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Case Report

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Common Iliac Artery Aneurysm: Diagnostic Challenges, Epidemiological Aspects, Surgical Management, and Clinical Implications. A Rare Case Report and Literature Review

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ABSTRACT
This article examines a rare case of an aneurysm of the left common iliac artery in an elderly man, who presented with atypical abdominal pain and no history of vascular comorbidities. The early recognition of symptoms, although non-specific, is crucial to prevent complications. This report discusses the challenges associated with diagnosis, options for surgical management, clinical implications, as well as epidemiological considerations regarding aneurysms worldwide.

Keywords: Arterial Aneurysm, Common Iliac Artery, Dacron Prosthesis, Bypass

Introduction

Common iliac artery aneurysms (CIAA) are rare vascular pathologies, accounting for approximately 2% of intra-abdominal aneurysms, but their potential for evolution necessitates rigorous clinical attention [1]. Their discovery is often incidental, and the formidable complications, particularly rupture, can jeopardize vital prognosis [2]. In this article, we present a rare case of CIAA, diagnosed in an atypical context, emphasizing the epidemiological, clinical, diagnostic, and therapeutic aspects, while analyzing the implications through a review of recent literature.

Case Report

We report the case of a 68-year-old man who presented to the emergency department with persistent abdominal pain, without notable medical history. The physical examination revealed abdominal tenderness, but no pulsatile mass, nor signs of peripheral circulatory insufficiency were noted. The initial biological tests did not reveal any significant abnormalities, and abdominal ultrasound was chosen as the first imaging modality. The diagnosis was complicated by confusion with a muscular and digestive pathology, resulting in a significant delay in treatment. The Doppler ultrasound revealed an aneurysm of the left common iliac artery measuring 4.9 cm, a location rarely reported. The CT scan of the abdominal aorta and the arteries of the lower limbs confirmed the diagnosis of an aneurysm, with no signs of compromised blood flow, while ruling out a rupture (Figures 1). The patient was scheduled for a referred surgical procedure. During the operation, under local anesthesia, a large partially thrombosed aneurysm of the common iliac artery was found extending into the common femoral artery (which was different from what the scan showed as a localized aneurysm). We went ahead with flattening the aneurysm and performed an ilio-femoral bypass with a Dacron graft (Figures 2). The post-operative recovery showed no complications.

Discussion

Common iliac artery aneurysms (CIAA) account for between 0.03 and 0.07% of all arterial aneurysms, but up to 25% are discovered incidentally during imaging performed for other indications [3]. They predominantly affect men over the age of 65, with a male to female ratio of 4:1, according to Smith et al [4]. The main risk factors include smoking, hypertension, dyslipidemia, family history of aneurysms, as well as cardiovascular conditions such as diffuse atherosclerosis or diabetes [5,6].

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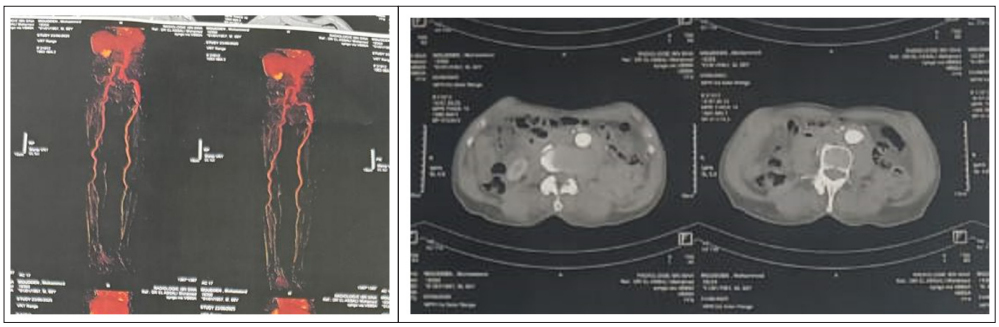
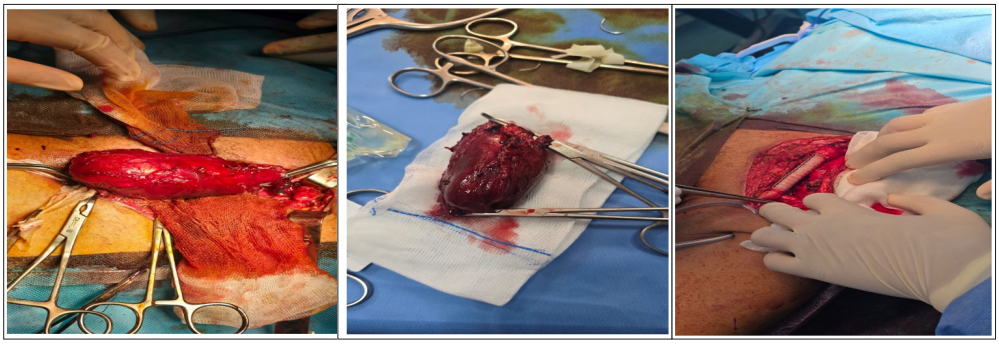


Figures 1: CT angiography showing the aneurysm of the left common iliac artery extending to the common femoral artery.



Figures 2: Images of the aneurysmal sac at the top and left iliofemoral bypass at the bottom (in the operating room)

A preference for the left common iliac artery is often reported. Faccenna et al. suggested some hemodynamic and anatomical reasons for this asymmetry, like the shape of the aortic bifurcation and the uneven distribution of atherosclerotic plaques [7]. Chan et al. agree that the left arterial wall experiences higher pressure at certain points, which could explain why it degenerates faster [8].

The atypical localizations of CIAA include extension towards the internal iliac artery, hypogastric artery, or lumbar region. Rare forms have been described with a low pelvic expansion, such as those reported by Hubert et al. [9], which may lead to compressions on structures such as the ureter, lumbosacral nerves, or the colon [10].

Most common iliac aneurysms are asymptomatic until rupture. However, when warning signs are present, they are often nonspecific: abdominal pain, low back pain, urinary or digestive disorders [7]. These vague symptoms frequently delay diagnosis [11].

Imaging plays a central role. Abdominal ultrasound is useful for screening but has limitations in deep pelvic locations. Computed tomography (CT) remains the examination of choice, providing a detailed assessment of anatomical relationships and aneurysmal diameter. MRI is sometimes used in young patients or those allergic to iodine, but it remains marginal. Liu et al. demonstrated in 2023 that CT is superior to MRI in terms of diagnostic accuracy in complex CIAA [12]. Furthermore, biomarkers such as D-dimers or CRP are being studied to detect inflammation or wall instability, although their clinical role remains to be confirmed [13].

The major complication is rupture, with hospital mortality reaching up to 90% according to Patel et al. [14]. Other complications include acute limb ischemia, distal embolization, visceral compressions, arteriovenous fistulas, and postoperative infections.

Postoperative pseudo-aneurysms are estimated to occur in 3 to 5% of cases and may appear long after surgery. Desai et al. emphasize the importance of long-term postoperative monitoring using Doppler or CT angiography [15].

Two therapeutic approaches are generally adopted, open surgery and endovascular repair (EVAR). The choice depends on the diameter (>3.5 cm), the morphology of the aneurysm, the overall condition of the patient, and local anatomy [5]. In our case, open surgery was preferred. This technique remains indicated in cases of complex anatomy, rupture, or ineffectiveness of EVAR.

Open repair with Dacron prosthesis proves to be durable, particularly for large or ruptured aneurysms. Rossi and Bruno report excellent long-term outcomes regarding the mechanical strength of Dacron, its low immunogenicity, and its durability [16]. This method allows for complete exclusion of the aneurysmal sac and reduces the risk of endoleak, a common complication in EVAR.

However, open surgery is not without risks. It is associated with a higher rate of perioperative morbidity, including hemorrhage, visceral ischemia, cardiorespiratory complications, and infections. Chen and Zhao report increased morbidity related to prosthesis infections, although these remain rare [17]. Other late complications reported include enteroprosthetic fistula formation and graft thrombosis. According to Müller and Duran, perioperative mortality is higher compared to EVAR, but open surgery remains preferable in certain anatomical configurations [18].

Conclusion

The aneurysm of the common iliac artery is a pathology that is rarely diagnosed, often associated with cardiovascular risk

factors. Our case emphasizes the importance of early diagnosis and a strategic approach in treatment. Due to its increasing prevalence among elderly patients, there is a need for heightened awareness to improve clinical outcomes. Given its often atypical clinical presentation, future research should focus on the identification of biomarkers for monitoring the pathology.

Author contribution

All authors have contributed to this work and have read and approved the final version of the manuscript.

Declaration of Competing Interest: the authors declare no conflict of interest.

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