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CASE REPORT

Lower limb pain and swelling: is it sciatica, DVT, or else?

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ABSTRACT

Background: Only 1% of all aortoiliac aneurysms could be presented with isolated internal iliac artery aneurysms with an incidence of 0.1% in the general population. Patients are mostly asymptomatic, yet they can present with clinical presentations related to aneurysm size and adjacent anatomical structures.

Case Presentation: We report the case of a 76-year-old male patient with ruptured isolated internal iliac artery aneurysm presenting as ecchymosis and severe thigh pain with redness and discoloration. The patient was known hypertensive, diabetic type 2, and had end-stage renal disease but was not on regular hemodialysis. The patient's vital signs and systemic and abdominal examination were unremarkable, further laboratory tests were also normal. There was no sign of surrounding cellulitis and all the peripheral pulses were intact and normal. Because of unclear diagnosis and repeated visits to the emergency department, the patient was admitted for further investigation to rule out malignancy. CT abdomen was conducted and it revealed a ruptured internal iliac artery aneurysm with an extension into the gluteal region.

Conclusion: Early diagnosis of isolated internal iliac artery aneurysm is difficult, as it is more easily detected when it is expanded or ruptured, which significantly increases morbidity and mortality rates and determines poor prognosis. Therefore, there are diagnostic as well therapeutic challenges. Surgical ligation is known as the most common management approach; however, the endovascular approach has shown promising outcomes, even in cases of a ruptured aneurysms.

Keywords: Ruptured aneurysm, iliac artery, neurological symptoms, leg swelling, DVT, case report.

Introduction

Only 1% of all aortoiliac aneurysms could be presented with isolated internal iliac artery aneurysms, with an incidence of 0.1% in the general population [1]. Patients are mostly asymptomatic, yet they can present with clinical presentations related to aneurysm size and adjacent anatomical structures such as pulsatile mass in the hypogastrium or iliac fossa, or urinary, gastrointestinal or neurological compressive symptoms. Such aneurysms could also be presented as an acute abdomen, especially when ruptured. Early diagnosis of isolated internal iliac artery aneurysms is difficult, as it is more easily detected when it is expanded or ruptured, which significantly increases their morbidity and mortality rates and determines poor prognosis. Therefore, there are diagnostic as well as therapeutic challenges. Surgical ligation is known as the most common management approach; however, the endovascular approach has shown promising outcomes, even in cases of a ruptured aneurysms.

Case Presentation

A 76-year-old male patient presented to the healthcare facility with a history of pain, redness, and discoloration of right thigh. The patient had two recent visits with the same complaints. Initially, the patient presented to the outpatient department because of pain in the right buttock which started 3 days prior to his presentation with no history of trauma or any other associated symptoms.

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The patient was known hypertensive, diabetic type 2, and had end-stage renal disease but was not on regular hemodialysis. The patient was diagnosed with muscular pain and discharged home on oral analgesics. The patient visited the emergency department again 6 days later with the same complaints. However, his examination did not change as well as his screening laboratory blood test were normal. The patient was assured and discharged home and was followed-up at the outpatient clinic.

The patient visited the emergency department 3 days later complaining of severe pain radiating all the way along the lateral border of the thigh and increasing redness and discoloration on the right thigh. The vital signs and systemic and abdominal examinations were unremarkable. Local examination revealed reddish blue discoloration of the right thigh with tenderness along the entire lower limb with bruising at the bilateral inflamed areas and right shin area. There was no sign of surrounding cellulitis and all the peripheral pulses were intact and normal. Laboratory blood tests were repeated including full coagulation panel and d-dimer level and all were reported within normal limits. Lower limb Doppler ultrasound studies were also reported as normal. Furthermore, abdominal ultrasound was carried out and reported as normal. Because of the unclear diagnosis and repeated visits to the emergency department, the patient was admitted for further investigation to rule out malignancy. CT abdomen was conducted and it revealed a ruptured internal iliac artery aneurysm with an extension into the gluteal region (Figure 1a-d).

Discussion

The isolated iliac artery aneurysm has diagnostic and therapeutic challenges. The most common etiology is a degenerative process of the vascular wall mainly associated with atherosclerosis [2]. Other causes include infection, trauma, iatrogenic, vasculitis, collagen diseases, and pregnancy. They could be clinically manifested by pulsatile mass, abdominal and/or lumbar-sacral pain, urinary, and gastrointestinal or neurological symptoms, in addition to thromboembolic phenomena [3]. Pulsatile palpable mass in the iliac fossa or at vaginal and rectal examination was found in 55% of the cases [1]. Pain could be either acute due to expansion or rupture or chronic due to compression of nerves and viscera [4]. Compression of ureters and bladder might trigger urinary symptoms (54% of cases) [5]. Intestinal loops could also be compressed leading to constipation, tenesmus, pain at rectal examination, and rectal bleeding [6]. Deep venous thrombosis and pulmonary embolism might result from compression of the iliac-femoral system [7].

However, majority of the iliac artery aneurysms are asymptomatic until rupture. Clinically, the classical triad of abdominal aneurysm rupture comprised acute and progressive pain, hypotension, and pulsatile mass which was presented in 38%-51% patients. When there is a rupture, the mortality rate in emergency surgeries ranges between 50% and 100%, which is significantly higher when compared with the rate of elective surgeries, usually lower than 10% [8].

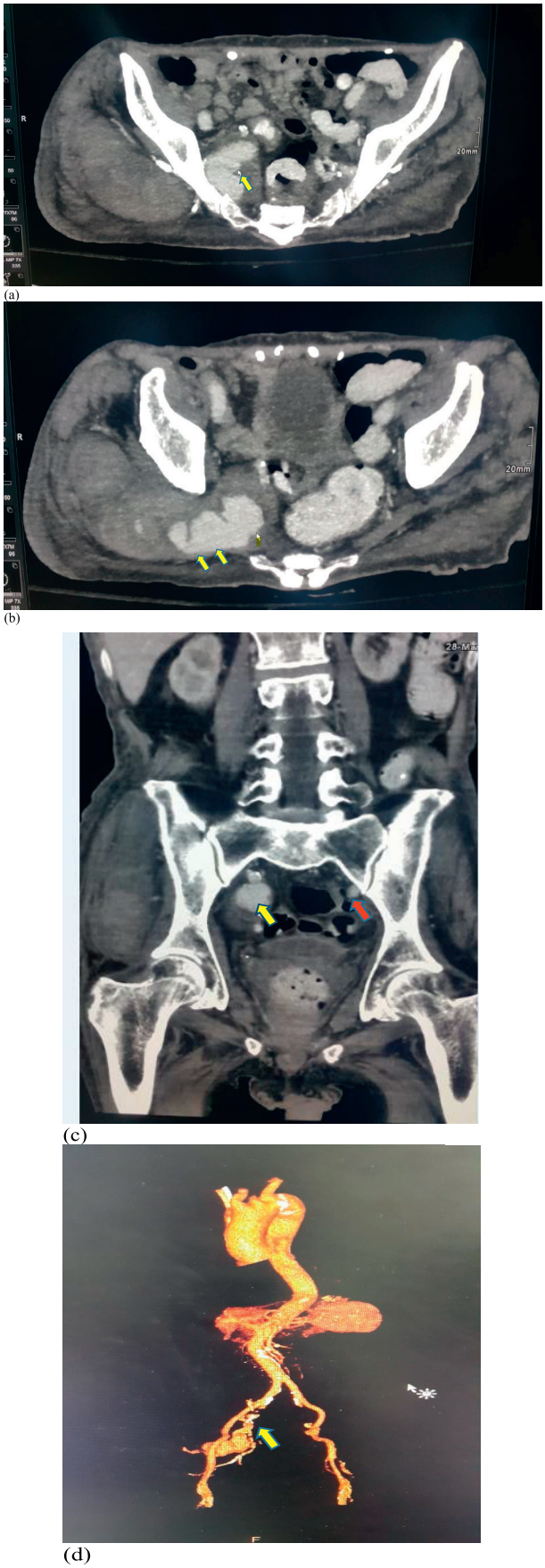

Figure 1. *(a) CT with contrast showing right internal iliac artery leak (yellow arrow). (b) CT scan showing the leak extending into the right gluteal region (yellow arrows). (c) Sagittal view showing the right side internal iliac artery leak (yellow arrow) comparing with normal left side (red arrow). (d) 3D reconstruction of Figure 1a-c depicting the leak (yellow arrow).*

The patient in this case report had intensive pain associated with compressive symptoms of pelvic structures and sciatic nerve, signaling a ruptured internal iliac artery aneurysm. Pelvic hematoma explained dysuria, oliguria, constipation, distension, and signs of intestinal loop impairment. Diagnosis of isolated aneurysms of the internal iliac artery is difficult in the early period, due to their deep location in the pelvis. They are usually found incidentally during surgeries, periodic examinations, investigations of other conditions, or autopsy. As in the presented case, it was found when the CT abdomen was carried out.

Angiographic tomography has been the gold standard for the diagnosis of such aneurysms [9]. It determines the location, size, tortuosity, aneurysm pathway, and relationship with adjacent organs, signs of rupture, and retroperitoneal hemorrhage [10]. Angiographic resonance is an exception method used in patients who could not receive iodinated contrast medium. Nowadays, angiography is only carried out when the other methods are not available.

Indication of intervention depends on the diameter of iliac aneurysm; those with diameters are lower than 3 cm could be treated conservatively and intervention is indicated for symptomatic patients and/or for those that had aneurysm in expansion or with diameter higher than 3 cm [11]. The treatment of isolated internal iliac artery aneurysms is a challenge due to their topography in the pelvis, large size at diagnosis, and risks offered by proximity with important adjacent structures. Surgical ligation has been the most widely used method. The endovascular treatment has also been used for iliac aneurysms including isolated internal iliac aneurysms. In the presented case, the endovascular approach was preferred and embolization was carried out successfully.

Aneurysm ligation could only be proximal or combined with distal ligation. In case of proximal ligation there is a lower risk of bleeding for being fast but risk of rupture might persist due to maintenance of retrograde intra-aneurysmal flow through the artery or collateral distal bleeding, and it does not solve compressive symptoms [12]. Thus, combined ligation is the treatment of choice for most patients. Resection is a less used technique due to fibrosis around the aneurysm, with increased risk of hemorrhage or damage to neighboring structures [3].

The use of endovascular surgery has increased due to its advantages such as enabling access to the femoral artery by percutaneous puncture, in addition to result in lower traumas, hemorrhages, need of blood derivate, and hospital stay [13]. Some studies compared endovascular and conventional treatments and showed similar results, with good outcomes in ruptured aneurysms. As was in the presented case.

There was no consensus in the literature about how to proceed in cases of bilateral aneurysms of the internal iliac artery. However, preserving one artery is recommended, since sexual impotence, colonic, vesical, and pelvic muscle ischemia are common complications associated with bilateral ligation of such arteries. Surgical repair using graft interposition is the most adequate therapeutic modality in such circumstances.

Conclusion

Isolated internal iliac artery aneurysms are rare and difficult to be diagnosed in the emergency department. Suspicion should always be very high especially in IV-drug abusers with injection marks in the groin area. Advanced imaging modalities should always be considered in cases of unexplained clinical presentation. It carries very high morbidity and mortality rates and prognosis is quite reserved, particularly in cases of ruptured aneurysms. Surgical vessel ligation and endovascular approach in these situations, is the most widely used technique to stop hemorrhage and to treat the aneurysm, avoiding extensive dissections and reducing surgical time.

List of Abbreviation

CT Computed Tomography
DVT Deep Vein Thrombosis

Conflict of interest

The authors declared that there is no conflict of interest regarding the publication of this case report.

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Consent for publication

Informed consent was obtained from the patient.

Ethical approval

Ethical approval is not required at our institute for an anonymous case report.

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