IVC FILTER RETRIEVAL - A RETROSPECTIVE STUDY FROM INDIAN TERTIARY CARE CENTRE

AUTHORS: DR VIKAS H P, DR MALLA AVINASH, DR KARTHIKEYAN DAMODHARAN

Introduction: We aim to evaluate the IVC filter insertion, retrievability, complications and contraindications to filter retrieval at our hospital.

Materials and Methods:

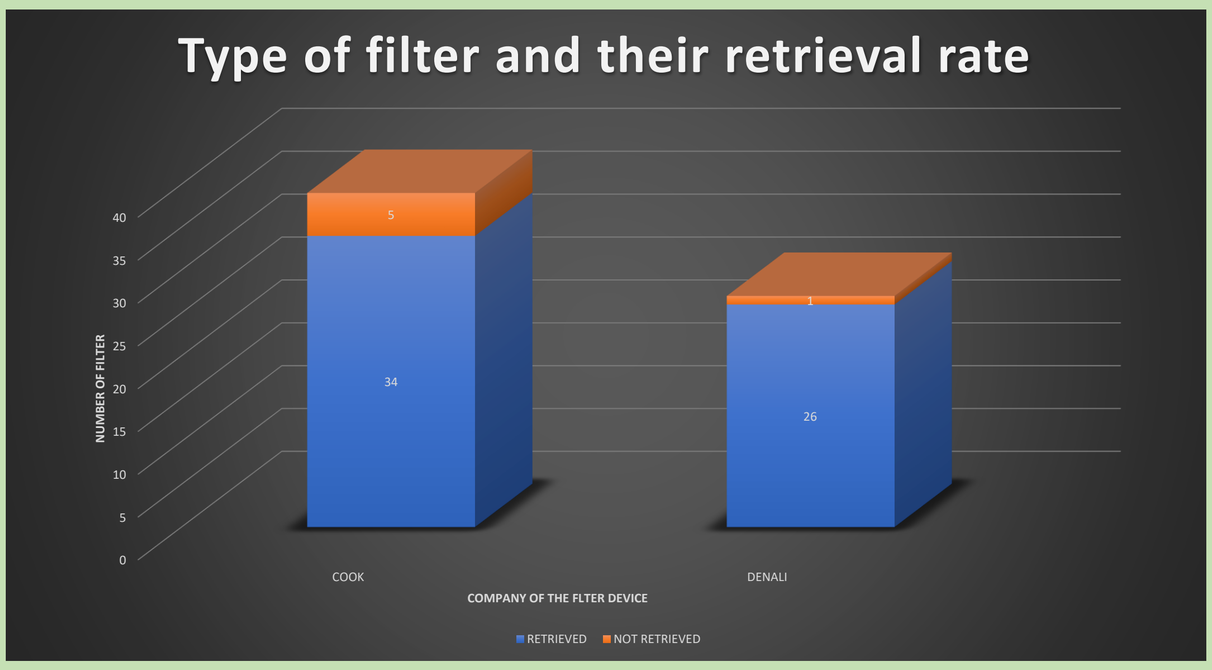
We retrospectively collected electronic data and images related to the IVC filter deployed during the study period and followed up till the 6 months from the last insertion date. Among the patients who showed up for filter retrieval, we evaluated complications during filter retrieval and contraindications to filter retrieval.

RESULTS:

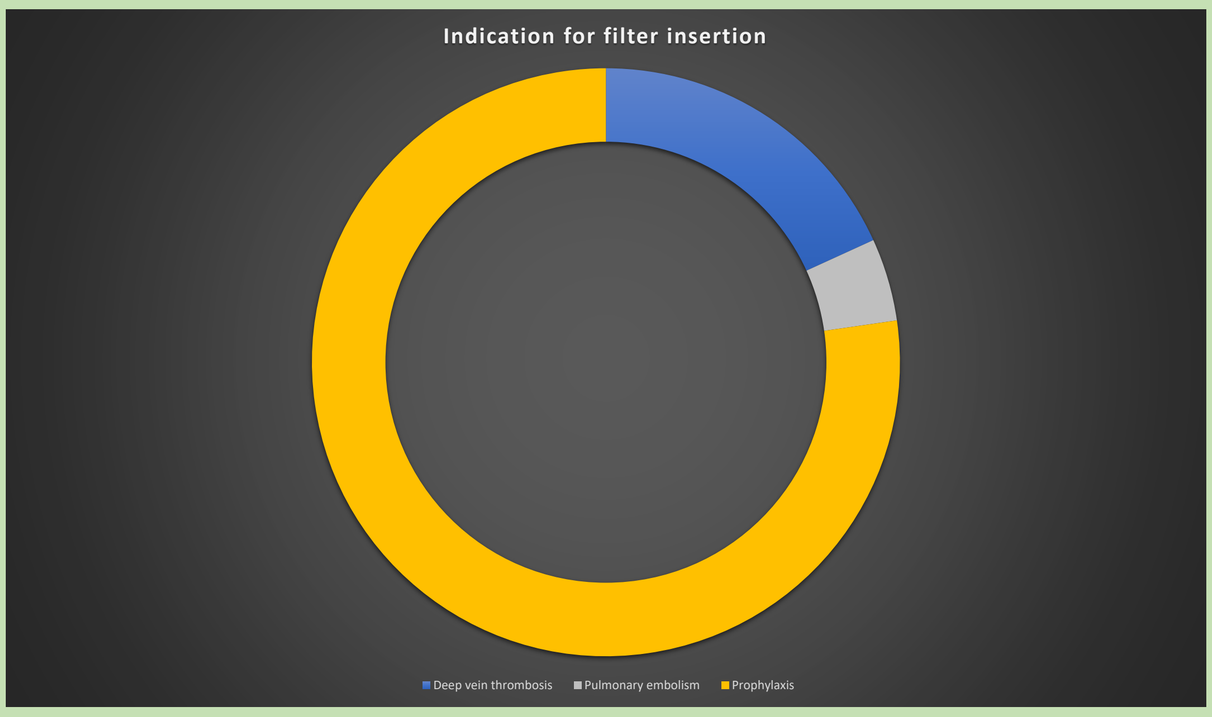
Study period	Jan 2020 - Oct 2023
Duration of study	34 months
Total IVC filters deployed during study period	296
Number of patients who showed up for retrieval	66
Number of filters retrieved	60
Mean dwelling time	191.77 days
Mean dwelling time in cases where filter could not be retrieved	455.83 days
Mean age of patients	44.42 years

DISCUSSION:

The study conducted provides insights into the deployment and retrieval of IVC filters over a 34-months period, shedding light on the number of filters deployed, the patients who presented for retrieval, and the outcomes of the retrieval process. During this time, a total of 296 IVC filters were deployed. All of the patients were advised to come for retrieval within 3-6 months. 66 patients presented for retrieval, among these patients 60 filters were retrieved.



Most common indication for filter insertion was prophylactic filter placement in patients who were expected to be immobilized for more than 4-6 weeks because of surgery. The other set of patients were with deep vein thrombosis contraindicated for anticoagulation therapy and recurrent pulmonary thromboembolism.



The data on mean dwelling times for both retrieved and not retrieved filters offers valuable information regarding the duration these filters remained in place and had impact on retrieval rate.

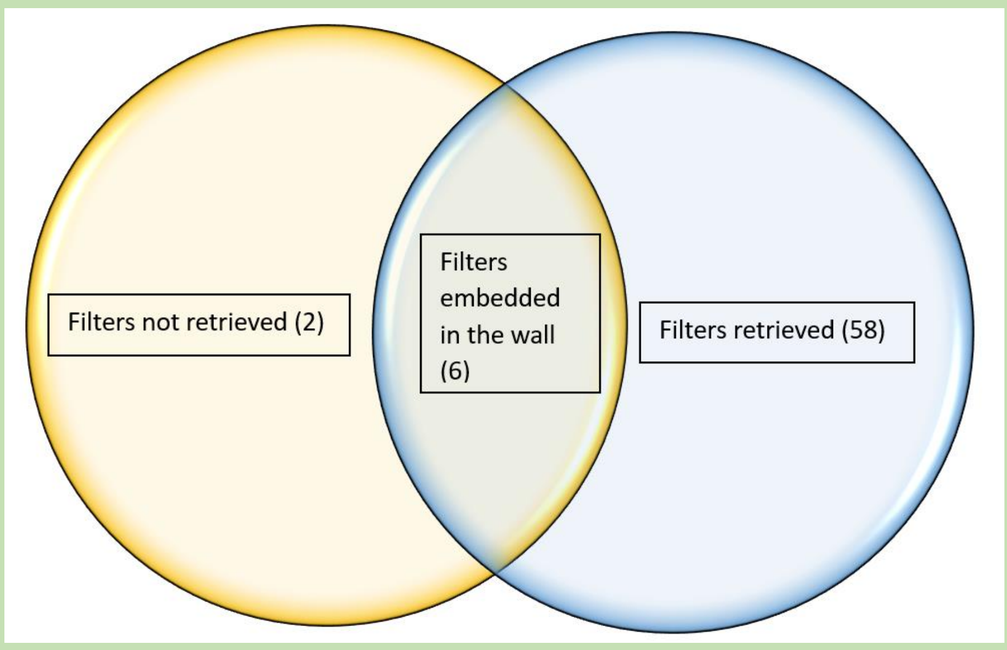
2 filters among the 60 were retrieved using reverse curved catheter using single venous access.

No filter fracture/significant secondary tilt/filter migration were noted during the study period.

During this study period we analysed the patients who showed up for the filter retrieval, only 22.29% showed up for the filter retrieval which is very low. Retrieval rate among the patients who showed up is 93.75 % comparable to other studies by Doody et al [1](93.4%), Sangwaiya et al [2](93.3%), Lyon et al [3](96.6%), Zhou et al [4](88.3%).

In 6.25% (6 out of 66) of patients we could not retrieve. Out of these 6 patients, 2 had absolute contraindication for filter removal. One had significant residual clot in the IVC on venogram; the other patient was undergoing chemotherapy and was bed bound with chronic lower limb DVT.

Technical failure rate was 6.25% (4 out of 64) despite advanced retrieval techniques.



Complications related to the filter were nil in the patients who showed up for retrieval.

CONCLUSION:

Most common indication for filter insertion was prophylactic filter placement in patients who were excepted to be immobilised for more than 4-6 weeks.

Poor return of patients for filter retrieval was noted, however the rate of successful retrieval in the cohort who showed up for retrieval was comparable to other studies.

No complications encountered during the filter deployment or during the filter in situ. 2 filters were retrieved using advanced techniques.

4 out of 6 filters could not be retrieved because the filter hook was embedded in the IVC wall despite advanced techniques, any further attempts would damage the IVC wall

TAKE HOME MESSAGE:

- Close follow-up of the patients after filter deployment is necessary with education to the patients regarding the importance of filter retrieval.
- Removal of the filter as soon as there is no indication for filter or anticoagulation can be started.
- In Indian setup, creating awareness among the referring physicians and primary physicians to encourage patients to visit IR OPD for retrieval.

References:

1. Doody O, Given MF, Kavnoudias H, Street M, Thomson KR, Lyon SM. Initial experience in 115 patients with the retrievable Cook Celect vena cava filter. Journal of Medical Imaging and Radiation Oncology. 2009 Feb;53(1):64-8.
2. Sangwaiya MJ, Marentis TC, Walker TG, Stecker M, Wicky ST, Kalva SP. Safety and effectiveness of the celect inferior vena cava filter: preliminary results. Journal of Vascular and Interventional Radiology. 2009 Sep 1;20(9):1188-92.
3. Lyon SM, Riojas GE, Uberoi R, Patel J, Lipp ME, Plant GR, De Gregorio MA, Günther RW, Voorhees WD, McCann-Brown JA. Short-and long-term retrievability of the Celect vena cava filter: results from a multi-institutional registry. Journal of Vascular and Interventional Radiology. 2009 Nov 1;20(11):1441-8.
4. Zhou D, Spain J, Moon E, Mclennan G, Sands MJ, Wang W. Retrospective review of 120 celect inferior vena cava filter retrievals: experience at a single institution. Journal of Vascular and Interventional Radiology. 2012 Dec 1;23(12):1557-63.