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Case report and literature review



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Surgical repair of a very large right common iliac artery aneurysm. Case report and review of the literature

AIM: Concomitant abdominal aortic and common iliac artery aneurysms occur in 40% of cases. However, giant common iliac artery aneurysms were rarely described in the current literature. The aim of the present study is to describe the successful treatment of a giant right common iliac artery aneurysm associated with infrarenal abdominal aortic aneurysm.

MATERIAL OF STUDY: We present a case of aorto-iliac aneurysm, with giant right common iliac artery aneurysm, responsible of bladder and right psoas muscle compression. Through a midline laparotomy, an aortobisiliac prosthetic repair was performed, associated with prosthetic revascularization of the right internal iliac artery and inferior mesenteric artery. RESULTS: Postoperative recovery was uncomplicated and the patient was discharged on postoperative day 7 in good health and has remained so up to the most recent 12-month follow-up.

DISCUSSION: Giant common IA aneurysms represent a very rare pathology, more often associated with infrarenal abdominal aortic aneurysm. After clinical examination, ultrasonography represents the first imaging modality to make diagnosis but CT scan is the gold standard for definitive conclusions, offering accurate anatomical details that are essential to choose the better strategy of treatment. Open surgery represents the gold standard, while endovascular repair has emerged more recently. However results about interventional treatment are not yet described in literature.

KEY WORDS: Giant common iliac artery aneurysm, Infrarenal abdominal aortic aneurysm, Surgical repair

Introduction

Most Iliac Artery (IA) aneurysms are extensions of atherosclerotic aortic disease. Giant IA aneurysms are very rare conditions and only few cases are described in the literature. In this article, we report a case of an 82-year-old man presenting constipation, pollakiuria and sudden onset of pain in the right iliac fossa, with a 6.3-cm

aneurysm of the infrarenal abdominal aorta associated with a 14.1-cm aneurysm of the right common IA and a 2.5-cm aneurysm of the left common IA.

Through a midline laparotomy, an aortobisiliac prosthetic repair was performed, associated with prosthetic revascularization of the right internal IA and Inferior Mesenteric Artery (IMA). The postoperative period was uneventful and 1 year later CT scan showed the patency of the bypasses. The case mentioned represents probably the largest IA aneurysm ever described in the current literature.

Case Report

An 82-year-old man with a history of coronary artery disease and aorto-coronary bypass, dyslipidemia and chronic obstructive pulmonary disease, came to our

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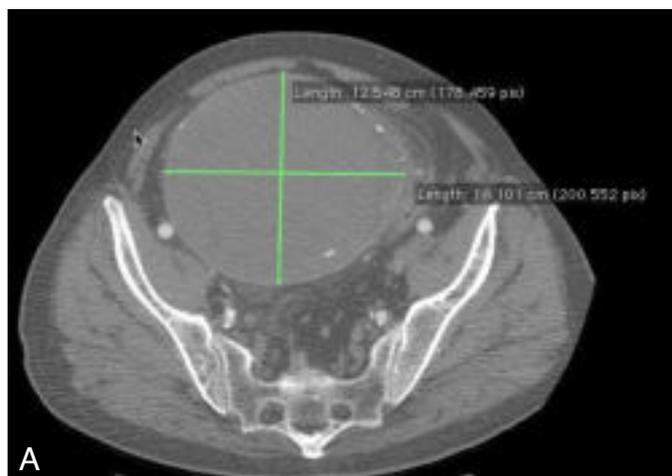


Fig. 1A: Contrast-enhanced axial computed tomography examination shows the transversal diameter of the giant right common iliac artery of 14.1 centimeters.



Fig. 1B: AngioTC of the same.



Fig. 2A: Coronal angioTC of the pelvis.



Fig. 2B: Contrast-enhanced computed tomography volume rendering images show the abdominal aortic aneurysm associated with a giant right common iliac artery aneurysm.

Institution complaining constipation, pollakiuria and sudden onset of acute pain in the right iliac fossa. Physical examination revealed an abdominal pulsatile mass and a painful and pulsatile mass in the right iliac fossa, compatible with an aorto-iliac aneurysm. The ultrasound confirmed the presence of an infrarenal abdominal aortic aneurysm involving the aortic bifurcation and revealed also a small left common IA aneurysm and a right giant common IA. The Computed Tomography

(CT) scan showed the tortuosity of the infrarenal abdominal aorta, with a maximum transversal diameter of 6.3 cm; the left common IA had a transversal diameter of 2,5 cm and the presence of a giant right common IA aneurysm measuring 14.1 cm was confirmed, with a true lumen of 3,5 cm and an eccentric non homogeneous thrombus (Fig. 1, Fig. 2). This giant aneurysm was responsible of bladder and right psoas muscle compression, causing pollakiuria and pain in the right iliac fossa.

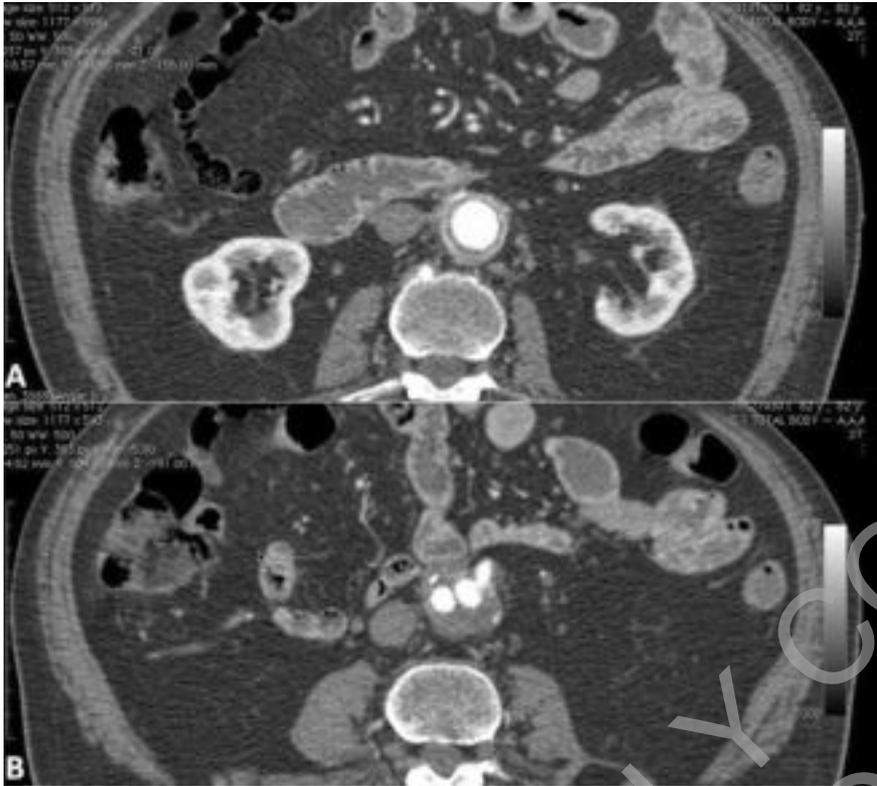


Fig. 3 A, B: Contrast-enhanced axial computed tomography examination shows aorto-prosthetic anastomosis (A) and a retrograde bypass from the left prosthetic leg to the inferior mesenteric artery (B).

The sudden onset of pain in the right iliac fossa, the abnormal dimension of the right common IA aneurysm and the presence of non homogeneous thrombus represented the main indications for urgently surgical repair. In general anesthesia, the patient was submitted to a midline laparotomy. The aorta was carefully dissected immediately below the renal arteries and the abdominal aneurysm was isolated for all its length. Distally the right common, external and internal iliac arteries were carefully dissected and isolated, to clamp distally all vessels. On the left side, only the common IA was dissected. After systemic heparinization, an occlusive clamp was positioned at the site of the proximal neck and, distally, the external and internal iliac arteries were also clamped. The aorta was opened longitudinally for all its length and transversally just below the renal arteries; the clamping of the right and left common IA was obtained by a Foley catheter. Then, the surgeon performed the proximal anastomosis between aortic wall and Dacron bifurcated graft. Distally, on the right side the anastomosis was performed between prosthesis and external IA; the internal IA was revascularized through a prosthetic bypass arising from the right leg of the main bifurcated prosthesis. On the left side, the anastomosis was performed between prosthesis and common IA; a retrograde bypass from left prosthetic leg and Inferior Mesenteric Artery (IMA) was performed. The wrapping of the graft with residual aneurysmal wall was done and after careful haemostasis check, the abdominal wall was traditionally closed.

Results

Postoperative recovery was uncomplicated and he was discharged on postoperative day 7 in good health and has remained so up to the most recent 12-month follow-up.

At this time, CT scan showed regular patency of the aortobisiliac prosthetic bypass (Fig 3A), and the patency of retrograde bypass from left prosthetic leg to IMA and of the right bypass from prosthetic leg to internal IA (Fig 3B).

Discussion

Giant common IA aneurysms represent a very rare pathology, more often associated with infrarenal abdominal aortic aneurysm, resulting from degenerative atherosclerosis.

Until today few cases of giant common IA aneurysms have been reported in literature¹⁻⁶.

Copaci et al.¹ presented the case of a 77-year-old man with a giant left IA aneurysm responsible of left hydronephrosis.

Fokou et al.³ described the case of a patient with left lower quadrant pain, a pulsatile mass with bruit, as well as a left hydronephrosis secondary to the ipsilateral ureter entrapment, and a motor and sensory deficit of the left lower extremity. A 13-cm large isolated inflammatory aneurysm of the left common IA associated with a 2.5

cm right common IA involvement were diagnosed. An aorto-ilio-femoral prosthetic repair associated to a left to right ureteral transposition was undertaken through laparotomy and bilateral femoral artery exposure.

Higashi and co-workers⁴ presented the case of an 82-year-old woman affected by frequent urination, with a pulsatile mass in the lower abdomen. A CT scan showed a giant (9 cm) aneurysm in the left common IA, with a 4.5 cm abdominal artery aneurysm. She was submitted to Y-graft surgery and the postoperative period was uneventful.

Ratchford et al.⁶ described the case of a 75-year-old asymptomatic man: a CT scan showed a right and left common IA aneurysm with a maximum diameter of 13.2 and 10.9 cm, respectively. He underwent to coil embolization of both internal IA and then to the endovascular aneurysm repair.

As in the majority of cases reported, our patient presented symptoms of compression such as constipation and pollakiuria, consequently to bladder and right psoas muscle compression caused by the giant IA aneurysm, associated with sudden onset of pain in the right iliac fossa. Our patient underwent to surgery and the postoperative period was uneventful.

Until now, the IA aneurysm described in our report is the largest common IA aneurysm ever reported in literature.

After clinical examination, ultrasonography represents the first imaging modality to make diagnosis but CT scan is the gold standard for definitive conclusions, offering accurate anatomical details that are essential to choose the better strategy of treatment.

Repair of IA aneurysms is recommended in cases of rapid expansion (> 1 cm in 1 year), presence of symptoms or size > 3.5 cm.⁷

While open surgery has been the traditional therapy, endovascular repair has emerged more recently for the treatment of common IA aneurysms with suitable anatomy.⁶ However, results about interventional treatment are not yet described in literature.

Conclusions

In conclusion, in patients with a pulsatile mass in the lower abdomen, the presence of an aneurysm should be suspected. Ultrasonography and CT scan are essential for a correct diagnosis and surgical repair represents the gold standard of treatment for giant common IA aneurysms. We recommend surgical treatment especially for bilateral IA aneurysm and when IMA needs revascularization: the embolization of both internal IA could expose the patient to an elevated risk of colon ischemia.

Riassunto

OBIETTIVO: La presenza contemporanea di un aneurisma dell'aorta addominale sottorenale e delle arterie iliache

comuni ricorre nel 40% dei casi. Gli aneurismi giganti delle arterie iliache rappresentano una patologia rara. Lo scopo del presente studio è quello di descrivere un caso di aneurisma gigante dell'arteria iliaca comune di destra associato ad un aneurisma dell'aorta addominale sottorenale, trattato chirurgicamente con successo.

MATERIALI E METODI: Nel presente studio descriviamo un caso di aneurisma aorto-iliaco, con un aneurisma gigante dell'arteria iliaca comune di destra, responsabile di compressione della vescica e del muscolo psoas, che rappresenta il più grande aneurisma iliaco descritto fino ad ora in letteratura. Attraverso una laparotomia mediana, è stato eseguito un bypass protesico aorto-bisiliaco, associato alla rivascularizzazione protesica dell'arteria iliaca interna destra e dell'arteria mesenterica inferiore. Non ci sono state complicanze nel periodo postoperatorio.

RISULTATI: Non ci sono state complicanze postoperatorie ed il paziente è stato dimesso in settima giornata in buone condizioni cliniche. A 1 anno dall'intervento il paziente ha eseguito Angio-TC di controllo che dimostra regolare pervietà del bypass, in assenza di complicanze.

DISCUSSIONE: Gli aneurismi iliaci giganti rappresentano una patologia molto rara. Dopo l'esame clinico, l'ecolor-doppler rappresenta la prima tecnica diagnostica ma solamente l'Angio-TC può dare tutti i dettagli anatomici necessari per scegliere il trattamento più adeguato. La chirurgia open rappresenta il gold standard per il trattamento, tuttavia recentemente è stato descritto un caso di trattamento endovascolare, ma non sono ancora noti i risultati a lungo termine di quest'ultimo tipo di trattamento.

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