Evolution in the Management of Aberrant Subclavian Arteries and Associated Kommerell Diverticulum

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Objectives: Various options have been described to treat aberrant subclavian arteries and associated Kommerell diverticulum. We describe our experience with the management of this entity during a 15-year period.

Methods: Twenty-two patients underwent repair of an aberrant subclavian arteries and associated Kommerell diverticulum. Indications for intervention included a large Kommerell diverticulum (n = 18), dysphagia lusoria (n = 12), rupture (n = 4), type B aortic dissection (n = 4), thoracic aortic aneurysm (n = 2), and coarcation (n = 1). Multiple indications were present in 15 patients. Patients were treated with open surgery (n = 9) or an endovascular approach (n = 13). For the open surgical patients, hypothermic circulatory arrest (n = 7) or left heart bypass (n = 2) was used. For the 13 patients undergoing an endovascular approach, carotid-subclavian bypasses were performed preoperatively in 11 patients and intraoperatively in two. Bilateral revascularization was more frequently performed with endovascular repair compared with open surgery (75% vs 22.2%; $P = .01$). Patient characteristics are listed in the Table.

Results: Early outcomes included in-hospital mortality (n = 1), stroke (n = 1), and permanent spinal cord ischemia (n = 1) after endovascular repair and renal failure requiring dialysis (n = 1) after open repair. The frequency of endovascular repair increased after 2005 from 33.3% to 63.2% ($P = .60$). Four patients developed type I (n = 2) or type II (n = 2) endoleaks, of which one required reintervention. Median hospital stay was 7 days (interquartile range, 4-17 days). Five-year survival was 81.8%. No late aortic ruptures occurred, and two patients required aortic reintervention, one after an open repair and one after an endovascular approach. Dysphagia lusoria was relieved in all patients except for one in the open repair group.

Conclusions: Aberrant subclavian arteries and associated Kommerell diverticulum can be treated with acceptable rates of mortality and morbidity. The evolution toward an endovascular approach did not appear to affect late outcomes, suggesting that the choice of treatment should be based on patient-specific anatomy and associated comorbidities.

Table. Patient characteristics

Variables	*Mean ± SD or No. (%)*
Age, years	58.8 ± 14.4
Male	14 (63.6)
Maximum aortic diameter, mm	45.9 ± 13.6
Aberrant subclavian artery	
Right	16 (72.7)
Left, with right-sided aortic arch	6 (27.3)
Kommerell diverticulum	18 (85.7)
Kommerell diverticulum diameter, mm	23.8 ± 7.6
Complete vascular ring	1 (4.5)
Associated aortic or subclavian dissection	7 (31.8)
Tracheoesophageal compression	12 (54.5)

SD, Standard deviation.

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Endovascular Retrieval of Inferior Vena Cava Filter Penetrating Duodenum

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Objectives: This case report documents endovascular retrieval of an inferior vena cava filter penetrating the wall of the duodenum 3 years after it was placed.

Case history: Patient is 70-year-old man admitted with vague abdominal discomfort and history of low-grade fever. Patient had nausea, vomiting and upper abdominal pain with hemeoccult-positive stools.

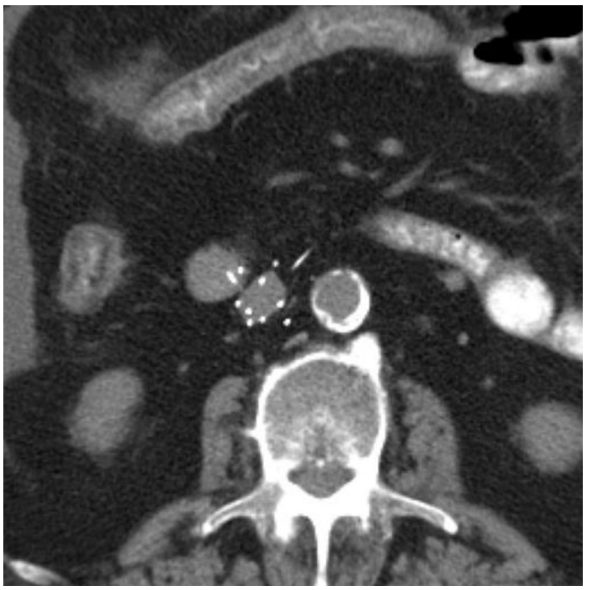

Fig. Computed tomography scan showing interior vena cava filter legs penetrating the wall of duodenum.

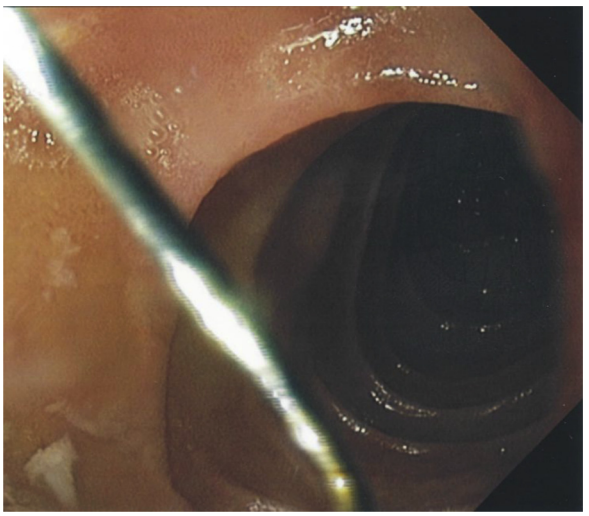

Fig. Endoscopy showing legs of filter inside lumen of duodenum.

Upper gastrointestinal endoscopy was performed to workup abdominal pain and anemia. Endoscopy revealed two legs of a previously placed inferior vena cava filter in the third part of the duodenum. No active bleeding was seen. A computed tomography scan of the abdomen and pelvis confirmed these findings. The patient had a prior history of deep venous thrombosis and pulmonary embolism that required placement of the inferior vena cava filter 3 years ago. Patient's symptoms were concerning for low-grade sepsis as a result of a possible fistula between the inferior vena cava and the duodenum. Patient was covered with intravenous antibiotics and decision was made to attempt endovascular retrieval of inferior vena cava filter. Because the filter had no hooks, we introduced an Omni flush catheter to hook the top part of the filter and used a snare to grasp the other end of wire. We used an angioplasty balloon to free the filter from walls of inferior vena cava. The filter was then retrieved by advancing the sheath and subsequently applying traction on the filter. After removal of the filter, upper gastrointestinal endoscopy was performed, and there was no bleeding in the duodenum. The patient was observed in the hospital for 48 hours and then discharged home on empiric oral antibiotics.