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(CASE REPORT)

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Bilateral axillary artery aneurysm in a patient with end-stage renal disease: sequential surgical management: A case report

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Abstract

Background: Axillary artery aneurysms are rare, accounting for less than 1% of peripheral arterial aneurysms. Bilateral involvement is exceptional.

Case presentation: We report the case of a 63-year-old woman with hypertension and end-stage renal disease who presented with a progressively enlarging pulsatile mass in the right axilla. She had previously undergone surgical repair of a left axillary artery aneurysm 15 months earlier. Computed tomography angiography revealed a large partially thrombosed fusiform aneurysm of the right axillary artery extending to the proximal humeral artery. Surgical treatment consisted of aneurysm exclusion and axillo-humeral bypass using a ring-reinforced PTFE graft.

Results: The postoperative course was uneventful, with preserved distal pulses. Doppler ultrasound at one-month follow-up confirmed satisfactory graft patency.

Conclusion: Bilateral axillary artery aneurysms are extremely rare. Early diagnosis and surgical management are essential to prevent complications. Long-term surveillance is required, particularly in patients with chronic renal disease.

Keywords: Axillary artery aneurysm; Bilateral aneurysm; PTFE graft; Axillo-humeral bypass; End-stage renal disease.

1. Introduction

Axillary artery aneurysms are uncommon and represent a rare subtype of peripheral arterial aneurysms. They may result from atherosclerotic degeneration, trauma, infection, or repetitive overhead motion, particularly among athletes and manual laborers. Their progression may lead to thromboembolic events, neurological compression, or rupture, making prompt diagnosis and management essential. We present a case of bilateral axillary artery aneurysms treated sequentially, emphasizing the surgical approach and postoperative outcome.

2. Case Presentation

A 63-year-old woman with a history of end-stage renal disease on conservative management and well-controlled hypertension presented with a gradually enlarging mass in the right axillary region. She had undergone surgical repair of a left axillary artery aneurysm 15 months earlier.

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2.1. Clinical Examination

Figure 1 Clinical photograph showing a pulsatile mass in the right axillary region.

Physical examination revealed a pulsatile, expansile mass in the right axilla, tender on palpation, without motor or sensory deficits. Radial and ulnar pulses were palpable. (Fig. 1)

The left upper limb exhibited a well-healed vascular surgical scar with preserved distal pulses.

2.2. Imaging

Figure 2 Computed tomography angiography demonstrating a large fusiform aneurysm of the right axillary artery extending to the proximal humeral artery with partial thrombosis.

Computed tomography angiography demonstrated a fusiform aneurysm involving the right axillary artery and extending to the proximal humeral artery, partially thrombosed and measuring 50 × 84 mm (Fig 2)

2.3. Surgical Procedure

Given the risk of rupture and distal embolization, surgical intervention was performed through an extended delto-pectoral approach toward the right arm, allowing proximal control of the axillary artery and distal control of the brachial artery (Fig. 3).

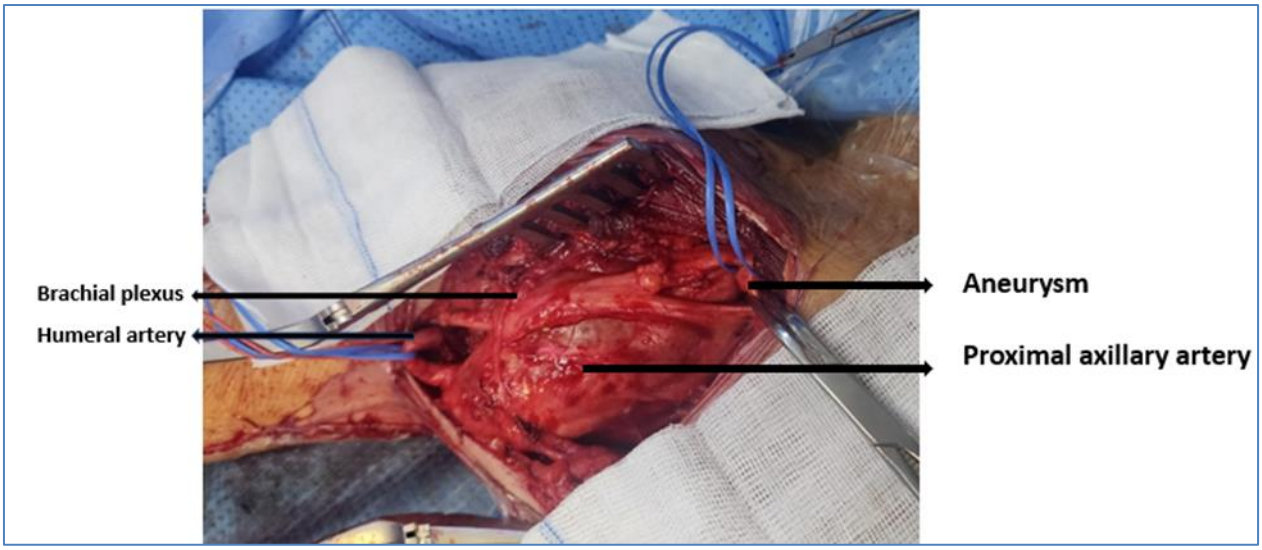

Figure 3 Intraoperative view showing the relationship between the aneurysm and the brachial plexus during surgical exposure.

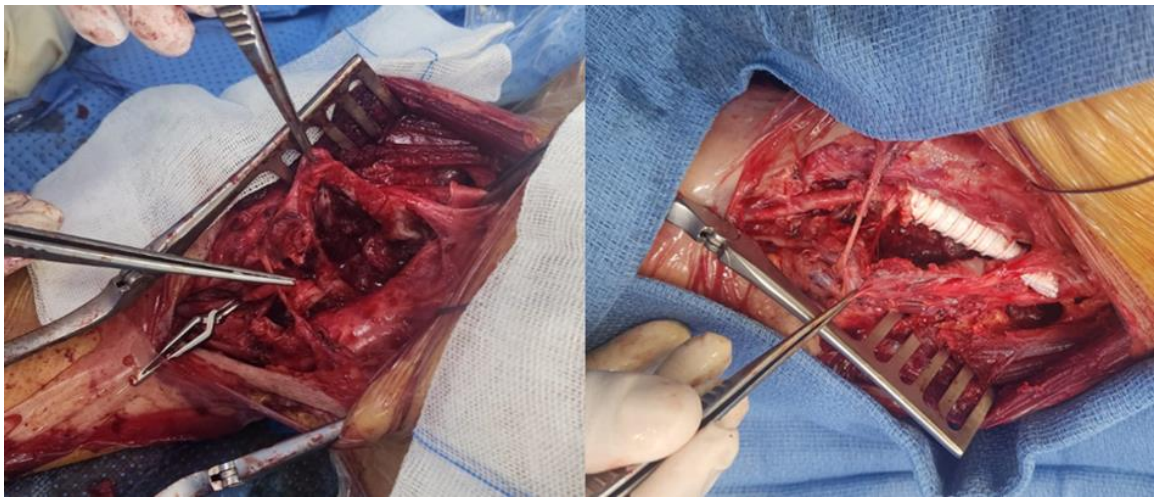

Figure 4 Intraoperative image showing construction of the axillo-humeral bypass using a ring-reinforced PTFE graft.

After opening and flattening the aneurysm, the healthy ends of the axillary and brachial arteries were prepared. An axillo-humeral bypass (Fig. 4) was then constructed using a ring-reinforced PTFE graft, due to the significant mechanical stress in this anatomical region.

2.4. Postoperative Course

The early postoperative course was uneventful. Distal pulses remained present. At one-month follow-up, Doppler ultrasound confirmed satisfactory graft patency .

3. Discussion

Axillary artery aneurysms are a rare vascular condition [1]. Their diagnosis is based on clinical examination, supplemented by CT angiography, which provides an accurate assessment of the extent of the aneurysm and the condition of the distal arterial bed [1][4]. In patients with chronic end-stage renal disease, vascular alterations related to uremia and repeated vascular access procedures may contribute to the development of aneurysms [3]. Other etiologies may also be encountered, including thoracic outlet syndrome, connective tissue disorders, and inflammatory or autoimmune diseases, among others.

Treatment is primarily surgical and consists on excluding the aneurysm and restoring arterial flow through the interposition of a graft. The choice of conduit depends on the patient's venous status. In our case, the use of a PTFE graft was justified by the poor quality of the venous network, in accordance with recommendations described in the literature [6].

We chose a reinforced graft because of the high mobility and significant mechanical stress characteristic of this transitional anatomical zone.

The bilateral presentation is exceptional and should raise suspicion of a diffuse arterial involvement [1][2]. In our case, the sequential management approach made it possible to preserve distal perfusion while minimizing operative risks.

4. Conclusion

Axillary artery aneurysms require rigorous clinical and radiologic evaluation. Surgical repair remains the treatment of choice, providing durable restoration of arterial continuity. Close follow-up is essential to ensure long-term graft patency.

Bilateral involvement underscores the need for long-term surveillance of both upper limbs, particularly in patients with diffuse vascular disease.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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