Clinical Best Practices and Troubleshooting

ARROW® VPS G4™ Device

Clinical Best Practices

When Blue Bullseye is obtained:

- If arm is extended, maintaining sterile field, adduct arm to patient's side
- Remove introducer sheath
- Obtain Blue Bullseye in this position
- Secure catheter
- If necessary for correlation, take chest X-ray ensuring patient's arm is at side and patient breathes normally

Clinical Best Practices: Troubleshooting Threading

- Difficulty Threading
  - Always thread slowly once catheter has reached axilla
    - 1 cm per second
    - Thread in small tiny “pushes”
  - Change position
    - If possible, position patient in a flat supine position
    - If possible, have patient take a deep breath, or perform the valsalva maneuver to help direct the PICC to the SVC
    - Reposition arm if possible, taking caution to maintain sterility
    - Maintain technique, threading catheter at 1 cm per second
  - Attach 10cc syringe of saline, to float catheter through vessel
    - Thread catheter during time of floating
    - Continue to “float” the catheter but create a pulsatile flush while advancing
    - Gentle forward motion with vessel dilation enhances threadability

Clinical Best Practices: Troubleshooting Threading

- Retract stylet or buddy wire at least 5 cm, up to a total of 10 cm
  - Creating a floppy tip can increase the natural downward deflection of the catheter towards the brachiocephalic vein
  - Loosen the blue touhy to pull back on stylet
- Perform catheter tip movement by “twirling” catheter
  - From right side, rotate or twist the hub area of the catheter in a clockwise fashion while advancing PICC
  - This causes the catheter tip to move in a downward motion
  - From left side, do the same except rotate in a counterclockwise motion, again while advancing catheter

Clinical Best Practices: Troubleshooting Threading

As catheter drops in SVC:

- Rethread VPS® Stylet back into catheter, returning back into original position as verified by markings
- Note Doppler changes
- Note ECG changes
- Continue to attempt achievement of a steady Blue Bullseye to complete procedure

Clinical Best Practices: Troubleshooting Threading

Using buddy wires to get catheter to drop

- When floppy tip does cause catheter to drop into SVC, may add buddy wire in a double or triple lumen catheter
  - Thread into second lumen
  - Do not extend out distal end of catheter by observing measurements
  - Continue to slowly thread catheter, observing ECG and Doppler signatures
  - Obtain steady Blue Bullseye
  - Remove buddy wire
  - Remove VPS® Stylet and complete procedure as usual

Clinical Best Practices: Troubleshooting Threading

ARROW NEVER SETTLE™

Tips to thread in the subclavian area:

- When there is the sensation of hesitancy or ‘drag’ in axillary subclavian area:
- Push past the obstruction
- Assess for blood return…is it 100% perfect? Continue with advancement
- Assess for blood return…is it not 100% perfect? Pull back 3-5 cm and repeat
- Gentle persistence is key

Clinical Best Practices: Sticking VPS® Stylet

Sticking stylet after catheter placement and Blue Bullseye is obtained

- If arm has been lowered during the procedure to get Blue Bullseye, open axilla to 90 degrees BEFORE attempting to remove stylet so pulling against the bend is not a factor
- When using a double lumen, keep stiffening wire or buddy wire in the second lumen. This will add stiffness to the catheter to prevent kinking, and allow the VPS® Stylet to be removed more easily
- If there is not a buddy wire, a wire may be added in the second lumen to add stiffness to the catheter to more easily remove the VPS® Stylet
- Flush catheter lumen that contains the VPS® Stylet, and lock saline column to keep the VPS® Stylet moist. May flush several times if necessary

Clinical Best Practices: Sticking VPS® Stylet

ARROW NEVER SETTLE™

VPS® Stylet sticks in catheter upon removal

- Loosen the blue touhy and grasp the VPS® stylet and attempt to pull with a steady pull
- Pull steadily, but in short increments
- Continue to flush between pull increments until VPS® stylet is easily removed
- If patient is able, and sterility can be maintained, have patient raise arm more than 90 degrees to change position
- If VPS® stylet continues to be stuck in catheter after these interventions, mark position of catheter, then retract catheter in 2-4 cm increments while flushing until VPS® stylet releases
- Thread catheter to marked position for proper tip position, confirm with chest X-ray