Title CSOP 033 Wide Bore Vascular Access - Local Safety Standards for Invasive Procedure (LocSSIP)

Version No: 1.0 Effective date: 24/09/2021

Local Safety Standards for Invasive Procedure (LocSSIP)

- **Preparation**
- **Procedure**
- **Prevention of retained foreign objects**
- **Documentation**
- **Complications**

Preparation

- Prepare the equipment in order of use; flush MAC line with saline and preload the 20.7cm, 9F tissue dilator through the central white haemostasis valve.
- Ensure that the patient has ECG monitoring via 4 lead or pads.
- Landmark technique is the most reliable and easily performed where the anatomy is normal.
- Avoid the side of anatomical disruption; especially to the clavicle / shoulder or when there is suspected underlying vascular or mediastinal injury.
- Patient position: Supine with downward pressure on adducted arm, consider rotating the head and neck towards contralateral shoulder if no neck injury is suspected.
- Clean hands and apply sterile gloves.

Procedure

- Clean a large area of the anterior chest wall skin with 2% chloroprep.

Using landmark technique:

- Place the tip of your index finger, of your non dominant hand, on the sternal notch and your thumb at the clavicular notch, representing the border of medial 2/3 and lateral 1/3 of clavicle, to identify puncture site.
- Aim the needle to hit the posterior border of the clavicle at the junction of the medial ⅔ and lateral ⅓, just as the clavicle concaves posteriorly towards the

shoulder. Your skin insertion point should be approximately 1cm inferior and lateral to this, in order to keep the angle of the needle as shallow as possible.

- Place the index finger of your non-dominant hand in the patient's sternal notch, and your thumb over the needle where it hits the clavicle.
- Walk the needle under the clavicle using your thumb to provide downward pressure on the overlying soft tissue.
- Advance the needle towards the sternal notch, using your index finger as a guide.
- Keep the needle as flat as possible, flush with the clavicle, whilst aspirating continuously until flashback of blood is seen in the barrel of the syringe. (This technique can also be used to gain access when the chest is open during a resuscitative thoracotomy).
- Hold the needle hub in position to prevent tip displacement
- Insert guidewire to 20cm (there should be no resistance felt and the cardiac monitor should be observed for arrhythmias).
- Remove the introducer needle, with the guidewire position maintained.
- Use a scalpel to make a stab incision through the skin
- Load the MAC line/ tissue dilator as a unit onto the guidewire and insert until the line is within the vein and blood can be aspirated from the 12G port. The guidewire and tissue dilator are then removed as a unit whilst the line is simultaneously advanced to the hilt.
- Aspirate and flush all ports to confirm intravascular placement.
- Apply the blue obturator cap to the white haemostasis valve to minimise the risk of air entrainment.
- Suture in position.
- Apply a sterile dressing.
- Dispose of sharps safely and in accordance to policy.

Prevention of retained foreign objects

Once inserted, do not let go of guidewire until it is removed.

- Verbalise that the 'guidewire is out' to team members

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Documentation

On taasBase using tick box and free text as required

Indication	**Penetrating trauma**	**Blunt trauma**	**Other**
Site	**Left Subclavian vein**	**Right Subclavian vein**	
Sterility	**Chlorhexidine 2% dried**	**Sterile gloves**	**Mask**
Location	**Landmark technique**		
Insertion	**Line successfully inserted**		
No of attempts			
Complications	**None**	**Unsuccessful insertion** **-Unable to cannulate vessel** **-Unable to insert guidewire**	**Arterial Puncture** **Pneumothorax** **Other**
Line position on CT	**SVC to cavo-atrial junction**	**Venous malposition** **Arterial malposition**	**Extravascular** **Other**
Haemodynamic status during insertion	**Normal**	**Shocked (SBP <90)**	**Cardiac arrest**
Any free text comments			

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Complications

Arterial puncture

If blood is bright red and pulsatile from the introducer needle, then stop the procedure.

Remove the needle and allocate a team member to apply firm pressure to the insertion site with gauze for 10 minutes. Monitor the patient for the development of haemothorax.

If it is suspected or confirmed that the line has been introduced in to the subclavian artery there is potential for significant harm including major bleeding if the line is removed. In this scenario the line must be left in situ, with very clear documentation that line is arterial (write on the dressing with a Sharpie that the line is arterial).

On hand over in hospital ensure the team know that the line is arterial and ask for a referral to vascular surgery (many centres will remove the line under radiological control and with the potential to place a stent in the artery).

One unsuccessful insertion

Ensure the patient is flat/head down position.

Ask a team member to apply caudal pressure to the ipsilateral arm.

If unable to insert into the subclavian vein, pull the needle back, continually aspirating then re-angle, aiming for the manubrial sternal notch and maintaining a near-horizontal needle angle. Have no more than two attempts per side.

If required, the other side may be attempted with the same attention to sterility.

If subclavian access is not achieved, then intraosseous access should be used.

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Pneumothorax

Aspiration of air during needle insertion indicates the pleura has been breached and consequently a pneumothorax is likely, the practitioner should consider if the pneumothorax is pre-existing or from trauma or potentially iatrogenic. Use of ultrasound may be useful to confirm the presence of pneumothorax.

The patient should be closely monitored and a pneumothorax treated as clinically indicated.

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