Pancreaticoduodenal Artery Pseudoaneurysm Caused by Segmental Arterial Mediolyis: A Case Report of Surgical Treatment

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A 64-year-old woman underwent surgical resection of a posterior inferior pancreaticoduodenal arterial aneurysm in the subacute phase of acute aortic dissection (AAD). Concomitantly, a distal pancreatectomy was also required. The aneurysm was approximately 20 mm in diameter. Surgical resection of the aneurysm was performed because endovascular treatment was considered to be technically difficult due to dissecting lesions that had remained at the abdominal aorta. Histopathological findings suggested this aneurysm to be a pseudoaneurysm, which had arisen as a result of segmental arterial mediolysis. Approximately 1 year after surgery, no recurrence of the aneurysms was detected.

Keywords: visceral artery aneurysm, surgical treatment, segmental arterial mediolysis

INTRODUCTION

Visceral artery aneurysm (VAA) is a rare disease, although the number of incidentally detected VAAAs has increased due to the development of imaging technologies, with incidence of approximately 1% in all populations. Various etiologies of VAAAs are known, such as inflammation, infection and atherosclerosis. The treatment for VAAAs is still controversial, and there is no definite guideline. We report a case of surgical resection of the posterior inferior pancreaticoduodenal artery (PIPDA) pseudoaneurysm.

CASE REPORT

We emergently performed ascending aortic and total arch replacement in a 64-year-old woman with Stanford A type acute aortic dissection (AAD) that reached the abdominal aortic bifurcation. Concomitantly, coronary artery bypass grafting to the right coronary artery was also required. After AAD surgery, the patient recovered normally and did not experience any specific symptoms. Follow-up computed tomography (CT) images obtained 23 days after AAD surgery revealed a VAA with enhancement, which appeared to lie in front of superior mesenteric artery (SMA) and behind the pancreas body (Fig. 1A). The aneurysm was approximately 20 mm in diameter, and the artery that seemed to be responsible was the PIPDA (Fig. 1A and 1B). This aneurysm could not be enhanced on CT images obtained before AAD surgery (Fig. 1C). Additionally, follow-up CT images showed that dissecting lesions remained at the abdominal aorta, especially around the orifices of the celiac artery, SMA and renal arteries. Percutaneous interventional approach with coil embolization could be one of available treatments to be performed, but endovascular treatment for this patient was considered to be so difficult technically and carry the risk of aortic rupture. Therefore, the surgical resection of the aneurysm was determined to be performed to prevent the aneurysm rupture.

The patient had undergone a total gastrectomy, including splenectomy and cholecystectomy, due to gastric...
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Closer observation showed intermittent disruption of the internal elastic lamina of the aneurysmal wall, known as “medial islands” (Fig. 2B). Vacuolar degeneration of the vascular media was also observed in the surrounding small arteries. These findings suggested that a pseudoaneurysm had arisen as a result of segmental arterial mediolysis (SAM).

The operation was completed uneventfully, and the patient recovered satisfactorily. There was no recurrence of the aneurysm visible on CT images obtained after the pseudoaneurysm resection, and good surgical results were confirmed. The patient walked without assistance when she was discharged from the hospital. Approximately 1 year after surgery, she was continuing to do well without recurrence of the aneurysms.

**Discussion**

The treatment for VAAs is still controversial, and the size of the aneurysm that can be at risk of rupture is unverified. Some reports described that VAAs larger than 2 cm in diameter might rupture; another reported the rupture of even small VAAs that were less than 2 cm in diameter. On the contrary, a report described that the risk of rupture of pancreaticoduodenal artery aneurysms might be lower than expected from data on ruptured aneurysms. Treatment decisions cannot be made on the basis of aneurysm size alone. Two strategies are available for management of VAA; endovascular treatment and surgical resection. Endovascular treatment, which includes coil embolization and stent grafting, is a less invasive technique than surgical resection. This...
reports described that VAAs caused by SAM may occur heterotypically or heterochronically. In this case, approximately 1 year after surgery, there is no recurrence of the aneurysm visible. Close follow-up is required to verify the recurrence of the aneurysms.

**Conclusion**

We report a case of surgical resection for the posterior inferior pancreaticoduodenal artery pseudoaneurysm. Etiologies resulting in asymptomatic visceral artery aneurysm were unclarified clinically, but histopathological examinations revealed to be the pseudoaneurysm which had arisen as a result of SAM.

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**Disclosure Statement**

We have no conflict of interest to disclose with respect to this paper.

**References**

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