

Procedure Information Sheet – Inferior Vena Cava Filter Insertion

Hosp No. :	HKID No.:
Case No. :	
Name :	
DOB :	M / F
Adm Date :	
Contact No. :	

1. Introduction

- 1.1. A vena cave filter is a small, metal device about an inch long, shaped rather like the spokes of an umbrella, 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 cave and into the lungs, causing potentially fatal pulmonary embolism (PE). The filter will trap these blood clots and prevent them entering the lungs.
- 1.2. IVC filters maybe 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). Retrievable IVC filters are filters that can be removed later if the filters are no longer needed. These may also be left behind permanently if the indications for IVC filters persist.

2. Before the Procedure

- 2.1. You will be invited to a ward or outpatient clinic for some preliminary tests including electrocardiogram, Chest X-ray and blood tests. We will also check your allergy history.
- 2.2. Our medical staff will explain to you and your relatives the procedure and its risks, and present to you this information leaflet. You have to sign an informed consent.
- 2.3. Blood thinning drug (warfarin) or diabetic drugs (metformin) may have to be stopped several days before the procedure. Special anti-platelet drugs (Clopidogrel, Ticagrelor or Prasugrel) should be taken before the intervention. Steroid will be given if there is history of allergy.
- 2.4. Fasting of 4-6 hours is required prior to the procedure. An intravenous drip will be set up. Shaving may be required over the puncture site.
- 2.5. If you are a female, please provide your last menstrual period (LMP) and avoid pregnancy before the procedure as this procedure involves exposure to radiation.

3. The Procedure

- 3.1. This is an invasive procedure performed under local anesthesia in a cardiac catheterization centre.
- 3.2. Electrodes are adhered to the chest to monitor the heart rate and rhythm. Blood oxygen monitor through your finger tip will be set up. Blood pressure will be measured from your arm at regular intervals during the examination.
- 3.3. Generally, the vein in the groin or neck is punctured. The vein in the arm may also be used.
- 3.4. The skin and deeper tissues over the vein will be anaesthetized with local anesthetic, and then a needle will be inserted into the vein. Once the physician 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 sheath, is placed over the guide wire and into the vein.
- 3.5. The vascular anatomy of the vena cava is mapped by performing venogram prior to filter selection and placement.
- 3.6. Physician uses the x-ray equipment to make sure that the sheath and the guidewire are moved into the right position, and then the guidewire is withdrawn. The filter is released from the sheath, and deployed in the vena cava. The filter is usually placed below the level of renal veins. In patients with high clot in the IVC, the filter may be placed above the level of renal veins.
- 3.7. Generally, the procedure will be about ½ to 1 hour, depending on complexity.
- 3.8. Once back to your ward, your vital signs and puncture site will be monitored. Bed rest for about 6 hours and keeping the punctured leg straight, or propped up 30 degrees for neck puncture, are recommended.
- 3.9. If removal or reposition of a retrievable IVC filter is considered, it will be removed or repositioned later. A vein in 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. There is a time frame within which the retrievable filter should be retrieved or repositioned.



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4. After the Procedure

- 4.1. After the procedure, catheters will be removed. The wound site will be compressed or sutured to stop bleeding. Sometimes, special devices may be used to stop bleeding.
- 4.2. Nursing staff will check your blood pressure, pulse and wound regularly.
- 4.3. Bed rest is necessary for a few hours. In particular, please do not move or bend the affected limb. If the wound is over the groin, please apply pressure with your hand when you cough or sneeze so as to avoid re-bleeding.
- 4.4. You should inform your nurse if you have any discomfort; particularly chest discomfort or find blood oozing from the wound site.

5. Follow Up

- 5.1. Usually you can be discharged 1 day after the procedure.
- 5.2. The wound will be inspected and covered with light dressing. Please keep the wound site clean and change dressing if wet. In general, shower is allowed after 1-2 day. Please avoid vigorous activities (household or exercise) in the first few days after the procedure.
- 5.3. Bruising around the wound site is common and usually subsides 2-3 weeks later. If you notice any signs of infection, increase in swelling or pain over the wound, please come back to the hospital or visit a nearby Accident and Emergency Department immediately.
- 5.4. Usually your doctor has explained to you the results of the procedure before discharge. Should you have further questions, you and your close relatives can discuss with your doctor during subsequent follow-up.

6. Risks and Complications

- 6.1. Potential Complication:
 - 6.1.1. Inferior vena caval occlusion (less than 10%).
 - 6.1.2. Recurrent pulmonary embolism (less than 5%).
 - 6.1.3. Access site thrombosis (less than 6%).
 - 6.1.4. Filter embolization (rare). The filter may migrate to the right heart and has to be removed. Open heart surgery for filter removal is required if percutaneous retrieval fails.
 - 6.1.5. Delayed venous insufficiency (less than 10%): varicose veins, leg pigmentation swelling or ulcer due to venous disease. This may be related to the disease process.
 - 6.1.6. Unsuccessful removal of retrievable IVC filter: usually depends on duration of filter placement and if there is any tilting of the filter.
 - 6.1.7. Some patients have congenital venous abnormality, which escapes detection during filter deployment. Blood clot may pass through these abnormal veins to the pulmonary arteries despite an IVC filter in the normal IVC (rare).
- 6.2. Rare Complication:
 - 6.2.1. Filter migration after deployment.
 - 6.2.2. Filter struts penetration through IVC wall, causing injury to aorta, ureters or duodenum.
 - 6.2.3. Filter fracture.
 - 6.2.4. Guidewire entrapment (less than 1%), which may occur late when a guidewire is used for other procedure like central venous catheter placement.
 - 6.2.5. Death (less than 1%).
 - 6.2.6. 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.

7. Remarks

- 7.1. It is hard to mention all the possible consequences if this procedure is refused.
- 7.2. The list of complications is not exhaustive and other unforeseen complications may occasionally occur. The risk quoted is in general terms. In special patient group (e.g. diabetics), the actual risk may be higher.



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- 7.3. Should a complication occur, another life-saving procedure or treatment may be required immediately.
7.4. If there is further query concerning this procedure, please feel free to contact your nurse or your doctor.

8. Reference

- 8.1 Hospital Authority. Smart Patient Website.

I acknowledged the above information concerning the operation or procedure. I have also been given the opportunity to ask questions and received adequate explanations concerning the condition and treatment plan.

Patient/ Relative Signature: _____

Patient/ Relative Name: _____

Date: _____

