

Aortic stent graft injury over active blood flow: over the fence

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DESCRIPTION

A 72-year-old woman was admitted to our hospital complaining of chest pain at rest. She underwent thoracic endovascular repair (TER) using three stent grafts (GORE TAG 34×150, 34×200 and 26×200 mm; W. L. Gore & Associates, Flagstaff, Arizona, USA) with type B aortic dissection 5 years earlier (figure 1A). Coronary CT angiography (CTA) findings were inconclusive because of remarkable massive calcification in all coronary arteries. As a low-density area suspected of mural thrombus inside the second stent graft was detected (figure 1B), non-obstructive angiography was performed to evaluate graft failure besides invasive coronary angiography.¹ No significant stenosis was found using invasive coronary angiography; however, suspicious blood flow through the graft was observed at the aneurysmal descending aorta in the middle of the second graft (figure 2 and video 1). Being uninfluenced by aortic blood flow, it was thought to exist over the graft. At the site, neither the first nor the third grafts overlapped. The graft might have separated from the stent or leaked blood might have invaded the graft because the flow spread to the graft's posterior side. No mural thrombi or massive plaques were detected.



Video 1 Angioscopic movie showing suspicious blood flow over the graft.

CTA at the 10% R-R interval of ECG gating showed a low-density area inside the stent graft. Its border moved with the cardiac cycle; however, the stent shape remained unchanged (video 2). An endoleak may have been detected using angiography. Angioscopy may help stratify risks of aortic TER-related complications.² Non-obstructive angiography successfully showed blood flow over the graft, potentially from an endoleak, which might be related to a partial stent graft injury. In this case, non-obstructive angiography was performed safely during the catheter procedure and the patient remained free from embolic complications within 30 days. Long-term follow-up and more evidence

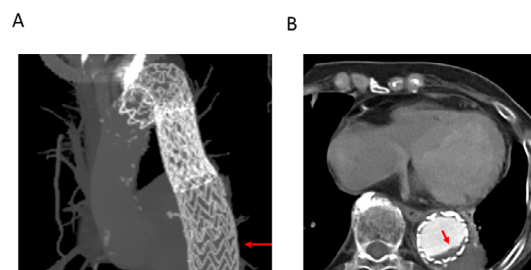


Figure 1 CT angiography images at the site of suspicious blood flow through the graft detected using non-obstructive angiography. (A) A minimal intensity projection image of the thoracic aorta. Two stent grafts (34×150 mm and 34×200 mm) were shown. The site of suspicious blood flow was at the level shown with a red arrow. (B) An axial image. Suspicious blood flow was detected through the graft using non-obstructive angiography (a red arrow).

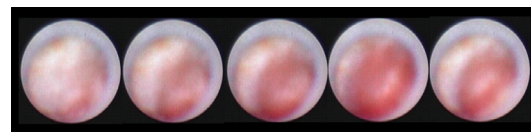
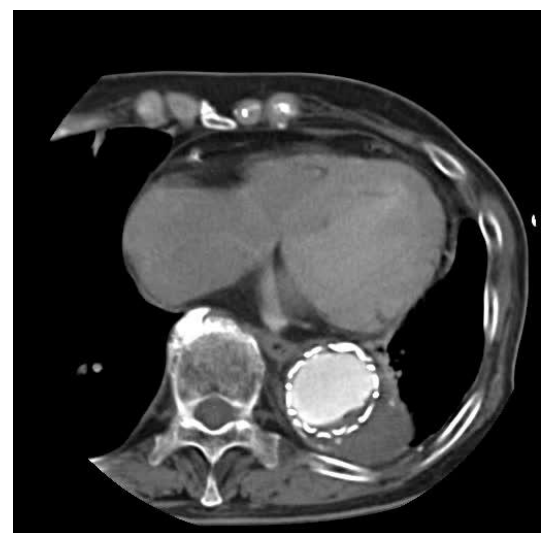


Figure 2 Continuous angioscopic images showing active blood flow through the graft.



Video 2 CT angiography at the 10% R-R interval of the ECG gating from 0% to 100%.

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are needed to assess the significance of active blood flow over the graft detected using angioscopy.

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Competing interests KK, who is the president of Inter-tec Medicals developed non-obstructive angioscopy. SK is a technical consultant for Nemoto Kyorin-do and other authors have no conflict of interest.

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