Groin and buttock claudication associated with vascular origin due to chronic occlusion of internal iliac artery –A case report–

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Neurogenic and vascular claudication is sometimes difficult to distinguish from each other due to similarities in symptoms. Symptoms and physical examinations may not always match the severity in both diseases, and when atypical symptoms, such as groin pain, are present, diagnosis can be more challenging. Proper differential diagnosis of the two is important because of the invasiveness of treatment in both diseases. We report a rare case of a patient with severe groin and buttock pain due to chronic occlusion of the internal iliac artery, along with a review of the relevant literature. (Anesth Pain Med 2015; 10: 93-96)

Key Words: Claudication, Groin, Internal iliac artery, Pain.

Groin pain can have many different etiologies. Disorders from those of urological origin, such as femoral hernia and urinary tract infection, renal calculi, prostatitis, testicular disorders, and epididymitis, to those of musculoskeletal origin, such as herniated lumbar disc, osteoarthritis, iliopsoas bursitis, osteitis pubis, and femoracetabular impingement can all represent groin pain [1,2]. Even with thorough history taking and physical examination, evaluating the cause of groin pain can be difficult and diagnostic imaging tools may be required. When concomitant symptoms such as radiating pain are present, a herniated disc could be considered first [3]. We report a rare case of severe groin pain of vascular origin, associated with mild pain in the buttock and lower leg, without the typical vascular symptoms due to well developed collateral flow of abdominal wall vessels.

CASE REPORT

A 70-year-old male with persistent bilateral groin pain, more severe on the left, visited our department of pain medicine. Associated with his groin pain, he also reported pain in the left posterior buttock spreading down to the posterior portion of his left leg. His pain had first begun four years earlier, and he had undergone a left L4-5 laminectomy three years earlier, but the procedure had resulted in no improvement. Due to remaining symptoms, he had received epidural steroid injections three times after the operation, but he had not yet shown any improvement in symptoms, and a second operation had thus been recommended.

The character of the patient’s pain was cramping and aching, with a visual analogue scale (VAS) score of 7/10 associated with resting night pain on both sides of the groin. The groin pain became severe with ambulation, and the patient could only walk a maximal distance of 50 meters at a time. The pain was relieved immediately after rest, but changes of position, such as lumbar flexion, had no effect. On physical examination, the straight leg raise test was limited to 60 on the left. The patient showed mild paresthesia in the left L5 dermatome and no motor weakness. Pulses were palpable bilaterally on the femoral, popliteal, posterior tibial, and dorsalis pedis arteries. Past medical history was remarkable for the patient’s occasional use of antihypertensive medications and...
heavy smoking. Due to the patient’s surgical history and findings on physical examination, we presumed a lumbar origin for the pain, and a magnetic resonance imaging (MRI) scan was performed. The lumbar MRI revealed diffuse disc herniation at L4-5 and mild disc herniations at L3-4 and L5-S1 (Fig. 1). Although mild disc herniation was present, there were no signs of nerve compression or stenosis. The MRI findings were inconclusive in diagnosing the patient’s disease.

On the patient’s next clinical visit, a detailed history was taken and a thorough physical examination was conducted. The femoral pulse was palpable in the inguinal ligament area, but we were able to determine that there was a diminished pulse above the inguinal ligament in the lower abdominal wall. The patient was 169 cm tall and weighed 56 kg, with a body mass index of 19.6, a lean elderly man with almost no abdominal fat, and palpation of the iliac arteries was feasible enough to detect a difference.

With the presumption that the pain was of vascular origin, an ankle brachial index (ABI) and computed tomography (CT) angiography were performed. On the ABI, the right side showed an index of 0.99, while the left side showed an index of 0.53, suggestive of severe stenosis. CT angiography revealed total occlusion of the left proximal common iliac artery (CIA) and internal iliac artery (IIA), and segmental stenosis of the right CIA (Fig. 2). Notably, however, due to the total occlusion of the left CIA, the left abdominal wall collateral vessels had developed well enough to demonstrate adequate flow to the left femoral, popliteal, anterior tibial, posterior tibial, and dorsalis pedis arteries (Fig. 2).

We sent our patient to a cardiologist for further evaluation and therapeutic consultation. On angiography, total occlusion of the left CIA was shown. After a series of balloon angioplasty, a 9 mm × 80 mm Zilver stent (Cook, Medical, Inc., Bloomington, IN, USA) was inserted in the left CIA (Fig. 3).

Following stent insertion, the patient’s groin pain has decreased from a 7 to 1 on the VAS, and his walking capacity has improved dramatically, to the point of being able to walk for over one hour without any symptoms. ABI indexes have improved to a right index of 0.88, and left of 0.91. The patient was discharged with antiplatelet medications of aspirin 100 mg daily and clopidogrel 75 mg daily, and...
clinical follow-up at two weeks and three months found the patient continuing symptom-free.

**DISCUSSION**

There are many disorders that can cause groin pain. When there are no definite findings on physical examination, proper diagnosis of groin pain can be very difficult [2]. In addition to pain of urogenital and musculoskeletal origin, neurogenic causes such as herniated lumbar disc should also be considered [3]. Diagnosing claudication from neurogenic and vascular origin has always been a challenge to physicians, even to specialists [4,5].

Peripheral arterial disease in the lower extremities generally presents with pain during ambulation, also known as intermittent claudication. It is classified from asymptomatic, intermittent claudication, ischemic rest pain, to ulceration and gangrene depending on its clinical presentation [6,7]. Pain usually appears in the area where blood supply is blocked distal to the occlusion site, broadly in the lower extremities. Resting can alleviate pain of both in vascular and lumbar origin. However, pain of vascular origin is not affected by body posture and is relieved more quickly by rest than pain of lumbar origin.

The groin pain and buttock pain in our case report can be explained by the vascular anatomy and its supply. While the EIA supplies blood flow to the lower extremity, the IIA supplies blood to the pelvic area in a complicated way due to its many branches. The EIA, before becoming the femoral artery, gives rise to vessels in the groin area, the superficial external pudendal artery and the superficial EIA. The IIA divides into two large trunks, an anterior and a posterior, which give rise to many small branches. The anterior trunk supplies the pelvic organs, while the posterior trunk supplies the gluteal muscles [8].

Buttock claudication has been reported as a complication of IIA embolization during interventional aortic aneurysm repair [9,10]. Adlakha et al. [11] reported two patients with buttock claudication due to chronic occlusion of the IIA. One patient had an absent posterior tibial pulse, while the other presented with typical symptoms of lower extremity claudication. Both patients’ buttock claudication was relieved following percutaneous intervention.

While there have been numerous reports of buttock claudication, there have been no reports of groin pain caused by spontaneous CIA or IIA occlusion. Regarding iatrogenic causes, Akkus and Beedupalli [12] reported severe groin and buttock pain appearing briefly during balloon angioplasty in a patient with total occlusion in the EIA and a 90% lesion in the IIA.

According to American College of Cardiology/American Heart Association (ACC/AHA) guidelines, a patient with claudication should first undergo vascular physical examination, including the measurement of the ABI [13]. Our patient on physical examination showed normal left femoral, popliteal, and dorsalis pedis pulses. Although palpation was found to be
normal on our initial physical examination due to developed collateral vessels, there are reports of palpation of the pulse having low sensitivity for diagnosing peripheral artery disease [14]. To compensate for the occlusion, the resistance of the collateral vessel decreases for the flow by increasing its diameter. Although flow was compensated well enough for us to palpate a pulse, a low resistance led to a low systolic pressure, leading to a low ABI.

Other diagnostic tools such as CT angiography can be considered if significant stenosis is presumed, or when anatomical assessment is required [6]. In our case, the CT angiography showed not a variant, but a compensated, developed abdominal artery to the femoral artery due to chronic occlusion of the CIA. This is a rare finding because occlusion limited to the aortoiliac area is rare, and most cases are present with a combination of occlusive diseases in the femoral, popliteal and other arteries. Surgical textbooks note that collateral compensation for the typical lower extremity atherosclerotic occlusions is mostly by preexisting large arterial branches serving as stems, such as lumbar and hypogastric feeding vessels [15]. In this case, the patient had highly compensated and dilated infra/supra epigastric arteries shown on CT angiography.

There have been numerous reports of buttock, hip, and leg pain due to occlusion of the pelvic arteries. As far as we know, this is the first case report of chronic CIA and IIA occlusion leading to groin pain or claudication. Groin pain can be caused by numerous diseases or conditions, and in addition to thorough history taking and physical examination, imaging and invasive diagnostic procedures may be required for proper diagnosis.

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