

Temporary Inferior Vena Cava Filter to Prevent Pulmonary Embolism in Thrombophillic Neurosurgery Patients Scott A. Shapiro MD FACS; Ian Kainoa White MD

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### Introduction

Patients with symptomatic thrombophillia are treated with therapeutic anticoagulation. These patients can require neurosurgery. The patient must have their anticoagulation reversed before, during and after surgery. After surgery they must be anticoagulated again. This entails a risk of embolic and hemorrhagic complications. 87 of these patients underwent neurosurgery between 2003 and 2015. 42 had a retrievable inferior vena cava filter before surgery and 45 had no filter placed. We report our results on this novel approach.

## **Methods**

Prospective analysis of 87 thrombophillic patients. The author had his thrombophillic patients get an IVC filter before elective spine/cranial surgery. The filter was left in for 2 weeks after surgery and then removed and anticoagulated. Other neurosurgeons did not have a filter placed in their thrombophillic patients. These patients were normalized a few days before surgery and anticoagulated at various time points after surgery. Chi square analysis of the results was performed.

## **Learning Objectives**

A temporary IVC filter in thrombophillic patients makes neurosurgery safer.

## Results

In the 45 with no filter, there were 6 PE's of which 3(10%) died acutely. There were 4 reoperations for spinal/cranial epidural hemorrhage after resumption of antiocoagulation. Of the 41 patients with temporary IVC filters placed, there were no PE's, postoperative hemorrhages or deaths. The filter was removed 2 weeks after surgery, when the patient was ambulatory and therapeutically anticoagulated. In 10, there was clot on the filter at removal (Figure 1). There were no complications due to the filter. Chi square analysis documented a significant reduction in the risk of PE, mortality and postoperative hemorrhage(p<0.01)

# Conclusions

A temporary IVC filter in thrombophillic neurosurgery patients is safe and significantly lessens the risk of PE, mortality and perioperative hemorrhage.



Clot on filter