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Editorials

The “piriformis syndrome”—myth or reality?

The “piriformis syndrome” has been described as a form of sciatic nerve entrapment causing buttock and hamstring pain. In sports medicine practice, where chronic hamstring pain is a common diagnostic problem, this syndrome is often put forward as a possible cause of these symptoms.

The original description of this condition dates from 1928 when Yeoman stated that “insufficient attention” has been paid to the piriformis muscle as a potential cause of sciatica.¹ Subsequently, clinical and anatomical studies were reported, developing the nature of this condition further. In 1934, Freiberg and Vinkle reported surgical division of the piriformis muscle as a cure for sciatica.² Interestingly, although the original descriptions of this putative syndrome related to the distal sciatic symptoms, in

recent times the term has been utilised non-specifically to include buttock and hamstring pain alone, without focal neurological signs.³

There was a brief vogue invoking anatomical variants of the course of the sciatic nerve over, through, or under the piriformis muscle as it exits the sciatic notch, as a source of neural compression. Such anatomical findings have previously been noted in cadaveric dissections.⁴ Although intuitively attractive, such concepts have not been sustained using imaging, electrodiagnostic testing, or direct visualisation during surgical operation.

In the sports medicine literature, piriformis syndrome is usually described as a cramping or aching pain in the buttock and/or hamstring. It may be described as a sensation

where the hamstring muscles feel “tight” or are “about to tear”. Physical examination demonstrates that the buttock pain is exacerbated by hip flexion combined with active hip external rotation or passive internal rotation. Local muscle spasm is usually palpable in the obturator internus, or less commonly, in the piriformis muscle. Formal neurological examination is usually normal. Biomechanical assessment of the hip and lower leg usually demonstrates restricted hip external rotation and lumbosacral muscle tightness.³

There have been few reports of appropriate investigational approaches to this problem. Imaging modalities have generally been disappointing. Electrodiagnostic tests may provide the most simple and practical means of diagnosis. Long latency delayed potentials—for example, F and H waves, are normal at rest but may become delayed in manoeuvres where the hip external rotators are tightened—for example, by passive internal rotation and hip flexion.⁵ Similarly short latency somatosensory evoked potentials have been reported to be of use in diagnosis.⁶ Electromyogram is usually normal, unless severe long-standing compression has led to denervation changes in the muscles.

Once a diagnosis has been made, the treatment usually depends upon the suspected pathology. If muscular spasm and tightness is the suspected aetiology then an aggressive stretching and massage programme should be instituted. If this is initially unsuccessful, a local anaesthetic block to the muscle should be considered. If conservative methods fail then surgical neurolysis should be contemplated.

Before considering surgery for this condition it is important to accurately localise, as far as possible, the site of

entrapment. In most cases, this will be at the level of piriformis, although the “hamstring syndrome” may mimic the symptoms. It is impossible to decompress both regions easily through a single incision, particularly in a muscular athlete.

Given the anatomical relationship of the piriformis to the various nerves in the deep gluteal region, it is possible that the buttock pain represents entrapment of the gluteal nerves, and the hamstring pain entrapment of the anterior cutaneous nerve of the thigh rather than the sciatic nerve alone. This would explain the clinically observed phenomenon in the absence of distal sciatic neurological signs. Whether the piriformis muscle is the cause of the compression has not been clearly established. It is possible that the obturator internus/gemelli complex is an alternative cause of neural compression. For this reason, I suggest that sports medicine clinicians consider using the term “deep gluteal syndrome” rather than piriformis syndrome.

Editor
JUL MCCRORY

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Retraction: The “piriformis syndrome”—myth or reality?

McCroory P. The “piriformis syndrome”—myth or reality? *Br J Sports Med* 2001;35:209–210.

This article has been retracted due to duplicate (or redundant) publication.

The work was assessed by BMJ’s Research Integrity team and in conjunction with the *British Journal of Sports Medicine*. We judge that the work is not meaningfully different in genre, content or intended audience from previously published material by the same author. It was published without clear or appropriate attribution to the previous sources. In our judgement this constitutes duplicate (or redundant) publication of the following

McCroory P, Bell S. Nerve entrapment syndromes as a cause of pain in the hip, groin and buttock. *Sports Med* 1999;27:261–74. doi: 10.2165/00007256-199927040-00005

We would like to acknowledge the preliminary work of Nick Brown in investigating publications by Dr Paul McCroory and thank him for bringing these concerns to our attention.

During 2021 and 2022 there was an investigation by *British Journal of Sports Medicine* and BMJ which found that some of McCroory’s work was the product of publication misconduct. *British Journal of Sports Medicine* published a summary of the investigation.¹

References

1. Macdonald H, Ragavooloo S, Abbasi K, *et al*. Update on the investigation into the publication record of former BJSM editor-in-chief Paul McCroory *Br J Sports Med* doi: 10.1136/bjsports-2022-106408

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