

## **VENOUS ACCESS**

### **(Port-A-Cath or Broviac catheter)**

#### INDICATIONS

When medications are not effectively absorbed by the digestive tract or are not able to be given by mouth, they often are given in the veins for the body to absorb. Most typically medications are given through small arm intravenous sites (IV med-locks). In some instances the medicine is either too strong or needs to be given over a longer period of time (weeks) for a small IV can handle. Typical IVs can only stay for three days and then another site must be formed. This is because such peripheral IVs tend to get infected or irritated. In some instances such as in needing to give prolonged antibiotics for a chronic infection or the need to give strong chemotherapy agents, a larger and longer intravenous catheter is placed with the tip ending in a larger vein. Also, patients who require frequent blood draws can benefit because the catheter can have blood drawn through it instead of frequent skin punctures.

#### ANATOMY

There are three main veins that can be used for central lines. These include the veins draining the head and neck (jugular vein), the veins draining the upper arm and chest (subclavian vein) and the veins draining the lower legs (femoral vein). Because of issues of hygiene and discomfort the femoral veins in the groin are usually not the preferred location of most catheter sites. Therefore, typically a long term indwelling intravenous catheter is placed in the jugular or subclavian vein in the neck or upper chest. Typically it is placed on the side that is opposite the dominant hand (ex. if the patient is right handed the catheter is usually placed in the left side).

Typical catheters used are Broviac or Hickman catheters that have tubes hanging out the skin or a Port-A-Catheter with a port (shaped like a mushroom cap with a hollow center) that can be buried underneath the skin which can be accessed with a special needle (Huber needle). Because these catheters stay in for a longer period of time they are tunneled several inches before they are brought out the skin to decrease the chance that skin bacteria will spread along the catheter and result in an infection.

To place these lines safely and accurately a sterile technique must be performed and so typically it is done in a sterile radiology suite or in a sterile operating room. Antibiotics are typically given to decrease the chance of infection. A needle is used to access the vein and when flash back is given a wire is passed into the vein under special x-ray to make sure that the correct vein in question has been accessed. Then the tract is dilated up until it is large enough to allow the catheter to be passed. Then an x-ray machine is used to guide the tip of the catheter into the largest vein in the body just outside of the heart. The other end of the catheter is tunneled under the skin and either brought out in the skin as a sterile port or buried underneath the skin as in a Port-A-Cath.

The procedure itself takes usually about 30 minutes and is an outpatient procedure where the patient can come in and have the surgery and then leave that day. The catheter can be used immediately and in the case of chemotherapy is typically coordinated to have the procedure performed within a day or two before chemotherapy starts.

There are risks to having catheter placements such entering an artery or nerve near the vein instead of the intended vein, resulting in bleeding or pain. Rarely the ribcage can be entered, resulting in a collapsed lung that may require a chest tube placement although in most instances it is minor. The catheter itself is at risk for infection, clogging, fracture, or damage. Medications to help break up the clot or surgery to help untwist, remove, or replace the catheter may be needed .

The advantage of these long term catheters especially the Port-A-Cath is that it can stay for several years and provide good long term safe access and spare the patient having to be constantly stuck with venipuncture or with every visit for blood draw or administration of medications.