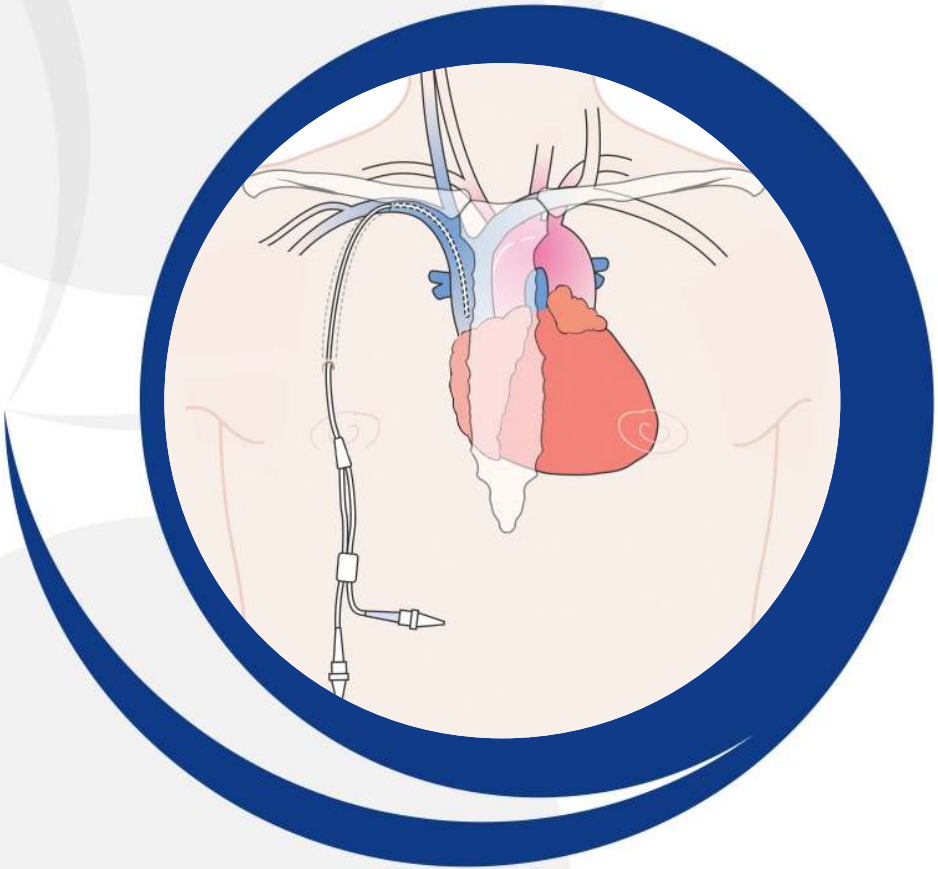


VYGON

Tunnelled Central Venous Catheters

TCVC

What is it?

AKA:

- Tunnelled cuffed catheter
- Hickman line
- Hickman® type catheter
- Broviac catheter
- Tunnelled central venous catheter
- Tunnelled Central venous access device

Vascular Access Devices with a tip that terminates in one of the large central veins (Superior Vena Cava or Upper Right Atrium).

Vygon Lifecath TCVC

- Made from radiopaque silicone
- Single, double or triple lumen which allow simultaneous delivery of multiple medications or fluids
- They offer long-term venous access for therapies including parenteral nutrition, medication delivery, antibiotics and chemotherapy.

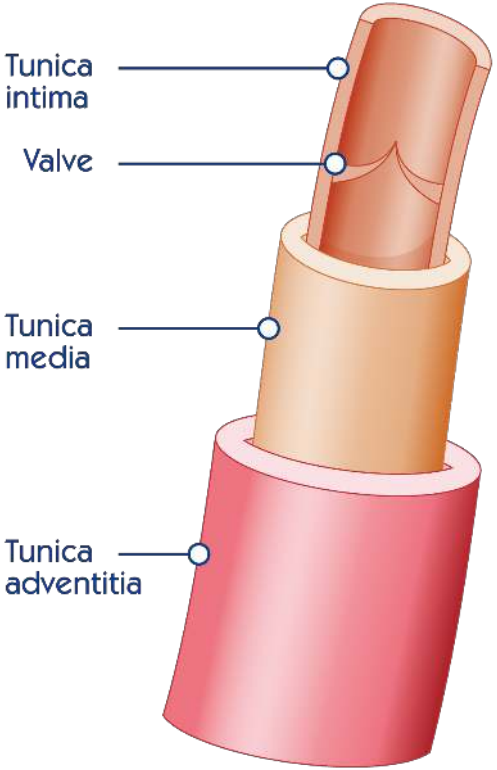
Insertion techniques

- Normally inserted via the neck or chest veins (internal jugular or subclavian vein)
- The catheter typically exits at the upper chest
- The catheter travels through a short (8-15cm) subcutaneous tract before entering the access vein
- One feature of these devices is the Dacron® cuff. The cuff is important as it aids catheter stabilisation and helps to prevent infection.

TCVC

Advantages and indications

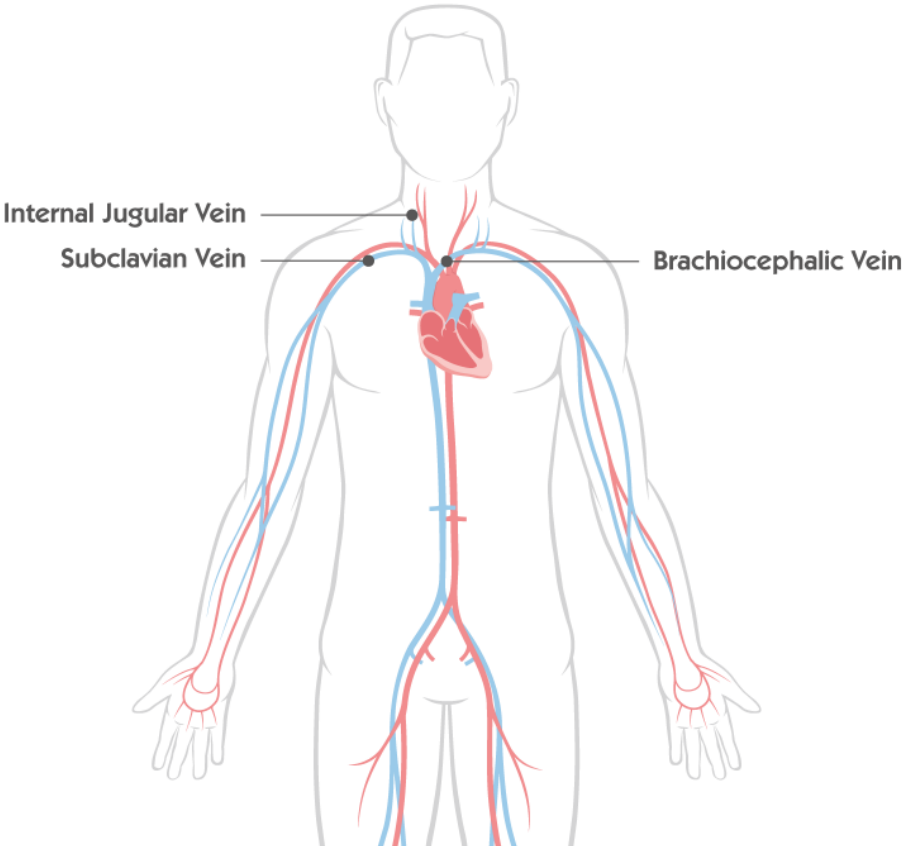
- Provides long term venous access
- Indications:
  - Prolonged treatments
  - Chemotherapy
  - Antibiotic therapy
  - TPN
  - Renal dialysis
- Ability to obtain and administer bloods
- Prevents irritation or damage to smaller veins
- Inability to access arm veins
- Outpatients or inpatients use
- Think about the patient preference.



Neck and chest veins

The typical venous **access point** for TCVCs and TIVADs are:

- Internal Jugular Vein (IJ)
- Subclavian Vein
- Brachiocephalic vein
  (left and right innominate veins)



Venous access

- Use ultrasound to assess the intended access vein
- Use the ReCeVA protocol
- Check for size and patency.

TCVC

Insertion

- Operators
  - Surgeons
  - Anaesthetists
  - Radiologists
  - Nurses
  - Radiographers
- Imaging modalities
  - Ultrasound guided
  - Fluoroscopy
- Area
  - Theatres
  - Radiology suite
  - IR suite
  - Anaesthetic room
  - Treatment room
  - Bedside

TCVC

Insertion

- The insertion of a TCVC is a surgical ANTT
- Hands should be washed using a surgical scrub technique
- The operator performing the procedure will perform a full surgical scrub and will wear a scrub suit, theatre gown and sterile gloves, hat and mask (Loveday 2014)
- Consider the use of standard insertion packs.

Ref: Loveday HP, Wilson JA, Pratt RJ et al (2014) Epic3: national evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England. *J Hosp Infect* **86**(Suppl 1): S1-70.

Patient

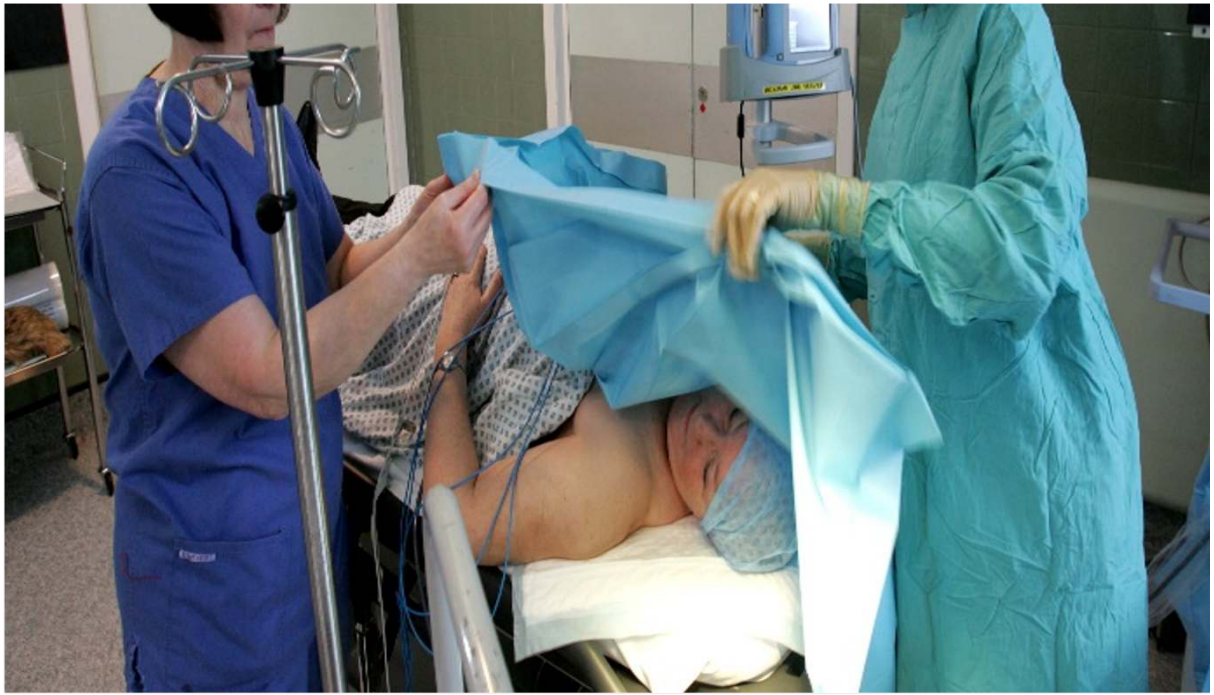
Positioning

- The patient should lay flat on a trolley or table
- The head should be tilted down about 30°(Trendelenburg position). This will allow good vein filling and also help prevent air embolism
- All patients should routinely have blood pressure, pulse, oxygen saturations and ECG recorded during the procedure.

Patient

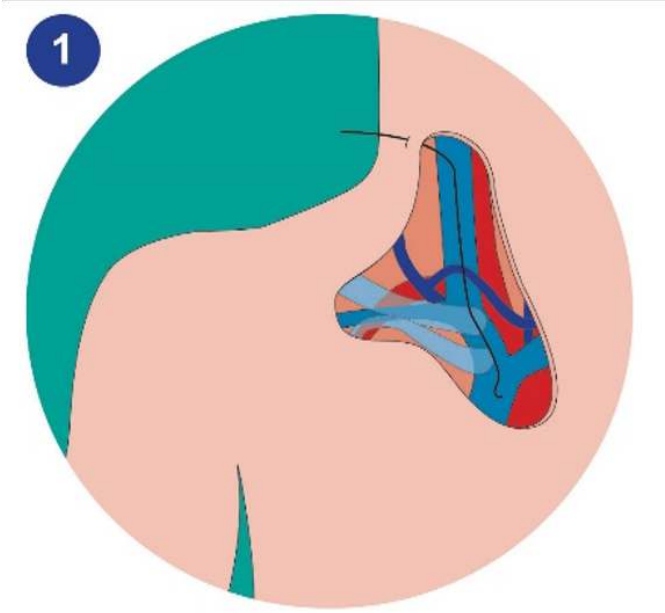
Preparation

- Clean skin using chlorhexidine 2% in 70% alcohol
- Fully drape
- Fenestration
- Exit site.



Ultrasound guidance

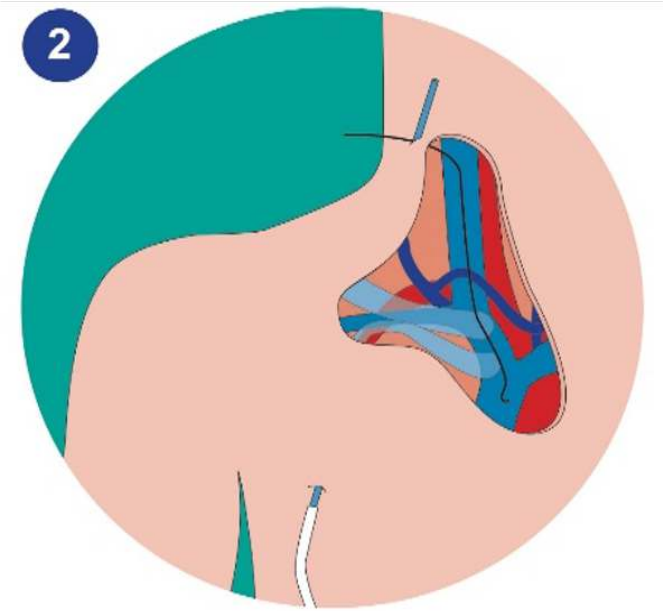
- Prepare probe
- Administer local anaesthesia
- Access vein
- Insert guidewire.



Puncture to jugular vein using 19g needle, wire introduced.

Tunnel creation

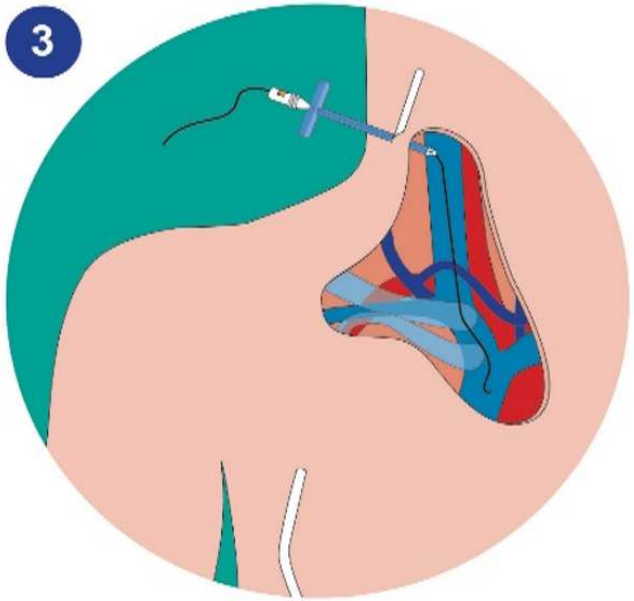
- Anaesthetise the tunnel site
- Insert the metal tunnel under the subcutaneous tissue and bring it out beside the guidewire
- Measure down the chest to approximately 13cm
- Cut the tunneller off.



Tunnel fashioned back to point of entry.

Peel away sheath introduction

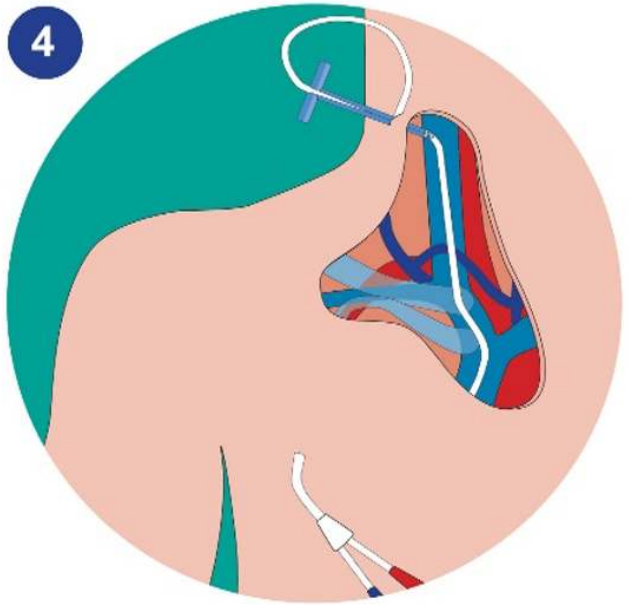
- The peel away sheath is inserted over the wire
- The wire is removed along with the inner dilator
- Immediately place a finger over the open-ended sheath (to prevent air embolism)
- At this point the patient can also be instructed to hold their breath or to perform the Valsalva maneuver.



Peel away sheath advanced over wire.

Peel away sheath

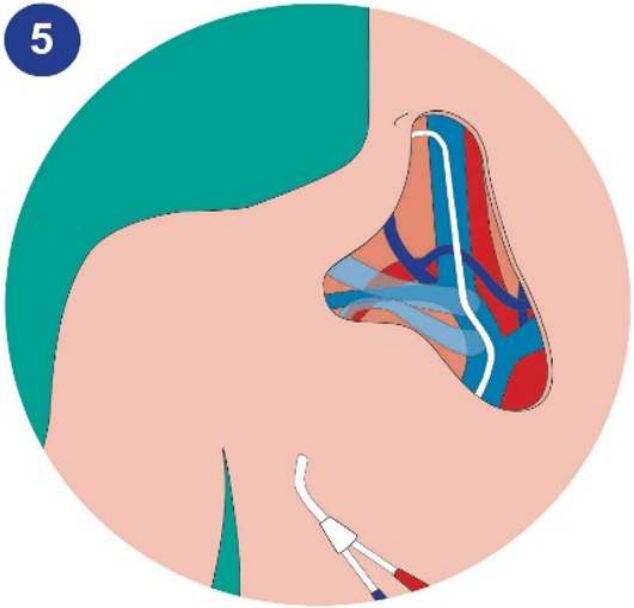
- The catheter should then be fed into the sheath
- The sheath is peeled away, leaving the catheter in the SVC / RA.



Catheter fed through peel away sheath.
Sheath peeled away.

Finally

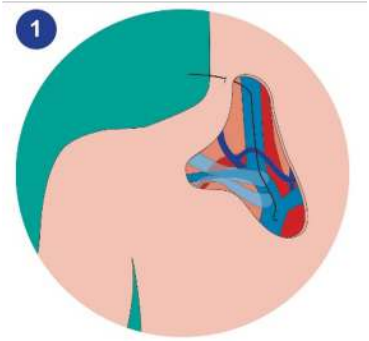
- Pull downwards on the catheter from the exit site then straighten out
- Use steristrips, engineered securement device or skin glue to close exit and entry sites
- Flush and dress with a clear, breathable dressing
- Chest x-ray to check final tip position
- Document & Educate: staff and patient.



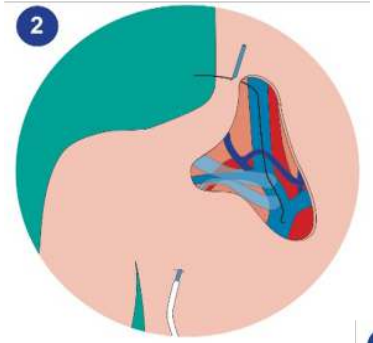
Final catheter position.

Procedure

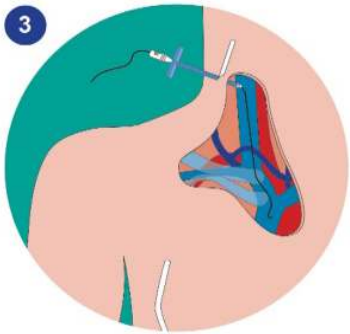
Step-by-step guide



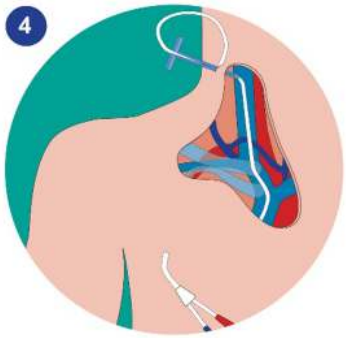
Puncture to jugular vein using 19g needle, wire introduced.



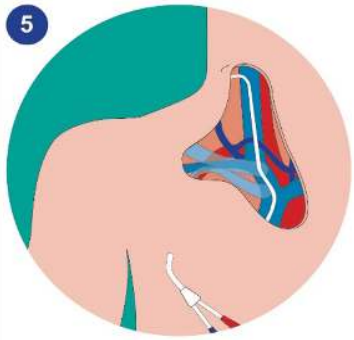
Tunnel fashioned back to point of entry.



Peel away sheath advanced over wire.

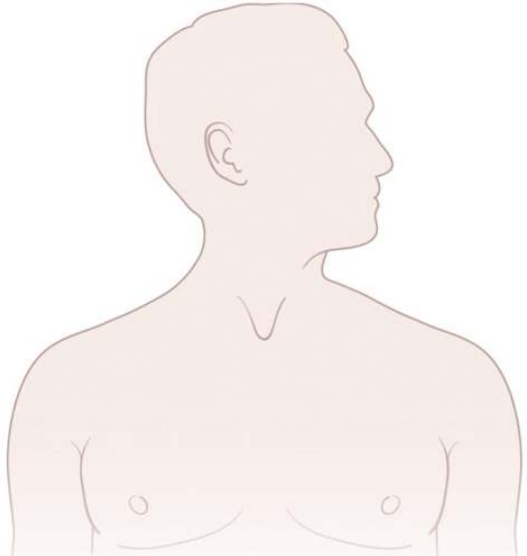


Catheter fed through peel away sheath.
Sheath peeled away.



Final catheter position.

Procedure



You lie on a tilted bed with your head turned to the left and lower than your feet

TCVC

Insertion complications

- Arterial puncture
- Pneumothorax
- Haemothorax
- Air embolism
- Failure to place

TCVC

Late complications

- Infection – local, systemic, tunnel
- Occlusion – thrombotic, mechanical
- Inadvertent dislodgment (cuff visible)
- Fracture – repair possible.

TCVC

Care & maintenance

- Observe the access site and exit regularly
- Remove exit site suture after three weeks
- If dressing required, change every seven days or sooner if loose or soiled
- Change needle-free device every seven days or as per manufacturers guidelines
- Biopatch (if used) is changed every seven days.

TCVC

Training material

- Insertion competencies
- Care and Maintenance competencies
- Care and Maintenance presentation
- Patient Information leaflets
- Video animation (to come)
- Chester Chest
- Potential for visits and training in NHSGGC.

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Any questions?