Right common iliac artery pseudoaneurysm with arteriovenous fistula: a case report

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Background
Although exceedingly uncommon, iliac artery pseudoaneurysms might complicate trauma, surgical, or interventional operations.
Aim
We are presenting this case to emphasize how vital it is to rule out vascular lesions as a possible diagnosis when patients arrive with mass or pressure feelings in various body areas.
Result
Report of a 29-year-old man with a painful right lower abdomen pulsatile mass that turned out to be a pseudo aneurysm originating from the right common iliac artery, which was verified by contrast-enhanced CT and CT angiography. A large aneurysm connected to a fistula between the right common iliac artery and vein was discovered after open surgery where aneurysmal sac excised and PTFE interposition graft was used to reconstruct the artery and on follow up patient pass smoothly.
Conclusion
Serious implications might follow from misdiagnosing these lesions as soft tissue tumors or abscesses so it is paramount to put arterial lesion in differential diagnosis.

Keywords:
common iliac artery, iliac pseudoaneurysm, pseudoaneurysm

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Introduction

Aneurysms and other vascular lesions can affect many arteries throughout the body, making their discovery more likely to occur during regular examinations for symptoms like a sore mass. Such lesions may be difficult to detect, which might delay treatment and have disastrous consequences.

Case presentation

A 29-year-old man from Alhodidah province (Yemen) presented to the vascular clinic with 3-week history of mild right lower abdominal aching pain, which was an accidentally discovered associated mass. The pain was mild, not interfered with the patient's activity, and occasionally radiated to lower back. He had no other systemic manifestations and no significant past history of any medical diseases. The patient had a past history of surgical intervention in the lumbar vertebrae three years ago. On examination, a pulsatile mass was felt in the right lower abdomen with ill-defined borders, with palpable thrill and audible bruit, not tender, no change in skin over it, disappear with contraction of abdominal wall muscles, and no other abdominal mass. There was a scar over the lower lumbar vertebrae, the right lower limb showed dilated tortuous veins, and there was a weak pulse in comparison with the left leg. In light of these findings, the differential diagnosis included psoas abscess, appendicular mass, soft tissue tumors, and aneurysm. A massive fusiform pseudoaneurysm was seen to be growing from the location of the right common iliac artery's bifurcation after the patient underwent computed tomography (CT) scans of the abdomen, pelvis, and heart (Fig. 1). On CT scans of the aneurysm wall, thrombus-denoting peripheral hypodense, noncontrast-filled regions were seen. In addition, the right common iliac vein was in communication with the pseudoaneurysm. Although the source of the pseudoaneurysm was unclear, the patient did recall having had lumbar surgery 3 years ago.

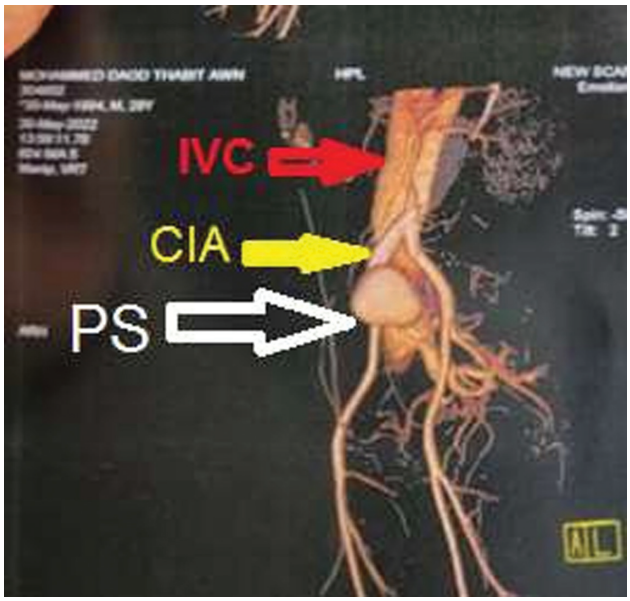
Management

A decision was made to do open surgery on the patient to remove the aneurysmal sac and repair the artery and vein. Transperitoneal access was attempted intraoperatively with proximal control of the distal abdominal aorta and exposure of all relevant arteries.

(1) Between the artery and vein, a sizable aneurysmal sac was discovered (Fig. 2a), which pointed to a

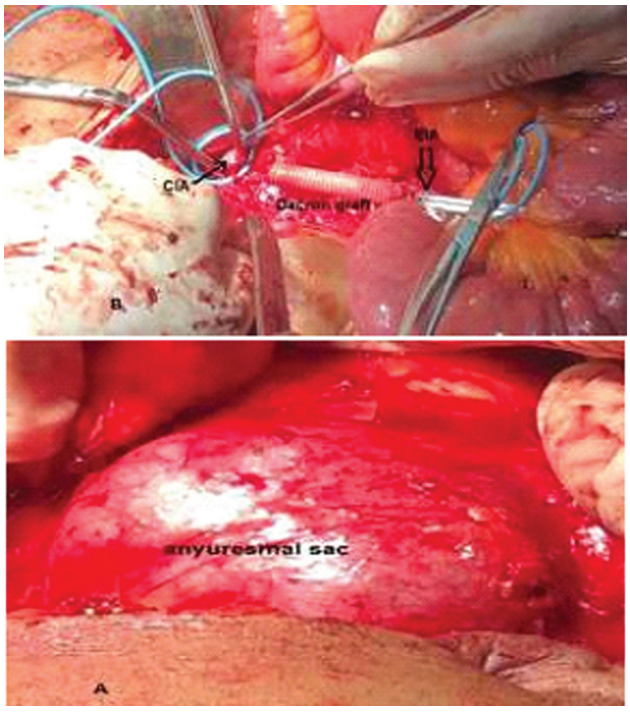
defect in the posterior-inferior wall of the artery's common iliac artery connect sac, which also linked to the common iliac vein. The big hematoma was evacuated as well as an aneurysmectomy. A graft made of polytetrafluoroethylene was used during an ilio-illiac bypass (Fig. 2b). The right illiac vein was repaired. We gave intraoperative heparin 5000 IU followed by clexan 60 mg 1×2×7 days and then rivaroxaban 10 mg for 2 months and lifelong aspirin 75 mg Once daily (OD).

Figure 1



Large contrast-filled structure in keeping with right common iliac artery (CIA), big fusiform focal pseudoaneurysm (PA), about 7×5×4 cm, early filling of dilated right common iliac vein, and inferior vena cava (IVC) going with arteriovenous fistula are all visible on 3D images of a CT angiography of the abdomen and pelvis. CT, computed tomography.

Figure 2



Intraoperative, (a) aneurysmal sac, (b), interposition synthetic graft.

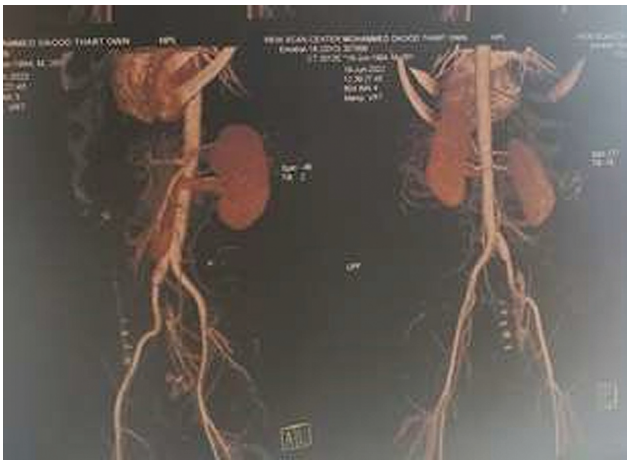
Outcome and follow-up

The patient's health improved after 3 days, and 2 weeks later, he was released. After surgery, a CT angiography scan indicated that the pseudoaneurysm was effectively closed, the common and external iliac artery was patent, and the aneurysmal dilatation of the inferior vena cava had decreased (Fig. 3). The patient was discharged with a strategy to periodically reassess the patient for any complications up to a year after the operation.

Discussion

Cases of iliac artery pseudoaneurysms are even less common and very rarely reported in the literature. Blunt or penetrating trauma is a common cause of pseudoaneurysms. Iatrogenic pseudoaneurysms have become more common recently as a result of surgical and interventional therapies. Both true and false aneurysms can be caused by infection. Connective tissue diseases, vasculitis, inflammation, and erosion brought on by cancer are among the recognized causes of pseudoaneurysms [1–3]. Although atherosclerotic aneurysms are mostly real, penetrating atherosclerotic ulcers have sometimes been seen to cause pseudoaneurysms. As there are no other risk factors in our instance, we hypothesized that it was produced iatrogenically by unintentional penetrating trauma during the prior lumbar surgery.

Figure 3



Right common iliac artery pseudoaneurysm effectively treated on postoperative CT angiography imaging with healthy-looking arteries. CT, computed tomography.

Patients may have a range of symptoms that put strain on the nearby structures. Patients with iliac artery pseudoaneurysms frequently have rupture, which is linked to a high death risk of close to 50% [4]. In our situation, an arteriovenous fistula was present along with fistula thrill, bruit, and dilatation of the ipsilateral leg's superficial venous system.

When an aneurysm is suspected, Doppler ultrasonography is a helpful first tool that can facilitate a speedy diagnosis. Since the invention of multidetector CT scanners, contrast-enhanced CT is recognized as the gold standard test with a high sensitivity and specificity. Catheter angiography, which was once regarded as the best diagnostic technique, has mostly been replaced by CT scan. Another advantage of CT is that it makes multiplanar reconstruction possible, resulting in images that are extremely detailed in both two and three dimensions [5].

Asymptomatic big aneurysms and symptomatic pseudoaneurysms that exhibit intermittent or persistent bleeding, fast enlargement, or both must be treated as in our case. It is debatable how to treat tiny, asymptomatic pseudoaneurysms. Most authors argue against conservative care as the natural course of these lesions is uncertain, despite the fact that they can spontaneously thrombose. Depending on the anatomical position and clinical situation, life-threatening spontaneous rupture may occur at any time. Therefore, according to several authors, intervention is required majority of the time [3].

Management should be individualized for each situation. To obtain the optimum approach for treating pseudoaneurysms, careful interpretation of imaging investigations, especially CT angiography, is still widely used to ascertain the appropriate therapy and subsequently limit the risk of problems. Despite the emerging role of endovascular treatment, surgery is still indicated in many cases. This is the method of choice in the presence of local mass effects and in cases where minimally invasive treatment has failed or inaccessible. Many authors recommend surgical treatment in patients with infected pseudoaneurysms.

For the treatment of these lesions, minimally invasive techniques such as percutaneous thrombin injection, endovascular therapy by embolization, and stent-graft is rising are used [2,3]. The use of noninvasive methods for the treatment of pseudoaneurysms has been proven in the literature to reduce patient morbidity and mortality [3,6–8]. In the literature, complications from this surgery have been described at rates as low as 4%. In our situation, minimally invasive procedures, including percutaneous thrombin injection, was initially excluded as this method fails to effectively control large pseudoaneurysms [1,3,9]. The choice of treatment depends on the aneurysm with wide neck, which is associated with the location of the pseudoaneurysm, the surrounding structures, the vascular anatomy, and patient comorbidities. Open surgery is the traditional method for treating arteriovenous fistula and still frequently employed [3], and also facility for endovascular intervention was not available.

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Conflicts of interest
There are no conflicts of interest.

References

1 Sueyoshi E, Sakamoto I, Nakashima K, Minami K, Hayashi K. Visceral and peripheral arterial pseudo aneurysms. AJR Am J Roentgenol 2005; 185:741–749.

2 Ferreira J, Canedo A, Brandão D, Maia M, Braga S, Chaparro M, *et al.* Isolated iliac artery aneurysms: six-year experience. Interact Cardiovasc Thorac Surg 2010; 10:245–248.

3 Saad NE, Saad WE, Davies MG, Waldman D, Fultz P, Rubens D. Pseudoaneurysms and the role of minimally invasive techniques in their management. Radiographics 2005; 25:S173– S189.

4 Arthur TI, Gillespie CJ, Butcher W. Pseudoaneurysm of the internal iliac artery resulting in massive per-rectal bleeding J Surg Case Rep 2013; 10:rtj 096.

5 Soto JA, Munera F, Morales C, Holguín D, Guarín O, Castrillón G, *et al.* Focal arterial injuries of the proximal extremities: helical CT arteriography as the initial method of diagnosis. Radiology 2001; 218:188–1894.

6 Chaer RA, Barbato JE, Lin CS, Zenati M, Kent K, McKinsey J. Isolated iliac artery aneurysms: a contemporary comparison of endovascular and open repair. J Vasc Surg 2008 47:708–713.

7 Bacharach JM, Slovut D. State of the art: management of iliac artery aneurysmal disease. Catheter Cardiovasc Interv 2008; 71:708–714.

8 Pitoulias GA, Donas KP, Schulte S, Horsch S, Papadimitriou D. Isolated iliac artery aneurysms: endovascular versus open elective repair. J Vasc Surg 2007; 46:648–654.

9 Gurel K, Gur S, Ozkan U, Tekbaş G, Önder H, Oğuzkurt L. US-guided percutaneous thrombin injection of post catheterization pseudo aneurysms. Diagn Interv Radiol 2012; 18:319–325.