Leriche syndrome presents as a triad of claudication, erectile dysfunction, and decreased distal pulses. This syndrome is a well-recognized entity in the current literature; however, our case report illustrates that even with a severe ostial lesion of the inferior mesenteric artery, the vessel was able to provide perfusion to bilateral lower extremities. The patient presented with symptoms of progressive pain in his right leg that limited his physical activity and he also complained of paresthesia, pallor, and cold skin with black discoloration of his toes bilaterally. Diagnostic testing confirmed Leriche syndrome and he successfully underwent surgical revascularization.

Keywords
Cardiovascular, critical limb ischemia, PAD, peripheral artery disease, inferior mesenteric artery

Received 5 June 2017; revised manuscript accepted 11 October 2017

Introduction
Leriche syndrome is an aortoiliac occlusive disease that presents as a triad of claudication, erectile dysfunction, and decreased distal pulses. It was described in 1940, but Rene Leriche was the first to correlate the clinical triad with the vascular pathology and coined this entity as “Leriche syndrome.” Because of poor distal perfusion, patients may present with muscle atrophy, poor wound healing, cold extremities, and critical limb ischemia. The diagnosis is based on combination of symptoms and objective findings from ankle–brachial index (ABI), computed tomography (CT) angiography, and abdominal aortic runoff (AARO). The treatment is focused on revascularization with either angioplasty or vascular bypass graft surgery. Our case report illustrates that even in the setting of severe peripheral vascular disease in both the native and collateral circulation, a severe ostial stenosis of a major artery within the abdominal cavity was still able to perfuse both lower extremities.

Case report
A 69-year-old African American man sees his podiatrist because he was experiencing rapidly progressing pain in his right leg and inability to either stand or walk. He had paresthesia, pallor, and cold skin with black discoloration of his toes bilaterally. On physical examination, the podiatrist noticed bilateral absent pulses, dry skin, and ischemic appearing toes, worse on the right than the left. The podiatrist referred him to the cardiovascular clinic urgently. Based on the symptomatology and physical findings, he was diagnosed with critical limb ischemia bilaterally and an AARO was performed the next day via left radial artery access.

The AARO revealed a totally occluded distal aorta right after the origin of the inferior mesenteric artery (IMA) which had a 95% ostial lesion; however, it still supplied perfusion to most of the collaterals in lower extremities (Figure 1). A CT angiography of the aorta and lower extremities was ordered to better evaluate the distal circulation. The CT findings were consistent with aortoiliac occlusion. The origin of celiac trunk and superior mesenteric artery (SMA) showed mild disease. The ostium of the IMA had severe stenosis of 95%, and the aorta distal to IMA was completely occluded (Figures 2 and 3). There were extensive collaterals to both iliac arteries. The superior rectal artery, which originates from IMA, had anastomosis to the middle rectal artery, which originates from internal iliac artery. In addition, the CT scan noted a prominent inferior epigastric and lumbar collaterals that reconstituted the left external iliac artery at...
the origin of the common femoral artery and the right distal common iliac artery. There was evidence of moderate calcific atherosclerotic disease in the right lower extremity at the level of mid-popliteal artery and distal anterior tibial artery with three-vessel runoff to the foot. The left lower extremity has two-vessel runoff to the foot because of severe disease in the left tibioperoneal trunk and peroneal artery.

Based on these findings, the patient was referred to vascular surgery for bilateral aortoiliac bypass graft surgery.

Discussion

Rene Leriche described this syndrome as severe claudication of both lower limbs; pain in the gluteus muscles; icy-cold lower limbs, with pallor and cyanosis; and impotence in males. This syndrome most likely occurs in third to sixth decade of life and it is more prevalent in males than females. The risk factors for developing this syndrome are hypertension, hyperlipidemia, diabetes mellitus, and smoking. The underlying pathology is a result of obstructing atheromatous plaque formation in the infra-renal aorta. In 25% of the population, it occurs at the infra-renal aorta, in 11% it may occur at the level of the suprarenal aorta, and 12% of the patients may present with diffuse aortic involvement. This may result in muscle atrophy, poor wound healing, cold extremities, and critical limb ischemia. Our patient was in his seventh decade of life when he presented with the triad of symptoms consistent with Leriche syndrome. His risk factors for developing this syndrome were hypertension and cigarette smoking.

The diagnostic tests that can aid in confirming the diagnosis of Leriche syndrome are ankle–brachial index, abdominal ultrasonography, aortic angiograms, and CT angiography. Our patient did not have ABIs done because he presented with symptoms of critical limb and was in need of urgent evaluation. His CT angiography showed aortoiliac occlusive
disease as well as distal disease. There have been several case reports describing the various types of anatomies that have been seen in the setting of Leriche syndrome. Our case report describes a classic presentation of a patient with Leriche syndrome; however, it illustrates an interesting anatomical variation. IMA with a 95% ostial lesion was still able to provide perfusion to the collaterals which supplied blood flow to bilateral iliac arteries. An acute occlusion of the IMA for any reason would have predisposed this patient to high risk of limb loss, leading to increased morbidity and mortality.

The standard of care in the treatment of Leriche syndrome is surgical revascularization. The two surgical options are aortofemoral bypass and axillofemoral bypass with or without endarterectomy. However, the most commonly performed surgical option is aortofemoral bypass surgery. The patient underwent aortobifemoral bypass grafting bilaterally, balloon angioplasty of the right superficial femoral artery, and bilateral common femoral endarterectomy. He did well post-operatively without any complications. His limbs and toes recovered and no amputation was needed.

**Conclusion**

Since the 1940s, Leriche syndrome is a well-documented disease entity in the medical literature. However, as clinicians, we need to be aware of the various anatomical variations that can be seen in the setting of aortoiliac occlusive disease.

**Declaration of conflicting interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Ethical approval**

Our institution does not require ethical approval for reporting individual cases or case series.

**Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article.

**Informed consent**

Written informed consent was obtained from the patient(s) for their anonymized information to be published in this article. Verbal informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

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