

Rupture of an infected iliac artery pseudoaneurysm caused by asymptomatic gastrointestinal foreign body perforation

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journals.sagepub.com/home/imrYu Lun, Han Jiang, Shijie Xin and Jian Zhang 

Abstract

We report a unique case of a ruptured iliac artery pseudoaneurysm caused by asymptomatic gastrointestinal perforation and retroperitoneal abscess formation. A 46-year-old man presented to the Emergency Department of our institution. Angiography showed a ruptured iliac artery pseudoaneurysm caused by retroperitoneal abscess formation. After endovascular repair and surgical drainage, the cause of the abscess was finally identified as a toothpick. Findings from this case show that asymptomatic gastrointestinal foreign body perforation can be a rare, but insidious, cause of an infected pseudoaneurysm. Prompt surgical intervention is sometimes necessary when treating patients with arterial pseudoaneurysm caused by a perivascular abscess.

Keywords

Pseudoaneurysm, gastrointestinal, perforation, infection, foreign body, abscess

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Introduction

Pseudoaneurysms of the aorta and adjacent arteries are challenging. Common etiologies include trauma, infections, vasculitis, and iatrogenic complications.¹ Patients with ruptured, infected pseudoaneurysms are often hemodynamically unstable upon presentation, which complicates stabilization and definitive management of their

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condition. We report here a unique case of a ruptured iliac artery pseudoaneurysm attributable to asymptomatic gastrointestinal perforation and retroperitoneal abscess formation.

Case report

This case report was approved by the Institutional Review Board of The First Hospital, China Medical University and the patient provided informed consent for publication. A 46-year-old man presented to the Emergency Department of our institution with a 3-week history of left flank pain and hypotension for 1 day. Two weeks previously, he had been hospitalized at another medical facility because of a left psoas abscess. There was no history of tuberculosis, gastrointestinal disease, or any other systemic or inflammatory disease. On admission, he had a temperature of 38.5°C, a pulse rate of 130 beats/minute, and a blood pressure of 85/60 mmHg. Inpatient evaluation showed left lower quadrant tenderness without evidence of peritonitis. Active and passive movements of the left hip were painful. Laboratory testing showed a white cell count of 17.74×10^9 cells/L (normal range: $3.5\text{--}9.5 \times 10^9$ cells/L), C-reactive protein concentration of 240 mg/L (normal range: 0.0–8.0 mg/L), and hemoglobin concentration of 69 g/L (normal range: 130–175 g/L). Computed tomography (CT) showed a large left psoas abscess and newly developed left iliac artery rupture (Figure 1a, 1b). There was no evidence of bowel perforation on CT.

Intravenous broad-spectrum antibiotics were administered (cefoperazone/sulbactam, 3.0 g every 8 hours). Emergency angiography showed a ruptured left external iliac artery pseudoaneurysm (Figure 2a). The rupture was then excluded with an 8- × 50-mm Viabahn graft (W.L. Gore & Associates Inc., Flagstaff, AZ, USA; Figure 2b, 2c). The next day, after

stabilization of blood pressure, the patient underwent percutaneous drainage of the abscess. Purulent drainage culture was positive for *Enterococcus faecium*. Therefore, vancomycin (0.1 g twice daily) was added to the antibiotic regimen. Repeat CT, which was performed 2 weeks after the initial angiography, showed inadequate drainage, but an overall reduction in size of the abscess (Figure 1c). Therefore, the patient underwent debridement and drainage through an extraperitoneal incision, and a toothpick was unexpectedly found in the cavity during the procedure (Figure 3). A review of the original CT images identified the toothpick anterior to the left external iliac artery (Figure 1d). However, 1 week post-surgery, the drainage was sanguineous rather than purulent, which indicated rebleeding. Repeat angiography showed a new rupture at the distal landing zone of the stent (Figure 4a). An additional 9- × 100-mm Viabahn graft (W.L. Gore & Associates Inc.) was inserted (Figure 4b, 4c). The patient had an uneventful postoperative recovery, and was discharged from hospital 1 month post-surgery. He was advised to continue long-term oral antibiotic therapy (cefaclor, 0.25 g twice daily for 6 months). Two years post-surgery, the patient was asymptomatic, and follow-up duplex ultrasonography showed normal lower extremity blood flow.

Discussion

Ingestion of a foreign body is a common clinical phenomenon. Most foreign bodies travel through the intestinal tract without symptoms, but there may be an increased risk of morbidity and mortality when the ingested foreign body is a long, pointed, or rough object, such as a wooden toothpick. Interestingly, only 12% of such patients recall ingesting a toothpick, and only 14% of these ingested toothpicks are detected by radiological imaging.² In our

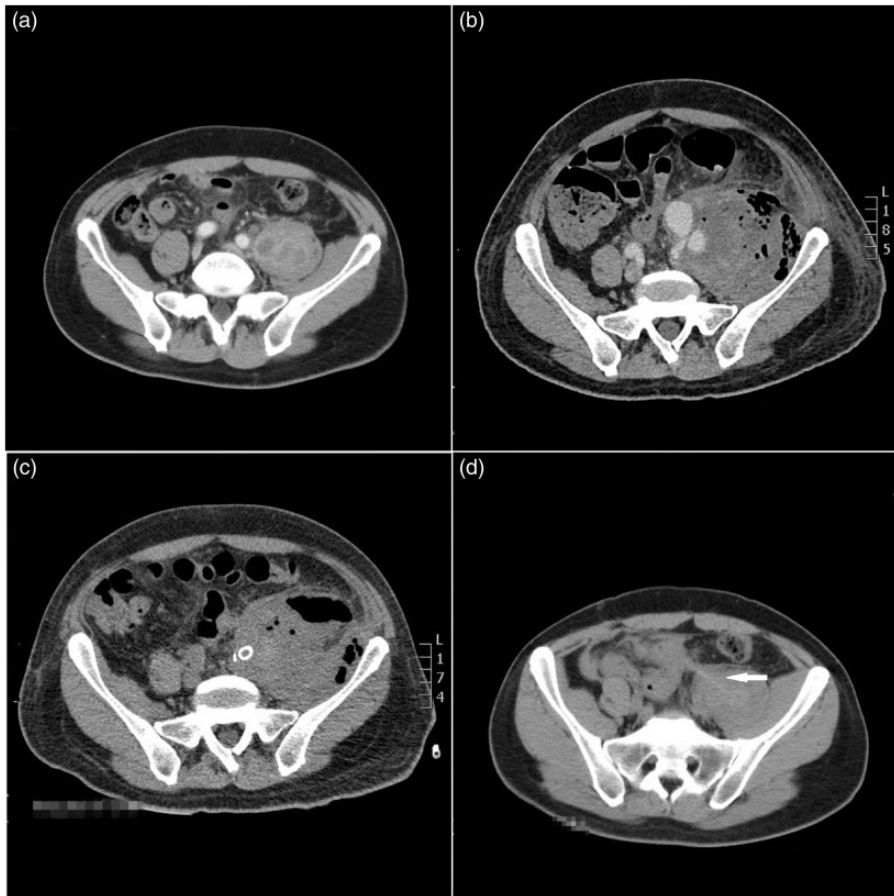


Figure 1. (a) Contrast-enhanced computed tomographic image of a left psoas abscess 2 weeks before admission. (b) Contrast-enhanced computed tomography on admission showing enlargement of the abscess and a newly developed left iliac artery rupture. (c) Non-enhanced computed tomographic scan taken 2 weeks after the initial angiography showing that percutaneous abscess drainage is inadequate. (d) Review of a computed tomographic scan performed 2 weeks before admission shows a toothpick in front of the left external iliac artery (arrow).

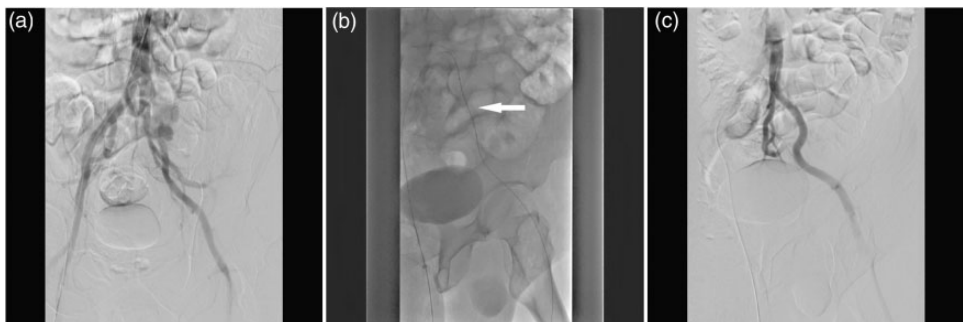


Figure 2. Emergency angiographic images obtained on admission. (a) Left external iliac artery pseudoaneurysm rupture. (b, c) The pseudoaneurysm was excluded with an 8- × 50-mm covered stent (arrow).

patient, the toothpick that had perforated the pelvic small bowel and pierced the left iliopsoas was identified during surgery, and was observed after reviewing the original CT images. Another interesting phenomenon in the present case is that the drainage culture results suggested intestinal bacterial translocation. However, these results were overlooked because most common causes of infected aneurysms are *Staphylococcus* and *Salmonella* species.³

Standard surgical treatment of infected aneurysms consists of debridement with extra-anatomical bypass or *in situ* graft placement, followed by long-term antibiotic therapy.¹ Accumulating evidence suggests

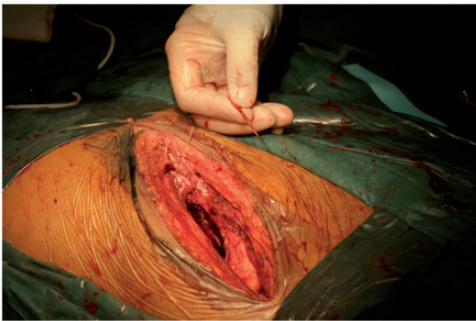


Figure 3. Photograph of the toothpick found in the abscess cavity during debridement

that endovascular treatment may be beneficial, especially in short-term management of patients who are deemed unfit for emergency open surgery.⁴ Stent grafts have also been successfully used to treat infected aneurysms in the uncontrolled active stage.⁵ However, subsequent surgical treatment can be challenging if the infection continues to progress after placement of a stent graft. Furthermore, *in situ* graft placement may not be possible in the presence of a juxtarenal aortic stent graft. Therefore, the indications for endovascular repair of infected aneurysms remain unclear.

In the present case, a covered stent was placed to control acute hemorrhage. Unfortunately, a longer stent was unavailable when the emergency angiography was conducted, which directly led to the second rupture after debridement. Other factors that contributed to the second rupture included loss of suppression from the surrounding tissues, iliac artery torsion, and erosion caused by the abscess. Percutaneous drainage of the abscess was inadequate in the present case. Early debridement and autologous repair may have been more appropriate in this case to avoid a slow recovery and the risk of rebleeding.

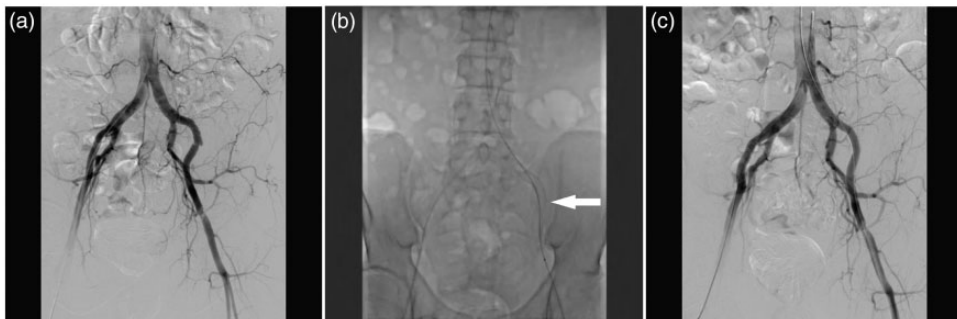


Figure 4. Angiographic images taken after debridement of the abscess. (a) A new rupture can be seen at the distal landing zone of the first stent. (b, c) A 9 × 100-mm covered stent was deployed within the 8 × 50-mm stent (arrow).

Conclusion

The present case provides evidence that asymptomatic gastrointestinal foreign body perforation may be a rare, but overlooked, cause of a retroperitoneal abscess and infected pseudoaneurysm. Prompt surgical intervention is sometimes necessary when treating patients with arterial pseudoaneurysm caused by a perivascular abscess.


Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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