Anatomy and Physiology of the Arm

Mariella Galea
Types of Blood Vessels

There are 3 main types of blood vessels:

1. Arteries
2. Veins
3. Capillaries
Structure of an Artery

- Endothelium
- Basement membrane
- Elastic layer
- Smooth muscle
- Elastic layer
- Connective tissue
Structure of a Vein

Valve
Endothelium
Basement membrane
Smooth muscle
Connective tissue
Muscle contraction helps the blood flow through the veins

Muscle contracts
Valve closed

Valve open

Muscle relaxes
Valve open

Valve closed

Blood propelled forward by muscle contractions and, possibly, by gravity

Back pressure due to contractions of atria, contractions of muscles, and, possibly, gravity
Structure of a Capillary

- Cell
- White cells can squeeze out between cells of capillary
Arteries ➔ Capillaries ➔ Veins
The Main Veins of the Arm
The Main Veins of the Hand
Choosing a Suitable Vein

The most prominent vein is not necessarily the most suitable vein for venepuncture.

BUT

✓ Visual Inspection
✓ Palpation

ARE FUNDAMENTAL
Visual Inspection

Veins should not be considered if they are near:

- Sites of infection,
- Bruising,
- Phlebitis,
- Oedematous tissue,
- The affected side of persons with CVA or post-mastectomy patients,
- Areas severely affected by disabling diseases (rheumatoid arthritis),
- Areas of previous venepuncture.
Palpation

An assessment technique that helps to:

- Determine the location and condition of the vein.
- Distinguish veins from arteries and tendons.
- Identify the presence of valves and detect deeper veins.
Influencing Factors in Choosing a Suitable Vein for Venepuncture:

- Age and Weight of the person
- Medications
- Temperature
- Patient anxiety
Improving Venous Access

- Application of a tourniquet
- Opening and closing of the fist
- Lowering the arm below heart level
- Light tapping of the vein