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Endobronchial forceps effective in retrieval of tip-embedded inferior vena cava filters

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When retrievable inferior vena cava (IVC) filters were approved for use in the United States in 2003 to prevent pulmonary embolism among patients unable to receive the standard blood thinner treatment, many experts anticipated most of them would be removed when no longer needed and IVC filter complications would decrease. Instead, the number of IVC filters placed has more than doubled in the last 10 years, and by some estimates, less than half of these retrievable devices are actually removed each year. Leaving the devices in place risks filter fracture or symptoms from penetration of filter components outside of the vein into adjacent structures, increased risk of new blood clots in the legs, and other complications.

Now, a Penn Medicine study published this week in the journal *Radiology* confirms that an endobronchial forceps technique the research group developed is a safe and highly effective option for many patients seeking IVC filter removal.

The Penn Medicine team studied 114 adult patients, 77 women and 37 men, who visited the Hospital of the University of Pennsylvania for removal of a tip-embedded retrievable inferior vena cava (IVC) filter between January 2005 and April 2014. All patients who underwent retrieval of an IVC filter were evaluated by an interventional radiology attending physician and underwent computed tomographic venography of the abdomen and pelvis.

The researchers say the endobronchial forceps technique helps fill a void

where standard procedures fail. The most common reason for a failed IVC filter retrieval is tilting of the filter, with the tip of the filter becoming embedded in the wall of the IVC. When this occurs, a snare or cone device cannot be placed over the tip of the IVC filter, and standard techniques for IVC filter removal fail. The newer technique allows these filters to be removed.

"Endobronchial forceps was successful in 97 percent of patients who presented to our institution with tip-embedded IVC filters," said lead author S. William Stavropoulos, MD, professor of Radiology. "This method offers many patients a new, safe option for retrievable IVC filter removal when standard methods are not possible. This in turn allows more patients to have their filter successfully removed instead of leaving them in place permanently."

Penn interventional radiologists found a particularly strong need for the new technique after standard methods with snare or retrieval cones were not successful in removing filters whose tips were embedded in the wall of the IVC.

The increasing number of retrievable IVC filters that go unremoved each year and related complications led the U.S. Food and Drug Administration to release 2010 and 2014 safety alerts urging physicians who place the filters to be responsible for their patient's ongoing care after the procedure and remove the filters as soon as they are no longer needed.

Provided by University of Pennsylvania School of Medicine

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