Post operative assessment for A-V fistula

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Post OP assessment

• Why ?

• When ?

• What ?

• How ?
Reason for post op assessment

• Monitor maturation
  – Detect early failure
  – Intervene in fistula that are failing to mature
  – Mature fistula ready for cannulation

• Recognise complications
Timing of Assessment

• 3 days post surgery
  – Wound check

• 2 weeks post surgery
  – Assess and monitor maturation

• 6 weeks post surgery
  – Assess and monitor maturation
  – Signed off if ready for haemodialysis
Assessment

• LOOK

• FEEL

• LISTEN
LOOK

• Incision site
  - signs of infection, bruising, haematoma

• AV fistula
  - presence of dilated veins
  - Assess diameter and depth
  - Assess complications
Feel

• Thrill (continuous purring/vibration)

• Fistula compressible & non pulsatile

• Vein collapse on elevation
Listen

- Auscultate using stethoscope
- A continuous low pitch bruit
- A high pitch bruit or whistle sound may indicate stenosis
Ultrasound assessment

- Direction of flow
- Can detect stenosis
- Size of vessel
- Depth of access
- Marking of skin over vessel
Common complications

- Thrombosis
- Failure to Mature
Early thrombosis

- Inadequate selection
  - Small vessel size
  - Central stenosis

- Surgical technique
- Hypercoagulopathy
- Hypotension
Later thrombosis

- Stenosis/intima hyperplasia
- Poor cannulation technique
- External compression
- Central stenosis
- Hypotension
- Hypercoagulopathy
maturation

- A fully matured AV fistula is one that can sustain 3 consecutive 2 needle cannulations with no infiltrations.

- A mature AV fistula must be superficial enough and large enough, thick-walled, straight enough and have sufficient blood flow to permit routine safe 2 needle cannulation.
Isometric Exercise post Op

• Increase blood flow and help develop the vein

• Build the muscle below to help make the vein more prominent
Maturation Time

- Usually 6 – 8 weeks
- Varies with individual
- Varies with type of A-V Fistula
- Investigate if not maturing
Rule of 6s

- > 600 ml/min flow
- > 6 mms in diameter
- > 6 cm in length
- < 6 mms below skin surface
- Examined 6 weeks post creation
Other complications

- Steal Syndrome
- Venous Hypertension
- Bleeding
- Infection
- Stenosis
- Aneurysm
- Cardiac failure
Steal syndrome

- Collection of symptoms ending with hand ischaemia.

- Inadequate blood supply to the hand distally – the AVF ‘stealing’ blood away from the extremity.
Steal syndrome

- Pain/numbness in fingers or hand
- Discoloration
- Cold to touch
- Delayed nail bed capillary refill
- Loss of function
Steal Syndrome

• Occur in 5% of vascular access patients

• Mostly those with diabetes and peripheral vascular disease (PVD)
Venous hypertension

- Congestion due to outflow vein stenosis
- Usually central vein stenosis

- On examination
  - Non collapsible pulsatile vein
  - Swollen upper extremity
Venous hypertension

- Affected hand maybe red and swollen
- Whole upper limb oedema
- More common in previous central catheter insertion
- 14% unrelated
Infected bleeding false aneurysm

Stenotic lesion
"SLEEVE UP" may reveal more than a nicely developing accessory vessel …

It may also reveal a serious … This speaks very strongly to the value of nurses being dedicated to VA monitoring.

AVF Needling: Watchful Eyes

Aneurysm

Enlarging Aneurysm
cardiac failure

- Excessive shunting of blood
- Worse in anaemia, cardiovascular disease
- Leads to LVH, cardiac failure & coronary ischaemia
Cardiac failure

- **Symptoms:**
  - Tachycardia
  - SOB
  - Creps
  - Oedema
  - Distended veins
summary

• Why
  – Monitor maturation, Recognise complications

• When
  – 2 & 6 weeks

• What & How
  – Clinical – Look, Feel, Listen
  – Ultrasound Scan