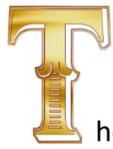
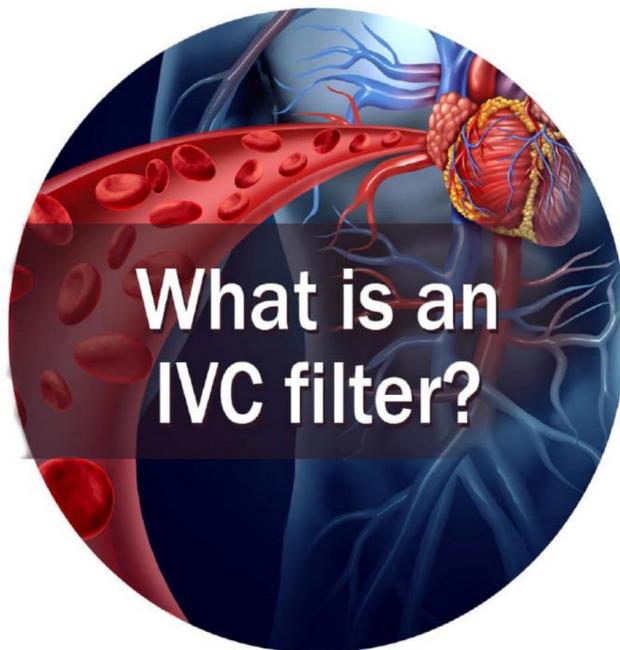
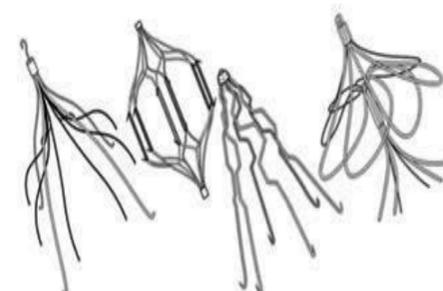
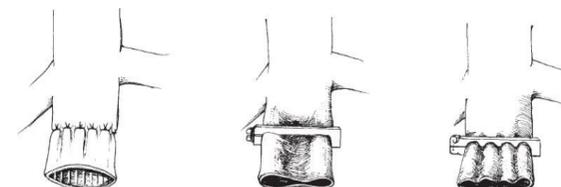
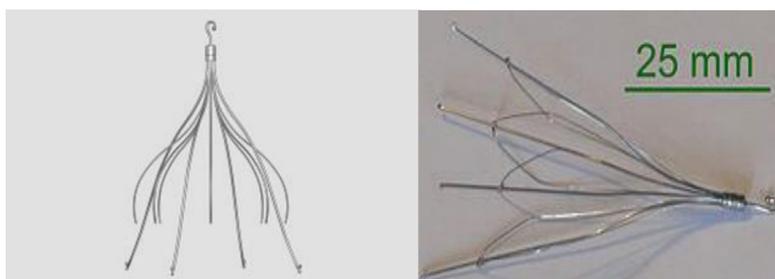
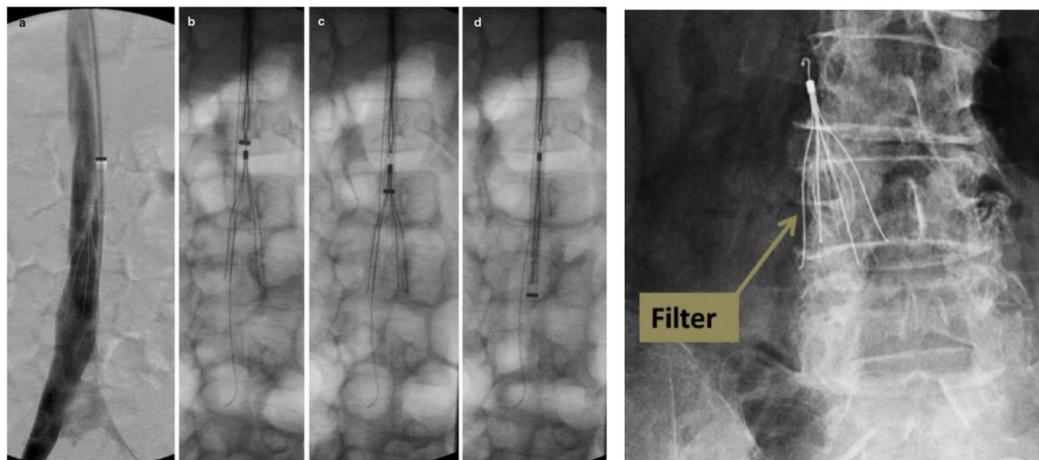
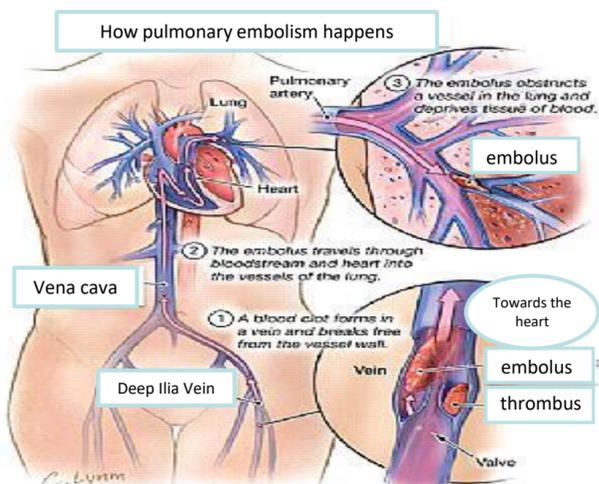


# Inferior Vena Cava Filter Placement

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The inferior vena cava filter is a type of vascular implant made from a special alloy that is placed inside the inferior vena cava, below the renal veins, and opens like an umbrella, for the purpose of preventing the movement of a blood clot from the lower extremities and the pelvic area to the heart and the lungs. Blood clots in the lower extremities and the pelvis appear during a pathological condition known as deep vein thrombosis, where part of a clot can get detached and move towards the lungs and the heart, causing complications, such as pulmonary embolism and death.



The most common treatment for deep vein thrombosis and pulmonary embolism is the use of anticoagulants. The complications that appear in 26% of these cases require the end of using anticoagulants or a percentage of 5-10% still showcase deep vein thrombosis even while using anticoagulants.

For patients diagnosed with deep vein thrombosis, pulmonary embolism, multiple trauma patients and patients who are in bedrest due to childbirth, who cannot be protected from thrombosis with the use of anticoagulants, or some other means, the filter placement is the best solution and can save their lives.



The placement is achieved invasively via the use of fluoroscopy, using local anesthesia at the point of entry, which can be either the right jugular vein or the right femoral vein.

The patient is connected to a heart rate and blood pressure monitor and a venous catheter is installed for the use of antibiotics or mild repression if needed.

It is important that there is a radiological C-ARM machine and a translucent surgical table so that the C-ARM can move to the full extend of the surgical field.

Everyone present in the operation must wear the required equipment. No surgical tools are required for the placement. Sterile heparinized saline is required to flush the device and the casings, as well as contrast agent to determine the placement position of the filter (below the renal veins), as well as to control its final positioning.

The possible complications that may follow the placement of an inferior vena cava filter are the following:

- Insertion site hematoma
- Vascular damage from the catheter insertion
- Inferior vena cava obstruction
- Recurrence of thrombosis
- Clot extension
- Pulmonary embolism recurrence
- Filter malfunction (filter fracture – filter retraction
- or
- incomplete deployment)
- Bad positioning
- Wrong blood vessel positioning
- Perforation of the vascular wall

The first attempt at fighting the blood clot movement towards the lungs was made in 1874 as the idea of John Hunter for ligation of the inferior vena cava and it was materialized in 1934 by George Homans.

In 1966 Adam De Weese made a clip for partial interruption of the inferior vena cava.

In the year 1973 a new generation of appliances is created, Greenfield, and their import is succeeded by phlebotomy

During 1980 diathermal filter devices made of steel and titanium are used and they allow peripheral blood flow which allows endogenous thrombolysis.

**Conclusion:** The inferior vena cava filter placement reduces the risk of pulmonary embolism but, a great deal of care is required in regards to the anticoagulant treatment because it can lead to increased percentage of thrombosis of the inferior vena cava as well as increased percentage of deep vein thrombosis recurrence. However, the placement procedure is a safe method and is achieved without any substantial side effects. Thank you.

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