The Complication of Migration: To Place or Not to Place an Inferior Vena Cava Filter?

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Published In/Presented At

Bennett, C., & Smith, S. (2010). *The complication of migration: To place or not to place an inferior vena cava filter*. Poster presentation.

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The Complication of Migration: To place or not to place an inferior vena cava filter?

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INTRODUCTION
The morbidity and mortality of pulmonary embolism (PE) and deep venous thrombosis (DVT) are significant. PE is responsible for approximately 200,000 deaths in the U.S. per year.1,2 Inferior Vena Cava (IVC) filters are percutaneous, metal devices placed for prevention of DVT progressing to the pulmonary vasculature. The efficacy of the filters is controversial, as noted in recent systematic review in which no recommendations could be made regarding their effectiveness based on the available data.3 They are placed to prevent a potentially fatal PE, but there are also possible complications.

CASE
A 17-year old male presented to the Emergency Department September 5, 2009 complaining of severe right-sided abdominal pain. The pain began suddenly on the day of presentation, was sharp in quality and radiated to the back. He had a significant history of left knee arthroscopy with ACL repair on August 13, 2009 and subsequent postoperative left lower extremity DVT. His medical history is also complicated by a left thigh hematoma and repair on August 13, 2009 and subsequent postoperative left lower extremity DVT. He was monitored in the hospital until the decision was made to leave the potentially fatal outcomes of these complications. The necessity of the intervention. He presented with a DVT without pulmonary embolism (PE) in a non-surgical situation, and 3) idiopathic or cancer-associated PE. This patient’s initial location was in the right posterior tibial and peroneal veins and a repeat venous duplex prior the IVC filter placement demonstrated no evidence for deep vein thrombosis and resolution of the previously noted left calf DVT. In total, he had four venous duplex studies completed after the initial diagnosis, which were all negative for DVT. This case poses the question of the indications of an intervention, its effectiveness, and the potential complications.

CONCLUSION
This case demonstrates two reported complications of vena cava interruption, filter migration and filter fracture. There are multiple case reports describing cardiac tamponade secondary to filter migration and fracture.6 To date, the PREPIC Study Group is the only prospective trial evaluating the benefit of IVC filter use.7 The study compared the use of anticoagulation alone to the placement of an IVC filter and anticoagulation. The primary outcome was occurrence of symptomatic pulmonary embolism. The patients included in this study were older with proximal DVT. They found that IVC filters reduced the risk of PE, but increased the risk of DVT and had no benefit on survival at eight years. There was no statistical significance of the rate of symptomatic PE at two years. Fifty percent of PE in the no-filter group occurred between two and eight years. The study considered the use of IVC filters and anticoagulation to be beneficial in high risk patients, which they described as 1) having a PE as the initial event, 2) PE in a non-surgical situation, and 3) idiopathic or cancer-associated PE. This patient’s initial location was in the right posterior tibial and peroneal veins and a repeat venous duplex prior the IVC filter placement demonstrated no evidence for deep vein thrombosis and resolution of the previously noted left calf DVT. In total, he had four venous duplex studies completed after the initial diagnosis, which were all negative for DVT. This case poses the question of the necessity of the intervention. He presented with a DVT without other comorbidities and the DVT was surgery related. His complications are rare, but there are case reports describing the potentially fatal outcomes of these complications. The occurrences of these complications are listed in Table 1.

There are guidelines that have been defined by the American College of Chest Physicians for the use of vena cava interruption, which are:4
1. Routine use of vena cava filter in addition to anticoagulants is not recommended (Grade 1A).
2. Placement of an inferior vena cava filter is recommended in patients with acute proximal DVT, if anticoagulant therapy is not possible because of the risk of bleeding (Grade 1C).
3. In patients with an IVC filter placed as an alternative to anticoagulation, it is recommended to subsequently treat with a conventional course of anticoagulant therapy if the bleeding resolves (Grade 1C).
4. Although complication rates of IVC filter placement have greatly improved, the risks are still present. This case is an excellent reminder of the importance of understanding the indications of an intervention, its effectiveness, and the potential complications.

REFERENCES