

# CLINICAL SKILLS



*Subject : CS 2*

*Lecture : Peripheral Catheterisation*

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الفريق العلمي - النادي الطبي





## Clinical Skills

- Indication: drug administration, hydration, blood transfusions, surgery and emergency care
- Contraindications; infection, phlebitis, sclerosed veins, previous infiltration, burns, traumatic injury, AV fistula and surgical procedure
- Difficult access: extreme dehydration/shock, chemotherapy/substance abuse - in these situations, a central or intraosseous catheter or venous cutdown may be performed
- The greater saphenous vein originates medial to the dorsal venous arch of the foot and passes just in front of the medial malleolus and follows the medial side of the tibia to the knees. The lesser saphenous vein originates from the lateral side of the dorsal venous arch and passes behind the lateral malleolus and pierces the fascia of the gastrocnemius muscle
- Factors affecting the site of penetration: intention of the catheter, vein accessibility, the patient's age, comfort and the urgency. Upper limb veins are preferred because they are more durable and has less complications (thrombosis and embolisms).
- Upper limb sites: Median antebrachial vein, basilic vein, cephalic vein, metacarpal vein. The median cubital vein is the most chosen because it is the easiest and accommodates large-bore catheters. The dorsal and saphenous veins are used for the lower limb. Scalp veins can be used in neonates, and the external jugular vein can also be used.
- Equipment: gloves, eye protection, tourniquet, chlorhexidine-based antiseptic, sterile 2x2 gauze, saline flush, transparent occlusive dressing and tape, catheter (14-22 gauge), IV fluid with tubing, sharps container, local anesthetic (maybe required for 20+ gauge). Small catheters have less resistance and cause fewer complications. The 14 and 16 - gauge catheters are used in acute situations such as hypovolemia. The gauges are also chosen based on age-related vessel size, pressurised blouses or viscosity of the fluid to-be-infused.
- Discuss with the patient about the procedure, and the patient should be supine. After applying the tourniquet in a half-knit 8-10 cm above the puncture site, palpate the vein with 2 fingertips. Clean the area in a back and forwards motion then do not re-palpate the area. Inspect the cannula for any defects but do not slide the cannula over the bevel of the needle. Apply traction of the skin distal to the vein if inserting into the hand, or encircle the patient's forearm if inserting into the arm. Insert the needle at a 5-30 degree angle.
- Watch for the flashback of blood in the catheter. With your dominant hand, stabilize the needle and carefully advance the needle into the vein. Remove the tourniquet once the catheter is inserted. Place pressure on the vein proximal to the insertion site to prevent blood loss. Never re-insert the needle into the cannula as it can release it into the blood stream. Flush the catheter with saline and check for no swelling, redness, leakage or discomfort. Secure the cannula with transparent occlusive dressing. Loop the tube connected to the catheter and secure it with tape away from the catheter. Write the day of insertion on the tape.





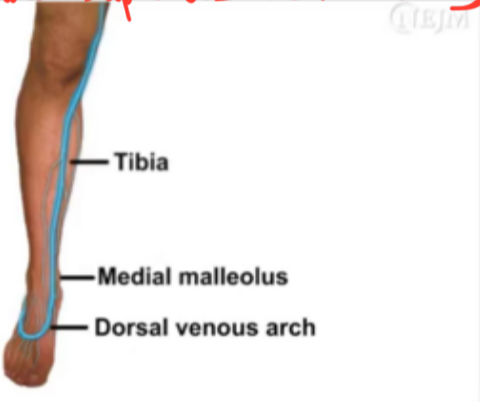
# Clinical Skills

● If a vein is difficult to see or identify, Lower the arm below heart level, tap the vein, ask the patient to repeatedly open and close their fist, or apply a warm compress on the selected site for 3-5 minutes. Ultrasound can be used to locate a vein as well.

● If a valve blocks the catheter, stop the insertion and then start the fluid; The movement of fluid should open the valve. If the catheter perforates the wall from both sides, remove the cannula and penetrate another site proximal to the original site.

● Common complications include pain / bruising / infection, / extravasation leading to necrosis / phlebitis / thrombosis / embolism or nerve damage. Flushing with saline can help prevent thrombosis and embolisms.

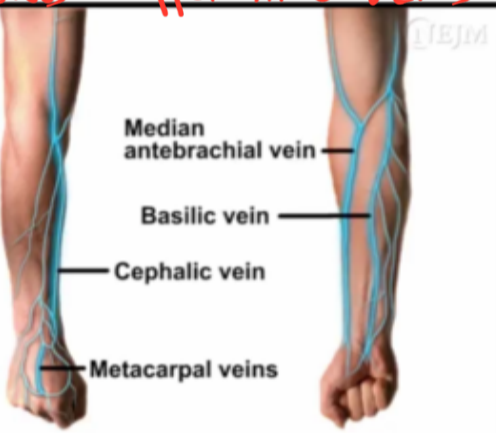
## Greater Saphenous vein anatomy



## Lesser Saphenous vein anatomy



## Choices of upper limb veins



## Scalp veins in neonates



## Tourniquet half-knot



## Catheter gauges

