SHORT REPORT

Isolated Internal Iliac Artery False Aneurysm Presenting as Urinary Retention

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Introduction

Aneurysms of the internal iliac artery, whether atherosclerotic or not, are uncommon, especially those occurring in the absence of aortic or common iliac artery aneurysms. Silver et al., in a review of 671 patients with abdominal aneurysms, found only three (0.4%) isolated internal iliac artery aneurysms.1 Although the normal internal iliac artery is quite small, aneurysms are often very large and are associated with significant morbidity and mortality secondary to compression of adjacent structures or rupture into the pelvis.2 We report an unusual case of urinary retention related to a false aneurysm of the internal iliac artery.

Case Report

A 64-year-old male presented with a 2–3 months history of backache radiating to the right leg. He also experienced prostatism for a few months, followed by a 3-week history of urinary retention, which was treated by an indwelling urinary catheter. There was no previous history of trauma or pelvic surgery. He had smoked for 34 years.

Physical examination revealed a healthy patient with a blood pressure of 140/80 mmHg, and a heart rate of 90. On abdominal examination, there was a pulsatile mass in the right iliac fossa and bilateral reducible inguinal hernias. Rectal examination revealed a normal prostate with a high pelvic mass palpable anterior and superior to the prostate. All lower limb pulses were present.

Renal function was normal and the erythrocyte sedimentation rate (ESR) was moderately elevated (47 mm/h). Urine microscopy was normal with a normal prostatic specific antigen of 2.7. VDRL (Venereal Disease Research Laboratory) and TPHA (Treponema Pallidum Haemagglutination Assay) were negative and the HIV (1,2) test was non-reactive. Left ventricular ejection fraction was 55%, with acceptable pulmonary function tests and a normal ECG.

A CT scan of the abdomen showed an isolated aneurysm of the right internal iliac artery just distal to its origin, with no other aneurysms elsewhere. (Fig. 1(a) and (b)). Angiography confirmed a large aneurysm arising from the right internal iliac artery at the site of the takeoff of the right superior and inferior gluteal arteries. (Fig. 2). This aneurysm was felt not to be suitable for endovascular therapy.

The aneurysm was repaired surgically through a midline incision. After achieving control of the right common iliac and right external iliac arteries, and identification of the right ureter, the aneurysmal sac was opened and endoaneurysmal suturing of the right internal iliac artery, right superior and inferior gluteal arteries was performed to control back-bleeding. The post-operative period was uneventful and the patient was discharged home without an indwelling catheter.

The histology of the aneurysm wall confirmed it to be a false aneurysm (Fig. 3(a) and (b)).
Isolated aneurysms of the internal iliac artery are rare. Brin et al. reported that they are usually 3–8 cm in diameter and occur predominantly in men, with a 6:1 male to female ratio, and a mean age at presentation in males of 67.2 years. Despite the isolated nature of these aneurysms, 80% are atherosclerotic in nature. The remaining causes are childbirth with high forceps deliveries and caesarean section or congenital causes. Mycotic aneurysms of the internal iliac artery have been reported and are due to staphylococcus, Klebsiella, pseudomonas and salmonella. A false aneurysm of internal iliac is often associated with a contained leak of a ruptured artherosclerotic internal iliac artery aneurysm. Other possible aetiological factors include mycotic, predominately related to HIV infection, fibromuscular dysplasia, iatrogenic related to pelvic surgery and pelvic trauma (penetrating or non-penetrating trauma: pelvic fracture, and during childbirth—see above).

After review of all publications on internal iliac artery aneurysm, 321 cases have been reported with an incidence of around 0.04% of all aortoiliac aneurysms. Only two cases of gluteal artery false aneurysm and three cases of internal artery aneurysm presenting as urinary retention have been reported.

Early diagnosis is unusual because of the deep location of the artery, and the symptoms are related to the size of the aneurysm. Most authors recommend that the assessment of this type of the aneurysm should consist of plain abdominal radiography, IVU, barium enema, CT scan of the abdomen and pelvis, and angiography. Plain radiographs may show pelvic soft tissue opacification, curvilinear calcification and erosion of either the vertebral body or sacroiliac joint. CT scan is the preferred initial imaging modality. Angiography demonstrates the feeding vessels of the aneurysm and remains the gold standard imaging modality. More recently, spiral CT angiography and magnetic resonance angiography challenge this recommendation. However, we believe that CT scan combined with digital subtraction angiography provided enough details for definitive management.

Internal iliac artery aneurysms pose technical challenges because of the deep location in the pelvis and because of difficulty in gaining distal control of the internal iliac artery and its branches. The criteria for repair of asymptomatic aneurysms is a size greater than...
than 3 cm, depending on the age of the patient and associated comorbidities. Aneurysms of less than 2 cm are less likely to rupture. Surgery is recommended by most authors and should be performed as soon as the diagnosis is made. Elective surgical intervention has a mortality of less than 10%, while mortality as high as 80% has been reported with attempts at surgical repair after rupture.

There has been some evolution in surgical treatment over the years. Proximal ligation of the internal iliac artery is the oldest procedure, but carries a recurrence rate of up to 33%. This is because the aneurysm is still fed by collaterals, continues to expand and ruptures. It may be used in with high operative risk and short life expectancy. Aneurysm resection is prone to intraoperative complications due to the large size of the aneurysm and the presence of peri-aneurysmal fibrotic reaction. Proximal and distal ligation with insertion of an interposition graft is indicated when the contralateral internal iliac artery is occluded or when bilateral internal iliac artery aneurysms are being repaired, in order to avoid ischaemic damage to pelvic structures. Proximal control and endoaneurysmal ligation involves oversewing the individual collateral vessels from within the aneurysm sac. This is the treatment of choice for an isolated internal iliac artery aneurysm with a normal contralateral internal iliac artery. Endovascular techniques are the newest addition to the therapeutic armamentarium. Aneurysms can now be dealt successfully by transcatheter arterial embolisation (TAE) with or without the use of a stent. Razari et al. have shown that stents are functionally equivalent to proximal coil embolisation. The disadvantage of this technique is the inability to reduce the compression effects of the aneurysms.

This case illustrates several important points concerning internal iliac artery aneurysms including the difficulty in making the diagnosis due to the deep location in the pelvis. This patient presented with a pelvic mass complicated by urinary retention. Aneurysms of the internal iliac artery may rupture into the retroperitoneum, adjacent viscera, or iliac veins, or present as a false aneurysm. The surgical management may be very challenging, with tremendous blood loss within a short period of time.

In conclusion, internal iliac aneurysms are rare, especially so for false aneurysms. Early management will avoid the morbidity and mortality associated with rupture of the aneurysm. CT scan and angiography are crucial pre-operatively to plan adequate management. Asymptomatic aneurysms of greater than 3 cm should be considered for repair. Proximal control and endoaneurysmal ligation is the procedure of choice, and endovascular techniques should be reserved for patients not fit for surgery.

References

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