


Case Report

Axillary pullout syndrome: an unusual complication of axillary femoral bypass grafting

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Abstract

A male patient in his eighties presented two weeks following axillary profunda femoris bypass grafting with chest pain, left upper arm swelling and haemodynamic instability. Imaging revealed axillary anastomotic dehiscence with haemorrhage and pseudoaneurysm formation consistent with a diagnosis of axillary pullout syndrome. Emergency management consisted of a combined endovascular and open surgical approach including emergency stenting of the left axillary artery pseudoaneurysm and open surgical closure of the brachial artery puncture site.

Keywords: axillary anastomotic dehiscence; axillary pullout syndrome; anastomotic failure; axillary femoral bypass; axillary stenting.

Introduction

Axillary pullout syndrome is a rare complication of axillary femoral bypass grafting which can result in life threatening bleeding. This is thought to be a direct consequence of poor technique, excessive tension, and exertional arm movements (1,2). Endovascular control of arterial haemorrhage and subsequent surgical repair are key in the management of this syndrome.

Case Presentation

A diabetic male patient in his eighties with a left sided critical limb ischaemia underwent a left axillary-profunda femoral bypass with Miller cuff followed by a transtibial amputation due to extensive disease. He presented two weeks post procedure with new onset chest pain and a left sided arm swelling 3 cm below the site of the axillary anastomosis.

A CT angiogram of the aorta revealed disintegration of the left axillary-profunda proximal anastomosis with inferior migration of the graft [Figure 1A]. There was a 7.3 x 8 cm pseudoaneurysm arising from the left axillary artery with a 6.8 cm opacifying component denoting active bleeding [Figure 1B].

Upper limb angiogram confirmed anastomotic disruption and a 5.9 x 7.2 cm pseudoaneurysm arising from the left proximal axillary artery 1 cm distal to the origin of the posterior circumflex humeral artery [Figure 2A]. A 6 mm x 5 cm covered self-expanding metal stent (GORE® VIABAHN®) deployed to exclude the pseudoaneurysm, and post-dilated with 6 x 40 mm balloon (Sterling™ Boston Scientific™) [Figure 2B]. The 7F sheath left in situ to permit surgical cut-down to close arteriotomy.

Due to poor tissue healing and loss of continuity of the axillary graft, the patient underwent a revision above knee amputation. Post operative course was uneventful and the patient is currently well.

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Figure 1A: CT angiogram showing disintegration of the proximal anastomosis of the left axillary-profunda bypass with inferior migration of the graft (arrow).

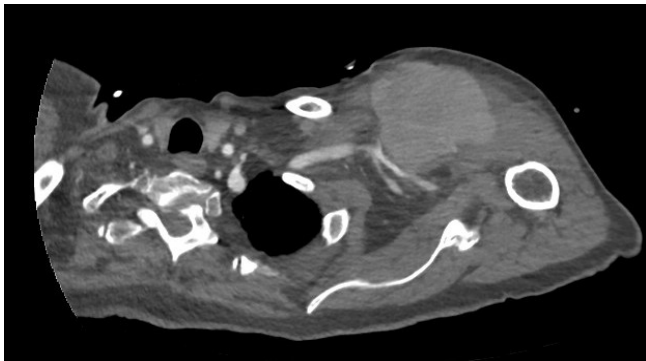


Figure 1B: CT angiogram showing a sizeable pseudoaneurysm arising from the left axillary artery.

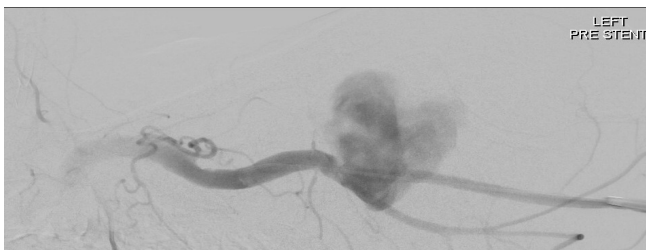


Figure 2A: Upper limb angiogram confirms pseudoaneurysm arising from the proximal left axillary artery.



Figure 2B: Upper limb angiogram demonstrating no contrast within the pseudoaneurysm after stent graft placement.

Discussion

Disruption of the proximal anastomosis of the axillary artery with bleeding and the formation of a pseudoaneurysm or what is known as ‘axillary pullout syndrome’ is an unusual yet life threatening complication of axillary-femoral bypass grafting. This complication is believed to occur due to excessive anastomotic tension and technical errors in positioning the anastomosis (1) Cases have been described to occur due to exertional arm movements (2).

In the present case, a pseudoaneurysm of the axillary artery developed following disintegration of the proximal anastomosis of a left axillary-profunda femoris bypass. A similar case has been reported in the literature and successfully treated with a hybrid method combining an endovascular approach to limit the haemorrhage followed by an open exploration and repair of the graft with limb salvage and favourable outcome for the patient (3). In our case, endovascular stenting succeeded in limiting the bleeding, but endovascular closure was not possible as the vessel was deemed to be too small therefore a sheath was left to be used for surgical closure of the brachial artery access site. Unfortunately, the continuity of the bypass was lost and poor tissue healing subsequently led to an above knee amputation. To our knowledge, this is one of a few cases in the literature using a combined graft and surgical approach for the treatment of this complication.

Our case highlights that while axillary-femoral bypass grafting is an attractive option especially for patients who are frail and limited by co-morbidities; it can result in devastating complications such as axillary pullout syndrome and pseudoaneurysm formation. Clinical suspicion of this complication should be maintained, and appropriate imaging obtained especially in cases of soft tissue swelling near the anastomosis site. Multidisciplinary input from interventional radiology, vascular surgery and critical care is crucial for safe patient management.

Conflict of Interest:

The authors declare no conflict of interest.

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