Case Report

Bipartite piriformis: a rare case of sciatic nerve entrapment

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Abstract

Sciatica is a painful condition, where pain travels from back to its course and related area. It commonly occurs due to compression of sciatic nerve by intervertebral disc herniation. 50 yr old patient presented to outpatient services with complaints of right gluteal tenderness, lumbar para-spinal spasm and pain in the lower buttock region, pain increased with forward bending and walking. His pain has though reduced and he is better in doing his activities of daily living.

Key Words: Sciatica,bipartite

Introduction

Sciatica is a painful condition, where pain travels from back to its course and related area. It commonly occurs due to compression of sciatic nerve by intervertebral disc herniation. Non discogenic disorders like piriformis syndrome, facet syndrome etc can also present with a similar clinical presentation. In this case report we present a case of piriformis syndrome secondary to sciatic nerve entrapment at the level of a bipartite piriformis muscle.

Case history

A 50 yr old patient presented to outpatient services with complaints of right gluteal tenderness, lumbar para-spinal spasm and pain in the lower buttock region, pain increased with forward bending and walking. He was previously seen elsewhere; x-rays, MRI of lumbar spine and NSAIDS were prescribed with minimal relief. Imaging was found to be in normal limits. On physical examination patient had normal lumbar range of motion, tender right gluteal region, positive SLUMP test & positive piriformis stretch test. He described a radicular pain in right lower limb going from gluteal region to posterior knee but not beyond. A probable diagnosis of piriformis syndrome was made based on above clinical findings and an MRI of pelvis was planned which revealed an accessory slip of piriformis muscle probably from S2 vertebrae on right side. Two originating branches of sciatic nerve were also seen, the anterior or peroneal branch was seen passing between the bipartite piriformis whereas the posterior or tibial branch passed through the lower piriformis muscle leading to the clinical presentation of sciatica pain secondary to the entrapment.The anterior and posterior sciatic nerve origin roots were uniting below the piriformis muscle at the greater sciatic notch with normal distal course.

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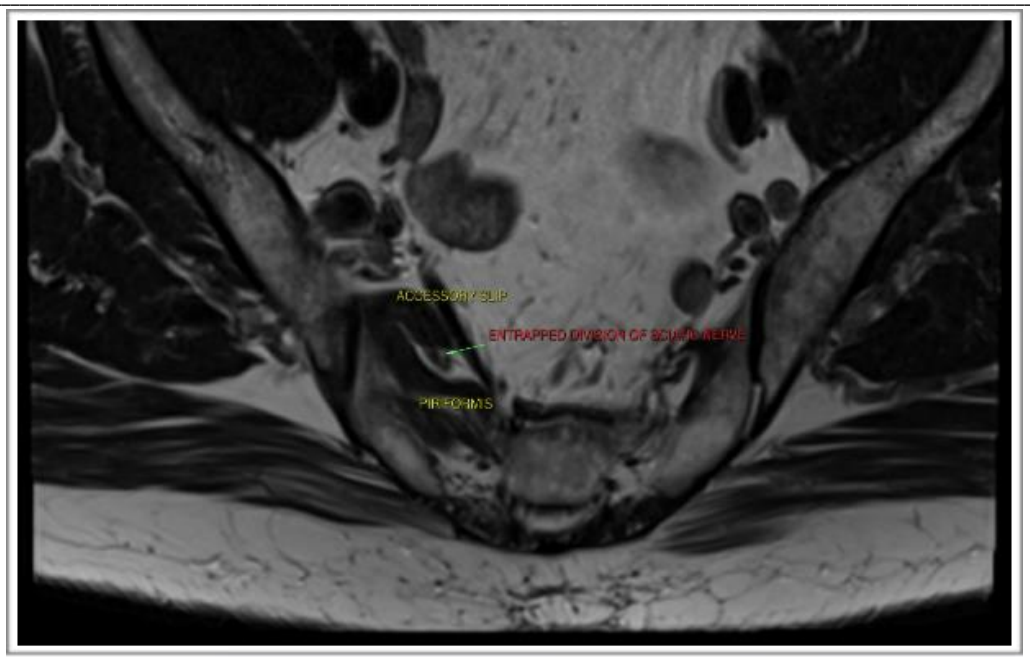

Fig 1: Magnetic resonance of male pelvis axial image showing the hypertrophic bi-partite right side piriformis muscle with accessory slip with entrapped division of right side sciatic nerve. Marking make on image

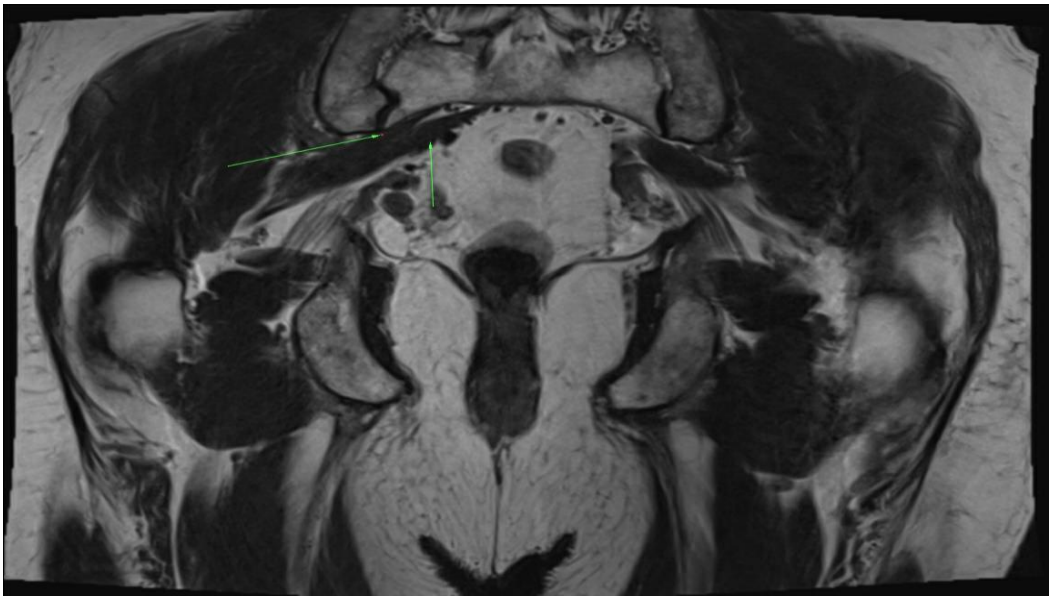

Fig 2: showing coronal section of Male pelvis bi partite piriformis muscle. The piriformis is identify with green arrow.

Discussion

Piriformis (originate from latin word means 'pear shaped') is one of the six muscle in the lateral hip rotator group originating from anterior surface of sacrum, capsule of sacroiliac joint, posterior superior iliac spine and getting inserted on upper border of greater trochanter. It act as an external rotator and abductor when hip joint is in flexed attitude. It is closely related to sciatic nerve which travel beneath it (William et al 19890[1].While describing aetiology of non-discogenic sciatica piriformis syndrome is one of the familiar causes. It was first described in 1928 by Yeoman[2] and was named piriformis syndrome by Robinson[3] in 1947[4-9].Three possible mechanism of piriformis syndrome has been described in the literature as (1) traumatic adhesion of piriformis muscle (2) compression of sciatic nerve with in piriformis muscle (when doing internal rotation manoeuvres) (3) myofascial pain secondary to focal irritation of piriformis syndrome[12] and also in some cases minor trauma leading to release of inflammatory markers like histamine, serotonin, bradykinin and prostaglandins thus starting a vicious cycle of pain/spasm and swelling. By doing gentle stretching of piriformis muscle, sciatic nerve mobilization exercises, USG guided injection of botulinum toxin type [13], steroids[14] into piriformis muscle and surgical relaxation of entrapment we can stop this vicious cycle.Natsis at al[10] conducted a study to observe anatomical variations between sciatic nerve and piriformis muscle and dissected 147 caucasian cadavers to classify the anatomical relationship between sciatic nerve and piriformis muscle according to Beaton and Anton classification[15]. In 275 out of 294 limbs sciatic nerve passed below the piriformis muscle. In 12 out of 294 limbs, sciatic nerve divided into common peroneal nerve and tibial nerve. Common peroneal nerve passed through piriformis muscle and tibial nerve passed below the piriformis muscle. In four limb they found rare variation unclassified with Anton and Beaton classification. In these four cadavers sciatic nerve divide into common peroneal and tibial nerve. Common peroneal nerve passed between superficial & deep muscle belly, and deep muscle belly give passes to tibial nerve which is almost similar to our case but instead of pass under the lower belly the tibial nerve is passing through the lower piriformis resulting in entrapment. In one limb common peroneal nerve passed above piriformis muscle and tibial nerve passed below piriformis muscle. In another one limb both division of sciatic nerve passed above the piriformis muscle.Pecina[11] in 1979 observed that pain of sciatica may also get triggered by stretching out piriformis muscle while doing internal rotation of hip joint, in those patients sciatic nerve passed through the piriformis muscle or it showed some anatomical variation.Sciatic nerve lies in close relation to piriformis muscle and in the presence of exogenous stimuli it lead to increase muscle tone resulting in irritation of sciatic nerve. Continuous stimuli may cause stiffness of muscle which interferes with smooth gliding of sciatic nerve resulting in radicular sciatica pain.Such abnormal function of piriformis muscle may also result in irritation of sciatic nerve which is perceived by nervi nervorum and patients feels pain at the local site.In our case we prescribed centrally acting muscle relaxant cyclobenzaprine, NSAIDS for pain and amitriptyline and taught him gentle stretching of piriformis muscle and sciatic nerve mobilization exercises. He later stopped amitriptyline due to dry mouth and dizziness. His pain has though reduced and he is better in doing his activities of daily living.

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