Notice:

1. Pulse Rate
2. Pulse Regularity
3. Pulse Volume

# *Introduction to Pulse*

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# Clinical Pulse Examination

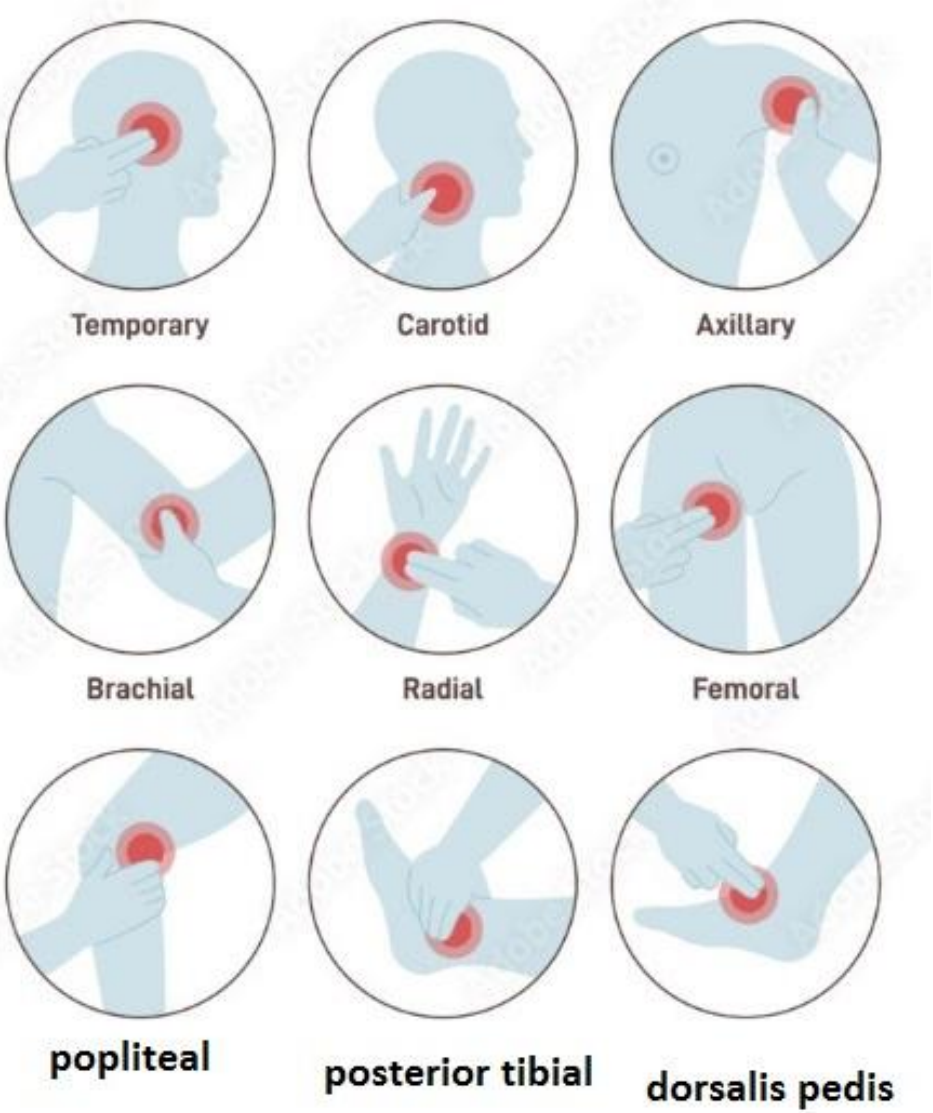
- Pulse examination is one of the oldest diagnostic tools.
- In Ayurveda → known as Nadi Pariksha, an important aspect of Ashtavidha Pariksha.
- Modern Medicine also adopt the Nadi Pariksha as arterial pulse examination as a clinical sign to assess cardiovascular status.
- Non-invasive, quick, inexpensive, and provides valuable information.

# Definition

- Modern: Pulse is the tactile arterial palpation of the heartbeat, transmitted through arterial walls due to left ventricular contraction.

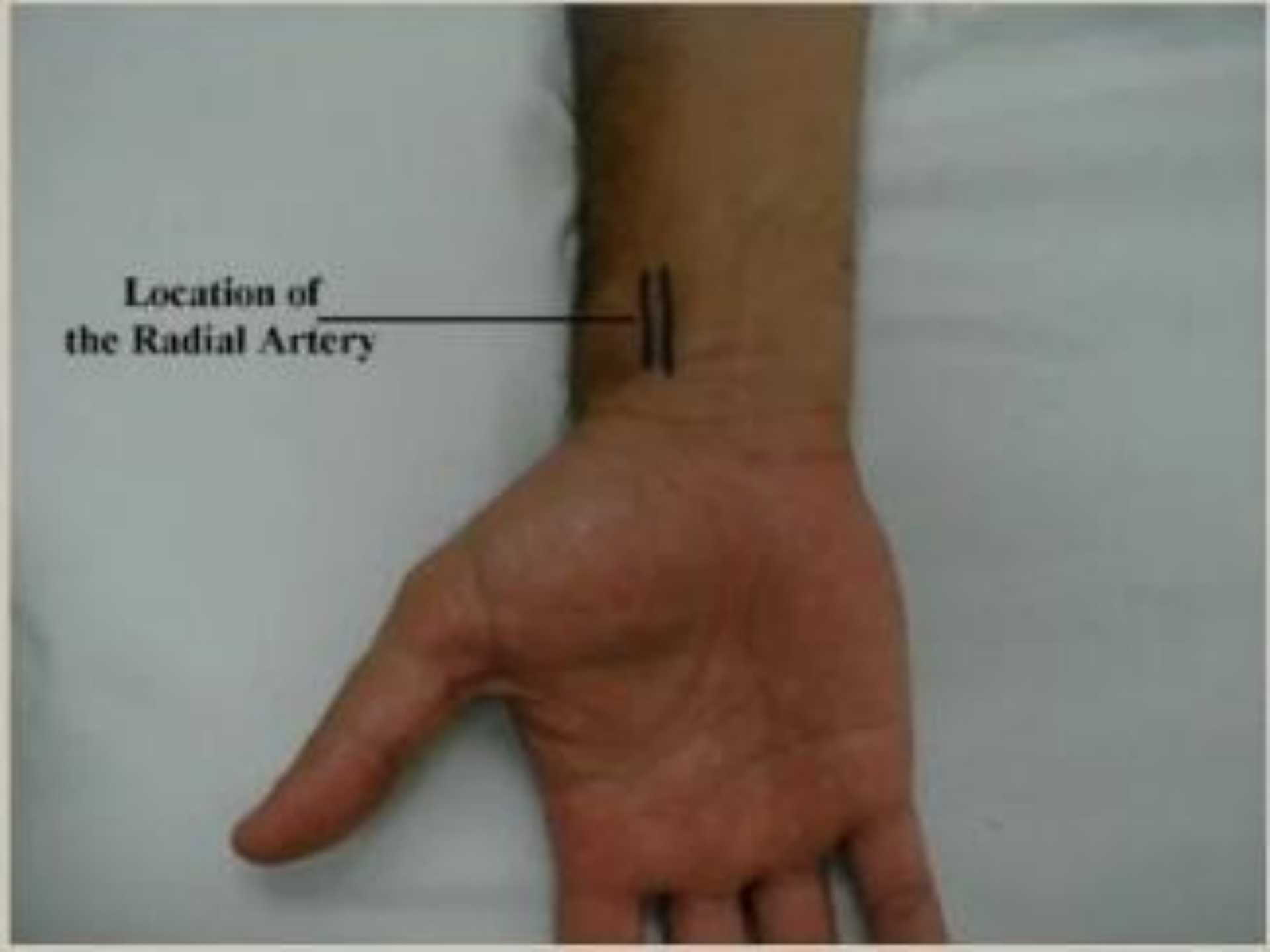
- Ayurveda: Nadi (pulse) is the manifestation of Vata, Pitta, Kapha dosha movements, felt at the radial artery.

# Sites of Pulse Examination



# Sites of Pulse Examination

- Radial artery (most common)
- Carotid artery
- Brachial artery
- Femoral artery
- Dorsalis Pedis
- Posterior Tibial


Location of
the Radial Artery


Forceps
Grasping
Radial
Artery

# Technique

- Patient relaxed, arm supported, palm upwards.
- * Examiner uses three fingers (index, middle, ring) on radial artery.
- Note:
    - Rate
    - Rhythm
    - Volume
    - Vessel wall condition
    - Character

# Rate

- Normal: 60–100/min (adults).
- Tachycardia: >100/min
- Bradycardia: <60/min

# Rhythm

- Regular
- Irregular (regularly irregular vs irregularly irregular, e.g., Atrial fibrillation)

# Volume

- Indicates stroke volume.
- Low volume: shock, heart failure
- High volume: fever, thyrotoxicosis

# Condition of Vessel Wall

- Atherosclerosis –

  thick, hard vessel.

# Equality

- Compare both sides:

  absence/asymmetry → arterial obstruction, coarctation of aorta.

# Character of pulse

- Character means the shape and feel of the pulse wave during palpation. It reflects stroke volume, arterial compliance, and vascular resistance.

# 1. Normal Pulse

- Smooth upstroke, gentle downstroke.
- Not too strong or weak.

# 2. Abnormal Pulse Characters

- Anacrotic pulse – AS (aortic stenosis )
- Collapsing (water hammer) – Aortic regurgitation (AR)
- Bisferiens – HOCM, AR + AS
- Pulsus paradoxus – cardiac tamponade
- Pulsus alternans – LV failure

# Anacrotic Pulse

- Feature: Slow rising, low amplitude, with a notch on the upstroke.
- Cause: Severe aortic stenosis (AS).
- Clinical feel: “Heaving but delayed.”

# Collapsing Pulse (Water Hammer Pulse)

- Feature: High volume, rapid upstroke, then sudden collapse.
- Causes:
- Aortic regurgitation (AR)
- PDA (Patent ductus arteriosus)
- High-output states (thyrotoxicosis, fever, anemia)
- Clinical feel: If you elevate patient’s arm, pulse collapses rapidly.

# Bisferiens Pulse

- Feature: Double peak in systole.
- Causes:
  - AR with AS
  - Hypertrophic obstructive cardiomyopathy (HOCM)
- Mnemonic: “Two beats in one.”

# Pulsus Alternans

- Feature: Alternating strong and weak beats, despite regular rhythm.
- Cause: Severe left ventricular failure.

- Clinical clue: Best felt at radial artery with light pressure.

# Pulsus Paradoxus

- Feature: Exaggerated fall (>10 mmHg) in systolic BP during inspiration → weak/absent pulse in inspiration.
- Causes:
- Cardiac tamponade
- Severe asthma, COPD
- Constrictive pericarditis
- Tip: "Pulse disappears in inspiration

# Dicrotic Pulse

- Feature: Double pulse, one in systole and another in diastole (dicrotic notch palpable).
- Causes:
- Low cardiac output states (typhoid fever, septicemia).

# Thready Pulse

- Feature: Very weak, rapid, difficult to palpate.
- Cause:

  Shock, severe hypovolemia

# Bounding Pulse

- Feature: Strong, forceful pulse, difficult to obliterate.
- Causes:
  - Fever
  - Anemia
  - Pregnancy
  - Aortic regurgitation

# Clinical Importance

- Quick cardiovascular assessment.
- Helps in diagnosing heart diseases, arrhythmias, shock, dehydration, thyroid disorders, etc.

# Thanks

- www.drpankajjain.com