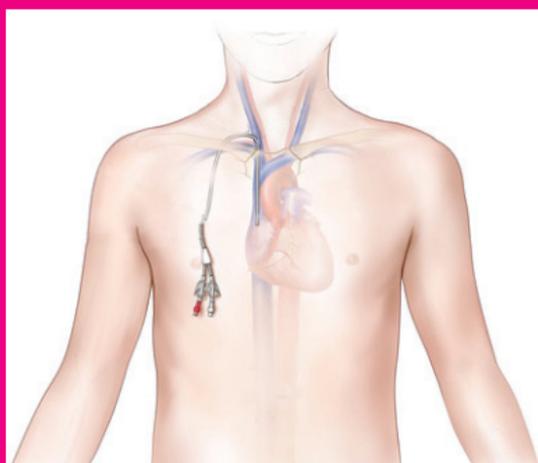


Vascular Access



VASCULAR ACCESS PROCEDURES

This brochure will provide you with essential information about vascular access procedures. It explains briefly what is involved, its benefits over other forms of treatment and some of the more salient risks. It is not meant to replace an informed discussion between you and your referring doctor or interventional radiologist who will be performing the procedure. If you have any questions regarding the procedure, do not hesitate to ask your referring doctor or the interventional radiology staff.



What is a vascular access procedure?

A vascular access procedure is one whereby a long thin tube called a catheter is inserted into a suitable vein, in the neck, below the collarbone or in the arm under image-guidance. This tube is then threaded into the major vein, called the superior vena cava (SVC), leading to the heart. These catheters are called central venous catheters and they can remain in place for extended periods of time, up to months. Various types of catheters can be used in this procedure, depending on your needs.

Types of devices

Central Venous Catheter - This is the standard central venous line which is inserted directly into the subclavian vein just below the collarbone or into the internal jugular vein, in the base of the neck.

Peripherally Inserted Central Catheter (PICC) - The PICC is introduced through an arm vein but its tip lies in the SVC. A PICC may remain in place from weeks to up to 6 months or even longer, provided it continues to work well and is not infected.

Tunneled Central Venous Catheter - This is termed a permanent catheter can last for an extended periods of time, up to 2 years, provided it does not get blocked or infected. The catheter is inserted into the jugular vein at the base of the neck or into the subclavian vein below the collarbone. It emerges from a subcutaneous tunnel about 10cm from the entry point into the vein. This is the best choice for patients requiring the catheter for more than 3 months. It is most commonly used for haemodialysis. The tunnel helps to hold the line in place and also reduce the risk of line infection.

Porta-Cath (Subcutaneous port) - This is a venous access device consisting of a catheter which is attached to a small reservoir implanted beneath the skin. The entire device is under the skin and it is seen only as a small bulge where the reservoir is located. The reservoir has a silicone covering which is punctured with a special needle when intravenous treatment is required. The port is used mainly when IV access is needed only intermittently over a long period, as in patients who require chemotherapy. Its disadvantage is the need for insertion of a needle through the skin each time intravenous use is required.

Preparation for the procedure

A blood test may be required to test for any blood clotting problems.

If you are on any medication, kindly inform your referring doctor and the Radiology Department of this. If you are currently taking any blood thinners, this may have to be stopped for 3-5 days prior to the procedure. Your referring doctor will advise you on this. Similarly, diabetic medication may have to be halted until after the procedure as fasting may be required for the procedure.

In general, fasting 4-6 hours prior to the procedure is recommended, if sedation or general anaesthesia is required.

Arrive early at the hospital as time is often required for registration, admission and other administrative details. If the procedure is to be performed as an outpatient, please arrive at least 20 minutes before your procedure time. If the procedure is to be performed as a day-case or inpatient, please arrive at least 2 hours before the procedure time.

What happens during a vascular access procedure?

This procedure may be performed in the ward, in the Radiology Department or in the Operating Theatre. The procedure is usually performed under local anaesthetic only. However, occasionally, sedation may be required or requested. This will be provided by an anesthetist who, in addition to sedating you, will also monitor your vital signs and breathing to ensure your stability and comfort throughout the procedure.

The needle puncture of the vein is performed under image-guidance. This is usually ultrasound or fluoroscopy (real-time X-rays) or a combination of both. Once the vein is punctured, a fine guidewire is inserted into the vein. The catheter will then be threaded into the vein over the guidewire and manipulated to its final position, which is usually in the SVC, just above the heart.

For tunneled catheters, a short subcutaneous tunnel is created between the entry point into the vein and the exit point on the chest wall. The catheter will pass through this tunnel, into the vein.

For implanting a subcutaneous port, an additional incision is required for the port. The port is placed below the skin and a short tunnel is created for the catheter to pass from the port into the vein. A small elevated area remains on the body at the site of the port. The incision for the port will be held together by stitches, surgical glue or special tape.

After the procedure

- Rest for the remainder of the day.
- Resume usual activities the next day but avoid carrying heavy objects
- After a tunneled catheter or subcutaneous port, there may be bruising, swelling and tenderness over the chest, neck or shoulder. These symptoms should resolve over the next 5 or so. Pain-killers may be taken.
- The entry point of the catheter at the skin surface should be kept clean and dry. This is especially so in the first week after insertion.
- Notify your referring doctor if problems develop with the catheter. Problems such as catheter blockage or breakage, bleeding at the insertion site, swelling of the access arm and signs of infection. Infection may be present if there is fever and redness with swelling and tenderness at the insertion site, with or without fluid at the insertion site.

Care for your venous access device

- Your referring doctor or the staff in the clinic of your referring doctor will teach you how to care for your venous access device.

Benefits and Risk

BENEFITS

- The vascular access device is extremely useful for patients who require repeated entry into the venous system for a long period.

- Patients may avoid repeated punctures for blood taking and intravenous therapy.
- A catheter is sometimes the only way to gain access to the venous system for haemodialysis for patients with kidney failure
- Under image-guidance, the chances of missing the vein and entering adjacent structures, most notably the artery, are much lower

RISKS

Overall, the risks are low. Below is a list of some of the more salient risks.

IMMEDIATE RISKS

These are encountered at the time of insertion of the device into the vein

- **Bleeding** - Any invasive procedure, no matter how minimal, will carry a risk of bleeding. Most of the time, the bleeding is mild and self-limiting, requiring no further treatment. This may result in bruising and soreness. Very rarely, further intervention and even transfusion may be required.
- **Arterial puncture** - as an artery always travels together with a vein, even under image-guidance, this may be inadvertently punctured, causing bleeding. Sometimes, the catheter may be inserted into the artery. If so, this will have to be removed. Most of the time, the artery heals by itself but occasionally, it may require surgical repair..
- **Infection** - any procedure which requires skin penetration carries a small risk of infection.
- **Pneumothorax** - Very rarely, the needle used to puncture the veins in the upper chest or neck may puncture the underlying lung, resulting in an air leak and trapping of air between the lung and the chest wall. This is called a pneumothorax. If it is small, it resolves by itself but if it is large, this may cause the lung to collapse and a chest tube may be required to help the lung expand
- **Abnormal heart rhythm** - the normal heart rhythm may be disturbed when the guidewire and catheter are inserted into the right atrium This is usually easily recognized during the procedure and eliminated by adjusting the catheter position.
- **Air embolism** - this may very rarely occur as a result of air entering the major vein through the vein puncture site. This can cause chest pain and difficulty in breathing

DELAYED RISKS

- **Delayed infection** - This may develop either at the skin insertion site or within the bloodstream, around the portion of the catheter in the vein.
- **Catheter fracture** - This is commonly as a result of wear and tear.
- **Accidental dislodgement of the catheter** - This may occur with any catheter. If this happens, you should apply pressure to the incision site using a sterile dressing and call your physician immediately.
- **Accidental dislodgement of the catheter**
- **Catheter occlusion**
- **Vein occlusion resulting in swelling of the arm or neck.**

In any procedure, there are risks, including death, which are rare and unpredictable. It is not possible to list every single risk. Any of these potential complications, both listed and not listed above, may require further surgical or interventional procedures for treatment.

Choice of Vascular Access Device

This will depend on the reason for requiring this device. Your referring doctor will help decide on the type of device to be inserted to best suit your needs.

I confirm that I understand the information herein about Vascular Access as it has been read by me and / or explained to me.

Name: _____

*Passport/NRIC No: _____

Signature: _____

Date: _____

Confirmation given before (Staff's name): _____

Staff's Signature: _____

Date: _____

*Please delete as applicable



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