

## Mapping the Blockage: CTA's Role in Leriche Syndrome Diagnosis

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DOI: <https://doi.org/10.36347/sjmcr.2025.v13i07.023>

| Received: 02.06.2025 | Accepted: 08.07.2025 | Published: 14.07.2025

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### Abstract

### Case Report

Leriche syndrome, also known as aortoiliac occlusive disease, is a chronic form of peripheral arterial disease resulting from progressive atherosclerotic obstruction of the terminal abdominal aorta and/or iliac arteries. It is most commonly seen in older males with cardiovascular risk factors such as hypertension, diabetes, dyslipidemia, and smoking. The classic clinical presentation includes bilateral lower limb claudication, absent femoral pulses, and erectile dysfunction. However, many patients remain asymptomatic or present with atypical symptoms due to the gradual development of collateral circulation. We report the case of a 72-year-old male with a known history of chronic heart failure, who presented with progressive lower limb discomfort and fatigue. Diagnosis of Leriche syndrome was made through computed tomography angiography (CTA), which revealed a type II Leriche syndrome with complete occlusion of the abdominal aorta and bilateral iliac arteries. Extensive collateral circulation was observed, indicating chronic disease progression. Given the patient's cardiac comorbidities, a conservative approach was initially chosen, consisting of statin therapy, antiplatelet agents, and optimization of heart failure management. This case emphasizes the importance of CTA in diagnosing Leriche syndrome, determining the extent of vascular occlusion and collateral circulation, and guiding treatment decisions to improve patient prognosis.

**Keywords:** Leriche syndrome, Aortoiliac occlusive disease, Imaging, CTA, Peripheral arterial disease.

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## INTRODUCTION

Leriche syndrome, or aortoiliac occlusive disease, is a chronic form of peripheral arterial disease caused by progressive atherosclerotic obstruction of the terminal abdominal aorta and/or iliac arteries. It typically affects older male patients and is strongly associated with cardiovascular risk factors such as smoking, hypertension, diabetes, and dyslipidemia. The classic clinical triad includes bilateral lower limb claudication, diminished or absent femoral pulses, and erectile dysfunction. However, many patients remain asymptomatic due to the gradual development of collateral circulation, making diagnosis challenging and often incidental [1, 2].

We report the case of a 72-year-old male with a known history of heart failure in whom Leriche syndrome was incidentally diagnosed, highlighting the importance of imaging in uncovering silent vascular disease in high-risk individuals.

## CASE PRESENTATION

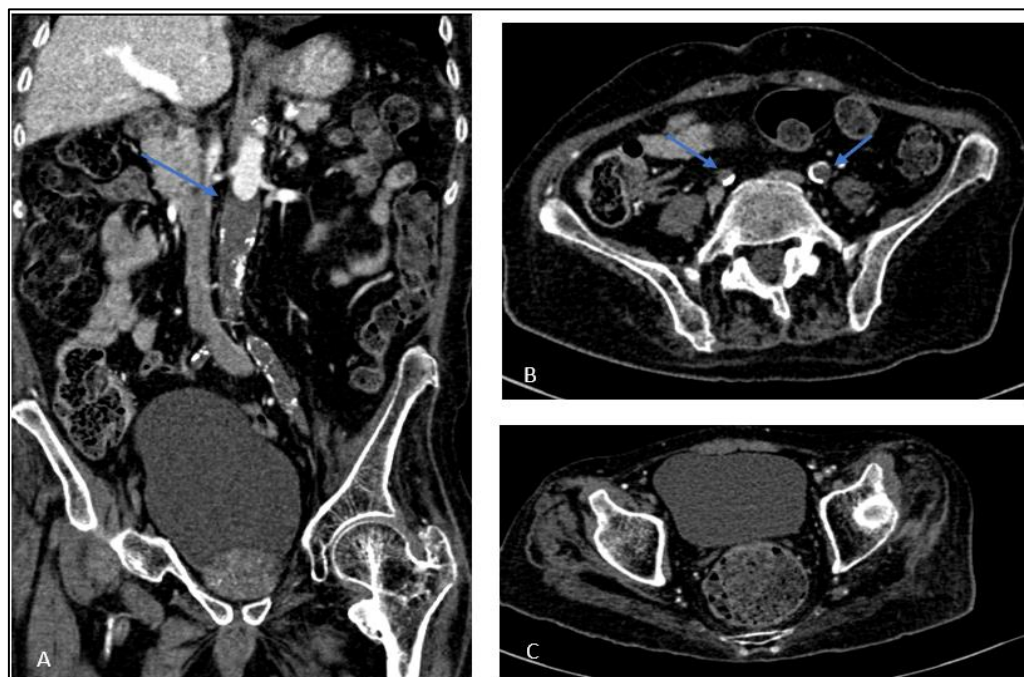
A 72-year-old male with a known history of chronic heart failure was admitted for evaluation of worsening fatigue and bilateral lower limb discomfort. He reported progressive pain in the buttocks and thighs during walking, associated with a sensation of heaviness and coldness in the legs. These symptoms had been evolving for several months and were initially attributed to age and deconditioning. He denied any history of trauma, fever, or chest pain.

On clinical examination, both lower limbs appeared pale and cool to the touch, with thinning of the skin and loss of hair. Femoral pulses were markedly diminished bilaterally, and no distal pulses (popliteal, dorsalis pedis, posterior tibial) could be palpated. Cardiovascular examination was consistent with chronic heart failure, including a systolic murmur and mild peripheral edema. Vital signs were stable.

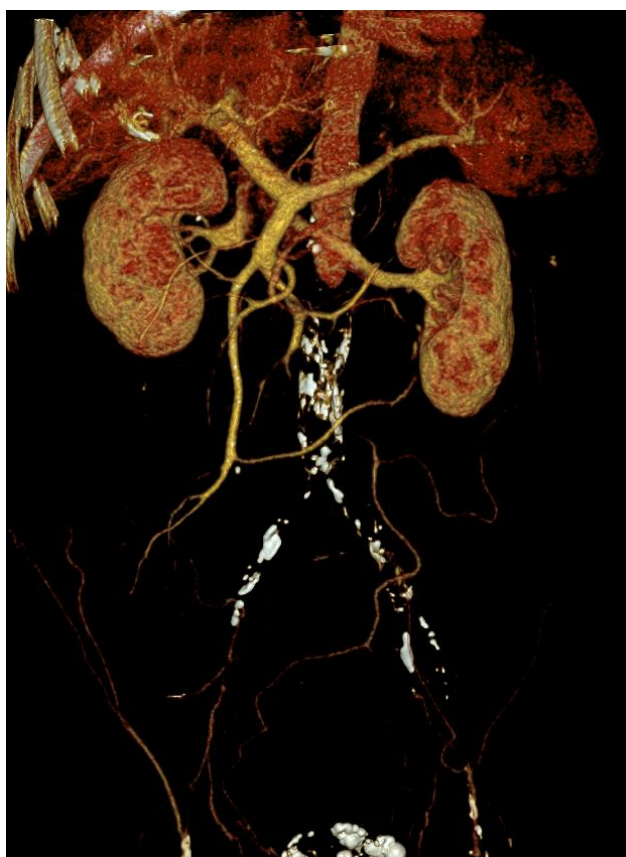
A computed tomography angiography (CTA) of the abdomen and pelvis revealed a type II Leriche syndrome, characterized by complete occlusion of the subrenal abdominal aorta, as well as bilateral occlusion

of the common, external, and internal iliac arteries. (Figure 1) (Figure 2). Extensive collateral circulation was noted, particularly through lumbar, epigastric, and

intercostal vessels, suggesting a chronic and progressive disease process.



**Figure 1: Coronal (A) and axial (B, C) contrast-enhanced CT images showing occlusion of the subrenal abdominal aorta (A), bilateral occlusion of the common iliac arteries (B), and occlusion of the external iliac arteries (C)**



**Figure 2: Volume-rendered (VRT) CT image showing complete occlusion of the subrenal abdominal aorta, as well as bilateral occlusion of the common, external, and internal iliac arteries**

The diagnosis of advanced aortoiliac occlusive disease was confirmed. Given the extent of vascular involvement and the patient's underlying cardiac condition, a multidisciplinary team opted for initial medical management including statin therapy, antiplatelet agents, and optimization of heart failure treatment, with consideration of revascularization at a later stage.

## DISCUSSION

First described by Robert Graham in 1814 and later detailed by French surgeon René Leriche in 1923, (3) Leriche syndrome refers to chronic occlusion of the terminal abdominal aorta and the common iliac arteries [4]. It is a rare and specific form of peripheral arterial disease that most commonly affects elderly men, often in the presence of cardiovascular risk factors such as hypertension, diabetes, dyslipidemia, and smoking history. Although typically diagnosed between the ages of 50 and 60, it may be underdiagnosed in older patients, where symptoms often overlap with other comorbidities [5,6].

From a pathophysiological standpoint, the condition results from atherosclerotic changes involving endothelial damage, lipid infiltration of the tunica media, and plaque formation, eventually leading to vascular obstruction. The condition may be acute or chronic. In acute cases, symptoms may include the 6 Ps: pain, pulselessness, pallor, paresthesia, paralysis, and prostration. Chronic forms tend to present with claudication, impotence, and absent femoral pulses. A rich collateral circulation can develop over time, maintaining distal perfusion through multiple anastomotic pathways.[7]

Clinically, Leriche syndrome is classically characterized by the triad of bilateral buttock or thigh claudication, diminished or absent femoral pulses, and erectile dysfunction in men.[8] However, it may also present with more atypical symptoms, such as lumbar pain, sciatica-like features, or progressive lower limb fatigue and weakness, especially in patients with heart failure or reduced mobility. [9]

Anatomically, the disease is classified into three types: [8]

- **Type I:** limited to the distal abdominal aorta and common iliac arteries
- **Type II:** extension into the external iliac arteries
- **Type III:** involvement of the entire aortoiliac segment and femoropopliteal arteries

According to the Trans-Atlantic Inter-Society Consensus II (TASC II), Leriche syndrome is classified as a type D lesion, which typically requires surgical management. [10]

Our patient, a 72-year-old man with chronic heart failure, presented with non-specific symptoms of lower limb discomfort and progressive walking limitation. The diagnosis was established by computed tomography angiography (CTA), which showed a type II Leriche syndrome with complete occlusion of the infrarenal abdominal aorta extending into the bilateral common, internal, and external iliac arteries. This represents a more advanced anatomical form of the disease, in which extensive collateral circulation may develop to maintain some perfusion. These include visceral, parietal, and thoracic-abdominal pathways such as the Winslow pathway, mesenteric-rectal collaterals, and internal iliac connections.

Imaging plays a central role in the diagnosis. While conventional digital subtraction angiography remains the gold standard, it is invasive and less suitable in patients with multiple comorbidities. CTA provides a non-invasive, high-resolution visualization of the vascular occlusion, collateral networks, and any associated abdominal or retroperitoneal pathology [11]. In our case, CTA was crucial not only in confirming the diagnosis but also in demonstrating the chronic nature and full extent of the occlusion, involving all iliac territories bilaterally. If CTA is contraindicated, contrast-enhanced MR angiography can also be a useful alternative.

Treatment of Leriche syndrome depends on the anatomical extent of the disease and the patient's overall clinical status. Surgical revascularization via aorto-bifemoral or aorto-iliac bypass remains the gold standard, offering excellent long-term patency. However, endovascular options such as kissing stent angioplasty are increasingly considered, especially for high-risk surgical patients. In this case, given the patient's cardiac comorbidities and advanced age, a conservative approach was initially preferred, consisting of antiplatelet therapy, statin administration, and close vascular monitoring, with possible revascularization to be reassessed in a multidisciplinary setting. [6, 12]

## CONCLUSION

CTA angiography is the diagnostic modality of choice for Leriche syndrome, as it allows high-resolution vascular imaging of the aorta and lower limb arteries. It helps determine the extent of the occlusion, as well as the origin and significance of collateral circulation. This detailed assessment is crucial for planning treatment, which is most often surgical, in order to improve the patient's functional prognosis.

**Conflicts of Interest:** The authors declare no conflicts of interest.

**Contributions of the Authors:** All authors contributed to the conduct of this work. They have read and approved the final version of the manuscript.

## REFERENCES

1. Pascarella L, Aboul HM. Minimally invasive management of severe aortoiliac occlusive disease. *J Laparoendosc Adv Surg Tech A*. 2018;28(5):562–8. <https://doi.org/10.1089/lap.2017.0675>
2. Tins B, Oxtoby J, Patel S. Comparison of CT angiography with conventional arterial angiography in aortoiliac occlusive disease. *Br J Radiol*. 2001 Mar;74(879):219–25.
3. Ahmed S, Raman SP, Fishman EK. CT angiography and 3D imaging in aortoiliac occlusive disease: collateral pathways in Leriche syndrome. *Abdom Radiol (NY)*. 2017 Sep;42(9):2346–57.
4. Leriche R, Morel A. The syndrome of thrombotic obliteration of the aortic bifurcation. *Ann Surg*. 1948 Feb;127(2):193–206.
5. Demirgan S, Şitilci AT, Solak S, Sevdı MS, Erkalp K, Köse E. Leriche syndrome (Case report). *Ağrı*. 2016.
6. Becker F. Artériopathie oblitérante des membres inférieurs à localisation aorto-iliaque. *Rev Med Suisse*.
7. Brown K, Muco E, Gonzalez L. Leriche Syndrome. *StatPearls*. 2022.
8. Wooten C, Hayat M, du Plessis M, *et al*., Anatomical significance in aortoiliac occlusive disease. *Clin Anat*. 2014;27(8):1264–74. doi:10.1002/ca.22444
9. Wang Y-C, Chiu Y-S, Yeh C-H. Syndrome de Leriche révélé par une sciatique. *Ann Chir Vasc*. 2010 Jul;24(5):758.e1–3.
10. Laganà D, Ciranni S, Minici R, Mazzarella G. Leriche Syndrome: Percutaneous treatment with mechanical thrombectomy: A case report. *J Case Rep Stud*. 2018;6(1):1. doi:10.15744/2348-9820.6.101
11. Ruehm S, Weishaupt D, Debatin J. Contrast-enhanced MR angiography in patients with aortic occlusion (Leriche syndrome). *J Magn Reson Imaging*. 2000;11(4):401–10. doi:10.1002/(sici)1522-2586(200004)11:4<401:aid-jmri8>3.0.co;2-h
12. Lee W, Cheng Y, Lin H. Leriche Syndrome. *Int J Emerg Med*. 2008;1(3):223. doi:10.1007/s12245-008-0039-x