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Images in cardiology

ST-segment elevation after abdominal aortic aneurysm repair

Hatim Al Lawati^a, Sheldon M. Singh^{a,b,*}

^a Schulich Heart Program, Sunnybrook, Health Sciences Center, 2075 Bayview Avenue, Toronto, Ontario, Canada

^b Faculty of Medicine, The University of Toronto, Toronto, Ontario, Canada

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ABSTRACT

We describe a case of post-operative inferior myocardial infarction after abdominal aortic aneurysm repair due to compromise of a gastroepiploic coronary arterial graft.

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A 72-year-old man with a remote inferior myocardial infarction (Fig. 1 Panel A) and prior coronary artery bypass surgery underwent an elective Type IV thoraco-abdominal aortic aneurysm repair with supra-celiac clamping. Details of the patient's prior cardiac surgery were not known prior to the vascular surgical procedure. On the first post-operative day, an elevation of troponin was noted on routine investigations accompanied by new ST-segment elevation in leads II, III, aVF (Fig. 1 Panel B) and new severe inferior and posterior wall hypokinesia on echocardiography.

Review of the pre-procedural CT angiogram of the aorta demonstrated the presence of a gastroepiploic arterial graft to the right coronary artery (Fig. 1 Panel C, arrow) which was not commented on during the initial interpretation of this study. With this knowledge, it was suspected that this coronary arterial graft was compromised at the time of the complex vascular procedure. As

the patient was hemodynamically stable and imaging this graft with conventional coronary angiography during the acute post surgical period would be difficult, a repeat CT angiogram was performed. This post-procedural imaging study demonstrated the absence of flow in the gastroepiploic graft (Fig. 1 Panel D, arrow) consistent with graft occlusion likely related to the recent complex vascular intervention.

Although gastroepiploic coronary arterial grafts are seldomly performed in the current surgical era, this case highlights the importance of vascular surgeons knowing whether this bypass graft was employed in patients undergoing aortic surgery in order to minimize collateral injury to this bypass graft which may have unintended but significant clinical consequences. CT angiography can be helpful to image this arterial graft and assist the vascular surgeon in planning their operative approach.

* Corresponding author. Tel.: +1 416 480 6100x4701; fax: +1 416 480 6913.

E-mail address: sheldon.singh@sunnybrook.ca (S.M. Singh).

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Fig. 1 – A. Pre-operative ECG; B. Post-operative ECG; C. Pre-operative CT angiogram demonstrating a gastroepiploic graft to the right coronary arrow (arrow); D. Post-operative CT angiogram demonstrating the loss of flow in the gastroepiploic graft.