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Lower Limb Thromboendarterectomy: Procedures, Advantages, and Risks-A Rare Case Report and Literature Review

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Abstract : This article provides a review of lower limb endarterectomy procedures, as well as their benefits and risks. It includes a report of a rare case of a young adult patient presenting with occlusion of the origin of the left superficial femoral artery.

Keywords: *Endarterectomy, Atherosclerosis, Lower Limb, Femoral Artery.*

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I. INTRODUCTION

Thromboendarterectomy is a surgical procedure that involves the removal of thrombus and atherosclerotic plaque deposits from arteries to restore normal blood flow. According to data from the World Health Organization (WHO), cardiovascular diseases are the leading cause of death globally, responsible for over 17 million deaths per year [1]. In young adults, this condition is less common and often associated with genetic factors or underlying pathologies [2]. We aim to detail the procedures, benefits, and risks of this life-saving intervention in the case of a 40-year-old young adult with no significant medical history, through a review of the literature.

II. CASE REPORT

A 40-year-old young adult patient, with no notable medical history or classical cardiovascular risk factors, presented with progressive intermittent claudication of the left lower limb. Clinical examination and supplementary examination through angiography revealed a focal stenosis of the left common femoral artery (Figure A). The patient underwent an endarterectomy under locoregional anesthesia: incision at the groin crease, clamping of the artery, opening, plaque extraction, followed by closure with a venous patch facilitating the restoration of arterial caliber (Figures B, C, D). Postoperative recovery was rapid, without major complications, with a significant clinical improvement confirmed at 6 months.

III. DISCUSSION AND LITERATURE REVIEW

Atherosclerosis, the primary cause of arterial stenoses, can lead to partial or complete occlusions of the arteries in the lower limbs, resulting in symptoms such as intermittent claudication or critical ischemia in severe cases. Endarterectomy is a surgical technique aimed at the direct removal of atheromatous plaques, improving local perfusion and reducing the risk of amputation. Despite its long history, it remains a standard treatment in certain cases, particularly among younger patients without major comorbidities [3,4].

Obliterative arteropathy of the lower limbs is more common after the age of 50. According to a study published in the Journal of Vascular Surgery, the predisposing factors for thromboendarterectomy include advanced age (≥ 65 years), male sex, a history of smoking, hypertension, diabetes, and dyslipidemia [5]. The prevalence of the disease increases with age, with a prevalence of 10.3% among individuals aged 60 to 69 years and 22.1% among those aged 70 years and older [6]. In young adults, the occurrence is rarer and often associated with genetic factors or underlying pathologies [2].

The prevalence among those under 50 is estimated to be around 2-5% in the global general population, with a higher

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frequency in men compared to women (the sex ratio is 2 to 3) [4]. Our patient was 40 years old, of normal build, without classic risk factors predisposing to cardiovascular diseases.

Thromboendarterectomy is an effective surgical procedure for treating peripheral arterial diseases. In the literature, several authors emphasize the choice between endarterectomy and other surgical or endovascular modalities depending on the location, length of the lesion, and patient profile. Chiche et al. point out that endarterectomy remains the standard for short and accessible lesions, providing excellent long-term control [4].

Possible techniques used in endarterectomy include open thromboendarterectomy, percutaneous thromboendarterectomy, and angioplasty with stenting [7]. Our patient underwent an open thromboendarterectomy with closure using a venous patch.

Certain authors mention risks associated with this technique. The surgical incision carries risks of infection, hemorrhage, and thromboembolism. Anesthesia, which is generally regional or general, adds an additional risk, particularly for fragile patients. The technique may require the use of patches to prevent narrowing at the incision site [3,8]. However, the authors point out that operational risks must be carefully evaluated, especially in young patients without prior medical history, in order to minimize complications. According to the literature, comorbidities such as heart failure, chronic obstructive pulmonary disease, and chronic kidney disease also increase the risk of postoperative complications [9].

Preventive medical care is essential to prevent complications and improve outcomes. Current recommendations include blood pressure control, diabetes management, lipid reduction, and smoking cessation [10].

IV. CONCLUSION

Thromboendarterectomy is an effective surgical procedure for treating peripheral arterial diseases. The predisposing factors for this condition include age, male sex, history of smoking, hypertension, diabetes, and dyslipidemia. The prevalence of the disease varies according to age, sex, and comorbidities. Preventive medical and surgical management is essential to prevent complications and improve outcomes.

- *Figures*

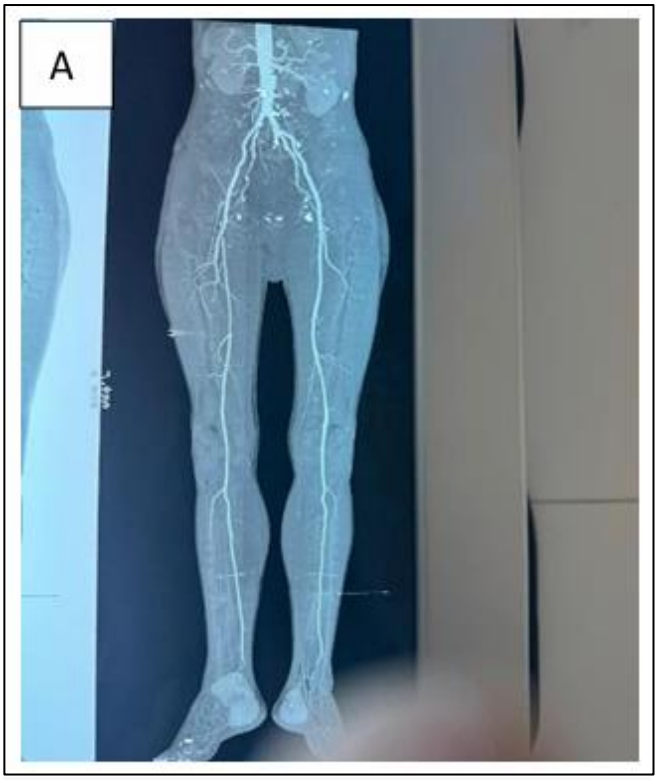

Fig 1 (A) Angiography Showing the Occlusion of the Origin of the Left Superficial Femoral Artery.

Fig 1 (B) The Arteriotomy Followed by Exposure of the Thrombus in the Lumen of the Left Superficial Femoral Artery (SFA).

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Fig 1 (C) Placement of the Venous Patch on the Left SFA (Lateral-Lateral Suture on the SFA).

Fig 1 (D) An Image of the Removed Thrombus

➢ *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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