Filter Retrieval

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Not just simple & harmless

• Complex vein wall biomechanics
• Motion in multiple dimensions
• Unpredictable hemodynamics
• Interaction with vein wall
• Interaction with blood components
Poisson Effect

- Presence of filter may impact adjacent IVC wall
Complex Cellular Processes
Optimizing IVC Filter Practice

Pre-placement

Post-placement
Time for Retrieval

• Low PE risk
• Anticoagulation can be restarted if needed
• A safe procedure is anticipated
• Check the integrity of the filter radiologically
• Venography / no thrombus in filter
Low Retrieval Rate/Structured follow-up

- Filter complication
- Retrieval 2012 6.9%
- Retrieval 2016 22.1%
- Present days ~ 30%

Improved IVCF Retrieval Needs to be Achieved by Raising Clinician and Patient Involvement
Inferior Vena Cava Filter Retrieval: Patient Selection, Procedural Planning, and Postprocedural Complications

OBJECTIVE. Utilization of retrievable inferior vena cava filters (rIVCFs) has come under increased scrutiny because of historically high rates of placement, generalized lack of retrieval when the inferior vena cava filter (IVCF) is no longer indicated, and reports of device-related complications. These events have led to an increased interest in IVCF retrieval, including the development of advanced endovascular retrieval techniques and the proliferation of specialized clinical practices for rIVCFs. We aim to describe the indications for IVCF retrieval, patient selection, procedural planning, and procedural complications and management.

CONCLUSION. IVCFs continue to have a role in the prevention of pulmonary embolism in select patients. Rising awareness of device-related complications paired with historically low retrieval rates has prompted renewed emphasis and interest in filter retrieval. Diligent follow-up and procedural planning permit prompt and safe filter retrieval.
Triage of potentially complex IVCF retrieval

Filter fracture

Perforation of adjacent structures

Cardiac

- Remove IVCF and attempt fragment retrieval; if not able to remove fragment, refer patient to cardiac surgeon for surgical retrieval of fragment

Extracardiac

- Counseling of potential risks of retrieval and proceed on individualized basis

Intraluminal

Yes

- Counseling of potential risks and attempt simultaneous retrieval of filter and fragment

No

- Expectant management if asymptomatic

Perforation of adjacent structures

Bone

- Expectant management if asymptomatic

Small bowel

- Prescribe prophylactic antibiotics for gram-negative rod and anaerobe bacteria for first 7 days after retrieval procedure

Artery

- Workup for arterial injury, dissection, or thrombosis

Thrombosis

- Place stent for recanalization at time of filter retrieval
• Cordis OptEase Bard Denalifilter, ALN Optional filter, and OptionElite filter
  • Femoral access, caudal hook
• Cook Günther Tulip & Celect
  • Jugular access, cephalic hook
Most IVC retrievable filters can be removed by endovascular means
Advanced Techniques
Indications and Outcomes of Open Inferior Vena Cava Filter Removal

Shaikh Afaq • Samuel S. Leake • Harleen K. Sandhu • Naveed U. Saqib • Ali Azizzadeh • Kristofer M. Charlton-Ouw
Open Filter Removal
New IVC Filters
Sentry
Hydrolysis of bio-absorbable filament
Vena Tech

Convertible filter has a release mechanism at the filter apex which when retrieved using a snare catheter allows open conversion and deactivation of the filter portion leaving the attachment struts in place.
Thanks for your time & attention

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