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CASE REPORT

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The piriformis syndrome: a case report of an unusual cause of sciatica

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Abstract Notwithstanding the advent of magnetic resonance imaging (MRI), some etiologies of piriformis syndrome continue to remain obscure and elude this investigation. We report a case characterized by a long history and a clinical picture both typical of piriformis syndrome, caused by hypertrophy of the piriformis muscle clearly demonstrated at MRI. At surgery, we also found a likely neurovascular conflict not documented by MRI, consisting of an intimate relation between the sciatic nerve and the inferior gluteal artery. Following the surgical correction of both possible sources of pain, the patient experienced a slowly progressive relief of the sciatica.

Key words MRI • Neurovascular conflict • Piriformis muscle • Piriformis syndrome • Sciatica

Introduction

Piriformis syndrome is a rare cause of sciatica believed to be secondary to sciatic nerve entrapment at exit from the greater sciatic notch. Before the advent of magnetic resonance imaging (MRI), the clinical suspicion of the syndrome arose when common etiologies for spinal pain were excluded. Beside the more frequent causative factors represented by anomalies of the piriformis muscle [1, 2], sometimes associated with a fascial constricting band around the nerve [1, 3], vascular malformations [4, 5] are rarely implicated in piriformis syndrome.

We report the case of a patient affected by piriformis syndrome, possibly secondary to two concomitant etiologies: (a) sciatic nerve entrapment due to hypertrophic piriformis muscle, and (b) a neurovascular conflict sustained by the close contact between a redundant trunk of the inferior gluteal artery and the sciatic nerve.

Case report

A 60-year-old man was seen for excruciating pain in the left buttock radiating to the posterior thigh and calf. The painful crisis started seven years before and increased in its intensity and duration within the last 5 months. Impossibility of sitting, climbing stairs and walking more than 1–2 minutes was also reported despite progressively longer periods of rest and analgesic medication. Discontinuous and mild episodes of low-back pain were also reported.

Recent MRI of the lumbar spine showed L4-L5 disc degeneration. A left-convex scoliosis was seen on a radiogram of the thoracic spine.

At physical examination, the Lasègue sign was disproportionately positive (at 15°) on the left compared to a lightly stiff lumbar spine. Direct palpation on the left sciatic notch exactly reproduced the patient's pain. The

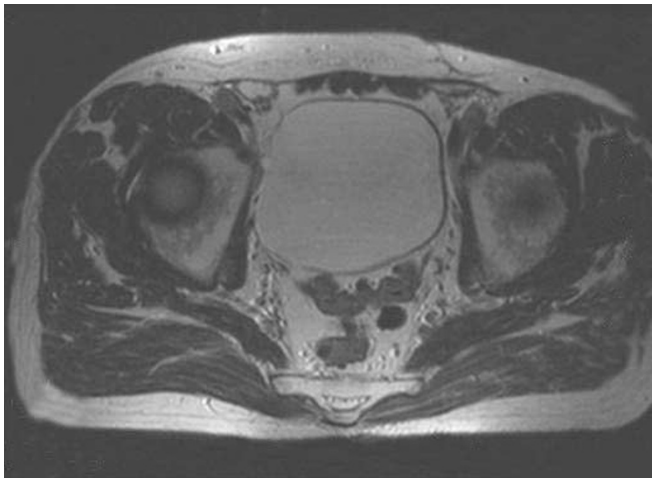

Fig. 1 MR image of the pelvis, showing evident hypertrophy of the left piriformis muscle

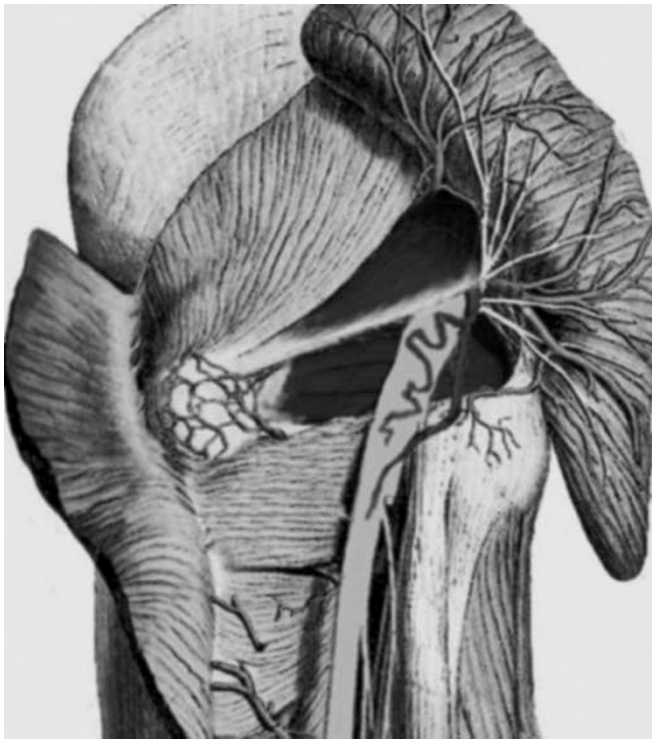

Fig. 2 Artist's illustration clearly depicting an enlarged sinusoidal branch of the inferior gluteal artery in close contact to the posterior surface of the left sciatic nerve

maneuver described by Lee et al. [2] was strongly positive. MRI of the pelvis focused on the greater sciatic notch showed a clear hypertrophy of the left piriformis muscle (Fig. 1). The satisfactory but transient benefit obtained by analgesic injection on the trigger point convinced us of a sciatic nerve entrapment, possibly due to the morphologic anomaly of the piriformis muscle.

At surgery, the nerve appeared compressed by the inferior border of a hypertrophic piriformis muscle. Sectioning of the tendinous attachment of the piriformis muscle to the femur cleared the sciatic entrapment. Then, an intimate contact between a redundant branch of the inferior gluteal artery and the posterior surface of the nerve was identified immediately below the inferior border of the piriformis muscle (Fig. 2). Following separation from the nerve, the artery was coagulated.

Immediately after surgery the patient reported good relief of pain in the buttock and thigh. Afterwards, an intense neuralgia persisted on the calf for about four weeks.

Six months after surgery, the patient still complains of mild discomfort in the left calf while the buttock and thigh remain completely free from the pain. The physical examination, including maneuvers once facilitating the sciatica, is negative.

Discussion

The peculiarity of our case consists of the concomitancy of two possible sources of non-discogenic sciatica, i.e. a hypertrophic piriformis muscle and a neurovascular conflict consisting of an abnormal and absolutely rare arterial loop intimately abutting on the sciatic nerve. Diagnosis was based on some clinical criteria [2, 6] corresponding to the typical requirement of the piriformis syndrome [3] and on the instrumental negativity for spinal or radicular pathologies.

Only the piriformis hypertrophy was pre-operatively documented. This muscle's morphology, possibly due to a compensatory mechanism derived from a thoracic scoliosis, was indicated as an explanatory and sufficient cause of the neuralgia [7]. On the contrary, the arterial compression on the nerve escaped MRI demonstration, as in the case described by Merlo et al. [5].

Since physical therapy was considered inadequate, surgical correction [2, 3, 5] of both the possible causes of piriformis syndrome was performed in perspective of a highly probable good outcome [1, 3, 8]. The initially slow clinical improvement and the incomplete long-term resolution of the pain registered in our case may be attributed to the very long history of the disease and the clinical condition before surgery as well as the concomitancy of two irritating causes on the nerve. Therefore, the correct interpretation of some characteristics of sciatica possibly due to piriformis syndrome must encourage rapid investigations of possible sources of sciatica other than those due to spinal etiology.

References

1. Sayson SC, Ducey JP, Maybrey JB et al (1994) Sciatic entrapment neuropathy associated with an anomalous piriformis muscle. Pain 59(1):149–152
2. Lee EY, Margherita AJ, Gierada DS, Narra VR (2004) MRI of piriformis syndrome. Case report. Am J Roent 183:63–64
3. Vandertop WP, Bosma NJ (1991) The piriformis syndrome. A case report. J Bone Joint Surg Am 73:1095–1097
4. Bendszus M, Rieckmann P, Perez J et al (2003) Painful vascular compression syndrome of the sciatic nerve caused by gluteal varicosities. Neurology 61(7):985–987
5. Merlo IM, Poloni TE, Alfonsi E et al (1997) Sciatic pain in a young sportsman. Lancet 349:846
6. Beatty RA (1994) The piriformis muscle syndrome: a simple diagnostic maneuver. Surg Neurol 34(3):512–514
7. Rossi P, Cardinali P, Serrao M et al (2001) Magnetic resonance imaging findings in piriformis syndrome. Case report. Arch Phys Med Rehabil 82:519–521
8. Spinner RJ, Thomas NM, Kline DG (2001) Failure of surgical decompression for a presumed case of piriformis syndrome. Case report. J Neurosurg 94:652–654