
IQ_2012_06_venus - Venous Interventions

The Diverse Role of IR



Veins and arteries: the complex pathways of the human body. © OPIS

Image-guided placement of central venous lines has resulted in increased accuracy, decreased procedure time, fewer complications and shorter hospital stays

The previous pages have shown a range of interventional radiology (IR) treatments which are available for the effective management of venous disorders. Interventional radiologists combine imaging expertise and technical skill with catheters and guidewires; allowing treatment of the problem at source.

However, not all venous interventions are in response to a venous disorder. Sometimes the veins are used as access points for diagnostic monitoring (e.g. blood sampling) or systemic therapy (e.g. administration of medication).

Venous Access

When frequent access to the veins is required over a period of time, an intravenous line may be put in place. This facilitates ready access to the venous system; saving time and damage to the vessels by avoiding repeated punctures. Sometimes, due to clinical requirement, access to a large central vein may be necessary. In such cases a central venous line (catheter) is put in place.

Main Reasons for Prolonged Venous Access

- Administration of parenteral nutrition and fluids
- Direct and rapid administration of medication
- Haemodialysis

IR

We are all familiar with road maps and GPS: tools which help us find our way in new places. Expertise in medical imaging allows interventional radiologists to find their way around the complex pathways of the human body, through the smallest of incisions.

Central venous access may be gained via the surgical route. However, image-guided placement of central venous lines, as performed by IR, has now become standard practice. This has resulted in increased accuracy, decreased procedure time, fewer complications and shorter hospital stays.

Central venous line placement is a commonplace and vital procedure, with a huge number being put in place every year. A large factor in determining which form of line should be used is the duration of access required.

PICC (Peripherally Inserted Central Catheter)

• Duration of access: a few days to three months

Typically inserted into a vein in the arm, this long catheter is navigated through the venous system with the tip reaching the vena cava.

Tunnelled Catheter

· Duration of access: three to six months

This catheter enters a vein in the upper chest or neck and reaches the vena cava. The catheter exits through the skin (often in the chest) rather than directly from a vein, as with a PICC for example. The exit site is connected to the venous entry point with a "tunnel" under the skin.

Subcutaneous Port

· Duration of access: greater than six months

Subcutaneous vascular access devices can be placed in a surgically created pocket under the skin in the chest. A catheter is threaded through the veins to connect the access device to the vena cava. In this way the device functions as a "port" to central venous access and can be left in the body for as long as required.

Multidisciplinary Expertise

Although line placement is routine, it is not without risk and complications can occur. When introducing catheters and other devices into the body, care must be taken not to cause inadvertent damage. Accuracy of positioning is also vital if the central venous line is to fulfil its role effectively. It is for these reasons that IR is a part of the central venous access team. Using image guidance and excellent device handling skills, interventional radiologists are able to achieve safe and effective line placement, as well as assessment and repositioning of blocked or dislodged catheters.

The maintenance of central venous access is essential for many patients, and every day IR makes a special contribution to the success of these life-saving interventions.

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