies against varicella zoster virus.
C. Ultrasound scan is done at 20 weeks to exclude fetal varicella syndrome if she develops the infection.
D. Varicella zoster vaccine is given if she is non-immune.
E. Varicella zoster virus IgG is given if she is non-immune.

2. If a woman develops chickenpox at 39 weeks:

A. Acyclovir is given.
B. Delivery should be by caesarean section.
C. Delivery should be delayed for 7 days.
D. The neonate is given the varicella zoster vaccine if delivery occurs before 7 days.
E. The neonate is given VZIG if delivery occurs before 7 days.

3. If a woman develops chickenpox during pregnancy:

A. Acyclovir is given if the POA is more than 20 weeks.
B. Fetal varicella syndrome can occur if the infection occurs in the first 28 weeks.
C. Amniocentesis is done to detect fetal varicella syndrome 6 weeks after the infection.
D. Pregnancy should be terminated if the infection occurs in the first trimester.
E. Normal vaginal delivery is allowed.

Ref. for questions 1–3:

- *SBA Questions in Obstetrics, chapter 10, pages 90–91.*
- *Chickenpox in Pregnancy, RCOG Green-top Guideline No. 13, Published: 21/01/2015, pages 2–4.*

4. If a woman develops painful genital ulcers at a POA of 36 weeks:

A. A caesarean section is performed at 38 weeks if she does not have antibodies against the infecting organism.
B. The infecting organism and its type should be identified first.
C. The neonate is treated with acyclovir.
D. The serum should be tested for type specific antibodies against the organism.
E. The woman is given immunoglobulin if antibodies are absent.

5. A woman with secondary genital herpes infection at 36 weeks:

A. Is allowed vaginal delivery.
B. Is at risk of developing puerperal sepsis.
C. Requires a caesarean section if ulcers are present at the onset of labour.
D. Should not breast feed.
E. Will transfer antibodies to the foetus.

6. A woman who develops genital herpes in the third trimester:

A. Is allowed vaginal delivery if there are no ulcers at the onset of labour.
B. Is treated with acyclovir from 36 weeks till the onset of labour if vaginal delivery is allowed.
C. Requires caesarean section if the infection is a primary one.
D. Will transmit the infection to the foetus by the transplacental route.
E. Will transmit the infection to the foetus during vaginal delivery in the absence of maternal antibodies.

7. Diagnosis of genital herpes during pregnancy involves:

A. Culture of the organism to identify the type.
B. Electron microscopic examination of scrapings from the ulcer to identify the organism.
C. Electron microscopic examination of vaginal secretions.
D. Testing for antibodies against infecting type in the amniotic fluid.
E. Testing for antibodies against infecting type in the maternal serum.

Ref. for questions 4–7:

- *SBA Questions in Obstetrics, chapter 10, pages 91–92.*
- *Management of genital herpes in Pregnancy, Published on: 17/10/2014, pages 8–10. (RCOG and BASHH)*

8. Which of the following drug regimens are recommended for a pregnant woman with HIV infection?

A. Commence cART if the viral load is more than 30000 HIV RNA copies/ml in the second trimester.
B. If the woman is already on cART continue the treatment.
C. Long-term broad spectrum antibiotics should be commenced in the third trimester.
D. Women on Zidovudine monotherapy can undergo vaginal delivery.
E. Zidovudine monotherapy is recommended if the viral load is less than 10000 copies/ml.

9. Caesarean section is recommended for women with HIV:

A. On cART whose viral load is more than 50 copies/ml.
B. Who are on Zidovudine monotherapy.
C. Who have hepatitis C.
D. Who wish to breastfeed the baby.
E. Who wish to undergo sterilisation.

10. Which of the following precautions should be taken if vaginal delivery is allowed in a woman with HIV?

A. Amniotomy should be delayed till delivery is imminent.
B. cART should be continued throughout labour.
C. Fetal scalp blood sampling is contraindicated.
D. If instrumental delivery is indicated, vacuum extraction is preferred to low cavity forceps.
E. Prostaglandin use is contraindicated.

11. The management of a woman with HIV during the puerperium requires:

A. Avoidance of breastfeeding .
B. Continuing cART.
C. Long-term antibiotic therapy.
D. Recommending condoms as the best method of contraception.
E. Separating the baby from the mother.

12. Vertical transmission of HIV is prevented by:

A. Avoiding breastfeeding.
B. Giving anti-retroviral therapy for the baby.
C. Giving anti-retroviral therapy for the mother.

D. Performing an elective caesarean section.
E. Separating the baby from the mother.

Ref. for questions 8–12:

- *SBA Questions in Obstetrics, chapter 10, page 92–94.*
- *British HIV Association guidelines for the management of HIV infection in pregnant women 2012 (Updated May 2014), pages 7–13.*

13. Occurrence of maternal rubella infection is diagnosed by:

A. A four-fold rise in rubella specific IgG antibodies.
B. A four-fold rise in rubella specific IgM antibodies.
C. Occurrence of a rash.
D. Presence of rubella specific IgG antibodies.
E. Presence of rubella specific IgM antibodies.

14. If maternal rubella infection is confirmed at a POA of 8 weeks:

A. Continue the pregnancy if the antibody levels fall after one week.
B. Give rubella specific immunoglobulin to the mother.
C. Perform an ultrasound scan to diagnose fetal infection.
D. Perform CVS and test for rubella specific DNA to confirm fetal infection.
E. The woman should be counseled regarding termination.

15. Occurrence of congenital rubella infection is prevented by:

A. Advising non-immune pregnant women to avoid exposure.
B. Giving rubella specific immunoglobulin if a non-immune pregnant woman is exposed to rubella.
C. Giving rubella specific immunoglobulin to the neonate at birth if the mother develops rubella during the first trimester.
D. Testing for rubella specific IgG antibodies preconceptionally and vaccinating non-immune women.
E. Vaccinating all schoolgirls.

16. Vaccination for rubella is recommended:

A. During infancy.
B. During pregnancy.
C. For all schoolgirls.
D. In the immediate postpartum period.
E. Preconceptionally if the woman is willing to postpone pregnancy for 2 months.

Ref: for questions 13–16:

- *SBA Questions in Obstetrics, chapter 10, page 94–95.*
- *Rubella in pregnancy, SOGC clinical practice guidelines, 203, February 2008.*

17. Intrapartum antibiotic prophylaxis against group B streptococcus infection is required:

A. During elective caesarean section in carriers of group B streptococcus.
B. In women with group B streptococcal bacteriuria.
C. In all women with pre-labour rupture of membranes at or after 37 weeks.
D. In all cases of preterm labour with intact membranes.
E. In vaginal infection with group B streptococcus.

18. In which of the following circumstances is intrapartum antibiotic prophylaxis required for groupB streptococcus infection?

A. Induction of labour before 37 weeks.
B. For women who have been GBS carriers in a previous pregnancy.
C. GBS urinary tract infection.
D. History of a previously affected baby.
E. Pyrexia in labour.

19. Which of the following drugs are used for intrapartum antibiotic prophylaxis in group B streptococcal infection?

A. Intravenous amoxicillin.
B. Intravenous benzyl penicillin.

C. Intravenous clindamycin.
D. Intravenous gentamycin.
E. Oral erythromycin.

20. Which of the following is true regarding group B streptococcal infection?

A. All pregnant women should not be screened for group B streptococcal infection.
B. GBS urinary tract infection is treated during the antenatal period.
C. It is an indication for elective caesarean section.
D. It is not treated during the antenatal period.
E. Known carriers should be treated before becoming pregnant.

Ref. for questions 17–20:

- *SBAQuestions in Obstetrics, chapter 10, page 96– 97.*
- *Group B Streptococcal Disease Early-onset, RCOG Green-top Guideline, No.36 (18/7/2012)*

21. Congenital infection with cytomegalovirus causes:

A. Fetal hydrops.
B. Intracerebral calcification.
C. Intrauterine growth restriction.
D. Limb deformities.
E. Microcephaly.

22. Which of the following is true regarding congenital cytomegalovirus infection?

A. Fetal infection is confirmed by identifying the virus in the amniotic fluid.
B. Fetal infection is prevented by treating the mother with acyclovir.
C. Routine prenatal screening for cytomegalo virus is recommended.
D. Termination of pregnancy is indicated if fetal infection is suspected.
E. The first step in the diagnosis is to demonstrate virus specific IgG and IgM antibodies in the maternal serum.

(Ref. for questions 21–22: SBA Questions in Obstetrics, chapter 10, page 96).

23. Congenital toxoplasmosis causes:

A. Chorioretinitis.
B. Convulsions.
C. Hydrocephalus.
D. Intracranial calcification.
E. Intrauterine growth restriction.

24. Congenital toxoplasmosis is diagnosed by:

A. Amniocentesis to identify the organism in the amniotic fluid.
B. Cordocentesis to demonstrate antibodies in the fetal serum.
C. Microscopy of maternal vaginal discharge.
D. Serological testing in the mother to demonstrate IgG and IgM antibodies.
E. Ultrasound scanning for intracranial calcification.

25. Which of the following is true regarding toxoplasmosis in pregnancy?

A. Pregnancy should be avoided for 6 months if an acute infection is diagnosed prenatally.
B. Routine preconception serological screening is carried out.
C. Severity of the fetal disease is reduced by treating the mother with pyrimethamine, sulphadiazine, and folinic acid.
D. Treating the mother with spiramycin reduces vertical transmission.
E. Vertical transmission is less in chronic infections.

(Ref. for questions 23–25: SBA Questions in Obstetrics, chapter 10, page 95).

26. Which of the following is true regarding hepatitis B infection?

A. All pregnant women should be screened for hepatitis B.
B. Caesarean section should be performed.
C. Pre-pregnancy vaccination is available.
D. Vertical transmission is prevented by giving immunoglobulin to the mother.

E. Vertical transmission occurs if the mother is positive for hepatitis B e antigen.

27. Which of the following is true regarding hepatitis B infection?

A. Breastfeeding is contraindicated.
B. Invasive procedures are avoided during labour.
C. Three doses of the vaccine are given to the baby at 1, 6 and 12 months after birth.
D. Vertical transmission is prevented by administering hepatitis B specific Immunoglobulin 200 IU and the first dose of hepatitis B vaccine to the baby at birth.
E. Vertical transmission is reduced by giving lamuvidine during the last month of pregnancy.

(Ref. for questions 26–27:SBA Questions in Obstetrics, chapter 10, page 92).

ANSWERS AND EXPLANATIONS

Q. 1. B, C and E

- If a pregnant woman who has not had the infection previously is exposed to chickenpox or shingles the first step is to perform a blood test to confirm VZV immunity, by demonstrating the presence of varicella zoster virus IgG.
- If a non-immune woman is exposed to chickenpox, varicella zoster immune globulin (VZIG) should be administered as soon as possible. VZIG is effective when given up to 10 days after contact. VZIG may have to be repeated if a further exposure occurs after 3 weeks.
- Varicella zoster vaccine is a live attenuated vaccine and is contraindicated in pregnancy. Acyclovir is best avoided before 20 weeks.
- If a woman develops varicella zoster or shows serological conversion in the first 28 weeks of pregnancy, the foetus has a small risk of developing fetal varicella syndrome (FVS).
- A detailed ultrasound examination is done 5 weeks after infection or at 18–20 weeks to exclude FVS.

Q. 2. A, C and E

Q. 3. A, B and E

Explanation for Questions 2 and 3

If the mother develops chickenpox in the last 4 weeks before delivery, there is a significant risk of the infant developing the infection. If there is no fetal or maternal risk in continuing the pregnancy, delivery should be delayed for at least 7 days after the onset of the rash, to allow time for maternal seroconversion and passive transfer of antibodies to the foetus. Delivery during the viremic period can cause serious complications such as haemorrhage in the mother.

If delivery occurs within 7 days of the onset of the maternal rash, or if the mother develops the rash within 7 days after delivery, the neonate should be given VZIG. Varicella zoster vaccine is a live attenuated vaccine and is contraindicated for non-immune neonates. Oral acyclovir may be given to the mother within 24 hours of the onset of the rash, as the period of amenorrhaea is more than 20 weeks gestation. Caesarean section is not indicated for maternal chickenpox infection and normal delivery is allowed.

If a woman develops varicella zoster or shows serological conversion in the first 28 weeks of pregnancy, the foetus has a small risk of developing fetal varicella syndrome (FVS). A detailed ultrasound examination is done 5 weeks after infection or at 18–20 weeks. Amniocentesis is not routinely used in the diagnosis, because the risk of FVS is low, even if the amniotic fluid is positive for VZV DNA. Termination of pregnancy is not indicated as the incidence of severe fetal varicella syndrome is low.

Q. 4. A, B and D

Q. 5. A and E

Q. 6. B, C and E

Q. 7. A, B and E

Explanation for Questions 4–7

- If a woman develops genital herpes infection in the third trimester the first step is to differentiate between a primary and a recurrent infection.
- This is done by electron microscopy and culture of scrapings from the ulcer, to identify the organism and the type.
- Next the maternal serum is tested for type specific antibodies.
- If the infection is a recurrent one the woman will have antibodies of the same type as the virus isolated from genital swabs.
- If antibodies are absent the infection is a primary one, and a caesarean section should be performed at 38 weeks, as the woman is unable to transfer antibodies to the foetus. Therefore, the infection can be transmitted when the baby comes into contact with the vaginal secretions during vaginal delivery. Transplacental infection is rare.
- In the case of a secondary infection transplacental transfer of antibodies will occur and the neonate will be immune. Therefore, vaginal delivery can be allowed.
- Acyclovir can be given to the mother from 36 weeks to prevent the presence of ulcers and to reduce viral shedding at the time of delivery, in cases where vaginal delivery is allowed. Caesarean section is not indicated if ulcers are present in a secondary infection.
- Immunoglobulins given to the mother will not prevent neonatal infection.
- Treating the neonate with acyclovir is of no value to prevent the sequelae of neonatal infection. Breastfeeding is not contraindicated.

Q. 8. A, B and E

Women who require treatment for their own health should continue their prescribed combined antiretroviral therapy (cART). All women should have commenced ART by the 24th week. Women who do not require treatment for their own health should commence temporary cART at the beginning of the second trimester, if the baseline viral load (VL) is >30,000 HIV RNA copies/ml (Consider starting earlier if VL >100,000 HIV RNA copies/ml). Women whose plasma viral load is less than 10,000 copies per ml and planning to deliver by caesarean section should be treated with Zidovudine (ZDV) monotherapy from 20–28 weeks onwards. Broad spectrum antibiotics should be given if the woman develops an infection. Routine long-term antibiotic therapy is not indicated as it will not affect the maternal disease or prevent vertical transmission.

Q. 9. A, B and C

LSCS is done between 38–39 weeks for women

- Taking cART, who have a plasma viral load greater than 50 copies/ml.
- Taking ZDV monotherapy.
- With HIV and hepatitis C.

Q. 10. A, B and C

During vaginal delivery in a woman with HIV

- Insertion of prostaglandin and sweeping of membranes is not contraindicated.
- cART should be given throughout labour.
- Invasive procedures such as fetal scalp blood sampling should be avoided.
- Amniotomy should be delayed till delivery is imminent.
- If instrumental delivery is indicated, low cavity forceps are preferable to vacuum.

Q. 11. A, B and D

During the postpartum management in a woman with HIV

- Breastfeeding is avoided, but the baby is not separated from the mother.

- cART should be continued for the mother.
- Condoms are the best mode of contraception.
- Antiretroviral therapy should be commenced for the baby within 4 hours of birth.
- ZDV monotherapy is given to the baby if the maternal viral load is less than 50 copies/ml, but cART is given for all the others who are at high-risk of infection.
- Antibiotics are given if the mother develops an infection, but routine long-term antibiotic therapy is not indicated as it will not affect the maternal disease.

Q. 12. A, B, C and D

Vertical transmission is prevented by:

- Giving antiretroviral therapy for the mother.
- Performing an elective Caesarean section.
- Avoiding breastfeeding.
- Giving antiretroviral therapy for the baby.

Q. 13. A and E

- If a non-immune woman is exposed to rubella, the first step in the management is to test the maternal serum for rubella specific IgG and IgM antibodies, immediately and after 3 weeks.
- The occurrence of rubella infection is diagnosed by a four-fold rise in rubella specific IgG antibody titer between acute and convalescent serum specimens or a positive serologic test for rubella specific IgM antibody in the first or second sample. A rise in IgM antibodies is not necessary.
- The presence of rubella specific IgG antibodies indicate immunity. Infection is indicated only by the occurrence of a four-fold rise between the first and second samples.
- The rash may be very mild or may not occur and is not essential to diagnose rubella infection.

Q. 14. D and E

Maternal infection is confirmed by serological testing. The risk of congenital rubella is 90% when maternal infection occurs before 11 weeks of gestation. The patient should be advised regarding the risks of congenital abnormalities caused by rubella and advised termination. Fetal infection can be directly diagnosed by testing for rubella specific DNA by PCR on chorionic villous sampling before 12 weeks and on amniotic fluid at 14–16 weeks. However, serological testing is regarded as confirmatory of rubella infection. Rubella causes mainly neurological, auditory and visual defects in the foetus and cannot be detected by USS. Giving rubella specific immunoglobulin to a woman exposed to rubella will not prevent maternal infection or fetal sequelae.

Q. 15. A, D and E

The following measures can be taken to prevent the occurrence of congenital rubella:

- Vaccinating all girls at school or in the immediate postpartum period.
- Vaccination is contraindicated in pregnancy. However, congenital rubella is not known to occur in those who are inadvertently vaccinated immediately before or during pregnancy.
- Immunoglobulin does not reduce the fetal effects.
- At preconception counselling all women should be screened for rubella specific IgG antibodies. Non-immune women should be offered vaccination and contraception for 2 months.
- All women should be screened for rubella specific IgG antibodies at the booking visit and non-immune women should be advised to avoid exposure.

Q. 16. C, D and E

- Vaccination is recommended for all teenaged schoolgirls and for women in the immediate postpartum period.

- It is not recommended in infancy.
- It is a live attenuated vaccine and is contraindicated in pregnancy.
- At preconception counselling all women should be screened for rubella specific IgG antibodies. Non-immune women should be offered vaccination and contraception for 2 months.

Q. 17. B and E

Q. 18. C, D and E

Explanations for Questions 17 and 18

Intrapartum antibiotic prophylaxis is recommended for group B streptococcal infection in the following circumstances:

- GBS bacteriuria/urinary tract infection
- Vaginal infection with GBS
- Pre-labour rupture of membranes at or after 37 weeks only in women known to be colonised with GBS.
- Pyrexia in labour (more than 38 C)/chorioamnionitis
- History of neonatal GBS disease in a previous baby.

IAP is not required for women:

- Undergoing elective caesarean section before the onset of labour with intact membranes.
- Presenting in established preterm labour with intact membranes, with no other risk factors for GBS, unless they are known to be colonised with GBS.

Q. 19. B and C

For women who need IAP, benzylpenicillin should be administered as soon as possible after the onset of labour and given regularly until delivery. 3 gm of intravenous benzylpenicillin is given as soon as possible after the onset of labour and 1.5 g 4-hourly until delivery.

Clindamycin 900 mg should be given intravenously 8-hourly to those allergic to benzylpenicillin.

Q. 20. A, B and D

Screening of all pregnant women for GBS carriage is not recommended.

If GBS is detected during the antenatal period treatment with benzylpenicillin is not recommended.

Screening for GBS or the administration of intrapartum antibiotic prophylaxis (IAP), is not recommended for women, who have been GBS carriers in a previous pregnancy.

GBS bacteriuria is not treated during the antenatal period, but GBS urinary tract infection is treated.

Caesarean section is not indicated for GBS infection. Vaginal delivery is indicated with IAP.

Q. 21. A, B, C and E

Congenital infection with cytomegalovirus causes fetal growth restriction, cerebral ventriculomegaly, ascites, intracranial calcifications, oligohydramnios, microcephaly, hyperechogenic bowel, hydrops fetalis, pleural effusion, and liver calcification. Mental retardation is a sequelae.

Q. 22. A, D and E

- Diagnosis of maternal primary and secondary infection by serological testing, is the first step in the prenatal diagnosis of congenital cytomegalovirus (CMV) infection. If maternal CMV infection is proven, the second step is to identify fetal infection by amniocentesis and ultrasound examination.
- Diagnosis of primary maternal CMV infection is by detection of virus specific IgG or IgM antibody, in the serum of a pregnant woman who was previously seronegative.
- Amniocentesis is done at least 7 weeks after maternal infection and after 21 weeks of gestation, to identify fetal infection by demonstrating the virus in the amniotic fluid.
- There is no effective treatment for fetal infection. Termination of pregnancy should

be considered once fetal infection is suspected or confirmed.
- CMV specific hyperimmune globulin can be considered for the treatment and prevention of fetal CMV infection.
- Routine screening of pregnant women for CMV by serology testing is currently not recommended.

Q. 23. A, B, C, D and E

Congenital toxoplasmosis is characterised by the tetrad of chorioretinitis, hydrocephalus, intracranial calcification and convulsions. It also causes microcephaly, ascites, hepatosplenomegaly and severe intrauterine growth restriction.

Q. 24. A, D and E

Following methods can be used to diagnose congenital toxoplasmosis:

- Serological testing is carried out. Presence of IgG and IgM antibodies indicates either a recent infection or a false-positive test result. If acute infection is suspected, repeat testing is recommended within 2 to 3 weeks.
- A 4-fold rise in IgG antibody titers between tests indicates a recent infection.
- Ultrasound scanning will show intracranial calcification, microcephaly, hydrocephalus, ascites, hepatosplenomegaly or severe intrauterine growth restriction.
- Amniocentesis to identify the organism in the amniotic fluid is offered if fetal disease is suspected on ultrasound scanning and the serology is negative.

Q. 25. A, C, D and E

- Vertical transmission occurs in women who acquire the primary infection during pregnancy. Vertical transmission is rare in chronic infections.
- The risk of vertical transmission increases with the gestational age. It is highest in the third trimester.
- Disease severity decrease with the gestational age. Severe sequelae and fetal loss occur in first trimester infections.
- If maternal infection has been confirmed but the foetus is not yet known to be infected, spiramycin 1 g 8 hourly is given orally to prevent vertical transmission. The drug should be continued till delivery.
- Women in whom fetal infection has been confirmed are treated with a combination of pyrimethamine, sulphadiazine, and folinic acid. This regime causes a significant reduction in the severity of the fetal disease.
- A non-pregnant woman diagnosed with acute toxoplasmosis should avoid pregnancy for six months.
- Testing for toxoplasmosis is not included in preconception screening.

Q. 26. A, C and E

Q. 27. B, C, D and E

Explanation for Questions 26 and 27

- Pregnant women should be screened for hepatitis B.
- Vertical transmission occurs in ninety per cent of cases, where the mother is hepatitis B e antigen positive and in about ten per cent of surface antigen positive, and e antigen negative mothers.
- Vertical transmission is prevented by administering hepatitis B specific immunoglobulin 200 IU and the first dose of hepatitis B vaccine at birth. This reduces vertical transmission by ninety per cent. Also 3 doses of the vaccine are given at 1, 6 and 12 months after birth. If vaccination is not carried out the baby can develop the infection.
- Administering lamivudine in the last month of pregnancy may further reduce the transmission rate, if she is highly infectious.

- Breastfeeding is not contraindicated after vaccinating the baby.
- Routine caesarean section is not recommended.
- However, infection can occur during the intrapartum period by:
  - Transfusion of the mother's blood to the foetus during labour contractions.
  - Infection after the rupture of membranes.
  - Direct contact of the foetus with infected secretions or blood from the maternal genital tract.
- The risk of vertical transmission during delivery is minimised by avoiding invasive procedures, such as fetal blood sampling and instrumental delivery and avoiding rupturing the membranes till delivery is imminent.

CHAPTER

17

Prenatal Diagnosis

1. Prenatal screening tests:

A. Are carried out during the second trimester for neural tube defects.
B. Are carried out in all women to identify those at risk.
C. Are carried out for diagnosis of genetic disorders.
D. Do not carry a risk to the pregnancy.
E. Include invasive tests.

2. Prenatal diagnostic tests:

A. Are carried out in all women.
B. Are carried out only during the first trimester.
C. Are carried out to diagnose genetic diseases and structural abnormalities.
D. Include invasive and noninvasive tests.
E. Will confirm the diagnosis of the disease.

3. Prenatal diagnostic tests include:

A. Amniocentesis for genetic defects.
B. Chorionic villous sampling for genetic defects.
C. Cordocentesis for fetal anaemia.
D. Haemoglobin electrophoresis in the parents for thalassemia.
E. Ultrasound scanning at 20 weeks for fetal structural defects.

4. Prenatal screening tests include:

A. Amniocentesis for thalassemia.
B. Determining the fetal sex in haemophilia carrier women by analysis of cell free fetal DNA.
C. Estimation of maternal serum alpha fetoprotein levels for neural tube defects.
D. Estimation of maternal serum oestriol for Turner syndrome.
E. Triple test for Down's syndrome.

Ref. for questions 1–4:

- *SBA Questions in Obstetrics, chapter 11, page 109.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 7, pages 75–76.*

5. Which of the following screening tests which are carried out on the maternal serum at 15–18 weeks will indicate an increased risk of Down's syndrome?

A. Decreased alpha fetoprotein.
B. Decreased pregnancy associated plasma protein—A.
C. Increased inhibin A.
D. Increased oestriol.
E. Increased serum B—hCG.

6. Which of the following screening tests which are carried out in the first trimester will indicate an increased risk of Down's syndrome?

A. Analysis of cell free fetal DNA.
B. Chorionic villous sampling.
C. Decreased pregnancy associated plasma protein A.
D. Increased maternal serum B-hCG.
E. USS for increased nuchal translucency.

7. The occurrence of Down's syndrome is confirmed by:

A. Amniocentesis at 15 weeks.
B. Chorionic villous sampling at 10 weeks.
C. Chorionic villous sampling at 5 weeks.
D. Measuring the nuchal translucency at 12 weeks.
E. The quadruple test at 15 weeks.

(Ref. for questions 5–7: SBA Questions in obstetrics, chapter 11, page 110–111).

8. Amniocentesis is performed at 15 weeks to confirm the diagnosis of:

A. Cystic fibrosis.
B. Fetal cytomegalovirus infection.
C. Neural tube defects.
D. Fetal varicella syndrome.
E. Haemophilia.

(Ref. SBA Questions in Obstetrics, chapter 11, page 109).

9. Which of the following tests are carried out at 10 weeks if there is a high-risk of thalassemia?

A. Diagnosis is confirmed by analysis of cell free fetal DNA.
B. Diagnosis is confirmed by chorionic villous sampling.
C. Haemoglobin A2 is estimated in the father only if the mother is a carrier.
D. Haemoglobin A2 is estimated in the mother to confirm carrier status.
E. NESTROFT is performed to screen the parents for carrier status.

(Ref. SBA Questions in Obstetrics, chapter 11, page 111–112).

10. Ultrasound scanning at 20 weeks is diagnostic for:

A. Cleft palate.
B. Congenital rubella.
C. Fetal abnormalities caused by diabetes mellitus.
D. Hydrocephalus.
E. Turner syndrome.

11. Ultrasound scanning at 20 weeks is diagnostic for:

A. Closed spina bifida.
B. Congenital syphilis.
C. Fetal abnormalities caused by anti-epileptic drugs.
D. Renal agenesis.
E. Thalassemia.

Ref. for questions 10–11:

- *SBA questions in Obstetrics, chapter 11, page 110.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 6, page 65.*

12. Analysis of cell free fetal DNA is used:

A. To confirm fetal thalassemia.
B. To confirm fetal sex.
C. To confirm the fetal blood group.
D. To diagnose rhesus isoimmunisation.
E. To screen for Down's syndrome.

Ref:

- *SBA Questions in Obstetrics, chapter 11, page 110.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 7, page 76.*

13. The effects of following diseases can be reduced if the diagnosis is confirmed and treatment is commenced soon after birth:

A. Galactosemia.
B. Hypothyroidism.
C. Phenylketonuria.
D. Testicular feminisation.
E. Turner's syndrome.

(Ref: SBA Questions in Obstetrics, chapter 11, page 113).

14. Which of the following abnormalities in the maternal diet cause congenital abnormalities?

A. Consumption of excessive amounts of vitamin A.
B. Consumption of partially cooked meat.
C. Folate deficiency.
D. Low iodine intake.
E. Low iron intake.

15. Ultrasound scan is diagnostic for congenital abnormalities caused by:

A. Antiepileptic drugs.
B. Congenital rubella syndrome.
C. Fetal cytomegalovirus infection.
D. Fetal varicella syndrome.
E. Maternal low iodine intake.

16. Which of the following tests are carried out to investigate a woman with a twin pregnancy for fetal abnormalities?

A. Amniocentesis from both sacs to confirm Down's syndrome in dichorionic twins.
B. Chorionic villous sampling from one sac to confirm cystic fibrosis in monochorionic twins.
C. Estimation of maternal serum alpha fetoprotein levels for neural tube defects.
D. Triple test at 15 weeks to screen for Down's syndrome.
E. Ultrasound scanning at 20 weeks of both monochorionic twins to exclude neural tube defects.

(Ref: SBA Questions in Obstetrics, chapter 11, page 111).

17. Maternal serum alpha fetoprotein levels are:

A. Elevated in anencephaly.
B. Elevated in microcephaly.
C. Elevated in the presence of a trisomy in the foetus.
D. Estimated at 15–19 weeks.
E. Normal in encephalocele.

18. Maternal serum alpha fetoprotein levels are elevated in:

A. Achondroplasia.
B. Open spina bifida.
C. Closed spina bifida.
D. Omphalocele.
E. Turner syndrome.

19. Maternal serum alpha fetoprotein levels are decreased in:

A. β-thalassemia.
B. Congenital rubella.
C. Maternal diabetes.
D. Trisomy 18.
E. Trisomy 21.

20. Estimation of maternal serum alpha fetoprotein level:

A. Confirms the diagnosis of open neural tube defects.
B. Is carried out in diabetic women.
C. Is included in the quadruple test for trisomy 21.
D. Is performed between 14–28 weeks.
E. Is preceded by accurate estimation of the gestational age.

(Ref. for questions 17–20: Obstetrics by Ten Teachers, 18th edition, chapter 9, page 111).

21. Ultrasound scan is used to diagnose:

A. Anencephaly at 12 weeks.
B. Hydrocephaly at 20 weeks.
C. Microcephaly at 14 weeks.
D. Spina bifida at 14 weeks.
E. Ventricular septal defect at 20 weeks.

(Ref: Obstetrics by Ten Teachers, 18th edition, chapter 9, page 110).

22. In autosomal dominant diseases:

A. Chorionic villous sampling is performed at 10 weeks to confirm the disease.
B. Mutant variants are common.
C. One parent is affected by the disease.
D. Screening tests should be performed on the unaffected parent.
E. There is a 50% chance of each child becoming affected.

ANSWERS AND EXPLANATIONS

Q. 1. A, B and D

Q. 2. C, D and E

Q. 3. A, B, C and E

Q. 4. B, C and E

Explanation for Questions 1–4

Prenatal screening tests

- Screening tests are performed on all women in order to identify those who are at risk of a disorder. They are not diagnostic for congenital disorders.
- They are non-invasive tests which do not carry any risk to the pregnancy.
- They are performed for disorders with a high prevalence, for which accurate diagnostic tests are available.

Screening tests include

- Estimation of maternal serum alpha fetoprotein levels during the second trimester for neural tube defects and Down's syndrome.
- Analysis of cell free fetal DNA for fetal sex in haemophilia carrier women and to screen for Down's syndrome.
- USS for nuchal translucency in Down's syndrome.
- Triple and quadruple tests for Down's syndrome.

Diagnostic tests

- Diagnostic tests are carried out only on women at high-risk and in screen positive women.
- They will make a definitive diagnosis.
- Some tests carry a small risk of miscarriage.
- They include invasive tests such as chorionic villous sampling (which is performed in the first trimester), amniocentesis and cordocentesis (which are performed in the second trimester) and non-invasive tests such as USS.

Tests used are

- Amniocentesis and chorionic villus sampling for genetic defects.
- Cordocentesis to detect fetal anaemia.
- Ultrasound scanning for structural fetal abnormalities.

Q. 5. A, C and E

The following screening tests are performed on the maternal serum at 15–18 weeks (Quadruple test) for Down's syndrome.

- Decreased alpha fetoprotein.
- Increased serum B-hCG.
- Increased inhibin A.
- Decreased oestriol.

Q. 6. A, C, D and E

Q. 7. A and B

Q. 8. A, B and E

Explanation for Questions 6–8

The following screening tests are performed in the first trimester for Down's syndrome.

- USS for increased nuchal translucency at 11–14 weeks.
- Increased maternal serum B-hCG (Human chorionic gonadotropin).
- Decreased pregnancy associated plasma protein–A (PAPPA).

Analysis of cell free DNA is performed if the initial screening tests are positive. However, it is not a confirmatory test.

Chorionic villous sampling between 7–13 weeks or amniocentesis between 15–19 weeks are the only diagnostic tests for genetic and chromosomal defects such as Down's syndrome, other trisomies, haemophilia, cystic fibrosis and thalassemia.

Amniocentesis is not used to diagnose fetal varicella syndrome which is diagnosed by USS. Amniocentesis is done at least 7 weeks after maternal infection and after 21 weeks of

gestation, to identify fetal CMV infection by demonstrating the virus in the amniotic fluid.

Q. 9. B, C, D and E

- Estimation of haemoglobin A2 levels is the gold standard to test for carriers of thalassemia.
- NESTROFT (Naked Eye Single Tube Red Cell Osmotic Fragility Test) can be used for screening but, estimation of haemoglobin A2 levels is more reliable.
- Since thalassemia is an autosomal recessive condition both parents should be carriers for a child to be affected.
- Therefore, one parent is first tested and if positive the other parent is tested.
- Diagnosis is confirmed by chorionic villous sampling or amniocentesis.
- Thalassemia can be detected by analysis of cell free fetal DNA but the diagnosis cannot be confirmed by this method.

Q. 10. A, C and D

Q. 11. A, C and D

Explanation for Questions 10–11

- USS at 20 weeks is used to diagnose fetal structural abnormalities.
- Congenital syphilis do not always cause ultrasonically detectable gross fetal abnormalities. However, saddle nose and skeletal abnormalities may occur in some cases.
- Congenital rubella and Turner syndrome may cause structural cardiac defects but, these are not specific. Hence, USS cannot be used to confirm the diagnosis.
- Thalassemia does not cause structural abnormalities.
- Type 1 and 2 diabetes mellitus and antiepileptic drugs cause structural fetal abnormalities which can be diagnosed by USS.
- Cleft palate, neural tube defects closed spina bifida cardiac defects and renal agenesis are structural abnormalities which are confirmed by USS.

Q. 12. B, C and E

Cell free fetal DNA analysis is used

- To confirm the fetal sex as early as 6 weeks in women whose foetus is at risk of X-linked disorders.
- To confirm the fetal blood group and rhesus status in the management of sensitised rhesus negative women. However, the test cannot diagnose rhesus isoimmunisation.
- To screen for fetal genetic and chromosomal defects such as Down's syndrome, other trisomies, cystic fibrosis and thalassemia. The diagnosis cannot be confirmed by this test.

Q. 13. A, B and C

Serious effects of certain diseases can be prevented if diagnosed at birth, before they cause symptoms for the baby, so that treatment can be commenced early.

- Phenylketonuria—with a low phenyl alanine diet.
- Galactosemia—by modification of diet.
- Congenital hypothyroidism (cretinism)—by replacement of thyroxine.
- Cystic fibrosis—by early treatment with antibiotics and physiotherapy.

These tests are done using a small amount of blood, obtained from the baby's heel when he or she is one day old.

Turner syndrome and testicular feminisation can be confirmed only by karyotyping. However, there is no definitive treatment for these conditions.

Q. 14. A, B, C and D

Excessive vitamin A intake can cause cleft lip and palate, neural tube defects and cardiac defects. Eating undercooked meat can cause salmonella infections and food poisoning in the mother and congenital defects in the baby due to toxoplasmosis and listeriosis. Folic acid deficiency can cause neural tube defects. Women should take 400 mcg of folic acid during and before pregnancy. Low iodine

intake can cause neonatal hypothyroidism and cretinism.

Q. 15. A and D

Antiepileptic drugs cause structural abnormalities and can be detected by USS.

A detailed ultrasound examination is done 5 weeks after infection with varicella zoster or at 18–20 weeks to detect FVS. If the foetus has developed FVS, limb deformity, microcephaly, hydrocephalus, soft tissue calcification and fetal growth restriction can be detected by ultrasound scanning.

Rubella causes mainly neurological, auditory and visual defects in the foetus and cannot be detected by USS.

Maternal low iodine intake does not cause gross structural abnormalities which can be detected by USS.

Cytomegalovirus infection causes non-specific changes which are common to many infections. Therefore, USS is of not much value in confirming the diagnosis.

Q. 16. A, B and E

Monochorionic twins are monozygotic and only one sample is needed for karyotyping, as chromosomal and genetic defects will affect both foetuses. Dichorionic twins can be monozygotic or dizygotic. Therefore, both foetuses should be sampled as one or both foetuses may be affected.

The optimal method of diagnosing structural abnormalities is ultrasound scanning of each twin at 20 weeks. Structural abnormalities can affect either one or both twins, in both monochorionic and dichorionic twins.

Biochemical screening tests are unreliable in twin pregnancy, as the values tend to be elevated. Therefore, biochemical tests are not reliable for second trimester screening.

Q. 17. A and D

Q. 18. B and D

Q. 19. D and E

Q. 20. B, C and E

Explanation for Questions 17–20

- Alpha fetoprotein is produced by the fetal liver.
- Elevation of maternal serum alpha fetoprotein levels occur in multiple gestation, placental abruption, open neural tube defects such as open spina bifida encephalocoele and anencephaly, and abdominal wall defects. Other possibility is error in the date of the gestation.
- Levels are reduced in Down's syndrome and other trisomies. It is included in the quadruple test for Down's syndrome.
- It is assessed at 15–19 weeks of gestation. Accurate estimation of the gestational age is essential as the levels can vary according to the gestational age.
- It is carried out in diabetic women as they can develop structural abnormalities such as neural tube defects.
- It is only a screening test and does not confirm trisomies or structural defects. The former is confirmed by amniocentesis and the latter by USS.

Q. 21. A, B and E

Ultrasound scanning is carried out to confirm fetal structural abnormalities at 20 weeks. However, anencephaly can be diagnosed as early as 12 weeks and congenital cardiac abnormalities can be detected early in the second trimester. However, microcephaly, closed spina bifida and hydrocephaly could be missed if ultrasound scanning is carried out before 20 weeks.

Q. 22. A, C and E

Screening tests are not necessary in autosomal dominant diseases as the disease will manifest itself in the person who is carrying the gene. The abnormal gene is not present in the healthy parent. If one parent is affected 50% of the children will be affected. Therefore, pre-conception genetic counselling should be carried out. Chorionic villous sampling should be carried out to confirm the disease early.

CHAPTER

18

Rhesus Isoimmunisation

1. Which of the following is carried out at the booking visit in a rhesus negative primipara?

A. Determine the rhesus status of the husband.
B. Estimate the fetal rhesus group by analysis of cell free fetal DNA.
C. If the husband is rhesus positive determine his rhesus genotype.
D. Inquire regarding previous sensitising events.
E. Test for unexpected antibodies.

2. Which of the following is carried out at the booking visit in a rhesus negative second para who has delivered a rhesus positive baby?

A. Determine the rhesus status of the husband.
B. Estimate the fetal rhesus group by analysis of cell free fetal DNA.
C. Inquire whether anti-D was administered within 72 hours of the delivery.
D. Inquire whether the previous baby was affected.
E. Test for unexpected antibodies.

3. Which of the following should be carried out in a rhesus negative second para who has a rhesus antibody titer of 1:6 at a POA of 8 weeks?

A. Estimate the fetal rhesus group by analysis of cell free fetal DNA.
B. Determine the rhesus genotype of the father.
C. Determine the rhesus group of the father.
D. Repeat the rhesus antibody titer after one month.
E. Estimate the middle cerebral artery peak systolic velocity.

(Ref. for questions 1–3: SBA Questions in Obstetrics, chapter 12, page 117).

4. Which of the following critical antibody levels indicate fetal anaemia due to rhesus isoimmunisation?

A. An antibody level of 15 IU/ml.
B. An indirect antibody titer of 1: 16.
C. An albumin titer of 1: 16.
D. An indirect antibody titer of 1: 32.
E. An albumin titer of 1: 8.

5. Which of the following is carried out in a rhesus negative second para who has a rhesus antibody level of 15 IU/l (albumin titer of 1:16) at a POA of 18 weeks?

A. Amniocentesis and estimation of amniotic fluid bilirubin levels.
B. Cordocentesis.
C. Intrauterine transfusion.
D. Ultrasound scanning for middle cerebral artery peak systolic velocity.
E. Repeat the rhesus antibody titer in two weeks.

6. In the management of rhesus isoimmunisation the middle cerebral artery peak systolic velocity:

A. Is an invasive test.
B. Is preferred to serial estimation of amniotic fluid bilirubin levels.
C. Is performed once a week or more frequently.
D. Is performed when the indirect antibody titer exceeds 1: 4.
E. Indicates severe fetal disease if a value of 1.5 multiples of the median is reached.

7. In the management of rhesus isoimmunisation amniocentesis for estimation of amniotic fluid bilirubin levels:

A. Is an invasive test.
B. Is performed once a week or more frequently in mild disease.
C. Is performed when the indirect antibody titer exceeds 1: 32.
D. Is preferred to estimation of middle cerebral artery peak systolic velocity.
E. Severe disease is indicated if the value is in the middle of zone 2 in the Liley curve.

8. Intrauterine transfusion is performed:

A. Once in two weeks till the maturity is 38 weeks.
B. Once in two weeks until a maturity of 34 weeks is reached.
C. To maintain the fetal haemoglobin level above 9 g/dl.
D. When the fetal haematocrit is less than 30%.
E. When the MCA PSV reaches a value of 1.5 multiples of the median.

9. Estimation of fetal haemoglobin level by cordocentesis is indicated:

A. For foetuses in the middle of zone 2 or higher in the Liley curve.
B. If fetal hydrops is detected by ultrasound scanning.
C. When the indirect antibody titer is 1: 32.
D. When the MCA PSV reaches a value of 1.5 multiples of the median.
E. When the umbilical artery Doppler flow is reduced.

10. The red cells used for intrauterine transfusion should:

A. Be irradiated to prevent graft *versus* host reaction.
B. Not be tested for cytomegalovirus.
C. Be rhesus-negative.
D. Have a haemoglobin level of 30 g/dl.
E. Not be obtained from the mother.

Ref. for questions 4–10:

- *SBA Questions in Obstetrics, chapter 12, page 117–118.*
- *Obstetrics by Ten Teachers, 19th edition, chapter 8, page 107–108.*

11. Which of the following is true regarding routine antenatal anti-D administration to rhesus negative women?

A. 1500 IU are administered at 28 weeks.
B. 500 IU are administered at 28 and 34 weeks.
C. It is given only to unsensitised women.
D. It is preceded by testing the maternal serum for rhesus antibodies.
E. Routine antibody testing should not be continued after administration of anti-D.

12. Factors which increase feto-maternal haemorrhage in a rhesus negative woman at labour and delivery are:

A. Caesarean section.
B. Early amniotomy in labour.
C. Insertion of a Foley catheter to ripen the cervix.
D. Instrumental delivery.
E. Manual removal of the placenta.

13. Factors which increase feto-maternal haemorrhage in a rhesus negative woman at labour and delivery are:

A. Insertion of prostaglandin to ripen the cervix.
B. Repeated vaginal examinations in labour.

C. Stillbirths.
D. Twin deliveries.
E. Use of oxytocin to augment labour.

14. Feto-maternal haemorrhage can be minimised at the time of delivery by:

A. Avoiding administration of ergometrine in the third stage.
B. Clamping the cord soon after delivery.
C. Not performing an episiotomy.
D. Preventing postpartum haemorrhage.
E. Preventing the occurrence of genital tract tears.

(Ref. for questions 11–14: SBA Questions in Obstetrics, chapter 12, page 119).

15. Indications for Anti-D administration in the first trimester for previously non-sensitised women are:

A. Chorionic villus sampling.
B. Ectopic pregnancy.
C. Evacuation of a hydatidiform mole
D. Evacuation of retained products of conception.
E. Threatened miscarriage.

16. Indications for antenatal Anti- D administration in the third trimester for previously non-sensitised women are:

A. Amniocentesis.
B. Antepartum haemorrhage due to low lying placenta.
C. Placental abruption.
D. Intrauterine growth restriction.
E. Reversed umbilical artery blood flow.

17. The standard dose of anti-D is:

A. 1500 IU for feto-maternal transfusion at normal delivery.
B. 250 IU for 4 ml of feto-maternal transfusion.
C. 250 IU for sensitising events before 20 weeks.
D. 500 IU at 36 weeks for routine antenatal prophylaxis.
E. 500 IU for sensitising events after 20 weeks.

Ref. for questions 11–17:

- *British Committee for Standards in Haematology (BCSH) guideline for the use of anti-D immunoglobulin for the prevention of haemolytic disease of the foetus and newborn. (21/1/2014)*
- *SBA Questions in Obstetrics, chapter 12, page 120.*

18. Signs of fetal hydrops detected by ultrasound scanning are:

A. Ascites and pericardial effusions.
B. Enlarged fetal heart.
C. Increased placental thickness.
D. Increased fetal movements.
E. Polyhydramnios.

(Ref: Obstetrics by Ten Teachers, 18th edition, chapter 11, page 143).

ANSWERS AND EXPLANATIONS

Q. 1. A, C, D and E

The following are carried out in a rhesus negative primipara at the booking visit.

- Determine the rhesus status of the husband.
- If the husband is rhesus positive determine his rhesus genotype.
- Inquire regarding previous sensitising events.
- Test for unexpected antibodies.

Estimation of the fetal blood group should be done only in women who have antibodies.

Q. 2. C, D and E

As the first baby is rhesus positive, the husband is rhesus positive, if he has fathered the previous child. Therefore, it is not necessary to determine his rhesus status. If the mother has delivered a rhesus positive foetus she may be sensitised.

Therefore it is necessary to question her whether:

- Sensitising events occurred during the previous pregnancy and delivery.

- Anti-D was given during the previous pregnancy and after the delivery.
- The previous baby was affected.
- A Kleihaur test was performed after the delivery.

The first antibody screening test is done at the booking visit. Estimation of the fetal blood group should be done only in women who have antibodies.

Q. 3. A, B and D

- Diagnosis of alloimmunisation is made if the indirect antibody titer (IAT) is higher than 1:4 (4 IU/ml).
- As the first baby is rhesus positive, the husband is rhesus positive, if he has fathered the previous child. Therefore, it is not necessary to determine his rhesus status.
- The next step is to check the father's rhesus genotype.
- If the father is homozygous rhesus positive, the foetus will be rhesus positive and may be affected.
- If the father is heterozygous, the foetus may be rhesus positive or negative.
- Therefore, the next step is to check the fetal blood group. This can be done non-invasively and accurately by analysing cell free fetal DNA in the maternal blood.
- If the foetus is rhesus negative further investigations are not necessary.
- If the foetus is rhesus positive antibody titers are performed monthly, until 24 weeks of gestation and once in two weeks thereafter.
- The middle cerebral artery peak systolic velocity is done only when a critical antibody level is reached.

Q. 4. A, C and D

Q. 5. A and D

Q. 6. B, C and E

Explanation for Questions 4–6

If the antibody level is more than 15 IU/ml, or the albumin titer is 1:16 or higher, or the indirect antibody titer (IAT) is 1:32 or higher, further monitoring of antibody levels is of no value. (An albumin titer of 1:16 is equal to an IAT of 1:32). These values are regarded as critical and the foetus may be affected. The next step is direct assessment of the severity of the fetal disease.

This is done by serial ultrasonography for evaluation of the middle cerebral artery peak systolic velocity (MCA-PSV), or serial amniocentesis for amniotic fluid bilirubin levels. Since the former test is non-invasive, accurate, easy to evaluate and can be repeated at weekly intervals or more frequently, it has almost eliminated the need for serial amniocentesis. Severe fetal disease is indicated if the MCA-PSV reaches 1.5 multiples of the median.

Q. 7. A, C and E

Amniocentesis for estimation of the amniotic fluid bilirubin levels is an invasive test, which is performed once in two weeks when the indirect antibody titer exceeds 1:32. Severe disease is indicated if the value is in the middle of zone 2 or higher in the Liley curve. Estimation of middle cerebral artery peak systolic velocity is the preferred test because it is non-invasive.

Q. 8. B, C and D

Severe fetal disease is indicated if the MCA-PSV reaches 1.5 multiples of the median. The next step is to estimate the fetal haemoglobin level by cordocentesis. Intrauterine transfusion is indicated if the haematocrit is less than 30%. It is performed once in two weeks until a maturity of 34 weeks is reached, to maintain the fetal haemoglobin level above 9 g/dl. Delivery is the preferred option after 34 weeks.

Q. 9. A, B and D

Estimation of the fetal haemoglobin level is indicated before deciding on intrauterine transfusion:

- When the MCA-PSV reaches a value of 1.5 multiples of the median (MoM)
- If fetal hydrops is detected on ultrasound scanning.

- for foetuses in the middle of zone 2 or higher in the Liley curve.

An indirect antibody titer of 1: 32 requires further evaluation by estimating MCA PSV.

Q. 10. A, C and D

The red cells for intrauterine transfusion should:

- Be O rhesus-negative,
- Have a haemoglobin level of 30 g/dl, so that small volumes can be given,
- Be cytomegalovirus negative,
- Be irradiated to prevent graft *versus* host reaction and processed through a leukocyte-poor filter.

Some centres use maternal blood as the source of red cells.

Q. 11. A, B, C and D

Routine administration of anti-D to non-sensitised mothers is the standard practice. It is not affected by previous anti-D administration for a sensitising event earlier in the same pregnancy. A single dose of 1500 IU can be given at 28 weeks or two doses of 500 IU can be given at 28 and 34 weeks for the same effects. Routine antibody testing should be performed at 35–36 weeks after administration of anti-D, but it is important to differentiate between passive and immune antibodies.

Q. 12. A, D and E

Q. 13. C and D

Q. 14. A and B

Explanation for Questions 12–14

Factors which increase feto-maternal haemorrhage at delivery are:

- Caesarean section.
- Instrumental deliveries.
- Manual removal of the placenta.
- Stillbirths.
- Twin deliveries.
- Administration of ergometrine during the third stage.
- Delay in clamping the cord.

Genital tract tears, episiotomy insertion of prostaglandin or Foley catheter, amniotomy and vaginal examination will not cause feto-maternal haemorrhage.

Q. 15. A, B, C and D

Q. 16. A, B and C

Explanation for Questions 15 and 16

Indications for antenatal Anti-D administration for previously non-sensitised women.

In the first trimester:

- Ectopic pregnancy.
- Surgical or medical termination.
- Evacuation of retained products of conception.
- Chorionic villus sampling.
- Evacuation of a hydatidiform mole. Even though anti-D is not necessary in cases of complete moles, it may be difficult to confirm a complete mole, till histological examination is performed.
- Anti-D is not indicated for threatened miscarriage before 12 weeks, unless if there are repeated bleeding episodes.

In the second trimester:

- Amniocentesis.
- Threatened miscarriage/antepartum haemorrhage.
- Abdominal trauma.

In the third trimester:

- Routine prophylaxis at 28 and 34 weeks.
- Antepartum haemorrhage due to placenta previa and placental abruption.
- External cephalic version.
- Amniocentesis.
- Abdominal trauma.

Q. 17. A, C and E

The following are the standard doses of anti-D:

- 500 IU of anti-D will neutralise 4 ml of feto-maternal haemorrhage (FMH). For each ml above 4 ml a further 125 IU is required.

- The standard dose given for sensitising events before 20 weeks is 250 IU and after 20 weeks is 500 IU.
- The standard dose after delivery is 1500 IU and will neutralise 15 ml of feto-maternal haemorrhage.
- A larger FMH can occur in caesarean sections, forceps deliveries, manual removal of retained placenta, stillbirths and twin pregnancies.
- In all cases it is best to measure the FMH by performing a Kleihauer test as soon as possible after the sensitising event.

Q. 18. A, B, C and E

The ultrasound findings of hydrops include ascites, pleural and pericardial effusions, oedema, cardiac enlargement, bowel dilatation, polyhydramnios, increased placental thickness and increase in the blood flow in the middle cerebral arteries.

CHAPTER

19

Caesarean Section

1. Caesarean section is mandatory for:

A. Previous lower segment caesarean section with a T-extension.
B. Previous upper segment caesarean section.
C. Prolonged first stage due to primary dysfunctional labour.
D. Prolonged first stage due to secondary arrest.
E. Prolonged second stage due to occipito-posterior position.

2. Caesarean section is mandatory in:

A. Breech presentation.
B. Brow presentation.
C. Mento-anterior face presentation.
D. Occipito-posterior position.
E. Transverse lie in the first stage of labour.

3. Caesarean section is mandatory in:

A. Mento-posterior face presentation.
B. Prolonged latent phase.
C. Transverse lie in the second stage of labour.
D. Deep transverse arrest.
E. Fetal distress after delivery of the first twin.

4. Caesarean section is mandatory in:

A. Placenta praevia if the placental edge is within 2 cm of the internal os.
B. Monochorionic monoamniotic twins.
C. Prolonged second stage due to epidural analgesia.
D. Prolonged second stage due to mento-anterior face presentation.
E. Transverse lie of the second twin.

(Ref. for Questions 1–4: SBA Questions in Obstetrics, chapter 13, page 126).

5. Which of the following drugs are used for premedication before an elective caesarean section?

A. Chlorpheniramine.
B. Cimetidine.
C. Diazepam.
D. Famotidine.
E. Metoclopramide.

6. Which of the following drugs are used for premedication before an elective caesarean section?

A. Prochlorperazine.
B. Clonazepam.
C. Domperidone.
D. Ondansetron.
E. Sodium citrate.

7. Which of the following drugs are used for premedication before an emergency caesarean section?

A. Intravenous domperidone.
B. Intravenous ondansetron.

C. Intravenous ranitidine.
D. Oral cimetidine.
E. Oral sodium citrate

8. Vaginal delivery is allowed after a previous caesarean section:

A. In the presence of a previous T-extension.
B. If there has been a previous vaginal delivery.
C. In twin pregnancy.
D. If only one caesarean section has been performed.
E. In occipito-posterior position.

9. Vaginal delivery is allowed after previous caesarean section:

A. If the estimated fetal weight is 4 kg.
B. If the previous baby has cerebral palsy.
C. If the previous operation was performed for fetal distress.
D. If the woman is under 40 years of age.
E. In breech presentation.

10. In vaginal birth after previous caesarean section:

A. Amniotomy is used to augment labour.
B. Continuous fetal heart rate monitoring is necessary.
C. Epidural analgesia is contraindicated.
D. Prostaglandin is used to ripen the cervix.
E. Second stage is shortened by application of forceps.

11. In vaginal birth after previous caesarean section:

A. Abdominal and vaginal examinations are carried out once in 4 hours.
B. Insertion of a Foley catheter is a method used to ripen the cervix.
C. Oxytocin is not given with the delivery of the anterior shoulder.
D. Pain relief is contraindicated.
E. Sweeping of membranes is allowed.

Ref. for questions 8–11:

- *Birth After Previous Caesarean Birth, RCOG Green-top Guideline No. 45, October 2015. pages 2–4.*
- *SBA Questions in Obstetrics, chapter 13, page 126–127.*

12. An upper segment caesarean section:

A. Is not a contraindication for vaginal delivery after 5 years.
B. Is performed for transverse lie of the foetus.
C. Scar can rupture before onset of labour.
D. Scar does not heal well due to thickness of the upper segment.
E. Scar is weakened due to occurrence of the placenta over it.

13. Complications of pregnancy following a upper segment caesarean section include:

A. The need to perform a caesarean section at 36–37 weeks.
B. Incisional hernia.
C. Morbidly adherent placenta.
D. Secondary subfertility.
E. Traumatic postpartum haemorrhage.

14. Early signs of scar dehiscence are:

A. Fetal distress.
B. Fresh vaginal bleeding.
C. Hypotension.
D. Loss of station of the presenting part.
E. Severe continuous abdominal pain.

15. Signs of uterine scar rupture include:

A. Cessation of uterine contractions.
B. Cyanosis.
C. Fetal distress.
D. Haematuria.
E. Loss of station of the presenting part.

(Ref. for questions 12–15: SBA Questions in Obstetrics, chapter 13, page 127).

ANSWERS AND EXPLANATIONS

Q. 1. A, B and D

Q. 2. B and E

Q. 3. A, C and D

Q. 4. A and B

Explanation for Questions 1–4

Caesarean section is mandatory in

- Brow presentation.
- Mento-posterior face presentation.
- Shoulder presentation/transverse lie/hand prolapse in labour.
- Previous upper segment caesarean section/full thickness myomectomy scar/repair of a ruptured uterus.
- Previous lower segment caesarean section with a T-extension.
- Prolonged first stage due to secondary arrest.
- Prolonged second stage if conditions required for instrumental delivery are not satisfied.
- Prolonged first and second stages in breech presentation.
- Footling breech/breech with extended neck.
- Major degree placenta praevia.
- Fetal distress in the first stage.
- Two or more previous caesarean sections.
- Monochorionic monoamniotic twin pregnancy at 32–34 weeks.

Q. 5. B, D and E

Q. 6. C and E

Q. 7. A, C and E

Explanation for Questions 5–7

Antiemetics and antacids are used for premedication before a caesarean section. Cimetidine 200 mg or famotidine 20 mg or omeprazole 20 mg is given orally in the night and repeated in the morning to reduce gastric acidity before an elective caesarean section. Sodium citrate 15 ml is given in the theater for the same purpose before an elective or emergency caesarean section. Intravenous ranitidine is given before an emergency caesarean section.

Metoclopramide 10 mg or domperidone 10 mg is given orally in the night and repeated in the morning to facilitate gastric emptying and to prevent vomiting before an elective caesarean section. These drugs are given intravenously before an emergency caesarean section. Sedatives are not given for premedication before a caesarean section.

Q. 8. B and D

Q. 9. C and D

Explanation for Questions 8–9

The following criteria should be satisfied to allow vaginal delivery after caesarean section.

- The best predictor for successful VBAC is the history of a previous vaginal birth before or after the caesarean section.
- There should be no contraindications for vaginal delivery such as placenta praevia.
- The indication for the previous caesarean section should be non-recurrent.
- The previous operation should be an uncomplicated lower segment caesarean section without T-extension or postpartum infection.
- The previous child should be alive and healthy.
- There should be no secondary subfertility.
- The woman should be under 40 years.
- The inter delivery interval should be more than 2 years.
- The present pregnancy should be an uncomplicated, singleton pregnancy without malpresentations or malpositions or an indication for early induction of labour such as hypertension or diabetes.

- The estimated birth weight should be less than 4 kg.
- The pelvis should be adequate with no cephalo-pelvic disproportion.

Q. 10. A, B and E

Q. 11. A, B and E

Explanation for Questions 10–11

During vaginal birth after caesarean section

- Amniotomy alone can be used to augment labour.
- Oxytocin infusion for induction or augmentation is best avoided, as strong contractions produced by oxytocin can cause 2–3 fold increase of uterine rupture.
- Epidural anaesthesia is not contraindicated, but care should be exercised regarding any increased need for pain relief which may be an indication of scar rupture.
- Continuous electronic fetal heart rate monitoring should be carried out for the duration of labour as fetal distress is one of the earliest signs of scar dehiscence.
- Vaginal prostaglandin E 2 tablets (dinoprostone) should not be used to ripen the cervix or induce labour because of the high risk of uterine rupture. A Foley catheter with an inflated bulb can be used to ripen the cervix. Sweeping of membranes is not contraindicated.
- Second stage should be short as prolonged pushing can place a strain on the scar. Instrumental delivery should be performed if the second stage is longer than half an hour.
- Oxytocin is given with the delivery of the anterior shoulder in the active management of the third stage.

Q. 12. C, D and E

Q. 13. A, C and E

Explanation for Questions 12–13

An upper segment caesarean section is rarely performed. The few indications for this operation include, a large lower segment fibroid, carcinoma of the cervix, obstructed labour with Bandl's ring formation and very dense adhesions over the lower segment.

Upper segment scars are weak because healing is poor due to:

- Poor approximation due to increased thickness of the upper segment.
- Increased contractions of the upper segment during the puerperium.

Formation of the placenta over the scar during the next pregnancy will further weaken it.

Therefore, upper segment scars tend to rupture before the onset of labour. A repeat caesarean section is mandatory and should be performed at 37 weeks. The placenta can become morbidly adherent as it can form over the scar. Incisional hernia can occur if the operation is performed through a midline incision but it is usually performed through a transverse incision. Traumatic postpartum haemorrhage can occur if the scar ruptures.

Q. 14. A and B

Q. 15. A, C, D and E

Explanation for Questions 14–15

Signs of scar rupture are:

- Fetal distress.
- Fresh vaginal bleeding.
- Maternal tachycardia.
- Severe continuous abdominal pain, especially if persisting between contractions.
- Chest pain or shoulder tip pain.
- Acute onset scar tenderness.
- Haematuria.
- Cessation of uterine contractions.
- Hypotension and shock.
- Loss of station of the presenting part.

Early signs of scar dehiscence/rupture are

- Fetal distress (the earliest sign).
- Fresh vaginal bleeding.
- Maternal tachycardia.

CHAPTER

20

Preterm Labour

1. Risk factors for spontaneous preterm labour are:

A. Bacterial vaginosis.
B. Occipito-posterior position.
C. Short stature.
D. Smoking.
E. Uterine abnormalities.

2. Risk factors for spontaneous preterm labour are:

A. BMI less than 20.
B. Drug abuse.
C. Gestational diabetes mellitus.
D. Teenage pregnancy.
E. Twin pregnancy.

3. Management of spontaneous preterm labour requires:

A. Administration of 2 doses of 12 mg of betamethasone 12 hours apart.
B. Administration of antibiotics.
C. Administration of nifedipine.
D. Maintenance of a temperature chart.
E. Performing a cervical circlage.

4. Preterm pre-labour rupture of membranes:

A. Is confirmed by vaginal examination.
B. Is diagnosed by performing a sterile speculum examination.
C. Is managed conservatively at 32 weeks.
D. Require administration of oral metronidazole.
E. Require administration of tocolytics.

5. The following investigations are carried out in preterm pre-labour rupture of the membranes:

A. Fetal fibronectin levels.
B. Full blood count.
C. High vaginal swab.
D. C-reactive protein levels.
E. Transvaginal ultrasound scan.

6. History indicated cervical circlage is done for women with:

A. 2 previous preterm births.
B. 3 or more first trimester miscarriages.
C. 3 or more second trimester miscarriages.
D. 3 previous preterm births.
E. Premature rupture of membranes.

7. Cervical circlage is indicated:

A. If preterm labour occurs.
B. If show is present.
C. If the cervical length is less than 25 mm.
D. If there is a history of cervical circlage in the preceding pregnancy.
E. If there is funneling of the cervix.

8. Cervical circlage is done:

A. After confirming the presence of a live foetus.
B. After excluding fetal abnormalities.
C. If bleeding is present.

D. In the first trimester.
E. Under spinal analgesia.

9. Cervical circlage is contraindicated in women with:

A. Bleeding.
B. Breech presentation.
C. Infection.
D. Ruptured membranes.
E. Uterine contractions.

10. In calculating the Apgar score which of the following is given a score of 2?

A. Heart rate less than 100 bpm
B. Pink in colour
C. Regular respiration
D. Weak cry
E. Well-flexed active movements

(Ref: Obstetrics by Ten Teachers, 19th edition, chapter 19, page 284).

ANSWERS AND EXPLANATIONS

Q. 1. A, C, D and E

Q. 2. A, B, D and E

Explanation for Questions 1 and 2

Aetiology and risk factors for spontaneous preterm labour:

- Previous preterm births.
- Bacterial vaginosis.
- Twin pregnancy.
- Polyhydramnios.
- Uterine abnormalities.
- Cervical incompetence—congenital or acquired due to obstetric injuries, or surgeries such as cone biopsy, Manchester repair and cervical dilatation.
- Recurrent antepartum haemorrhage.
- Serious intercurrent illness.
- Smoking.
- Drug abuse.
- BMI less than 20.
- Teenage pregnancy.
- Low socioeconomic status.

Q. 3. A and C

Management of spontaneous preterm labour require

- Administration of 2 doses of betamethasone 12 hours apart for lung maturation
- Administration of tocolytics. Nifedipine is the preferred drug because it has few side effects, cheap, freely available and is given orally.

A temperature chart is maintained and antibiotics are given if there is rupture of membranes. Performing a cervical circlage will not prevent the progress of preterm labour.

Q. 4. B, C and E

Pre-labour rupture of membranes is diagnosed by performing a sterile speculum examination. A digital vaginal examination should not be performed, unless if the woman is in labour, because of the risk of infection and release of prostaglandins. It is managed conservatively till 34 weeks. Use of prophylactic antibiotics has been found to reduce chorioamnionitis. Erythromycin is given for 10 days. Penicillin also can be used. Tocolysis does not significantly improve the perinatal outcome and is recommended for 48 hours for corticosteroids to be effective.

Q. 5. B, C and D

A high vaginal swab may be performed at the initial speculum examination, but weekly high vaginal swabs need not be performed. Maternal full blood count and C-reactive protein is performed initially, but it is not necessary to carry out these tests weekly, because the sensitivity of these tests in the detection of intrauterine infection is low. Cardiotocography is useful as fetal tachycardia can be due to chorioamnionitis. Transvaginal scan is not performed due to the risk of introducing infection.

Q. 6. C and D

Q. 7. C

Q. 8. A, B and E

Q. 9. A, C, D and E

Women with a history of one or more spontaneous mid-trimester losses or preterm births should be offered cervical cerclage, if the cervical length is less than 25 mm before 24 weeks of gestation. Serial transvaginal ultrasound scans should be performed from 16–24 weeks.

Cervical cerclage is not recommended for funnelling of the cervix (dilatation of the internal os on ultrasound) in the absence of cervical shortening to 25 mm or less.

History indicated cerclage should be offered to women with three or more previous preterm births/or second trimester losses. History indicated cerclage should not be routinely offered to women with two or fewer previous preterm births/or second trimester losses.

Active preterm labour, rupture of membranes, bleeding and infection are contraindications for cervical cerclage.

Q. 10. B, C and E

(For explanation refer Obstetrics by Ten Teachers, 19th edition, chapter 19, page 284, table 19.3).

CHAPTER

21

Prescribing in Pregnancy

1. Which of the following drugs are used to treat maternal chlamydia infection in pregnancy?

A. Azithromycin.
B. Ceftriaxone.
C. Doxycycline.
D. Erythromycin.
E. Tetracycline.

2. Which of the following drugs are used to treat pregnancy induced hypertension?

A. Hydralazine.
B. Frusemide.
C. Hydrochlorothiazide.
D. Labetalol.
E. Prazosin.

3. Which of the following vaccines are contraindicated in pregnancy?

A. Diphtheria toxoid.
B. Pertussis vaccine.
C. Rubella vaccine.
D. Tetanus toxoid.
E. Varicella zoster vaccine.

4. Which of the following vaccines are contraindicated in pregnancy?

A. BCG vaccine.
B. Mumps vaccine.
C. Oral polio vaccine.
D. Rabies vaccine.
E. Varicella zoster immunoglobulin.

5. Vaccines which can be given in pregnancy include:

A. Hepatitis A vaccine.
B. Hepatitis B vaccine.
C. Inactivated polio vaccine.
D. Measles vaccine.
E. Triple vaccine.

6. The rubella vaccine:

A. Causes rubella infection.
B. Causes congenital rubella if pregnancy occurs within two months.
C. Is given in the early puerperium.
D. Is given to schoolgirls.
E. Should be followed by contraception for two months in married women.

7. Which of the following antacids are best avoided in pregnancy?

A. Cimetidine.
B. Famotidine.
C. Lansoprazole.
D. Omeprazole.
E. Ranitidine.

8. Which of the following drugs should be avoided in pregnancy?

A. Amitryptaline.
B. Chloramphenicol.
C. Azithromycin.
D. Doxycycline.
E. Sodium valproate.

9. Which of the following drugs are contra-indicated in pregnancy?

A. Amikacin.
B. Cephalosporins.
C. Cotrimoxazole.
D. Fluoroquinalones.
E. Vitamin A.

10. Which of the following drugs are contra-indicated in the first trimester of pregnancy?

A. Amoxycillin.
B. Esomeprazole.
C. Fluoxetine.
D. Low molecular weight heparin.
E. Warfarin.

11. Which of following drugs are contra-indicated in pregnancy?

A. Clarithromycin.
B. Fluconazole.
C. Lithium.
D. Penicillin.
E. Statins.

12. Which of the following drugs are contra-indicated in pregnancy?

A. Cefixime.
B. Ceftriaxone.
C. Ciprofloxacin.
D. Cloxacillin.
E. Levofloxacin.

13. Which of the following categories of drugs are safe and are first-line antibiotics in pregnancy?

A. Aminoglycosides.
B. Cephalosporins.
C. Penicillins.
D. Sulphonamides.
E. Tetracyclines.

14. Which of the following drugs can be used in pregnancy?

A. Aztreonam.
B. Clindamycin.
C. Linezolid.
D. Nitrofurantoin.
E. Norfloxacin.

15. Which of the following drugs have an oxytocic effect?

A. Adrenaline.
B. Atosiban.
C. Carboprost.
D. Ergometrine.
E. Misoprostol.

16. Which of the following drugs are teratogenic?

A. Captopril.
B. Low molecular weight heparin.
C. Methotrexate.
D. Oral penicillin.
E. Propylthiouracil.

17. Which of the following are teratogenic agents?

A. Alcohol.
B. Calcium supplements.
C. Cocaine.
D. Tetanus toxoid.
E. Trimethoprim.

18. Which of the following is true regarding the use of antihypertensive drugs in pregnancy?

A. ACE inhibitors have multiple adverse effects on the foetus.
B. Atenolol causes intrauterine growth restriction.
C. Diuretics are recommended in the treatment of pre-eclampsia.
D. Labetalol should be avoided if there is fetal growth restriction.
E. Methyldopa is not known to cause congenital defects.

(Ref. for questions 1–18: SBA Questions in Obstetrics, chapter 17).

ANSWERS

Q. 1. A and D

Q. 2. A and D

Q. 3. C and E

Q. 4. A, B and C

Q. 5. A, B, C and E

Q. 6. C, D and E

Q. 7. C and D

Q. 8. B, D and E

Q. 9. A, C, D and E

Q. 10. B, C and E

Q. 11. A, B, C and E

Q. 12. C and E

Q. 13. B and C

Q. 14. A, B and D

Q. 15. C, D and E

Q. 16. A, C and E

Q. 17. A, C and E

Q. 18. A, B, D and E

EXPLANATIONS FOR THE ANSWERS

A summary of important information regarding prescribing in pregnancy

Vaccinating in pregnancy:

- No evidence exists of risk to the foetus from vaccinating pregnant women with inactivated virus or bacterial vaccines, or toxoids.
- Live attenuated virus and live bacterial vaccines are contraindicated during pregnancy because they may carry a risk to the foetus.
- Passive vaccination with immunoglobulin is not contraindicated.
- Inactivated and live attenuated virus vaccines can be given to lactating women.
- Smallpox vaccine is contraindicated during lactation, because of the risk of transmission to the foetus by contact with the mother.
- **Vaccines which are contraindicated in pregnancy are:**
  - Measles
  - Rubella
  - Varicella zoster
  - BCG
  - Smallpox
  - Oral polio vaccine
  - Mumps
  - Live attenuated influenza vaccine
  - Human papilloma virus vaccine
- **Vaccines which can be given in pregnancy are:**
  - Triple vaccine-tetanus, diphtheria, pertussis
  - Hepatitis A
  - Hepatitis B
  - Rabies (post-exposure)
  - Inactivated polio vaccine
  - Inactivated influenza vaccine
- **Antibiotics which are contraindicated in pregnancy are:**
  - Fluoroquinalones
  - Aminoglycosides
  - Tetracycline
  - Sulphonamide and trimethoprim
  - Chloramphenicol

- Griseofulvin
- Clarithromycin
- Vancomycin

- **Antibiotics which can be used in pregnancy:**
  - Penicillin group of drugs
  - Cephalosporins
  - Macrolides–erythromycin and azithromycin
  - Nitrofurantoin
  - Metronidazole after the first trimester
  - Astreonam
  - Clindamycin
- **Antipsychotic drugs:** Amitriptyline and fluoxetine can be used. Lithium, benzodiazepines and serotonin reuptake inhibitors should be avoided.
- **Antiallergic drugs:** Diphenhydramine is the safest. Loretidine and cetrizine are safer than fexofenadine.
- **Antacids:** Lansoprazole, omeprazole and esomeprazole are contraindicated in pregnancy.

  Cimetidine, nizatidine, ranitidine and famotidine can be used.
- **Oxytocic drugs:** Oxytocin, ergometrine, carboprost, misoprostol.
- **Antihypertensive drugs:** Nifedipine, labetalol, methyldopa and hydralazine are the only antihypertensive drugs which can be safely prescribed in pregnancy.

  Angiotensin converting enzyme inhibitors (enalapril and captopril), angiotensin receptor blocking drugs (losartan) and diuretics such as frusemide and hydrochlorothiazide are contraindicated in pregnancy.

  Commonly used drugs which are contraindicated in breastfeeding women are laxatives, lithium, amidarone, opiates, ephedrine, pseudoephedrine, benzodiazepines, cytotoxics and immunosuppressant drugs.

For more information refer: Prescribing Drugs to Pregnant Women, When to withhold, when to adjust dosage. Raymondo. Powrie, MD and Rita Kurl, MD.

CHAPTER

22

Antenatal Care

1. Which of the following is true?

A. A woman with a family history of type 2 diabetes mellitus requires an OGTT at the booking visit.
B. A woman with a past history of pre-eclampsia should be commenced on aspirin at 12 weeks.
C. Gravidity is the total number of pregnancies regardless of how they ended.
D. The expected date of delivery is calculated from the date of conception.
E. The expected date of delivery calculated from the last menstrual period is reliable if the cycle length is 60 days and regular.

2. The expected date of delivery is accurately calculated using the Naegele's rule:

A. By adding 7 days to the last menstrual period (LMP) and then taking away 3 months.
B. If the woman has irregular periods.
C. If the last period is the first period after partus.
D. If the woman has 28-day regular cycles and has maintained a record of her menstrual cycles.
E. If the woman has conceived while taking oral contraceptive pills.

(Ref: Obstetrics by Ten Teachers, 19th edition, chapter 1, page 1–2)

3. Which of the following tests should be routinely performed at the booking visit in the first trimester?

A. An ultrasound scan to detect fetal anomalies.
B. Full blood count.
C. Maternal serum alpha fetoprotein levels.
D. Postprandial blood sugar.
E. Tests for syphilis, HIV and hepatitis B.

4. Which of the following tests should be routinely performed at the booking visit at 10 weeks?

A. Chorionic villous sampling for Down's syndrome in a 40-year old woman.
B. Random blood sugar.
C. Testing for rubella specific IgG.
D. Ultrasound scan for nuchal translucency.
E. Urine full report and culture.

(Ref. for questions 3–4: Obstetrics by Ten Teachers, 19th edition, chapter 5, page 55–57).

5. An ultrasound scan performed at the booking visit at 10–12 weeks allows:

A. Accurate dating of the pregnancy.
B. Detection of cardiac anomalies.
C. Detection of twin pregnancies and determining the chorionicity
D. Detection of uterine abnormalities.
E. Early detection of a low lying placenta.

(Ref: Obstetrics by Ten Teachers, 18th edition, chapter 8, page 86).

6. Which of the following tests should be routinely performed at the antenatal clinic at 28 weeks?

A. A full blood count.
B. An antibody screen in rhesus negative women.
C. An oral glucose tolerance test.
D. An ultrasound scan for fetal growth.
E. Maternal serum alpha fetoprotein.

(Ref: Obstetrics by Ten Teachers, 19th edition, chapter 5, page 59).

7. Admission to hospital is indicated at a POA of 34 weeks for a woman who attends the antenatal clinic with:

A. A blood pressure of 160/110 mm Hg.
B. A haemoglobin level of 8 gm/dl.
C. A postprandial blood sugar level of 8 mmol/l.
D. Antepartum haemorrhage.
E. Premature rupture of membranes.

8. Which of the following investigations will be of predictive value in a second para with a history of a previous stillbirth at 38 weeks, who attends the antenatal clinic at 20 weeks?

A. Full blood count.
B. Oral glucose tolerance test.
C. Ultrasound scan for structural fetal abnormalities.
D. Uterine artery Doppler studies.
E. VDRL test.

9. The significance of examination of breasts at the booking visit is to:

A. Assess whether nipples are suitable for breastfeeding.
B. Assess whether the size of the breasts is suitable for breastfeeding.
C. Confirm the presence of secretions.
D. Confirm the presence of signs of pregnancy.
E. Exclude breast lumps.

(Ref: Obstetrics by Ten Teachers, 19th edition, chapter 1, page 7).

10. Which of the following should be carried out if the symphysis-fundal height is large for the gestational age at a POA of 28 weeks?

A. Oral glucose tolerance test.
B. Review the antenatal records to confirm dates.
C. Ultrasound scan for structural fetal abnormalities.
D. Ultrasound scan to confirm dates.
E. Umbilical artery Doppler studies.

11. Which of the following should be carried out if the symphysis-fundal height is large for the gestational age at a POA of 28 weeks?

A. Cell free fetal DNA studies in the maternal serum to exclude fetal genetic abnormalities.
B. Full blood count.
C. Ultrasound scanning for the amniotic fluid volume.
D. Ultrasound scanning to assess the fetal weight.
E. Ultrasound scanning to exclude fibroids.

12. Which of the following tests performed at the antenatal clinic are diagnostic tests?

A. Amniocentesis at 15 weeks for fetal genetic and chromosomal diseases.
B. Full blood count for anaemia.
C. Oral glucose tolerance test for gestational diabetes mellitus.
D. Postprandial blood sugar for gestational diabetes mellitus.
E. Ultrasound scan at 20 weeks for fetal structural abnormalities.

13. Which of the following tests performed at the antenatal clinic are screening tests?

A. Cordocentesis for fetal anaemia.
B. Maternal serum alpha fetoprotein levels at 15 weeks for neural tube defects.
C. Maternal serum cell free fetal DNA analysis for Down's syndrome.

D. Serum ferritin levels for iron deficiency anaemia.
E. Triple test for Down's syndrome.

(Ref. for questions 12–13: SBA Questions in Obstetrics, chapter 11, page 109).

14. Which of the following should be routinely performed in normal pregnancies at the antenatal clinic at 36 weeks?

A. Abdominal examination to confirm presentation.
B. Advise to maintain a kick count chart.
C. Cardiotocogram.
D. Ultrasound scan for fetal growth and placental localisation.
E. Umbilical artery Doppler studies.

(Ref: Antenatal care for uncomplicated pregnancies, NICE Clinical guideline [CG62] Published date: March 2008 Last updated: January 2017, 1.10).

15. During the antenatal period women should avoid:

A. Air travel.
B. Alcohol during the first trimester.
C. Eating partially cooked vegetables and meat.
D. Moderate exercise.
E. Smoking.

(Ref: Antenatal care for uncomplicated pregnancies, NICE Clinical guideline [CG62] Published date: March 2008 Last updated: January 2017, 1.3)

(Additional reading for questions 1–15: Antenatal care for uncomplicated pregnancies, NICE Clinical guideline [CG62] Published date: March 2008 Last updated: January 2017).

ANSWERS AND EXPLANATIONS

Q. 1. A, B and C

Indications to perform an oral glucose tolerance test at the booking visit are:

- Gestational diabetes mellitus in a previous pregnancy.
- Diabetes in a first degree relative.
- Previous large for gestational age infants, (more than 4.5 kg).
- Obesity—BMI greater than 30 kg/m^2.
- Older age at pregnancy.
- Previous unexplained intrauterine death.
- Women of South Asian origin.

A woman with a past history of pre-eclampsia or fetal growth restriction or at risk of these conditions should be commenced on aspirin between 12–16 weeks.

Gravidity is the total number of pregnancies regardless of how they ended, while parity is the number of pregnancies which proceeded beyond 24 weeks.

The EDD is calculated from the first day of the last regular menstrual period. The expected date of delivery calculated from the last menstrual period is reliable only if the woman has 28 days regular cycles and can recall the dates accurately. The time of intercourse is not regarded when calculating the EDD.

Q. 2. A and D

The expected date of delivery is accurately calculated using the Naegele's rule by adding 7 days to the last menstrual period (LRMP) and then taking away 3 months. It is reliable only if the woman has 28 day regular cycles and has maintained a record of her menstrual cycles.

The EDD calculated by the Naegele's rule is unreliable if:

- The period length is longer than 28 days or irregular
- The last period is the first period after partus
- The woman is lactating
- The woman has conceived while on hormonal contraceptives
- The woman is not sure of the LRMP

Q. 3. B, D and E

Q. 4. C, D and E

Q. 5. A, C and D

Explanation for Questions 3–5

Investigations which are performed at the first antenatal visit include full blood count, postprandial blood sugar, urine full report and culture, blood grouping, testing for rubella specific IgG, testing for haemoglobinopathies in at risk women, ultrasound scanning and testing for syphilis, HIV and hepatitis B.

Random blood sugar is not performed during pregnancy.

Chorionic villous sampling is not performed routinely. It is performed only if the screening tests are positive for Down's syndrome.

An USS is performed at the booking visit in the first trimester at 10–12 weeks to:

- Confirm fetal viability.
- Accurately estimate the gestational age by measuring the crown rump length. The accuracy of prediction is 5 days.
- Exclude pelvic pathology such as fibroids, ovarian tumours and uterine abnormalities.
- Diagnose multiple pregnancy and to determine the chorionicity (at 11–13 weeks).
- Measure the nuchal translucency which is a marker for Down's syndrome and other trisomies (at 11–13 weeks).
- Investigate bleeding in the first trimester and to diagnose missed abortion, hydatidiform mole and ectopic pregnancy.
- Perform chorionic villous sampling.

A fetal anomaly scan is performed during the second trimester when the organogenesis is complete. However, it is best performed at 20 weeks to enable detection of closed spina bifida, hydrocephaly and microcephaly.

Maternal serum alpha fetoprotein levels are tested at 15–19 weeks.

Q. 6. A, B, C and D

A full blood count and an antibody screen in rhesus negative women are performed at the booking visit and are repeated at 28 weeks. Oral glucose tolerance test and an ultrasound scan for fetal growth and placental localisation are tests which are routinely carried out at 28 weeks.

Q. 7. A, D and E

Moderate and severe pregnancy induced hypertension, pre-eclampsia, rupture of membranes and antepartum haemorrhage are indications for hospital admission. A haemoglobin level of less than 7 gm/dl needs hospital admission for blood transfusion. A woman with a haemoglobin level of 8 gm/dl due to iron deficiency can be treated as an out-patient with a double dose of oral iron. Mild and moderate GDM and diabetes mellitus can be treated as an out-patient in the absence of complications.

Q. 8. B, C, D and E

- If the cause of the previous stillbirth is known the investigations should be directed to exclude recurrence in the present pregnancy. If the cause is unknown investigations should be first directed to exclude the most common causes of stillbirth.
- Uterine artery Doppler studies can be performed between 20–24 weeks. Presence of notching would be of predictive value for later occurrence of pre-eclampsia and fetal growth restriction.
- Diabetes should be excluded by performing an OGTT at the booking visit and at 28 weeks. An ultrasound scan should be performed at 20 weeks to exclude fetal structural abnormalities.
- Toxoplasma, rubella, cytomegalovirus and herpes will cause stillbirth in the acute phase and will not cause recurrent stillbirths.
- Syphilis is a chronic infection which can persist in the body and cause recurrent stillbirths. Therefore, a VDRL test should be performed.

Q. 9. A and E

Breasts are examined at the first antenatal visit to exclude the presence of lumps and to assess whether the nipples are everted and suitable for breastfeeding. The size of the breasts is not significant for breastfeeding. It is not necessary to examine the breasts for signs of pregnancy as the pregnancy is obvious.

Q. 10. A, B and C

Q. 11. C, D and E

Explanation for Questions 10 and 11

Symphysis fundal height can be large for dates in:

- GDM and type 2 diabetes
- Wrong dates
- Fetal structural abnormalities
- Multiple pregnancy
- Fibroids
- Polyhydramnios

If the symphysis fundal height appears large for dates, the dates should be confirmed by reviewing the antenatal records. Dates cannot be reliably confirmed by ultrasound scanning at 28 weeks. However, an ultrasound scan should be performed to exclude fetal structural abnormalities, fibroids, multiple pregnancy and poyhydramnios.

An OGTT should be performed to exclude GDM.

Umbilical artery Doppler studies are performed for surveillance of fetal well-being in fetal growth restriction and are of no value in this case.

Cell free fetal DNA testing is of no value as genetic abnormalities usually cause growth restriction. Full blood count is of no value as maternal anaemia is not a cause of macrosomia.

Q. 12. A, C and E

Q. 13. B, C and E

Explanation for Questions 12 and 13

Diagnostic tests should confirm the occurrence of a disease condition. They can be invasive or non-invasive tests. If the test is invasive it should be performed only in women who have undergone screening tests and who have a high-risk of the disease.

Oral glucose tolerance test for gestational diabetes mellitus and ultrasound scan at 20 weeks for fetal structural abnormalities are screening as well as diagnostic tests. They are screening tests as they are non-invasive tests which are performed in all women. They are diagnostic tests as they confirm the occurrence of GDM and fetal structural abnormalities. Postprandial blood sugar is a screening test for gestational diabetes mellitus which is performed at the booking visit.

Full blood count is a screening test for anaemia while serum ferritin level is a diagnostic test for iron deficiency anaemia.

Maternal serum alpha fetoprotein level at 15 weeks is a screening test for neural tube defects. Confirmation is by USS at 20 weeks.

Triple test and maternal serum cell free fetal DNA analysis are screening tests for Down's syndrome which is confirmed by amniocentesis.

Cordocentesis is a confirmatory test for fetal anaemia and is performed before intrauterine transfusion.

Q. 14. A and B

Doppler ultrasound studies should not be performed in low-risk pregnancies.

Fetal presentation should be assessed by abdominal palpation at 36 weeks or later, when presentation is likely to influence the plans for the birth. Assessment of presentation by abdominal palpation should not be done before 36 weeks because spontaneous version can occur.

Antenatal cardiotocography is not recommended for fetal assessment in women with uncomplicated pregnancies.

Even though not recommended in the NICE guidelines a kick count chart is routinely given at 36 weeks in Sri Lanka and other developing countries, for women without complications.

Routine use of ultrasound scanning at 36 weeks of gestation is not recommended.

Q. 15. B, C and E

The woman should be informed about the risks to the child of smoking and exposure to cigarette and wood smoke.

Women should avoid drinking alcohol in the first trimester because it may be associated with an increased risk of miscarriage. Drinking should be limited to half a pint of beer during the rest of the pregnancy.

Partially cooked food should be avoided to prevent listeriosis and salmonella infections.

Air travel can be undertaken till 34 weeks. Long flights carry the risk of venous thrombosis.

Mild to moderate exercise is not harmful.

CHAPTER

23

Puerperium

1. Treatment methods for cracked nipples include:

A. Administration of oral antibiotics.
B. Resting the nipple till the pain subsides and manual expression of milk from the affected breast.
C. Suppression of lactation.
D. Topical application of broad spectrum antibiotics.
E. Use of a nipple shield to feed the baby till the pain subsides.

(Ref: obstetrics by Ten Teachers, 19th edition, chapter 17, page 268).

2. Which of the following is true regarding the puerperium?

A. Cardiovascular changes return to normal in 2 weeks.
B. It lasts for 8 weeks.
C. There are no dietary restrictions during the first few days.
D. Uterus is not palpable above the symphysis pubis 2 weeks after partus.
E. Vagina returns to the pre-pregnant state in 6 weeks after vaginal delivery.

(Ref: Obstetrics by Ten Teachers, 19th edition, chapter 17, page 258–259).

3. Breast milk is more suitable than formula feeds because it has:

A. Better bioavailability of iron.
B. Higher lactose content.
C. Higher sodium content.
D. Lower energy content.
E. Lower protein content.

4. Which of the following is true regarding breast milk?

A. It contains IgA.
B. It contains vitamin K.
C. It does not provide adequate amount of iron to the baby.
D. It provides an adequate amount of water for the baby.
E. Lactalbumin is the main protein component of breast milk.

5. Colostrum:

A. Contains a large amount of globulins.
B. Contains less sugar and fat than breast milk.
C. Is secreted in large quantities during the first 48 hours after birth.
D. Provides immunity against infections.
E. Should be supplemented with formula feeds during the first 48 hours.

(Ref. for questions 3–5: obstetrics by Ten Teachers, 19th edition, chapter 17, page 266 and table 17.3).

6. Which of the following is true?

A. A stillbirth is a foetus born after 24 weeks with no signs of life.
B. An early neonatal death is a death within the first month after birth.

C. Perinatal deaths include all stillbirths after 24 weeks and deaths within the first week of life.
D. Puerperal pyrexia is occurrence of a temperature more than 38°C during the first 10 days of the puerperium.
E. Secondary postpartum haemorrhage is occurrence of fresh bleeding from the genital tract between 24 hours and 6 weeks after delivery.

(Ref: Obstetrics by Ten Teachers, 18th edition, chapter 3, page 28–29).

7. Which of the following indicate severe puerperal sepsis?

A. C-reactive protein level of 6.
B. Occurrence of diarrhoea and vomiting.
C. Presence of pus in the peritoneal cavity.
D. Serum lacate level of more than 2 mmol/l.
E. Temperature more than 38°C.

8. Management of severe puerperal sepsis due to retained placental tissue includes:

A. Commencing intravenous vancomycin if methicillin resistant staphylococcus is isolated.
B. Evacuation of the retained products after commencing intravenous carbapenem and clindamycin.
C. Laparotomy if a localised pelvic abscess is found.
D. Performing a culture and ABST of blood and vaginal discharge as the first step.
E. Performing a hysterectomy.

(Ref. for questions 7 and 8: SBA Questions in Obstetrics, chapter 16, page 147–148).

ANSWERS AND EXPLANATIONS

Q. 1. B and E

Cracked nipples are treated by resting the nipple till the pain subsides and feeding the baby with expressed milk from the affected breast. Expression of milk is essential as otherwise the breast will become engorged. Milk can be expressed manually or by a breast pump. Another alternative is to allow the baby to suck through a nipple shield. It is not necessary to suppress lactation as the condition will improve in 2–3 days. Topical applications or oral antibiotics are not given. The patient should be advised regarding the proper technique of inserting the areolar into the baby's mouth.

Q. 2. B, C and D

Puerperium refers to the period after partus during which the body tissues, especially the pelvic organs return approximately to the pre-pregnant state anatomically and physiologically. It lasts for 6 weeks. Uterus is felt about 4 cm below the umbilicus soon after birth. It involutes rapidly and is not palpable above the pubic symphysis after 2 weeks and returns to the pre-pregnancy size in 6 weeks. Vagina becomes more lax with a wider introitus after normal delivery. It does not return to the pre-pregnancy condition. There are no dietary restrictions at all during the puerperium. However, a well-balanced diet and an adequate fluid intake are essential for maternal well-being and successful lactation.

Q. 3. A, B and E

Q. 4. A, D and E

Explanation for Questions 3–4

Breast milk has a higher lactose, energy and fat content and a lower sodium and protein content than cow's milk. Because of the higher content of minerals it is dangerous to give formula feeds to a dehydrated baby. The major protein content of breast milk is lactalbumin whereas cow's milk contains mainly caseinogen. Breast milk has antibodies, IgA, IgG and IgM and protects the baby against infections. Although the iron content

is less than in cow's milk it is better absorbed and hence has a greater bioavailability. It has all the vitamins except for vitamin K.

Q. 5. A, B and D

Colostrum is secreted in small quantities during the first 48 hours. It contains less sugar and fat than breast milk but a higher content of proteins. The proteins are mainly in the form of globulins, particularly immunoglobulins, which play a major role in protecting the baby against infections. The amount of colostrum is adequate for the baby during the first 48 hours and need not be supplemented with formula feeds.

Q. 6. A, C and E

Puerperal pyrexia is occurrence of a temperature more than 38°C on any two days of the first 10 days of the puerperium excluding the first 24 hours. Mildly elevated fever can occur during the first 24 hours after delivery. An early neonatal death is death in the first week after birth.

Q. 7. B, C and E

The following signs and symptoms indicate severe puerperal sepsis and require hospital admission.

- Pyrexia more than 38°C.
- Sustained tachycardia more than 90 beats/minute.
- Breathlessness (respiratory rate of more than 20 breaths/minute.)
- Abdominal or chest pain.
- Darrhoea and/or vomiting.
- Uterine or renal angle pain and tenderness.
- Signs of pus in the peritoneal cavity.
- Serum lactate-levels greater than 4 mmol/l indicates severe sepsis with tissue hypoperfusion.
- C–reactive protein-levels > than 7 indicate infection.

Q. 8. A, B and D

Management of severe puerperal sepsis include the following:

- Obtain blood and a high vaginal swab for culture and antibiotic sensitivity prior to antibiotic administration.
- Administer broad-spectrum antibiotics within 1 hour of recognition of severe sepsis. Antibiotics can be changed once the antibiotic sensitivity results are available.
- A combination of either piperacillin/tazobactam or a carbapenem plus clindamycin provides one of the broadest ranges of treatment for severe sepsis.
- Methicillin resistant *Staphylococcus aureus* (MRSA) may be resistant to clindamycin, hence if the woman is highly likely to be MRSA-positive, a glycopeptide such as vancomycin or teicoplanin may be added until sensitivity is known.
- Focus of infection should be eliminated. This may require uterine evacuation or drainage of a breast, wound or pelvic abscess under cover of broad spectrum antibiotics.
- Laparotomy is needed if presence of pus in the peritoneal cavity is suspected. A localised pelvic abscess can be aspirated under ultrasound guidance.