Open reoperations for complications of endovascular aortic procedures: Tip of the iceberg?

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In this issue, Spiliotopoulos and colleagues¹ report their experience with open descending thoracic or thoracoabdominal approaches to manage complications after endovascular repair of thoracic or abdominal aortic pathology in 67 patients treated over a 19-year interval. The majority of patients (n = 45) underwent thoracic endovascular aortic repair (TEVAR), and the remainder (n = 22) underwent abdominal endovascular aortic repair (EVAR). Of particular note, the frequency of procedures performed increased dramatically over this time period (see Figure 1¹). Complications requiring intervention included aneurysm expansion (usually the result of endoleak), graft infection, fistula, aortic rupture, pseudoaneurysm, and restenosis. Forty-seven percent of patients with TEVAR had chronic dissection present at the time of that procedure, and 38% had a connective tissue disorder. All of the patients in the latter group had distal aortic dissection present at the time of reoperation.

Despite the complexity of the pathology and of the operative repairs, the early mortality rate was 4% (3 patients). All of the deaths and the majority of the postoperative complications occurred among the 45 patients who had undergone a previous TEVAR as opposed to EVAR. Despite these excellent early results, the late results were disappointing, with a number of late deaths (n = 19) during a median follow-up interval of 36 months. Of the 13 late deaths where the cause of death was known, 11 were aorta-related. Among the 11 patients with infection present at the time of operation, the overall mortality rate was 64% (7 patients). After the open procedure, 7 patients required distal aortic intervention for failure of the repair or for progression of disease. Freedom from death, repair failure, or distal aortic intervention was 49% at 5 years.

Most of the patients undergoing reoperation were referred from other centers, and the frequency of open operations after TEVAR or EVAR at the authors' center was not reported. Studies from other centers have reported rates of open reoperation after TEVAR that ranged from 3% to 8%,²⁻⁶ and early mortality rates of 4% to 14%.^{5,7,8} In

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Central Message

The steadily increasing number of open reoperations following endovascular repair of thoracic aortic pathology may represent the tip of the iceberg.

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these series, endovascular interventions were also required and were performed more frequently.

What are the take home messages from this large experience? As the number of TEVAR procedures continues to increase, the frequency of open reoperations will likely increase as well; the proportion of patients who required reoperation for chronic dissection (67%) is substantially higher than the proportion of patients undergoing TEVAR for chronic dissection noted in several large published series (in the report by Schaffer and colleagues⁹ of 11,966 TEVAR procedures performed between 2005 and 2010, 13.7% were performed for chronic dissection, and in a report from the Medtronic Thoracic Endovascular Registry database, chronic aortic dissection was the indication for TEVAR in 195 of 1010 patients [19.3%],¹⁰ the proportion of patients with connective tissue disorders was [38%], and all presented with dissection, a percentage also substantially higher than the percentage of patients with these conditions who receive an endograft and these 2 major disparities add to the controversies surrounding the role of TEVAR for chronic aortic dissection and for patients with connective tissue disorders); infection, particularly when associated with fistula formation, is a serious problem with high mortality; the late outcomes after open operation are not optimal; and more than one-half of the patients presented for open operation more than 1 year after TEVAR, emphasizing the need for stringent long-term follow-up.

Spiliotopoulos and colleagues¹ have provided important information on the management of complications following TEVAR that require open operation. With the rapid increase in the number of TEVAR procedures performed annually, their findings may represent the tip of the iceberg.

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