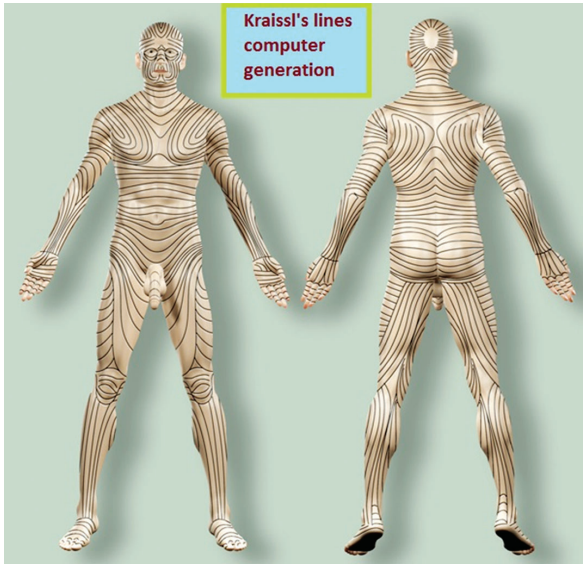
Chapter

1

Rules of Exposing Bones and Joints

1. The shortest and cleanest route from skin to the bone or joint is used.
2. As far as possible, the plane of approach is through intermuscular fascia.
3. Skin is incised parallel to the tension creases of Langer, or lines of Kraissl, Cox or Borges. This is not a hard and fast rule, and incisions can angle, deviate or even go at right angles to the creases, should the exposure require it.
4. Subcutaneous fat is cut in the same line as the skin.
5. The deep fascia is cut in the line of approach.



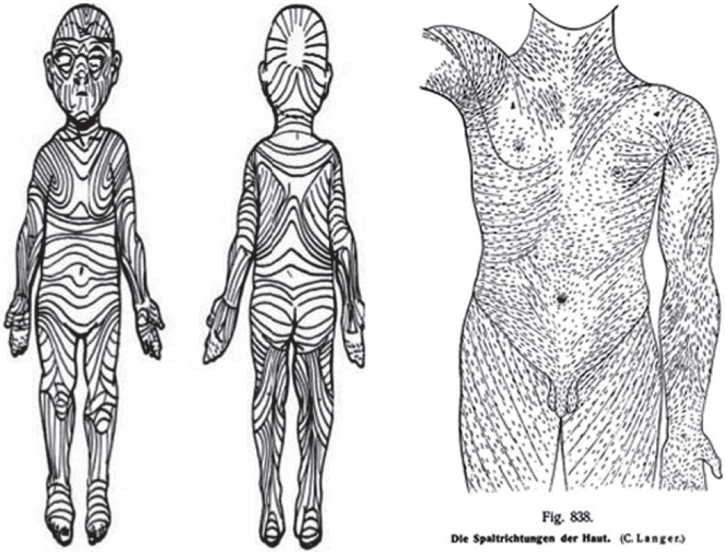
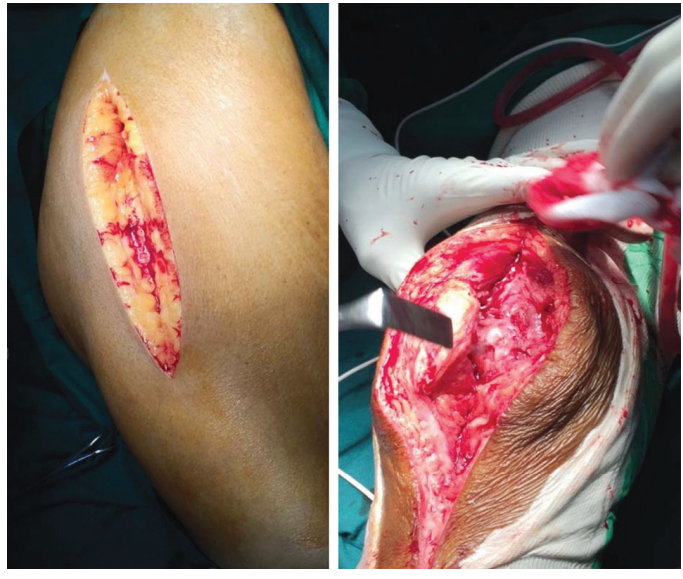
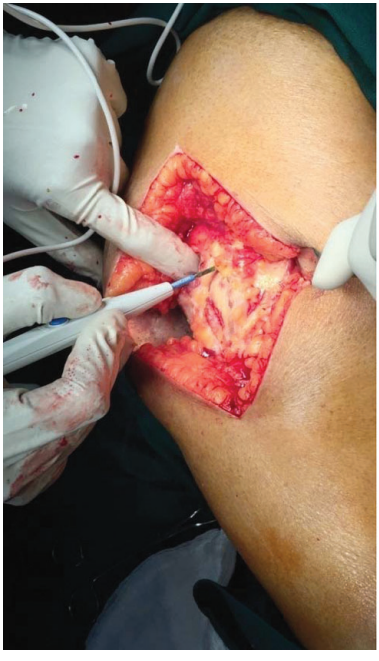
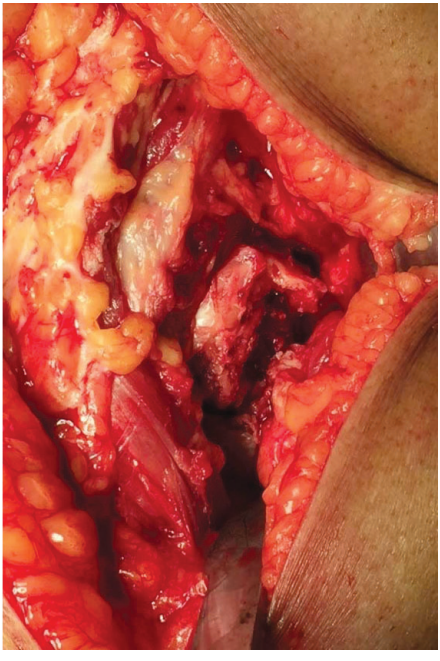


Fig. 838.
Die Spaltrichtungen der Haut. (C. Langer.)

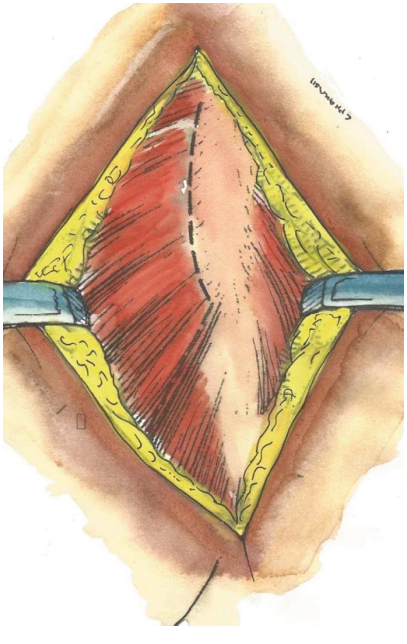
6. Muscles should be split between fibres, or separated by blunt dissection. It is prohibited to make transverse cuts in the muscle belly.
7. Tendons should be retracted out of the way. When this does not allow a sufficient exposure, they can be divided by a Z plasty for later reattachment.

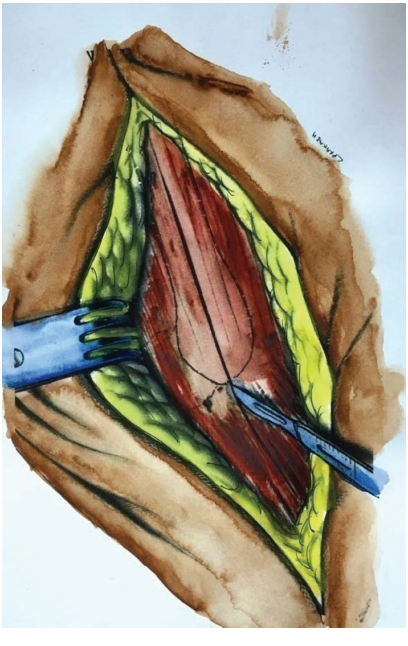


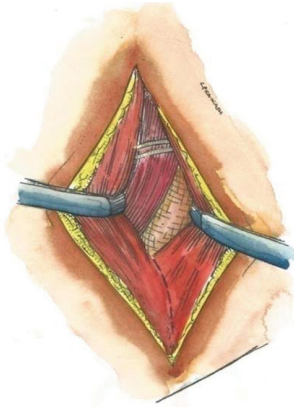


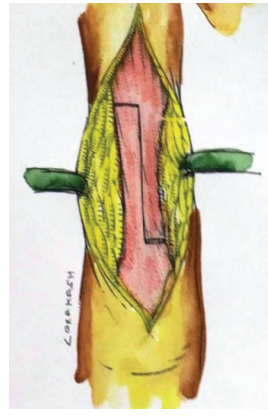


The above photographs show the exposure to the hip joint.

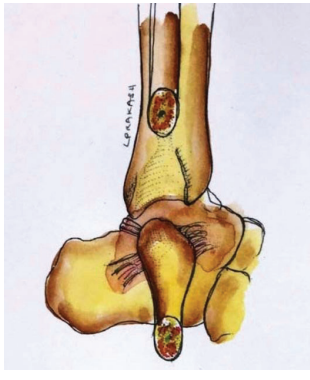


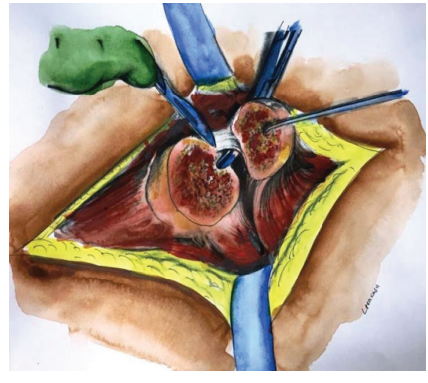


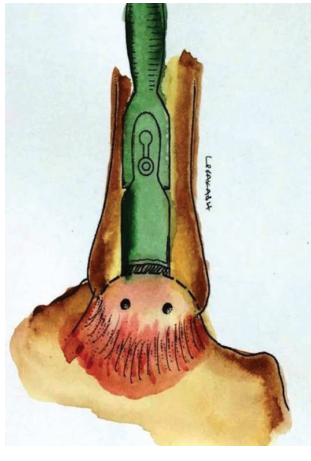


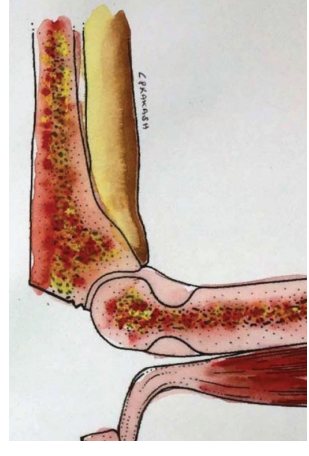


8. When tendons are cut, they should always be split in the direction of the fibres. Occasionally, a Z plasty might be required for a wider exposure.





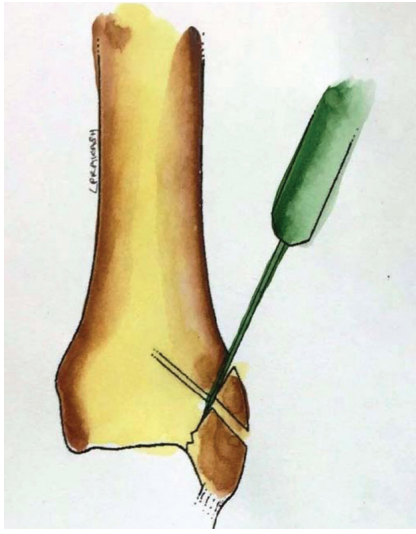


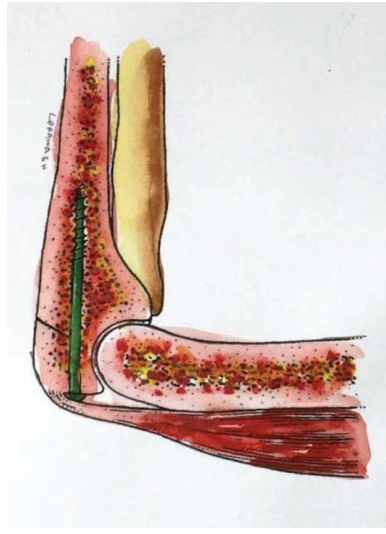


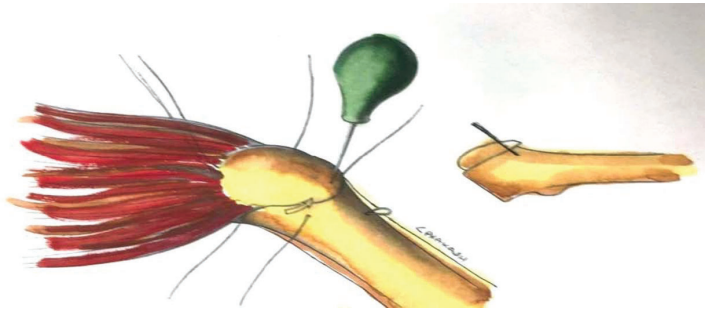
9. Should situations require, an osteotomy of the tendinous attachment can be done to open up a joint. This osteotomized piece of bone can then be reattached to its original position.
10. Small arteries, veins and nerves can be sacrificed. Medium-sized arteries and veins, if they fall in line of incision, are caught, cut ligated or coagulated. Large vessels are carefully identified and retracted out of the way.
11. As far as nerves are concerned, they should never be cut or even stretched. By very careful dissection, the nerve is mobilized and retracted in the direction of least tension.
12. The joint capsule can be cut in any direction, as the exposure warrants.
13. Periosteum is cut along the long axis of the bone and elevated off the bone using a periosteal elevator.
14. Anatomical closure in layers is essential for a functional and cosmetic postoperative result and the rules of closure are given below.

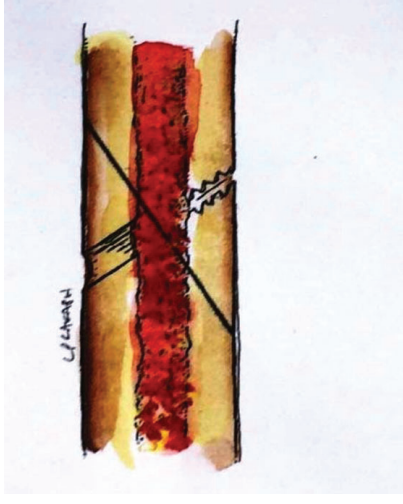
Rules of Surgical Closure

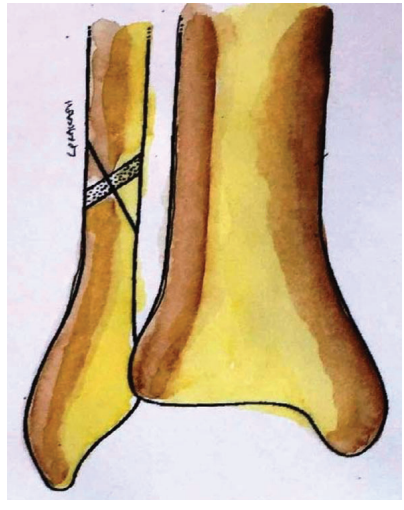
1. The joint capsule need not be sutured in an adult. If needed, it can be sutured by thin absorbable interrupted sutures.
2. All bony detachments and osteotomies are accurately repositioned and fixed with cancellous screws, tension band wiring or cerclage wiring.
3. In case of the trochanter, its attachment can be distalized to improve the abductor lever arm mechanism.
4. Accurate reattachment of osteotomized bone and rigid fixation are the most important steps in transosseous approaches.
5. Periosteum usually does not need to be sutured; it falls back in place.
6. Any detachment of a muscle or tendon from the bone for exposure should be performed leaving adequate bits for reattachment, and these are sutured under tension. This can be assisted by moving the limb in the appropriate direction to relax the tense structures while suturing.

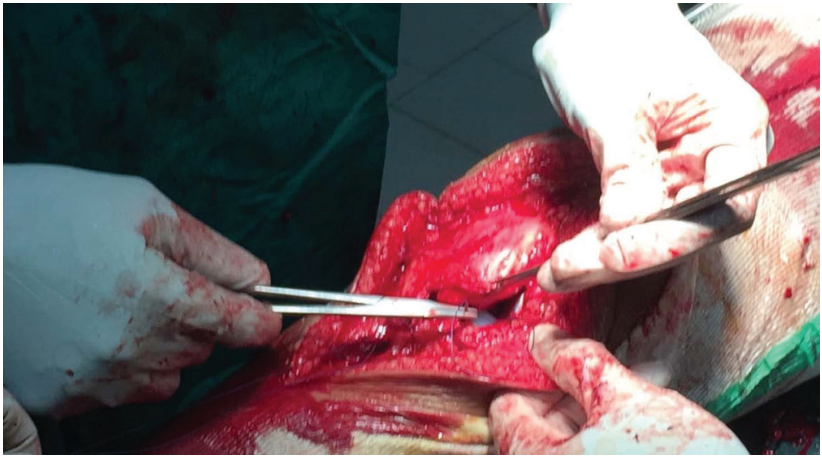




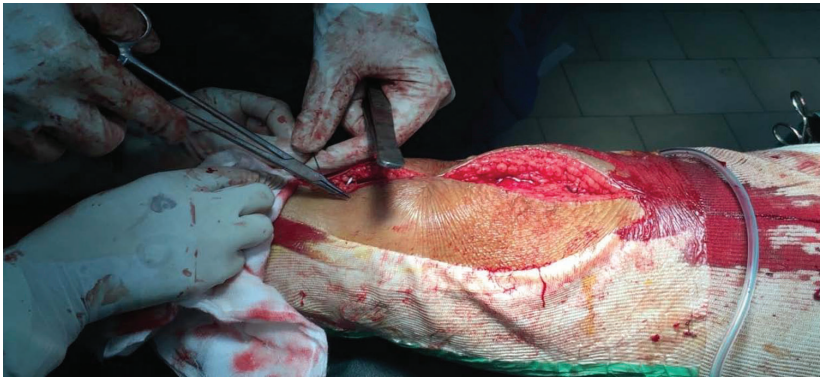








7. Split muscles don't need suturing; rather, transverse stitches strangulate the linear muscle bundles. Just relaxing the limb allows the split muscle to fall into place.



8. Deep fascia is stitched in the line of incision by synthetic absorbable sutures (continuous or interrupted) depending on the surgeon's choice.
9. A good approximation of subcutaneous fat is achieved by absorbable sutures. This should leave the skin edges close without eversion.
10. Though skin staplers are widely used, they are not recommended for joint replacement surgeries, because of higher risk of superficial and deep infections. I personally recommend and use one zero or two zero monofilament nylon.

11. Use of postoperative drains and the duration of their presence is dependent on the part operated, intra- and post-operative bleeding and continuance of drain into the system. It is usually not recommended to keep drains for longer than four days.
12. Though some surgeons routinely open the dressings and inspect the wound a few days postoperatively, the author personally never opens the wounds once sealed in the theatre until two weeks, when the time is ripe for stitch removal.