Thoracic Endografts Used Successfully to Remove Tumors Invading the Aorta

American Association for Thoracic Surgery

Study suggests new application for endovascular grafts, according to presentation at 93rd AATS Annual Meeting

Tumors have the potential to grow locally and invade neighboring organs. Some chest tumors may invade one of the great vessels of the body, the aorta. Surgical removal of these tumors is very challenging and necessitates the support of a heart-lung machine. Therefore there is an increased risk of complication and death. In a small series of patients, placing a stent within the aorta facilitated the subsequent removal of tumor and eliminated the need for heart-lung bypass. A report of these results is presented by Stéphane Collaud, MD, MSc, at the Emerging Technology and Techniques Forum of the 93rd AATS Annual Meeting in Minneapolis on May 8, 2013.

Endovascular grafts are inserted into blood vessels in the groin, and then threaded through the vasculature until they reach the aorta, where they prop up the vascular wall and keep the lumen open. Endovascular thoracic stent-grafts are indicated for use in aortic aneurysms, dissections, traumatic injuries, and rupture of the aorta. However, worldwide, these vessel prostheses have only been used anecdotally for helping in the removal of tumors invading the aorta.

In this retrospective single-center study at the University of Toronto, five patients with tumors infiltrating the aorta received an aortic endograft 1-9 days prior to tumor resection. Three patients had non-small cell lung carcinomas and two had sarcomas. The proximal end of the stent-graft was placed in the aortic arch or descending aorta. The tumor was resected en bloc (as one unit) in all patients and was combined with resection of the chest wall and spine in four of five patients.

"We describe the off-label use of endografts in the oncological setting. We suggest that the indication for thoracic aortic endografts could be extended to specific oncological cases," says Dr. Collaud, a thoracic surgeon affiliated with Toronto General Hospital, University Health Network, and the University of Toronto. "This minimally invasive approach allowed safer removal of complex tumors invading the aorta without the need for a heart-lung machine."

After 9 to 62 months, all patients had survived and remained free of disease. There were no endograft-related complications.

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