

LETTER TO THE EDITOR / *Cardiovascular*

Successful retrieval of a long-lasting temporary inferior vena cava filter

Keywords VTE; Thrombosis; Embolism; Cava filter; Anticoagulation

Dear Editor,

Temporary inferior vena cava (IVC) filters have been developed because of concerns raised by the potential long-term complications following definitive, permanent IVC filter placement. Temporary IVC filters are safely removable during the weeks or months following insertion [1,2]. The best indication for temporary IVC filter placement is represented by patients who formally need anticoagulation but have a temporary contraindication, so that they can be removed when the temporary contraindication has resolved, allowing initiation of anticoagulation [3]. However, as experience accumulates, paradoxical evidence has emerged as many of the so-called “temporary” IVC filters are left in place for long after insertion despite their potential long-term complications [4]. This fact led to many sanitary alerts particularly from the Food and Drugs Administration. As a long-lasting insertion period is usually perceived by clinician as a contraindication for retrieval, we hereby report the removal of an optional IVC filter (product code FJ.120096; ALN Implants Chirurgicaux, Bormes Les Mimosas, France) 12 years after insertion.

Two days after breast implant surgery, a 26-year-old woman presented with pain and swelling in the lower left

limb. She had no history of thromboembolism episode. Ultrasound revealed venous thrombosis involving tibial and common iliac veins. There was no evidence of pulmonary embolism. Low molecular weight heparin (LMWH) therapy was started but rapidly stopped because of periprostatic bleeding. Because of the formal need for anticoagulation in association with a temporary contraindication, an ANL optional temporary IVC filter was inserted at the third post-operative day. LMWH was reintroduced at an effective dose once the bleeding risk was limited. LMWH was stopped and vitamin K antagonists were introduced without any repeat bleeding episode. Because of the perceived risk of IVC filter thrombosis, vitamin K antagonists were maintained on a long-term basis. Twelve years after insertion, IVC filter removal was discussed because of frequent bleeding complications, with the hope to stop anticoagulation. The patient was thus referred to us and IVC filter removal was considered. She had no formal indication for long-term anticoagulation. Computed tomography (CT) showed no thrombosis of the IVC but obvious IVC wall perforation (Fig. 1). After informed consent was obtained, the patient was transferred to the interventional radiology unit. A specialized vascular surgery team was on call in case of complication. After local anesthesia, the right internal jugular vein was punctured under ultrasound guidance [5] and removal sheath (product code RK-2010, ALN Implants Chirurgicaux®) was pushed down in the IVC. Filter tilt was 9°. Once filter patency was confirmed by cavogram, IVC filter was caught by a superior approach and removed through the jugular vein with no difficulties. Radiation time was 19 minutes for a total dose of 8074 $\mu\text{Gy}/\text{m}^2$, corresponding to an effective dose of 21 mSv. Post-removal cavogram

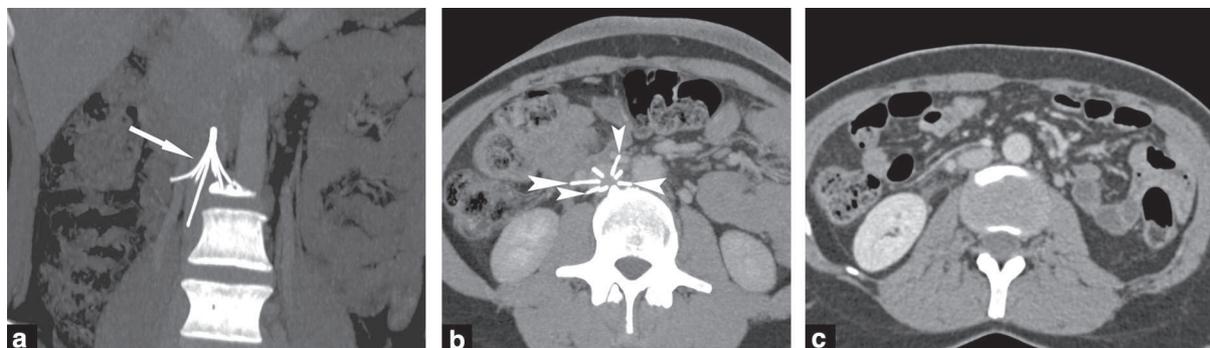


Figure 1. Computed tomography (CT) images in a 26-year-old woman before and after inferior vena cava (IVC) filter removal. a. Before IVC filter removal, CT image in the coronal plane using a maximum intensity projection reconstruction shows IVC filter (arrow). b. Before IVC filter removal, CT image in the transverse plane shows IVC filter and filter legs (arrowheads) protruding outside the IVC wall. c. After IVC filter removal, control CT image in the transverse plane shows no active bleeding or hematoma in the retroperitoneum.

showed no extravasation or IVC thrombosis. After a favorable outcome, the patient was discharged two days later with no anticoagulation.

Recent studies showed that only one third of all removable IVC filters are effectively removed [6,7]. As observed in our patient, it may be assumed that IVC wall perforation seen on imaging may make interventional radiologists reluctant [8]. Although it remains anticoagulation treatment is often left after IVC filter placement considering the risk for filter thrombosis [9]. In this regard, our patient has been receiving vitamin K antagonists for more than ten years for a deep venous thrombosis, which would have normally required 3 months of anticoagulant therapy only.

In our patient, removal of the IVC filter was performed by a well-trained operator after the decision was taken during a multidisciplinary conference meeting, with vascular surgeons ready to operate should complication have occurred during removal. We agree that our case has to remain exceptional, but it shows that some IVC filters can be removed a long time after placement, pending careful evaluation by a dedicated and experienced multidisciplinary team.

Disclosure of interest

The authors declare that they have no competing interest.

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