Nursing Management of Venous Access Devices: Implanted Central Venous Access Devices (Ports)

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Implanted VADs: Portacath/Passport

- Implanted chamber placed in the subcutaneous tissue usually on the chest wall, but may be in other areas such as the arm.
- Catheter attached to chamber terminates in central vasculature.
  - Ports placed over the lower rib cage or abdomen may be for intra-peritoneal use – verify prior to use.
- Available in low, moderate and high profile.
- Types:
  - Single
  - Double
  - Passport
  - Powerport (SL and DL)

Cross Section of Implanted Port

Port-a-caths/Passports

- **Benefits:**
  - Long term access – can be years
  - Aesthetics/patient body image
  - Central line for blood drawing and medication administration
  - May administer continuous infusion IV vesicants
  - Ports placed for patients receiving chemotherapy are NOT generally restricted to chemotherapy infusions only
  - Lowest incidence of catheter-related bloodborne infections (CDC, 2002)

- **Risks/Complications**
  - Infiltration due to improper insertion or dislodgement of needle
  - Occlusion issues if not accessed or flushed properly
  - Skin breakdown
  - Infection
  - Thrombus formation
  - Catheter fracture or migration
Know What You Are Accessing!

- Most single lumen ports being placed currently at MGH are power injectable ports made by Bard (PowerPort®) or Navilyst (Xcela®).
  - MGH is also placing Bard double lumen PowerPorts®.
- Many PowerPorts® feel like the smaller double lumen implanted ports when palpated.
- Some ports are dedicated for specific procedures (example: Angio Dynamics Vortex port used exclusively for photopheresis; accessed by Blood Transfusion staff only).
- **Always verify the type of port**, especially non-power versus power prior to use.
Power Ports

- Recent developments in implanted ports and non-coring needles have made it possible to use some ports for "power injections" associated with radiological studies such as CT scans.

- These devices are designed to withstand 5ml/sec power injections at 300 psi.

- Use of power-injectable ports for power injection requires use of a needle designed to withstand higher PSI, such as a PowerLoc® needle.
How Do I Know It’s a Power Port?

- **Minimum of two identifiers:**
  - Interventional Radiology reports
  - Patient should be carrying identification material, such as an ID card or ID bracelet
  - Power Ports have the letter “CT” visible on them when viewed radiographically; contact IR for any uncertainty

- **If the port was placed at outside institution:**
  - Contact facility that placed device and ask to have information faxed
  - Recommend a chest x-ray to verify tip placement
Implanted Ports

Single Lumen

Double Lumen

with permission 12/11/09
Bard PowerPort®

Features:

- Triangular shape (SL)
- Available in single and double lumen
- Three nubs, per septum, which are palpable
- If accessed with a Power-Loc needle, designed to withstand increased PSI of power injectors for instillation of CT scan dye
- Imaging of port can detect flipped port

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Xcela® Power Injectable Port

Features:

- Power injectable up to 5mL/sec at 300 psi when accessed with a Power Port Needle
- Radiopaque "CT" lettering confirms if port is power injectable or flipped
Power Injectable Ports

- Accessing: what needle do you use?
  - If you suspect pt will require scans during admission, suggest using PowerLoc® needle to avoid need for re-accessing.
  - May use the non-power needles, such as the Gripper,® to access power injectable ports if the port is not being used for power injection.

- If accessing with a PowerLoc ® needle you MUST verify that the port is a power injectable port using minimum of two identifiers.

- Once patency is established and verification of power injectable port has occurred, the RN MUST place purple flag on PowerLoc® needle confirming RN verification of power injectable port or radiology will not use for high-psi injection.
Accessing Ports

- Prior to initial use, verify provider order and line placement; catheter tip should ideally be at cavo-atrial junction.

- Assess exit site and ipsilateral chest carefully. Notify physician and do NOT access port if any of the following are present over the port site:
  - Redness
  - Tenderness
  - Warmth
  - Swelling

- To access, use:
  - non-coring (huber) needle
  - shortest needle possible
  - Sterile pre-filled saline syringes
  - reaccess with new non-coring needle every seven days

- Document the gauge and length of needle used.
Ports-Miscellaneous

- Maximum flow rates for Bard ports with:
  - 19g non-coring needle - 1680ml /hour
  - 20g non-coring needle - 960ml /hour
  - 22g non-coring needle - 312ml /hour
Implanted Ports: Flushing

- **Adults/Adolescents:**
  - 10-20ml saline per lumen, then
  - 5ml (100 units/ml) heparin = 500 units
  - Maintenance flush every 4-6 weeks when port is not accessed (monthly is recommended)

- **Toddlers/Infants:**
  - 3-5ml (10 units/ml) heparin after use (30-50 units)
  - 3-5ml (100 units/ml) heparin for monthly maintenance flush when port is not accessed (300-500 units)