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Case Report



Buttock Claudication Misdiagnosed as Lumbar Stenosis

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Abstract

We report a case of a 50-year-old heavy smoker man who developed a buttock claudication and a severe walking limitation following an aorto-bi-femoral bypass eight years ago. The X-ray and MRI of the patient showed degeneration and lumbar stenosis. The local clinic sent him to our hospital as lumbar stenosis for surgery. Electrophysiology examination reveals peripheral nerve impairment. The ultrasound showed no thrombus in either leg, with arteriosclerosis of the arteries, and low blood flow velocity. After investigation and consulting the vascular surgeon, the CT angiography was performed and the buttock claudication was confirmed. Main lessons to learn are that when we see patients with claudication who is a heavy smoker and has experienced aortobifemoral bypasses, much attention should be paid to avoid misdiagnosis.

Keywords

Buttock Claudication; Lumbar Stenosis; Misdiagnosis; Pain Peripheral Arterial Disease

Introduction

Buttock claudication is not rare for the general surgery. However, many orthopedic surgeons are not familiar with it, which can lead to misdiagnosis sometimes. For the patients who have had patent aortobifemoral bypasses, buttock claudication could be more puzzling for orthopedic surgeons. The aim of this article is to report a special case like this, and to discuss how to avoid misdiagnosis.

A 50-year-old male, who was a heavy smoker, complained intermittent bilateral buttocks pain for 5 years, which exacerbated with left calf pain for 3 months. This gentleman went to a local orthopedic clinic and received X-ray films and Magnetic Resonance Imaging (MRI), then was diagnosed as lumbar stenosis and sent to our hospital for surgery.

Detailed history was obtained by the resident, and comprehensive physical examination was performed. The patient complained severe buttock and mild left calf pain following walking for only two minutes, however, no tenderness on the back or buttocks. Without any motion, sensory, or reflex impairment on the back, hips or legs. Straight leg raise test was negative. The left and right dorsal pedal arteries pulses are a little bit weak.

Lumbar X-ray showed obvious degeneration of the lumbar spine, and MRI (Figure 3) showed multi-levels disc degeneration spine, and hardening of the aorta (Figure 1). CT (Figure 2) and developmental lumbar stenosis.



Figure 1: X-ray films of the lumbar spine shows marginal vertebral body osteophytes formation, and arterial calcifications.

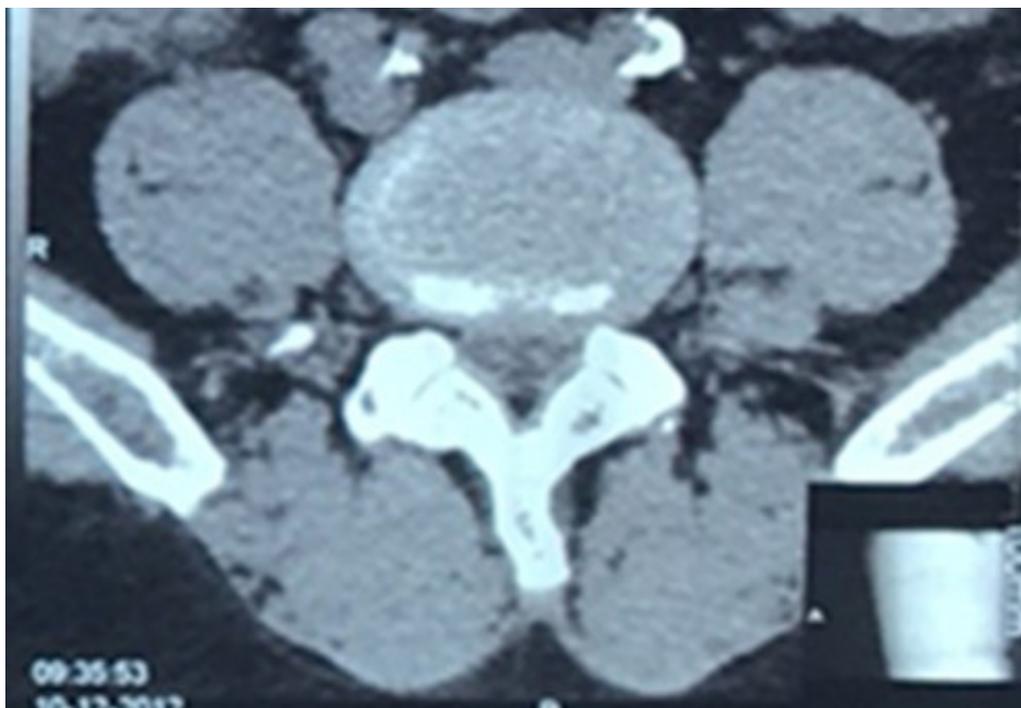


Figure 2: CT shows lumbar disc herniation and stenosis at L4-5 level.

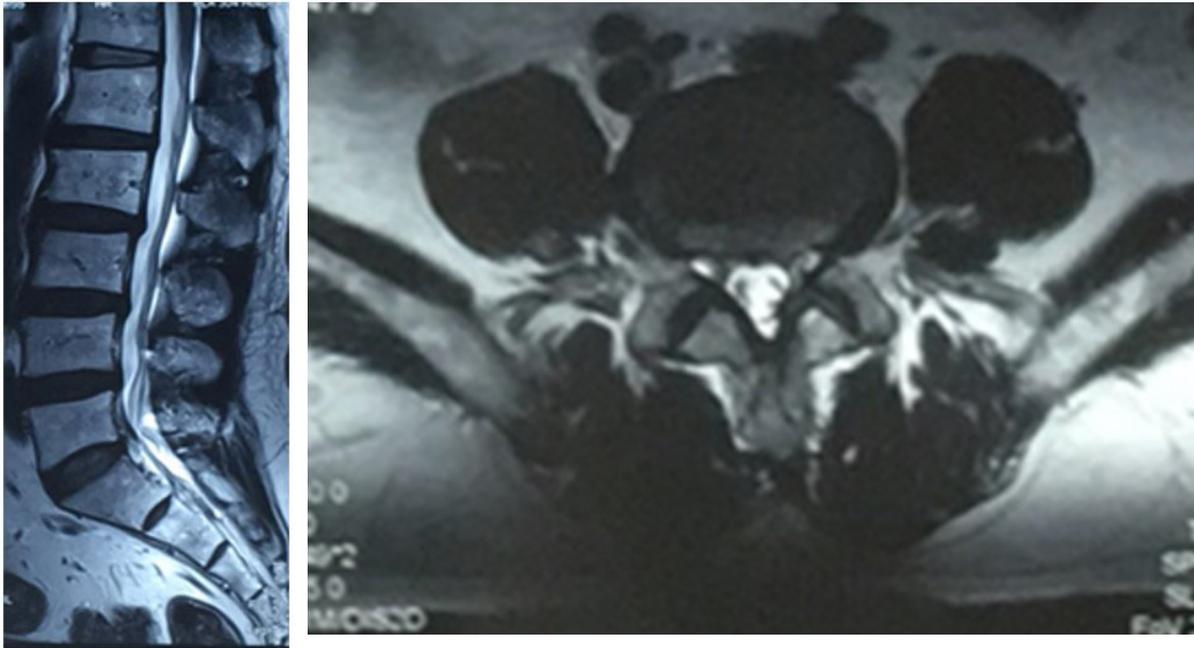


Figure 3: MRI shows some kind of lumbar disc herniation (L4-5) and stenosis.

Pelvis X-ray was taken for differential diagnosis, which showed no abnormality in the hip or sacroiliac joints (Figure 4). Electromyography revealed neurogenic impairment

of the left lower extremity. Spinal somatosensory evoked potentials showed delay of P40 peak latency and decrease of the amplitude. Nerve conduction velocity showed the nerve



Figure 4: X-ray film of the pelvis shows no abnormality in bilateral hips or sacroiliac joints.

impairment, mainly cause by the motor nerve injury. Ultrasound showed no thrombus in either leg, with arteriosclerosis of the arteries, and low blood flow velocity.

The patient told us that he got right-to-left ilio-femoral bypass for arteriosclerosis 8 years ago because of angiogenic intermittent claudication. Then we consulted the vascular surgeon, who advised we performed a CT Angiography (CTA).

CTA showed left external iliac artery and bilateral internal iliac arteries blocked, and external iliac-femoral artery bypass (Figure 5). Then the diagnosis was confirmed, and the patient was sent to the vascular surgeon for another artery bypass surgery.

stenosis may relieve when the patient bend forward and have a rest for a while, but that caused by femoral artery disease cannot relieve by simple bending the lumbar spine. Nadeau and colleagues [1] evaluated the validity of the symptom attributes in differentiating neurogenic from vascular claudication. They concluded that the classic symptom attributes used to differentiate neurogenic from vascular claudication are at best weakly valid independently. However, certain constellation of symptoms is much more indicative of etiology. The differential diagnosis strategy by symptoms is shown in table 1.

However, buttock claudication presents different symptoms from the disease caused by femoral artery disorder, which was

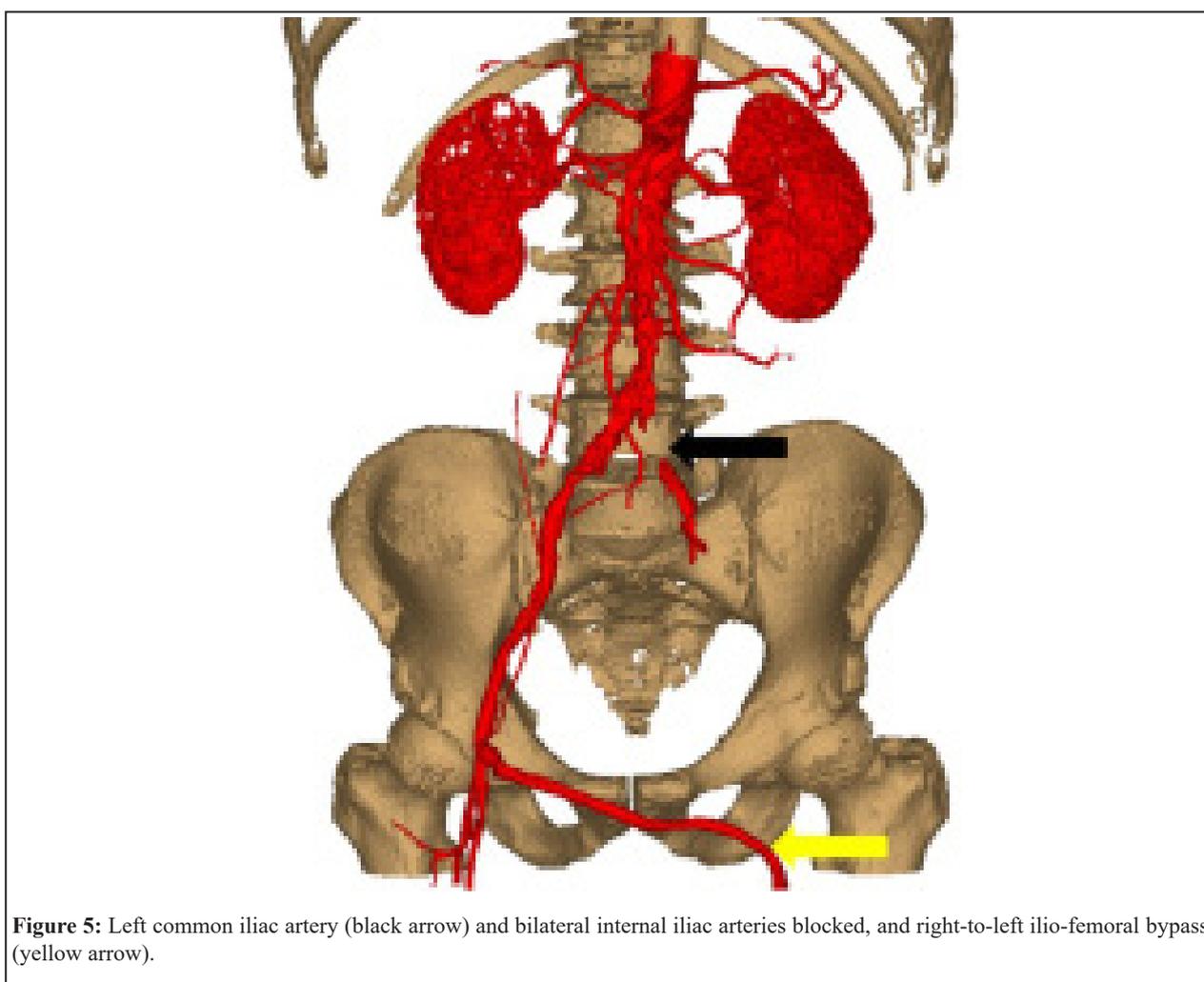


Figure 5: Left common iliac artery (black arrow) and bilateral internal iliac arteries blocked, and right-to-left ilio-femoral bypass (yellow arrow).

Discussion

Claudication is a common symptom both in orthopedics and vascular surgery. For differential diagnosis in orthopedics clinic, surgeons focus much on calf symptoms caused by peripheral arterial disease, especially by femoral artery, which can lead to ischemia in the calf muscle. Claudication caused by lumbar

caused by the ischemia of the gluteus. The superior gluteal artery, one of the branches of the internal iliac artery, supplies gluteus. For the collateral circulation between the left and right internal iliac artery, for most cases [2], only bilateral internal iliac artery block can induce symptoms. So, this kind of disease is comparatively rare. Nevertheless, because the pain locates at the buttock, many patients come to orthopedic clinic first, and get misdiagnosed.

Symptom	Neurogenic claudication	Vascular claudication
Trigger	Standing (walking)	(Walking)
Alleviator	Sitting	Standing
Posture	Shopping cart sign (walking uphill)	-
Symptom onset	-	(Predictable)
Nature	(Numbness, cramping, burning pain, weakness)	(Numbness, cramping, burning pain, weakness)
Location	Above the knees	Calves
Time for relief	(>10min)	(1-2min)
Most valuable constellation of symptom attributes	Triggered with standing, alleviated with sitting, located above the knees, positive shopping cart sign	Alleviated with Standing, located in the calves
Symptoms in brackets represent weak indication of etiology. “-” means no specialty.		
Table 1: Differential diagnosis of neurogenic claudication from vascular claudication by symptoms.		

There is high prevalence of proximal claudication among patients with patent aortobifemoral bypasses [3]. For this patient, he experienced right-to-left ilio-femoral bypass for arteriosclerosis eight years ago because of angiogenic intermittent claudication. More than 80% of patients with peripheral arterial disease are current or former smokers, and less than 20% of which report the typical symptom of intermittent claudication [4]. Meanwhile, there is calf pain which might be cause by the ischemia of the calf muscle due to vessel disease eight years ago. Furthermore, there's also some neurologic lesions that may due to proximal ischemia [5]. These factors may make the differential diagnosis more difficult.

Mahé et al., [6] give the approach of internal iliac artery stenosis for buttock claudication differential diagnosis. He divides the symptom into two types, that is, claudication and pseudo claudication. The former includes lumbar artery stenosis, common iliac artery stenosis, venous congestion and internal iliac artery stenosis. The latter includes lumbar spinal stenosis, bone metastasis and hip osteoarthritis. This algorithm could help the orthopedic surgeons to make the right diagnosis, and avoid wrong surgery.

Transcutaneous oxygen pressure measurements on the buttocks during exercise is a non-invasive method, and may be an alternative choice for patients with proximal arterial ischemia [7]. However, arteriography is still the golden standard.

Main lesson to learn is that when we see patients with claudication who is a heavy smoker and has experienced aortobifemoral bypasses, much attention should be paid to avoid misdiagnosis.

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