

## CASE REPORT

# Piriformis Syndrome and Neuropathic Fibular Pain Caused by Anomalous Sciatic Anatomy

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## ABSTRACT

A 57-year-old woman with piriformis syndrome and neuropathic fibular pain was found to have high branching of the common fibular nerve division of the sciatic nerve above a bifid piriformis muscle leading to entrapment neuroimaging studies. This was successfully treated with corticosteroid injection in the vicinity of the piriformis muscle and along the sciatic perineurial space under

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**Key words:** Piriformis Syndrome; Fibular; Sciatic

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## INTRODUCTION

Sacro-iliac joint arthritis was a cause of sciatica at the turn of the last century<sup>[1]</sup>; however the piriformis muscle, which spans the joint, became synonymous with sciatica evoked by passive internal

rotation, hip flexion and abduction maneuvers. Piriformis syndrome was ascribed to contact of the muscle with upper sacral nerves and the sciatic trunk as they transited the infrapiriformis foramen (IF)<sup>[2]</sup>. Sectioning a tight iliotibial band<sup>[3]</sup>, piriformis myotomy and fascial band releases<sup>[4]</sup>, and physiotherapy have all been advocated as effective modes of therapy. Although over-diagnosed<sup>[5]</sup>, there are subsets of affected patients with anomalous anatomy.

## CASE REPORT

A 57-year-old woman noted left sciatica in 2006 followed lateral left calf, foot and ankle hyperalgesia and allodynia that was treated with opioid drugs, local injections into the superficial fibular sensory nerve and surgical repair of peroneal tendinopathy but without benefit. On neurological examination in June 2014 there was minimal extensor foot weakness but marked hyperesthesia along the left lateral calf and dorsum of the foot, without absent ankle reflex or left sciatic notch palpation tenderness. The right leg and arms were normal. There were no serological abnormalities suggestive of an underlying autoimmune, infectious or inflammatory disorder. Electrodiagnostic studies were consistent with left common fibular neuropathy involving the deep and superficial divisions with chronic axonal features. Non-contrast magnetic resonance neurography (MRN) of the pelvis showed a bifid left piriformis muscle with an intramuscular course of the common fibular nerve division that was deflected by the inferior piriformis muscle (Figure 1) as well as increased signal intensity along the nerve at the infrapiriformis foramen. She underwent ultrasound-guided injection of 1.5 cc betamethasone and 1.5 cc 0.5% ropivacaine in the vicinity of the piriformis muscle and along the sciatic perineurial space followed by improved pain.

## DISCUSSION

Treatable unilateral sciatica and neuropathic pain has been causally associated with anomalous anatomy of the piriformis muscle and sciatic nerve. A study of 168 cadaveric dissections showed division of the sciatic trunk above the IF into a fibular component that



**Figure 1 A.** Magnetic resonance neurogram of the left pelvis. A high branching left common fibular nerve component (arrows) penetrates and emerges from a bifid piriformis muscle.

pierced the piriformis muscle leading to possible entrapment, while the tibial component exited normally<sup>[6]</sup>. Chen<sup>[7]</sup> noted sciatic nerve entrapment through a bifid piriformis muscle at surgical exploration for progressive sciatic neuropathy in one patient who improved with surgical resection of the lower muscle belly. There is a rat model of sciatic mononeuropathy due to experimental chronic constriction injury in which morphological and functional nerve changes were associated with hyperalgesia and allodynia similar to the distal fibular neuropathic complaints in the present patient<sup>[8]</sup>.

## CONFLICT OF INTERESTS

The Author has no conflicts of interest to declare.

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