EJVES Short Reports (2018) 40, 15—17

CASE REPORT

Surgical Treatment of Jejunal Artery Aneurysm

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Introduction: A jejunal artery aneurysm (JAA) is rare and has few specific symptoms. Endovascular repair is widely used in the treatment of jejunal artery aneurysms; however, some patients still require open repair.
Report: A 59 year old man underwent open surgery with resection of the aneurysm and reconstruction using a saphenous vein graft. Histopathological examination revealed heterotopic pancreas around the aneurysm.
Discussion: Inflammation as a result of heterotopic pancreas was suspected as the cause of JAA. The advantage of open repair is to explore intestinal ischaemia directly. Furthermore, revascularisation with a saphenous vein graft may remove the possibility of post-operative intestinal ischaemia.

Article history: Received 16 May 2018, Revised 6 August 2018, Accepted 7 August 2018,
Keywords: Heterotopic pancreas, Jejunal artery aneurysm, Open repair, Saphenous vein graft, Visceral artery aneurysm

INTRODUCTION

A jejunal artery aneurysm (JAA) is uncommon and most patients with JAA are asymptomatic or have vague, non-specific symptoms. Therefore, early clinical diagnosis before rupture is difficult.[1,2] Although endovascular repair is widely used in the treatment of JAAs, some cases which are anatomically unsuitable for catheter intervention (e.g. short neck, tortuous aorta) still require open repair.[1,3,4] This study is a report of a case of saccular aneurysm located in the proximal jejunal artery that was repaired with saphenous vein graft interposition.

CASE REPORT

A 59 year old man was treated for a 17 mm saccular JAA. He had no symptoms relating to the aneurysm. The JAA was detected incidentally by computed tomography which was performed to examine a pancreatic cyst found by abdominal ultrasound. CT revealed the aneurysm in the proximal portion of the first jejunal artery (Fig. 1A, B). Angiography confirmed that endovascular repair was not suitable because the proximal neck of the aneurysm was too short, with the possibility of obstruction of the main trunk of the superior mesenteric artery (SMA) with an endovascular device (Fig. 1C).

Surgical resection of the aneurysm was performed via midline laparotomy. The aneurysm was completely exposed by opening the mesojejunum, and mild adhesive inflammatory changes were detected around the aneurysm (Fig. 2A). After systemic heparinisation, both inflow and outflow across the aneurysm were clamped and the aneurysm was resected. There was no atherosclerosis or infection on the aneurysm wall. A saphenous vein graft was interposed with a 7-0 polypropylene suture (Fig. 2B). Exploration of the entire jejunum, ileum, and colon confirmed no ischaemic change.

The patient's post-operative course was uneventful and contrast enhanced CT revealed a patent saphenous vein graft (Fig. 3). Histopathological examination showed that there was medial degeneration of the arterial wall with a small nest of digestive glands, suggesting heterotopic pancreas (Fig. 4).

DISCUSSION

Splenic (60%), hepatic (20%), superior mesenteric (5.5%), coeliac (4%), and gastroduodenal artery aneurysms (4%) account for 95% of visceral artery aneurysms, whereas jejunal, ileal, and colic artery aneurysms account for only 3%.[1—3] JAAs are associated with a 30% risk of rupture and a 10—20% mortality rate,[2] therefore, it is generally considered that all symptomatic and isolated visceral artery aneurysms greater than 2 cm in diameter should be treated.[4]

In initial reports of JAAs, congenital anomaly was suspected as the major cause.[5,6] However, recent reports have described other potential aetiologies of JAA including atherosclerosis, fibrodysplasia, segmental arterial mediolysis, connective tissue disorders, trauma, inflammatory causes, and infections.[5—9] In the present case, histopathological examination revealed heterotopic pancreas around the aneurysm. Atherosclerosis, visceral degeneration, infection, fibrosis oxidation dysplasia, and congenital anomaly were considered as causes of the JAA. However, in

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https://doi.org/10.1016/j.ejvssr.2018.08.001

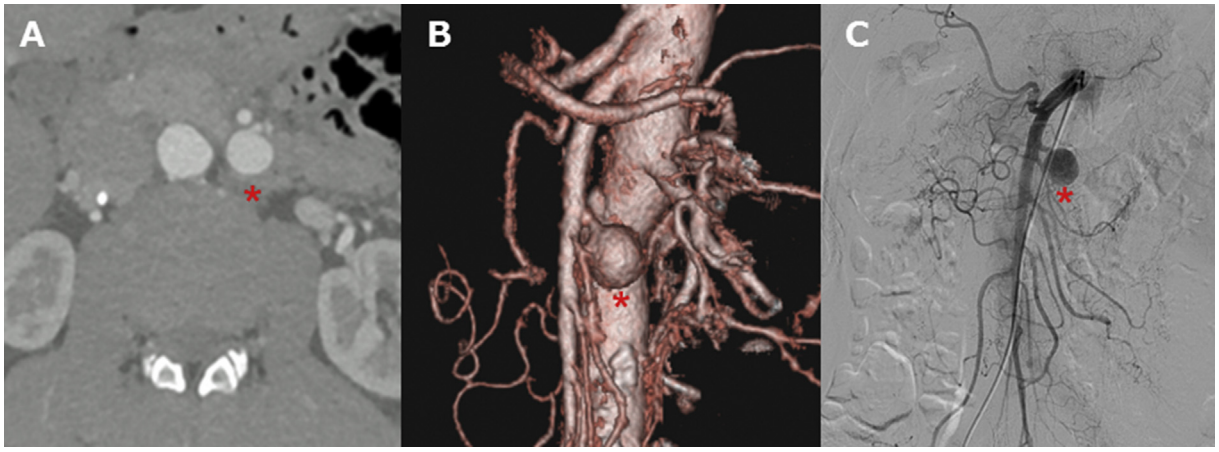

Figure 1. Pre-operative contrast enhanced CT (A, B) and angiography (C). Jejunal artery aneurysm (asterisk).

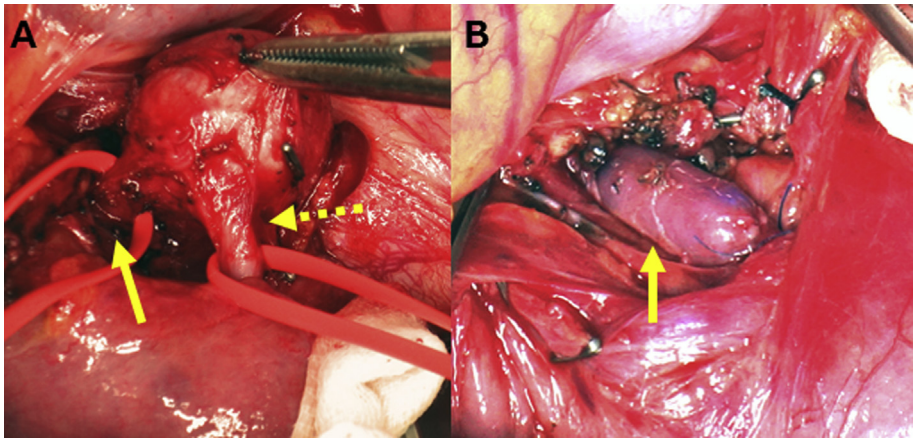

Figure 2. Intra-operative findings. (A) Inflow (solid arrow) and outflow (dot arrow) of the aneurysm. (B) Saphenous vein graft interposed.

this pathological examination, only ectopic pancreas was detected. No other studies have reported heterotopic pancreas as a reason for JAA. The result of pathological examination suggests that the JAA in the present case may have originated from heterologous pancreas. In some reported ruptured cases, emergency aneurysmectomy was performed for haemostasis and, commonly, additional enterectomy was required.[5,6] For suspected intestinal ischaemia, revascularisation should be considered. In elective cases, both open and endovascular repair have shown positive results.[1–4,7–9] It is evident that endovascular repair is less invasive compared with open repair. According to Sachdev et al., there was no significant difference between open repair and endovascular repair regarding mortality, post-operative complications, and re-intervention.[1] Endovascular repair is the gold standard for JAA repair, but open repair offers an alternative procedure for patients with contraindications to endovascular repair. Kurdal et al. reported a case of atherosclerotic JAA[3] in which the aneurysm was excised and reconstructed using a saphenous vein graft. On the other hand, Minaya-Bravo et al. excised a huge aneurysm and ligated the inflow and outflow vessels with a good result.[4] It is unclear which technique leads to better outcome, excision only or revascularisation. Generally, sufficient blood flow can be expected with collateral circulation and, in fact, there was no sign of intestinal ischaemia when the distal end of the aneurysm was clamped.[1–4] The advantage of open repair is that intestinal ischaemia can be assessed directly. For complete elimination of uncertainty

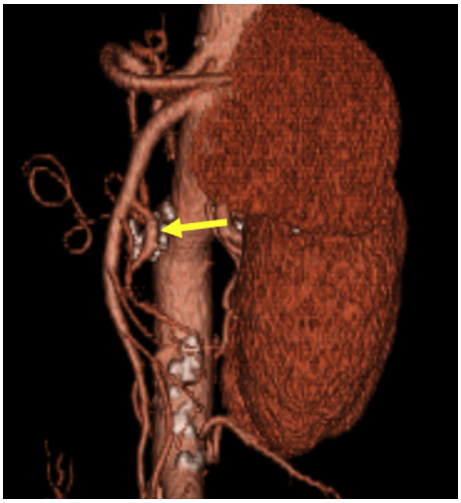

Figure 3. Post-operative computed tomographic scan. Patent saphenous vein graft (arrow).

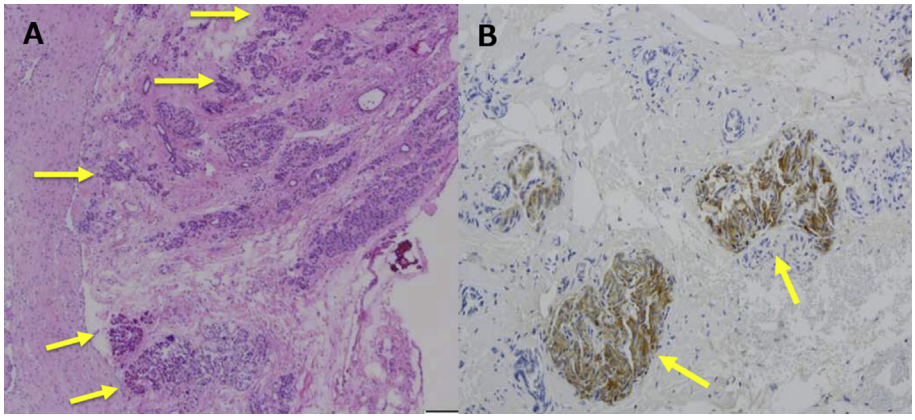

Figure 4. Histopathological examination of the aneurysm suggested heterotopic pancreas. (A) Heterotopic pancreas close to the tunica media (solid arrow). (B) Insulin staining positive islets of Langerhans.

about further intestinal ischaemia, the jejunal artery was reconstructed by saphenous vein graft without difficulty.

Endovascular repair using the isolation technique with the Amplatzer Vascular Plug (St. Jude Medical, MN, USA) and coil embolisation has previously been performed successfully for "middle" or "distal" JAA located in the arterial arcades or the vasa recta branching from the terminal arcades.[7–9] In the present case, the "proximal" JAA was located close to the origin of the SMA, before the branching arterial arcades.

In conclusion, an atypical proximal JAA was reported. Saphenous vein graft interposition was performed to prevent the risk of intestinal ischaemia; therefore, this procedure may be an alternative option for patients with proximal JAAs who are not suited to endovascular repair.

CONFLICT OF INTEREST

None.

FUNDING

None.

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