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Vascular Surgery

An Unusual Case of Spontaneous Saphenofemoral Arteriovenous Fistula

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Abstract **Case Report**

Spontaneous arteriovenous fistulas are rare and pose a diagnostic and therapeutic challenge. We report the case of a 14-year-old child presenting with a spontaneous fistula between the great saphenous vein at its junction and the common femoral artery. The patient underwent surgical treatment with good progress. We discuss the etiopathogenic hypotheses, symptomatology, diagnostic modalities, and therapeutic options.

Keywords: Arteriovenous Fistula, Spontaneous Occurrence, Great Saphenous Vein, Common Femoral Artery, Vascular Surgery, Endovascular Treatment.

INTRODUCTION

Spontaneous arteriovenous fistulas (AVFs) are exceptional and may originate from congenital conditions, such as Parkes-Weber syndrome, inflammatory processes, or vascular fragility. Their occurrence in the groin region, involving the great saphenous vein and the common femoral artery, is highly unusual. The literature on spontaneous AVFs remains limited, with most reported cases being post-traumatic or iatrogenic in nature [1, 2]. This case illustrates this pathology and discusses the available management strategies.

CASE REPORT

A 14-year-old child, with no history of trauma or vascular surgery, presented with a pulsatile, painless inguinal swelling associated with a local sensation of palpitations. The diagnosis was clinically established by the presence of a palpable thrill in the inguino-femoral region. Clinical examination revealed a systolic-diastolic murmur on auscultation. Doppler ultrasound demonstrated an abnormal communication between the great saphenous vein junction and the common femoral artery, confirmed by computed tomography angiography (Fig. 1). Comprehensive laboratory investigations, including an inflammatory biomarker panel, yielded unremarkable results, ruling out an underlying inflammatory or infectious etiology.

The patient underwent surgical treatment involving exclusion of the fistula and vascular repair (Fig. 2). The postoperative course was favorable, with resolution of symptoms and normalization of local circulation.

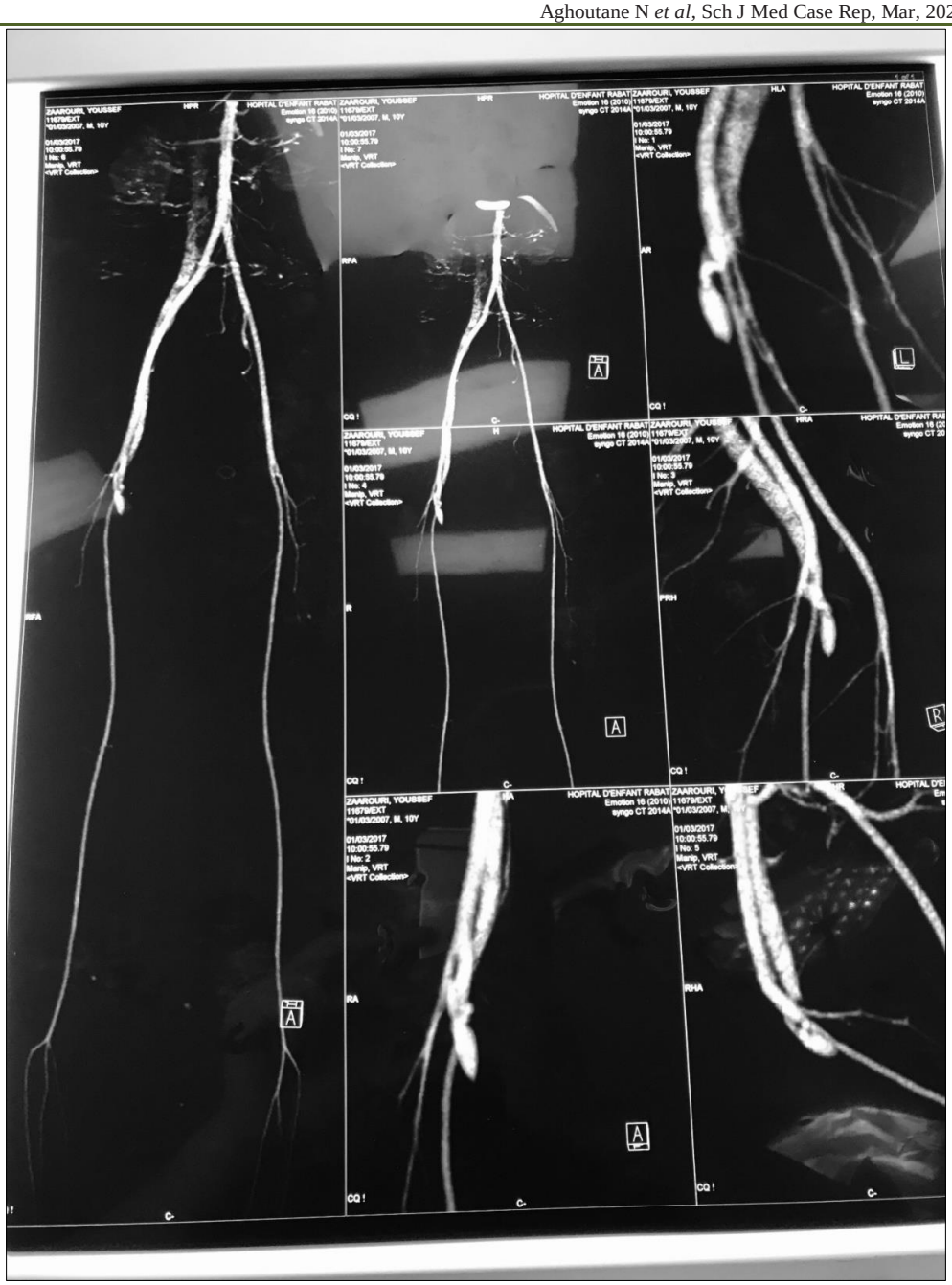

Figure 1: CT angiography with reconstruction showing a saphenofemoral arteriovenous fistula

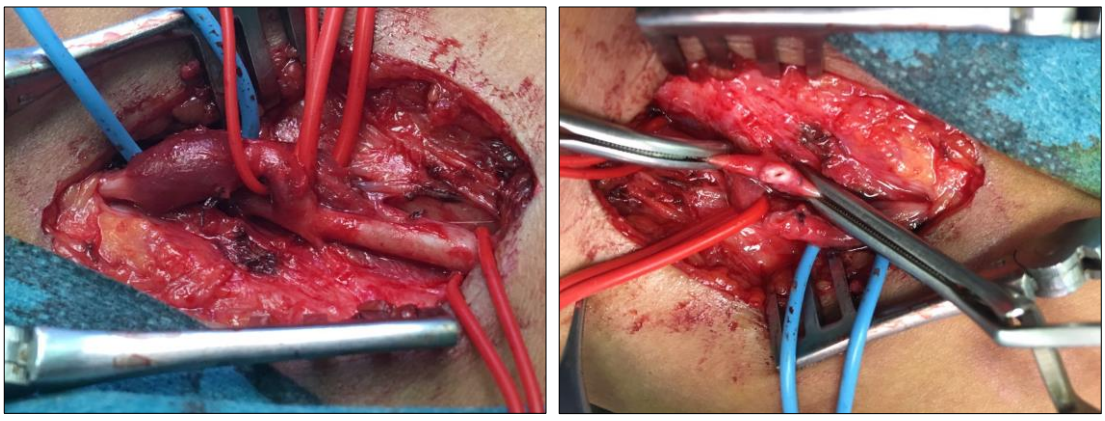

Figure 2: Operative view showing the saphenofemoral arteriovenous fistula

DISCUSSION

Spontaneous AVFs in the groin are exceedingly rare and may be associated with congenital vascular syndromes such as Parkes-Weber syndrome [3]. The exact pathophysiological mechanism remains unclear. Hypotheses include congenital anomalies, vascular degeneration, or underlying inflammatory processes, such as HIV-related arteritis, which has been linked to spontaneous AVF formation [4].

Diagnosis is primarily based on Doppler ultrasound and cross-sectional imaging (CTA, MRI) [5]. Treatment can be either endovascular or surgical, depending on the characteristics of the fistula and the clinical status of the patient.

Recent literature highlights the importance of early diagnosis to prevent complications such as venous hypertension, limb ischemia, or cardiac overload [6]. Some authors suggest endovascular approaches as a first-line treatment, particularly in cases where anatomical feasibility allows for embolization or stent-graft placement [7]. However, surgical repair remains the gold standard for complex or large AVFs [8].

CONCLUSION

This case illustrates an exceptional localization of a spontaneous AVF and underscores the importance of early diagnosis for optimal management. A better understanding of the underlying mechanisms is essential to adapt therapeutic strategies. Further studies are needed to establish standardized guidelines for managing such rare conditions.

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