

## Experiment No.2 – Examination of radial pulse

1. What are the precautions should be observed while examining the radial pulse?

Ans:-

- The radial artery is palpated with the tips of three fingers comprising the vessel against the head of radius bone.
- The subject's forearm should be slightly pronated and wrist slightly fixed.
- The index finger should be towards the heart.

2. What is pulse deficit? Give its causes.

Ans:- Normally the pulse rate and the ventricular rate(as determined by auscultation at the heart) are identical.

However in case of extra systoles (premature beats) and atrial fibrillation, some of ventricular beats are too weak to be felt at the radial artery so that the heart rate is higher than the radial pulse. This is called as **pulse deficit**.

3. Give characteristic feature of normal pulse.

Ans:- The normal pulse has following three components:-

- a. Percussion wave or Anacrotic limb-** This is sharp upstroke. It is due to expansion of artery due to ventricular systole and corresponds to maximum ejection phase.
- b. Tidal wave-** This predicrotic wave is due to elasticity of aorta. It is sometimes recorded soon after the peak of the tracing.
- c. Dicrotic Notch and Wave-** These are seen on the descending limb. The notch, the negative wave, is due to recoil of the elastic aorta that causes the

blood column to momentarily sweep back towards the heart. The reverse flow closes the aortic valve and rebounds from it to cause the positive dicrotic wave.

#### 4. Describe different types of abnormal pulses?

Ans:-

- a. **Dicrotic Pulse-** There are two palpable waves, one in systole, and the other in diastole. It is seen most commonly in low stroke volume.
- b. **Corrigan's, Water-hammer, or Collapsing Pulse-** It is characterized by an abrupt rise, and a sudden fall of the pulse wave in early diastole. It is seen most commonly in aortic regurgitation in which the incompetent valve cannot close properly to prevent backflow of blood from the aorta back into the ventricle. The rapid upstroke is due to greatly increased and vigorous stroke volume while the collapsing is caused by two factors: the diastolic 'run-off' of blood back into the left ventricle and the rapid 'run-off' of blood towards the periphery due to low peripheral resistance resulting from arteriolar dilatation. This type of pulse is also found in patent ductus arteriosus, or a large arterio-venous fistula.
- c. **Pulsus Parvus or Slow-rising Pulse-** It is a small (parvus = small), weak, pulse which rises slowly and has a late systolic phase. The weak upstroke is due to decreased stroke volume and a narrow pulse pressure. It is seen especially in aortic stenosis, left ventricular failure and hypovolemia.
- d. **Alternating Pulse (Pulsus Alternans)-** The pulse beats are regular but alternately large and small in amplitude, i.e. large and small systolic peaks. It is seen in left ventricular failure when the ventricle is severely diseased. The variation in strength should not be confused with an arrhythmia. The mechanism, however, is not known.

e. **Pulsus Paradoxus**- The term describes the marked decrease in pulse volume (and blood pressure) which occurs on deep inspiration. It is an accentuation of normal physiological fall in systolic pressure by 8–10 mm Hg.

**5. Altered pulse in clinical situations e.g. shock.**

**Ans:-**

During the shock, the pulse rate increases due to increase in heart beat. Sympathetic nervous system is activated which is responsible for increased heart rate.