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Successful endovascular management of endoleak-like phenomenon following open abdominal aortic aneurysm repair

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ABSTRACT

INTRODUCTION: Endoleaks are a well-known complication after endovascular aortic repair. Type I endoleak-like phenomenon (also defined as a proximal pseudoaneurysm) post-open abdominal aortic aneurysm (AAA) repair is described as an anastomotic leak causing recurrent pressurization of the original aneurysm sac. It is rare but may result in aneurysmal sac rupture into the peritoneal cavity.

REPORT: A 78-year-old man presented with a progressively enlarged aneurysmal sac due to proximal anastomotic degeneration of the proximal suture line associated with an outflow through a patent large lumbar vessel following a previous emergency open AAA repair. This was successfully treated using a combination coils and ethylene-vinyl alcohol copolymer. An Endoluminal tube stent graft was successfully deployed to seal the aortic anastomotic dehiscence.

CONCLUSION: Endovascular treatment of an anastomotic dehiscence associated with a large outflow lumbar artery post-open AAA repair is feasible and safe.

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1. Introduction

Endoleak is defined as blood flow outside an endoluminal graft but within an adjacent aneurysm sac or segment [1]. This was first described in patients following endovascular repair of abdominal aortic aneurysm (AAA), and its occurrence was similarly established in patients who underwent open AAA repair, after a series of 6 patients with a type I endoleak-like phenomenon (also defined as a proximal pseudoaneurysm) was reported [2]. It is related with a proximal anastomotic dehiscence, resulting in a recurrent aneurysmal sac. It remains a rare but serious complication of open AAA repair; only a few type I or II endoleak cases have since been reported [3].

We describe a patient, who presented with a proximal endoleak associated with a large lumbar outflow vessel (6 years after emergency open repair for a ruptured AAA) that may result in a development of a potential future type II endoleak. It was successfully managed with a combination of endovascular therapeutic procedures.

Patient consent was obtained for reporting this case.

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2. Case report

In 2009, a 78-year-old man presented with a ruptured AAA and underwent emergency open AAA repair with a 20 mm × 15 cm Ultramax graft™ (Atrium Maquet Getinge Group, NH, USA).

He presented to the emergency department in 2015 with abdominal discomfort. Urgent abdominal computed tomography (CT) detected an 88-mm aneurysmal sac and type I endoleak-like phenomenon associated with an outflow through a patent lumbar vessel (Fig. 1a & b) that had the potential to develop a late type II endoleak. This was due to partial dehiscence of the posterior proximal suture line, with the leak communicating with a large lumbar artery anterior to the mid-body of the L4 vertebra, causing recurrent pressurization of the original aneurysm sac. A semi-urgent endovascular repair was performed using combined femoral and brachial approaches. Through a left brachial approach, a 90-cm, 7-Fr Flexor® Shuttle® Guiding Sheath (COOK® Medical, Bloomington, IN, USA) was introduced into the aneurysmal sac via the dehisced portion of the suture line. A 120-cm MPA-A2 guiding catheter (Cordis Cardinal Health, Dublin, OH, USA) was inserted to the lumbar vessel (Fig. 2). A 2.7-mm Progreat® microcatheter (TERUMO® Medical Corporation, Tokyo, Japan) was inserted into the guiding catheter using a co-axial technique. A left femoral approach was considered but a left brachial approach was used because it offers direct and easy access to the pseudoaneurysm sac and lumbar artery and allows the 7-Fr Flexor® Shuttle® Guiding Sheath to remain in situ without any interference. Moreover, we wanted to keep left femoral access available

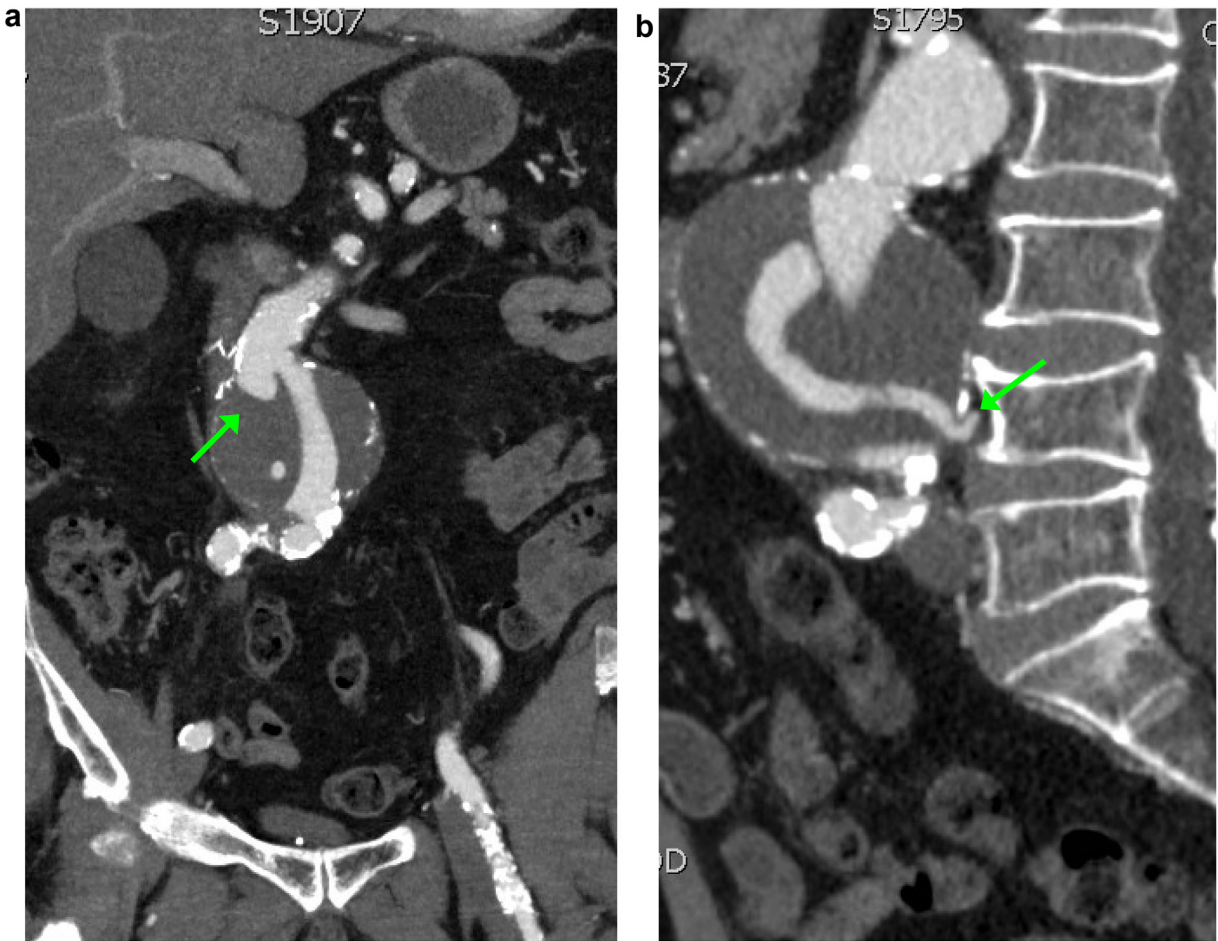


Fig. 1. (a) Computed tomography angiogram (CTA), coronal reconstruction view, showing Type Ia endoleak filling aneurysmal sac. (b) CTA sagittal reconstruction view demonstrating the type Ia endoleak associated with an outflow through a patent lumbar vessel (green arrow) that potentially will cause a type II endoleak.

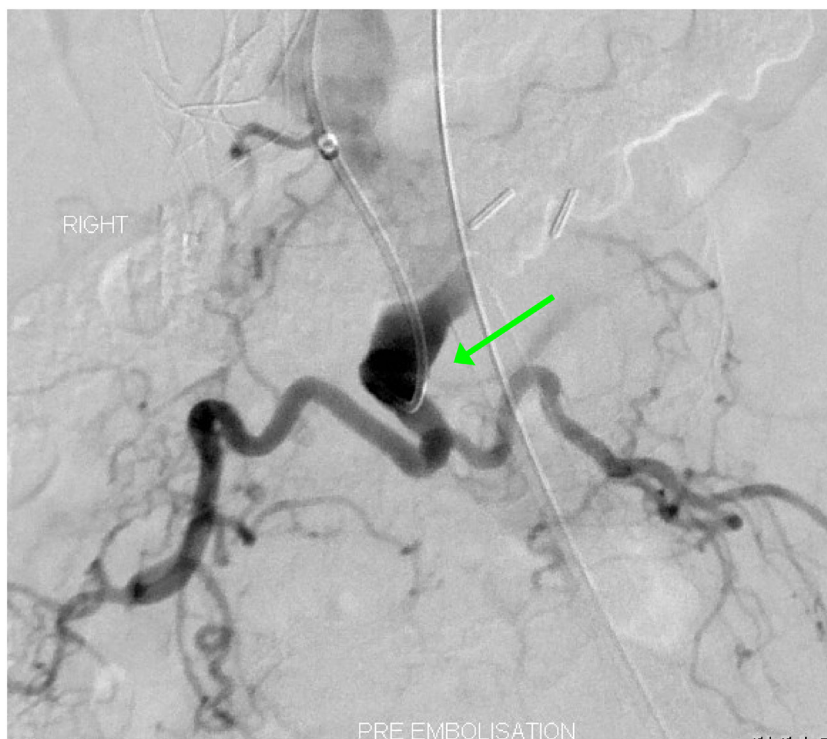


Fig. 2. Digital subtraction angiography (DSA) demonstrating outflow type II endoleak into patent lumbar artery and branches (green arrow).

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