

Inferior Vena Cava Filter

information for patients

Introduction

- A vena cava filter is a small, metal device about an inch long, shaped rather like the spokes of an umbrella, a bird's nest, or a cage, that is designed for percutaneous caval interruption. The filter is placed in the inferior vena cava (the large vein in the abdomen), which brings blood back from the legs and pelvis, towards the heart. If there are blood clots in the veins in the legs or pelvis, these could pass up the vena cava and into the lungs, causing potentially fatal pulmonary embolism (PE). The filter will trap these blood clots and prevent them entering the lungs.
- Majorities of filter are permanent which are mainly catered for elderly patients, in patients with short life expectancy or in patients who cannot receive anticoagulant (blood thinning agent to prevent clot formation). Very occasionally, temporary/retrievable filter may be used, especially in very young patients or special medical conditions.
- The procedure will be performed by a radiologist with special training in interventional radiology in the Department of Radiology under image guidance.

Procedure

- Usually performed as an in-patient basis, under local anaesthesia and aseptic technique.
- The vital signs including your blood pressure, pulse and oxygenation status will be monitored throughout the entire procedure.
- Generally, the vein in the groin/or neck is punctured.
- The skin and deeper tissues over the vein will be anaesthetized with local anaesthetic, and then a needle will be inserted into the vein. Once the radiologist is satisfied that this is correctly positioned, a guidewire is placed through the needle, and into the vein. Then the needle is withdrawn and a fine plastic tube, called a catheter, is placed over the guide wire and into the vein.
- The vascular anatomy of the vena cava is mapped by performing venogram prior to filter selection and placement.
- The radiologist uses the x-ray equipment to make sure that the catheter and the guidewire are moved into the right position, and then the guidewire is withdrawn. The filter is released from the catheter, and deployed in the vena cava.
- Generally, the procedure will be about ½ - 1 hour, depending on complexity.
- Once back to your ward, your vital signs and puncture site will be monitored. Bed rest and keeping the punctured leg straight (or propped up 30 degrees for neck punctures) for about 6 hours are recommended.
- If removal or reposition of a temporary/retrievable IVC filter is considered, it will be removed or repositioned within 2 to 3 weeks. The neck or the groin will be punctured. A bigger vascular sheath is inserted and the filter is removed or repositioned with a snare made of metallic wire.

Potential complications

- Inferior vena caval occlusion (less than 10%).
- Recurrent pulmonary embolism (less than 5%).
- Access site thrombosis (less than 6%).
- Filter embolization (less than 5%).
- Venous insufficiency (less than 10%): varicose veins, leg pigmentation swelling or ulcer due to venous disease. This may be related to the disease process.
- Unsuccessful removal of retrievable IVC filter: usually depends on duration of filter placement.
- The overall adverse reactions related to iodine-base non-ionic contrast medium is below 0.7%. The mortality due to reaction to non-ionic contrast medium is below 1 in 250000.

Rare complications

- Filter migration.
- Filter penetration – causing injury to aorta, ureters or duodenum.
- Filter fracture.
- Guidewire entrapment (less than 1%).
- Death (less than 1%).

Disclaimer

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