

CORRESPONDENCE

Pyriformis syndrome: Myth or reality?

Pyriformis syndrome is theoretically caused by compression of the sciatic nerve by the piriformis muscle.¹ Patients with piriformis syndrome often report shooting, burning, and numbness in the buttock and down the leg along the sciatic nerve. Sitting, standing, and walking can worsen the symptoms. The diagnosis of piriformis syndrome is made only after ruling out other causes of pain in the buttock or leg. Therefore, it is a diagnosis of exclusion. These clinical features are like those of L5 or S1 radiculalgia due to spinal disorders such as herniated lumbar disc (HLD) and spinal stenosis (SS). Lumbosacral radiculopathy can be misdiagnosed as piriformis syndrome and diagnostic confirmation of piriformis syndrome is difficult.

Pyriformis syndrome was first described by Robinson in 1947 (Table 1).² He reported that pain from piriformis syndrome resulted from adherence between the sciatic nerve and piriformis muscle, without lumbar lesions. Robinson performed lumbosacral radiography to rule out a lesion that could cause radiculalgia. Because computed tomography (CT) or magnetic resonance imaging (MRI) was not invented in 1947, radiographs were taken to evaluate the presence of radiculalgia-inducing spinal lesions. Spinal CT or MRI are indispensable for diagnosing HLD or SS and determining whether spinal lesions can result in radiculalgia. Accordingly, Robinson could not definitely rule out lumbosacral spinal lesions.

After Robinson’s report, eight studies reported the occurrence of piriformis syndrome (Table 1). Of these, five did not conduct lumbosacral CT or MRI to investigate the presence of spinal diseases that could result in radiculalgia. Furthermore, they did not confirm sciatic nerve compression by the

Table 1: Summary of the previous studies that reported the occurrence of piriformis syndrome

First author	Year	Study design	Case number	Diagnosis	Spine CT or MRI
Robinson ²	1947	Case report	2	Clinical symptoms, P/E, radiographs of hip, lumbar, and sacral spine	X
Mizuguchi ⁶	1976	No information (single arm)	14	Inclusion of patients with PLS, Clinical symptoms, P/E	X
Adams ⁷	1980	Case report	4	Clinical symptoms, P/E, radiograph of lumbar spine	X
Synek (a) ⁸	1987	Case report	1	Clinical symptoms, P/E, radiographs of pelvis, thoracic, and lumbar spine, SEP	X
Synek (b) ⁹	1987	Case report	1	Clinical symptoms, P/E, contrast myelogram, abdominal CT, SEP, EMG/NCS	X
Brown ¹⁰	1988	Case report	1	Clinical symptoms, P/E, NCS	X
Hopayian ¹¹	1999	Case report	1	Clinical symptoms, P/E	X
Fanucci ¹²	2003	No information (single arm)	34	Clinical symptoms, P/E, EMG, CT (from level of ASIS to level of IS)	X
Kabatas ³	2008	Case report	1	Clinical symptoms, P/E, radiographs of lumbosacral spine, and sacroiliac and hip joints, EMG, lumbar MRI (non-contrast enhanced)	O (but non-contrast enhanced MRI)

CT, computed tomography; MRI, magnetic resonance imaging; P/E, physical examination; PLS, post-laminectomy syndrome; SEP, sensory evoked potential; EMG, electromyography; NCV, nerve conduction study; ASIS, anterosuperior iliac spine; IS, ischial spine.

piriformis muscle. In the remaining three studies, CT or MRI was conducted; however, except for Kabatas *et al.*'s study³, these imaging tests were used for finding pathology in or around the piriformis muscle, not for differentiating spinal disorders. No specific lesion related to piriformis syndrome was found. In the case study by Kabatas *et al.*, piriformis syndrome was diagnosed after confirming the absence of a specific lesion on lumbar MRI.³ CT-guided corticosteroid injection was performed in the piriformis muscle in the patient with unilateral sciatica. The therapeutic response was successful. However, even when conventional spinal MRI doesn't show spinal lesions, annular tears can cause lumbosacral radiculalgia.⁴ To clearly determine the presence of annular tears, gadolinium-enhanced spinal MRI is required.⁵

In addition, electrodiagnostic studies, including nerve conduction studies, electromyography, and sensory evoked potentials, were used to diagnose piriformis syndromes in the five previous studies. However, definite findings indicating sciatic neuropathy at the piriformis muscle level in the absence of radiculopathy were not revealed. Thus, their validity and accuracy for confirming the diagnosis of piriformis syndrome remains to be elucidated. Also, although the effect of treatment for piriformis syndrome was good, studies did not recruit control subjects, and the placebo effect or natural recovery cannot be ruled out.

In conclusion, in nearly all cases of piriformis syndrome reported in previous studies, other disorders that can cause pain in the buttock or leg was not adequately excluded. Therefore, we think that the diagnosis of piriformis syndrome remained to be confirmed in nearly all the previous studies. To determine the existence of piriformis syndrome, disorders other than sciatic compression by the piriformis muscle have to be appropriately ruled out.

¹Min Cheol Chang MD, ²Mathieu Boudier-Revéret MD, ^{3,4}Ming-Yen Hsiao MD PhD

¹Department of Rehabilitation Medicine, College of Medicine, Yeungnam University, Daegu, Republic of Korea; ²Department of Physical Medicine and Rehabilitation, Centre hospitalier de l'Université de Montréal, Montreal, Canada; ³Department of Physical Medicine and Rehabilitation, College of Medicine, National Taiwan University, Taipei, Taiwan; ⁴Department of Physical Medicine and Rehabilitation, National Taiwan University Hospital, Taipei, Taiwan

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Address correspondence to: Ming-Yen Hsiao, Departments of Physical Medicine and Rehabilitation, College of Medicine, National Taiwan University, No.7, Zhongshan S. Rd., Zhongzheng Dist., Taipei City 100, Taiwan. Tel: 886-2-23123456 ext 67316, E-mail: myferrant@gmail.com

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DISCLOSURE

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