Chapter 1

History of Present Illness

Time spent in talking to a patient is valuable in getting important first-hand information about his/her illness besides establishing a long-term bond of mutual trust and confidence with the patient.

The most important symptoms of cardiac illness are:

(a) **Dyspnoea**, (b) **Chest pain**, (c) **Syncope**, (d) **Palpitation**, (e) **Oedema**, (f) **Fatigue**, (g) **Fever**, (h) **Claudication on walking**. In history, we also evaluate patient's **dietary habits** and **type of lifestyle** and any **drug intake besides past illness**, if any.

DYSPNOEA

It means difficulty in breathing. It is an abnormal uncomfortable awareness of self-breathing.

Common causes are cardiac and respiratory diseases. Dyspnoea can develop suddenly/acutely or can be of gradual onset with progression.

Causes of Acute Sudden Dyspnoea

a. Cardiac causes

1. Acute pulmonary oedema–acute LVF (left ventricular failure)
2. Acute pulmonary embolism.

b. Respiratory causes

1. Pneumothorax
2. Bronchopneumonia
3. Acute airway obstruction.

Special Type of Acute Dyspnoea

PND (Paroxysmal Nocturnal Dyspnoea)

A classical symptom of LVF: A known cardiac patient usually sleeps with pillows at back, with sleep, he slips down and lies flat, then he wakes up suddenly mostly after midnight with sudden breathing difficulty, gasping for breath, sweating with mild wheezing followed by cough, after he gets up he feels better in 10–20 minutes.

Pathogenesis

1. On change of posture, venous return to lungs increases. It causes pulmonary congestion in an already congested lungs and stimulation of Hering-Breuer stretch receptors of alveoli causes sudden stimulation of depressed respiratory centre leading to episodes of hyperpnoea.

2. **Increased stimulation of sympathetic activity that occurs** in the period of REM sleep at the central level in the medulla. These two factors increase the respiratory rate and patient becomes dyspnoeic. On change of posture, pulmonary congestion becomes less and the breathing becomes better.

Differential diagnosis: Acute bronchial asthma—**status asthmaticus**. In this cough is earlier, dyspnoea later and symptoms take hours to be relieved.

Chronic Progressive Dyspnoea

It is due to slowly developing pulmonary congestion and interstitial oedema in lungs in long-standing left heart disease cases.

NYHA (New York Heart Association) functional classification of dyspnoea or effort intolerance is **internationally** accepted (Table 1.1).

Table 1.1: NYHA classification of patients with cardiac disease

Class I	No limitation on physical activity in ordinary work, but he/she cannot compete in strenuous work with healthy persons of the same age and sex.
Class II	Slight limitation of physical activity, on ordinary work gets fatigue and dyspnoea. Cannot climb 1st floor of a house without dyspnoea.
Class III	Dyspnoea on less than ordinary physical activity, comfortable at rest. Patient gets dyspnoeic on household walking like going to the bathroom, etc.
Class IV	Dyspnoea on rest; cannot perform any activity without dyspnoea and sits in his/her bed even during daytime.

Types of Dyspnoea

1. **Orthopnoea:** Symptom of LVF. Dyspnoea on lying down. Relieved on sitting up.
2. **Trepopnoea:** Dyspnoea on lateral position, e.g. unilateral lung disease.
3. **Platypnoea:** Dyspnoea on sitting up, e.g. left atrial myxoma and orthostatic hypotension.

Common Causes of Chronic Dyspnoea

1. LVF (left ventricular failure)
2. CCF (congestive cardiac failure)
3. COPD (chronic obstructive pulmonary disease)
4. Chronic restrictive lung disease and ILD (interstitial lung disease).

Cough

Less specific symptom in cardiac lesion.

More commonly in COPD and other lung diseases.

In cardiac cases these days, commonest causes are:

1. Patients on ACE inhibitor drugs for the treatment of hypertension, as they activate Bradykinin which stimulates cough centre.
2. PAH (pulmonary arterial hypertension) in severe mitral stenosis (MS), mostly nocturnal cough.

Haemoptysis: Blood in sputum (up to 60 ml fresh blood).

Causes: Cardiac
1. Mitral stenosis
2. Acute pulmonary oedema
3. Pulmonary infarction
4. Anticoagulant drug overdose.

Common non-cardiac causes:
1. Pulmonary tuberculosis
2. Bronchogenic carcinoma
3. Pulmonary trauma.

CHEST PAIN

It is a more frequent symptom and difficult to analyse. Classical chest pain due to ischemic heart disease is called **angina pectoris–when there is a discrepancy between demand and supply of oxygen to myocardium**.

Angina pectoris: Classically it is dull pressure type of discomfort, felt as choking sensation or a sense of tightness in the chest. It is not pricking type. Patient may describe it with a fist of the hand placed on the chest wall **(Levine's sign)**. It lasts for a few minutes to 30 minutes and it is precipitated by physical effort or mental stress. It may occur at night or most commonly it occurs in early morning due to increased sympathetic activity. It is relieved by rest and lying down or by tablet Trinitroglycerin S/L (TNG) or on relief of mental tension. This pain radiates to left shoulder and left arm, medial side of forearms, and in medial two fingers of the left hand. Rarely it may start in left hand and move upwards to left shoulder. It sometimes goes to neck and teeth. In ischemia of inferior wall, mild epigastric pain with abdominal distension may be the only symptom pain not felt below umbilicus.

Rarely in advanced ischaemic heart disease (IHD), on lying down due to increased venous return, workload of the heart increases and hence more episodes of angina may occur, relieved on sitting up **(angina decubitus)**.

Angina at Night

1. **Prinzmetal variant angina** due to coronary artery spasm
2. IHD with LVF
3. Severe AS (aortic stenosis) with significant LV outlet obstruction and LVH.

Painless IHD: Seen in cases of—
1. Diabetes mellitus—due to autonomic neuropathy pain is not transmitted to thalamus
2. Old age—due to age-related autonomic neuropathy
3. Cardiac transplant
4. More so in females.

Like dyspnoea, for better scientific communication and documentation, chest pain due to angina pectoris has been functionally classified by the **Canadian Cardiovascular Society**.

Class I	Walking/climbing upstairs upto first floor no chest pain but angina with strenuous/rapid exertion.
Class II	Rapid walking 1–2 km at a lower speed, climbing upto first floor produces angina or under emotional stress.
Class III	Marked limitation of physical effort. Walking on level at a leisure pace for short distances causes pain.
Class IV	Angina at rest.

Recent angina and recurrent angina at rest are called unstable angina.

Angina of recent onset 4–6 weeks, and recurrent angina at rest are called unstable angina and angina over 1 hour mostly due to impending acute myocardial infarction called **acute coronary syndrome (ACS)**.

So causes of acute discomfort in the chest due to IHD are:

1. Stable angina pectoris
2. Unstable angina
3. Acute myocardial infarction } ACS

Other Cardiac Related Causes of Chest Pain

1. **Acute dissection of aorta**. **Severe chest** pain going to back with diminution of femoral pulses and severe hypotension or severe hypertension.
2. **Acute pericarditis pain** is going to left shoulder, sharp continuous more on lying down, relief on sitting and leaning forward, fever, sweating.
3. **Acute myocarditis** pain and tachycardia, diminished heart sounds ↑S3+ JVP raised.

If **acute MI** (myocardial infarction) is diagnosed by urgent ECG, and if pain does not respond to 3 doses of S/L TNG (trinitroglycerin) given at 15 minutes. Interval with levels of Raised Serum Troponin, showing evidence of muscle necrosis. Such patient of ACS should be sent to the nearest hospital where facilities for thrombolysis are available or for doing coronary angiography and PTCA (stent application) by expert interventional cardiologist. Patient should reach such hospitals in **12 hours** from the onset of chest pain.

Other Common Causes of Chest Pain

1. Pleurisy increasing on coughing + chest signs.
2. **Acute pulmonary embolism:** Bedridden patient suddenly becomes dyspnoeic, in mostly surgical hip operated cases. Moderate chest pain and cyanosis with hypotension + sweating.
3. **Anxiety:** Pricking pain with hyperventilation + serial ECG normal, usually pain stays for hours + sweating.
4. Esophageal spasm and reflux oesophagitis cause abdominal distension.
5. Musculoskeletal pain is relieved with antacids, proton pump inhibitors like pantoprazole, and NSAID analgesic localized tenderness (Tietze syndrome of acute costochondritis).
6. Referred from cervical spine in cervical spondylosis.
7. History of past chest trauma.

SYNCOPE

It is defined as a sudden loss of consciousness.

Sudden loss of consciousness is due to reduced blood supply and reduced perfusion of the brain.

Sudden loss of consciousness without preceding aura or any other symptom is usually due to cardiac cause like:

1. Stokes-Adams AV block sudden transient loss of consciousness upto few seconds
2. LVF
3. LVT
4. Asystole
5. Sick sinus syndrome.

Syncope due to cardiac cause rarely lasts for more than 2–3 minutes, if more than this then, non-cardiac cause.

- Syncope precipitated by effort in PAH (pulmonary arterial hypertension).
- **Family history of syncope—epilepsy**, long QT interval in ECG.
- **Position at onset**—standing → hypotension
- **Relation to food**—hypoglycemia associated sweating.
- **Prolonged standing—vasodepressor syncope** by decreased cardiac output, developing gradually induced by emotional stress autonomic nervous system ↑increased vagal tone, bradycardia. Relieved by lying down–**residual bradycardia**. Common in young Army/Police recruits in TRG (training) centres.
- **Carotid syncope**—hypersensitive carotid sinus pressed by **tight collar in old age. Relieved immediately on removing the tight collar**.
- Postsyncope sign is mostly neurological, e.g. **epilepsy** associated **incontinence of urine**.

PALPITATIONS

- Defined as the unpleasant awareness of forceful or rapid beating of the heart. Careful history will tell us the exact cause.
- **Commonest causes are** anxiety—increase in HR > 140/min, and hyperventilation.
- If isolated jumps or skips in arterial pulse—**extrasystole**.
- If acute onset abruptly with HR> 120/min and abrupt ending—**paroxysmal atrial tachycardia (PAT)**.

Independent of exercise: Thyrotoxicosis, **LVF**, anaemia **Heart rate 120–150/min**, **AF** (atrial flutter), **PAT**. Excess tea, coffee and alcohol intake cause palpitation.

OEDEMA

- Weight gain of 3–5 kg occurs before oedema develops.
- **Unilateral leg oedema**, caused by—saphenous vein harvesting for CABG, deep vein thrombosis in the lower limb.
- **If ascites precedes oedema—unlikely to be due to heart disease**—causes, cirrhosis of liver, constrictive pericarditis. Oedema, **ascites**, and no LVF-tricuspid regurgitation constrictive pericarditis.

- **Oedema of face, arms, and elevated JVP with no pulsation, superior mediastinal obstruction**.
- **Periorbital oedema—renal causes**
- **Drugs**—calcium channel blockers (amlodipine, diltiazem), long-term use. In hypertension cases and steroid therapy.
- **Generalised anasarca**—unusual in CCF. More in myxoedema and hypoproteinaemia (Fig. 1.1).

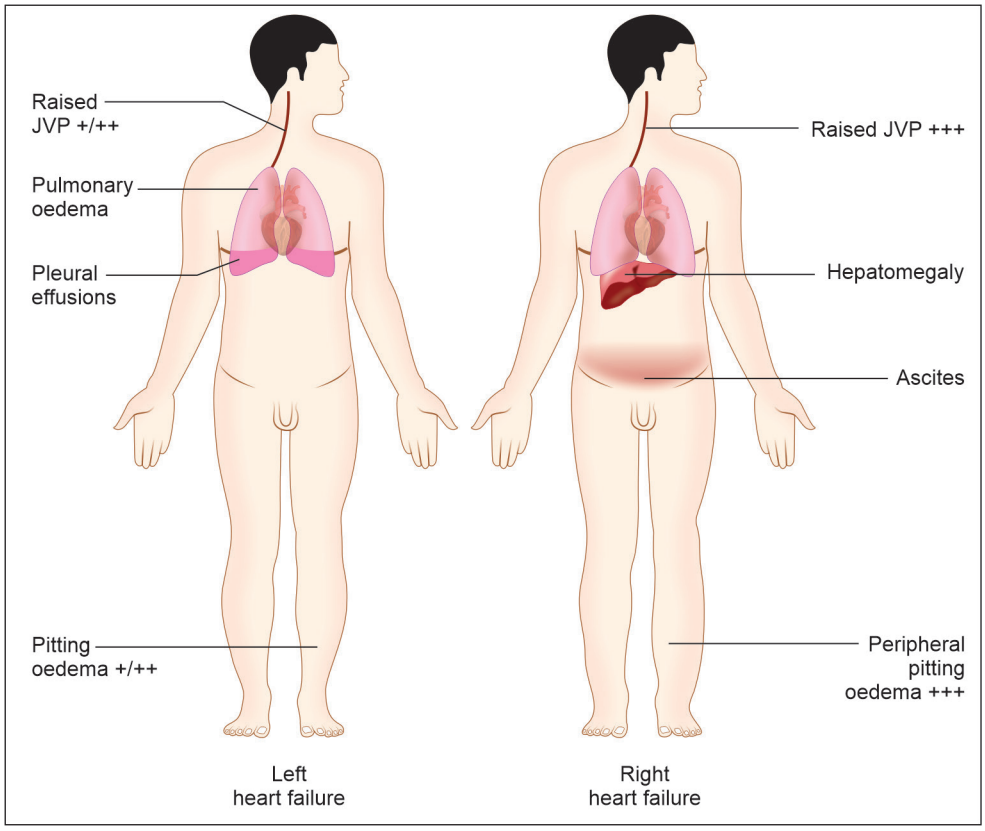

Fig. 1.1

JOINT PAINS

Suggestive of rheumatic fever even mild arthralgia—more common in Indian patients than full-fledged arthritis, arthralgia especially in younger age—acute rheumatic fever, fleeting joint pain.

FEVER

Low grade/remittent/continuous fever with a history of heart disease in childhood **congenital heart disease and rheumatic heart disease** is suggestive of infective endocarditis.

History of drug prophylaxis—injection benzathine penicillin dose 1.2 million units once a month in rheumatic heart disease. History of recurrent palpitation with chest infection in childhood suggest L–R Shunt lesion, i.e. **VSD**, **PDA**, **ASD**.

Fatigue, **common** in CCF occurs with low cardiac output. **Drugs like diuretics** and beta blockers. Emotional stress precedes and accompanies acute MI.

History of Past Illness

1. History of diabetes mellitus, hypertension, obesity, and smoking should be checked in each case of IHD and also in close family members as these are risk factors of IHD.
2. **Cardiac murmur** during childhood—VSD, ASD, PDA, rheumatic heart disease.
3. **Cyanosis**—tetralogy of Fallot and other cyanotic congenital heart diseases since birth, e.g. TGA, TAT.
4. **COPD and smoking**—cor pulmonale.
5. **Alcohol**—chronic alcoholic is one consuming more than 150 ml in per day for 5 years. It leads to cardiomyopathy **holiday heart syndrome**, which occurs after acute alcoholism in a young couples competing with each other on beer bottles during honeymoon—acute **AF after an alcoholic binge requires urgent DC conversion**.

Age, Race and Sex

In South Asians: Truncal obesity and CAD (coronary artery disease) much earlier between 30 and 40 years of age and more common in both males and females also show high levels of serum triglyceride and insulin resistance.

Rheumatic heart disease: Incidence is more in developing countries and in younger age groups. **Juvenile RHD <18 years**.

Age

1. **CHD (congenital heart disease)** since birth atrial septal defect (ASD), ventricular septal defect (VSD), patent ductus arteriosus (PDA), and cyanotic heart diseases, e.g. tetralogy of fallot (TOF), transposition great arteries (TGA), double outlet right ventricle (DORVS), tricuspid atresia with pulmonary stenosis.
2. **Bicuspid aortic valve is commonest in adults**.
3. **Calcific AS (aortic stenosis)** in amyloidosis, mitral annulus calcification more in old age.
4. **IHD in South Asians**—high prevalence after 25 years of age as mentioned earlier/sex in females and males equal preponderance of IHD in South Asia, unlike Western population, whereas in males it is more than females.
5. ASD/HOCM/IHD/hypertension have a strong family history. In India prevalence **hypertension is 33% (every third person) (now 33.5%, as per latest ICMR report after 12 years follows up)**.
6. **ASD** is more in females.
7. **IHD** is more in males and after 25–35 years.
8. **Mitral stenosis**—in the Indian population equal incidence in males and females. Occurs fully developed after rheumatic fever at juvenile age group <18 years in many children. First described in AIIMS, New Delhi in 1960.
9. **Diet**—vegetarian/non-vegetarian—obesity, which cooking oil used—desi ghee/olive oil/saffola oil/Sunola oil/rice bran oil/mustard oil for cooking. Using mustard oil for long time can cause complete heart block.

FAMILY HISTORY

ASD, HOCM, IHD, hypertension and PAH runs in families, more familial predisposition. Hypertension is a commonest human disease in developed and developing countries. So also in India, it is commonest disease (33.5% prevalence). In Punjab, every second person is having hypertension especially with truncal obesity and diabetes mellitus.

INTERMITTENT CLAUDICATION

Patients who are chainsmokers (more than 10 cigarettes per day for over 5 years), develop either Buerger's disease or peripheral arterial atherosclerosis. These patients after walking for a short distance of 1–2 km get pain in the legs. On taking rest this pain is relieved. Peripheral atherosclerosis is as common as coronary or cerebral atherosclerosis.

In such cases, all peripheral arterial pulsations—both brachialis, radials, femorals, posttibials, and dorsalis pedis, should be felt. Any sign of impending gangrene is to be noted at any limb. If history of renal disease with hypertension, then area over both renal arteries in paraumbilical region of the abdomen, must be auscultated for renal bruits of renal artery stenosis.