

LeRiche Syndrome (Aortoiliac Occlusive Disease) with Superficial Femoral Artery Occlusion Treated by Aorto-Iliac Reconstruction with Superficial Femoral Artery Angioplasty

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Abstract

LeRiche Syndrome, characterized by a combination of intermittent claudication, erectile dysfunction, and absent femoral pulses due to atherosclerotic occlusion of the aortoiliac and femoral arteries, presents significant diagnostic and therapeutic challenges. This report explores the case of a patient with LeRiche Syndrome with superficial femoral artery (SFA) occlusion, treated by combination of aortoiliac revascularization and SFA angioplasty. Preoperative imaging, including angiography, revealed aortoiliac occlusion with complete occlusion of the SFA. The patient underwent successful revascularization of the aortoiliac arteries with stenting, followed by angioplasty of the occluded SFA. Postoperative recovery was uneventful, with significant improvement in symptoms, including resolution of claudication and restoration of femoral pulses. This case underscores the importance of comprehensive vascular evaluation and individualized treatment strategies for managing LeRiche Syndrome, highlighting the role of combined aortoiliac revascularization and SFA angioplasty in achieving favourable outcomes.

Keywords: LeRiche Syndrome; Superficial Femoral Artery Occlusion; Aortoiliac Revascularization; Angioplasty; Peripheral Arterial Disease; Endovascular Treatment.

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INTRODUCTION

Leriche Syndrome is a rare but severe form of peripheral arterial disease (PAD) that occurs due to significant stenosis or occlusion of the aortoiliac segment. This condition leads to ischemia in the lower extremities and can present with classic symptoms such as claudication, erectile dysfunction, and absent femoral pulses.¹ While the disease is often associated with occlusion of the aortoiliac arteries, it can also involve the SFA, complicating the clinical picture and requiring more advanced therapeutic strategies. Early diagnosis and management are crucial to prevent irreversible ischemia and preserve limb function.²

CASE PRESENTATION

A 53-year-old male with a history of hypertension, hyperlipidemia, and smoking presented to with complaints of bilateral lower extremity claudication, decreased exercise tolerance, and impotence for the past 6 months. His symptoms were progressive, and he reported an inability to walk more than 50 meters without severe leg pain. The patient also reported a loss of femoral pulses bilaterally and described erectile dysfunction for the same duration. He had no history of trauma, but his past medical history was notable for a 25-pack-year smoking history.

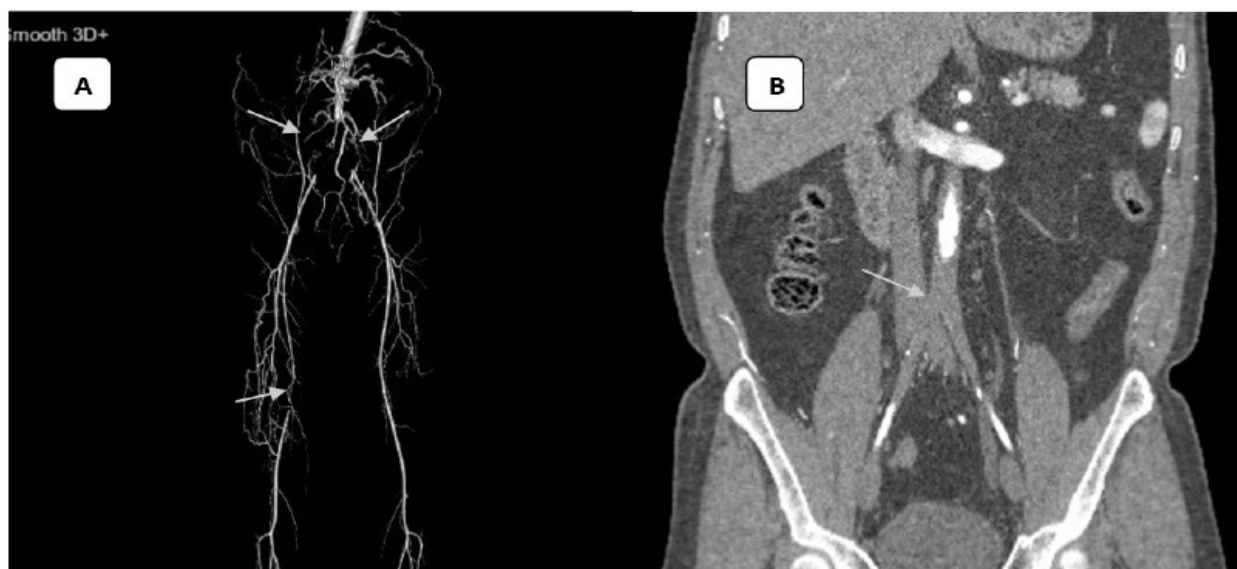


Fig. 1: (A) CT angiography VR image shows complete aorto iliac occlusion and right SFA occlusion
(B) CT angiography coronal image shows complete aorto iliac occlusion

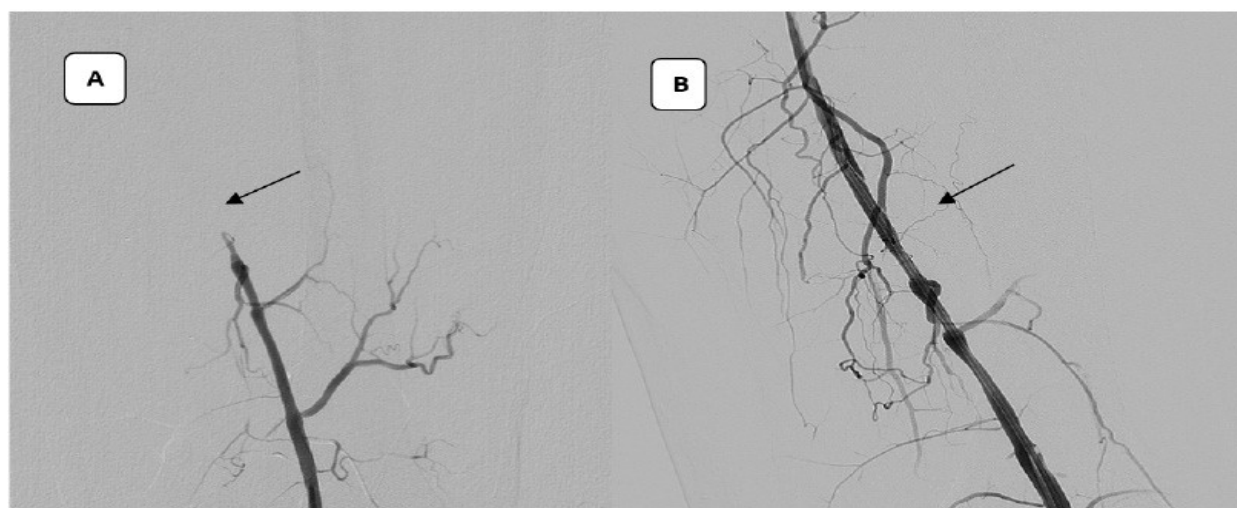


Fig. 2: (A) Popliteal artery angiography image shows complete right SFA occlusion
(B) Angiography image shows complete SFA recanalization

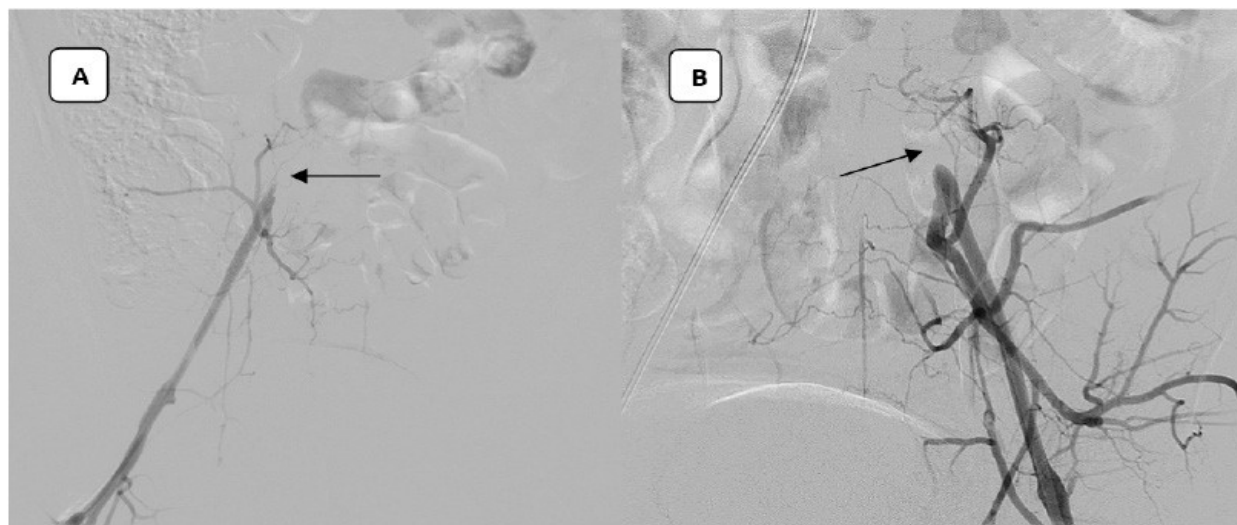


Fig. 3: (A) Right femoral artery angiography image shows complete right iliac artery occlusion
(B) Left femoral artery angiography image shows complete left iliac artery occlusion



Fig. 4: (A) Image shows kissing balloon angioplasty
(B) Angiography image shows complete recanalization of aorto iliac occlusion

On physical examination, the patient had diminished or absent femoral and distal pulses in both legs. His bilateral lower extremities were cool to the touch, with no signs of skin ulcers or gangrene. CT angiogram was performed, which confirmed the findings of extensive aorto-iliac occlusion and right SFA occlusion. The right SFA showed total occlusion with collateralization, and there was a significant reduction in blood flow to the lower leg. The iliac vessels showed complete occlusion with diminished flow to the femoral arteries.

Given the severity of the occlusion and the patient's debilitating symptoms, a decision was made to proceed with intervention. The treatment plan

was aorto-iliac reconstruction with kissing stents and superficial femoral artery angioplasty. Under local anaesthesia procedure was done. Through right popliteal route angiography was done, which showed complete occlusion of distal SFA. Balloon angioplasty done with 4x 40 mm balloon. Postangioplasty showed good recanalization of SFA. Through bilateral femoral puncture lower limb angiography was done, which showed complete occlusion of distal aorta and bilateral iliac arteries. Balloonplasty done for aorta and iliac arteries with 12x60mm, 6x100mm, 6x80mm balloons, subsequently 6x100mm, 6x100mm self-expanding stent deployed in aorta and bilateral iliac arteries. Post stenting good flow noted across aorta and bilateral iliac artery stents. The patient was

monitored postoperatively in the intensive care unit and then transferred to the ward. Antiplatelet therapy (aspirin and clopidogrel) was initiated, and he was managed with a regimen for blood pressure and lipid control.

The patient experienced an uneventful recovery and was discharged on the 3th postoperative day. Follow-up at 1, 3, and 6 months demonstrated significant improvement in his claudication symptoms.

DISCUSSION

Leriche Syndrome, also known as Aortoiliac Occlusive Disease (AIOD), is a form of peripheral arterial disease (PAD) characterized by a progressive occlusion or narrowing of the aortoiliac arteries. It typically affects the aorta and the iliac arteries, leading to reduced blood flow to the lower extremities. The hallmark of the syndrome is the triad of symptoms: claudication (pain or cramping in the legs due to exertion), impotence, and diminished or absent pulses in the legs.³ The condition most often occurs in individuals with risk factors such as smoking, hypertension, diabetes, and hyperlipidemia. In addition to the primary involvement of the aortoiliac arteries, there is frequently concurrent occlusion of other lower extremity arteries, including the superficial femoral artery (SFA). The involvement of the SFA complicates the clinical picture and presents additional challenges in management. The SFA is a critical artery in supplying blood to the lower leg. In the case of Leriche Syndrome, in addition to the aortoiliac occlusion, the SFA may be occluded due to atherosclerotic disease.⁴ This dual occlusion further impairs circulation and contributes to the worsening of symptoms. SFA occlusion can result in severe claudication and may progress to critical limb ischemia, requiring immediate medical intervention.

Clinical presentation includes claudication, impotence, absent or weak pulses, critical Limb ischemia, in more advanced stages, patients may experience rest pain, non-healing ulcers, or even gangrene.⁵ The treatment for Leriche Syndrome and associated SFA occlusion typically involves a multi-faceted approach that may include medical management, endovascular procedures, or surgical intervention.

Medical Management includes lifestyle modification (smoking cessation, diet, and exercise), pharmacological therapy (antiplatelet

agents, statins, and antihypertensive medications), and management of underlying conditions like diabetes and hyperlipidemia. However, these measures are often insufficient in severe cases with significant arterial occlusion.⁶ Endovascular Interventions includes angioplasty, stenting, and other endovascular techniques are increasingly used to treat both aortoiliac and SFA occlusions. These minimally invasive procedures can provide significant symptom relief and improve blood flow.⁷ Surgical Management is advised for more advanced cases, aortoiliac reconstruction is necessary to restore blood flow to the lower extremities. This often involves bypass surgery, where a graft is used to reroute blood around the blocked section of the iliac arteries.⁸ In cases where the SFA is occluded, angioplasty of the femoral artery may be needed to restore adequate blood flow. Advantages of endovascular treatment are early post procedure recovery and minimally invasive. Complications can be bleeding, hematoma, infection, restenosis or reocclusion of the treated arteries.

CONCLUSION

Leriche Syndrome with SFA occlusion presents a complex challenge in the management of peripheral arterial disease. Aortoiliac reconstruction, when combined with superficial femoral artery angioplasty, offers a comprehensive approach to restoring blood flow and alleviating symptoms in these patients⁹ While this combined treatment has shown promising results in improving limb salvage and quality of life, ongoing monitoring and follow-up are essential to ensure long-term success and to address potential complications. Advances in surgical and endovascular techniques continue to improve outcomes for patients suffering from this debilitating condition.¹⁰

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REFERENCES

1. Leriche, Rene, and Andre Morel. "The syndrome of thrombotic obliteration of the aortic bifurcation." *Annals of surgery* 206-193 :(1948) 127.2.
2. Brown KN, Gonzalez L. Leriche Syndrome (Archived). 2023 Feb 13. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2024 Jan. PMID: 30855836

3. Casali RE, Tucker E, Read RC, Thompson BW. Total infrarenal aortic occlusion. *Am J Surg* 1977;134:809-12.
4. Moise, Mireille A., et al. "Endovascular management of chronic infrarenal aortic occlusion." *Journal of Endovascular Therapy* 92-84 :(2009) 16.1.
5. Ahmed S, Raman SP, Fishman EK. CT angiography and 3D imaging in aortoiliac occlusive disease: collateral pathways in Leriche syndrome. *AbdomRadiol* (NY) 2017 Sep;42(9):2346-2357.
6. Rutherford, R. B. "Aortobifemoral bypass, the gold standard: technical considerations." *Seminars in Vascular Surgery*. Vol. 7. No. 1. 1994.
7. Tegtmeier CJ, Kellum CD, Kron IL, Mentzer RM Jr. Percutaneous transluminal angioplasty in the region of the aortic bifurcation. The two-balloon technique with results and long-term follow-up study. *Radiology* 1985;157:661-5
8. De Vries, Sybolt O., and Maria GM Hunink. "Results of aortic bifurcation grafts for aortoiliac occlusive disease: a meta-analysis." *Journal of vascular surgery* 569-558 :(1997) 26.4.
9. Tegtmeier CJ, Kellum CD, Kron IL, Mentzer RM Jr. Percutaneous transluminal angioplasty in the region of the aortic bifurcation. The two-balloon technique with results and long-term follow-up study. *Radiology* 1985;157:661-5
10. Pascarella L, Aboul Hosn M. Minimally Invasive Management of Severe Aortoiliac Occlusive Disease. *J Laparoendosc Adv Surg Tech A*. 2018 May;28(5):562-568.

