**Magnetic Resonance Imaging for the Diagnosis of Piriformis Syndrome: Is There a Role for Imaging?**

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Objective: This study evaluates the effectiveness of MRI for the diagnosis of Piriformis Syndrome.

Introduction: Piriformis Syndrome (PS) is a poorly understood and highly controversial entity consisting of sciatica and buttock pain with tenderness over the sciatic notch. Criteria used in the diagnosis of Piriformis Syndrome vary widely and include physical examination findings, electrophysiologic data and, more recently, imaging studies including MRI and CT. The literature has described various imaging findings as being potentially diagnostic of PS. Proposed causes for Piriformis Syndrome are also widely varied with case reports citing anomalies in the relationship of the sciatic nerve to adjacent musculature, piriformis muscle enlargement or spasm, compression of the sciatic nerve by adjacent fibrovascular structures, sciatic notch masses, pyomyosits, and gluteal artery aneurysm. The most common causes identified on imaging are aberrant sciatic anatomy, piriformis muscle enlargement, masses adjacent to the sciatic nerve, and fibrovascular structures causing compression of the sciatic nerve.

Methods: A retrospective review of 44 MRI studies performed from 4/1997 to 2/2002 was performed. The exams evaluted the pirformis fossa and pelvic portion of the sciatic nerve in coronal, sagittal and axial planes. The studies were reviewed by two musculoskeletal radiologists who were blinded to the side of patient symptoms. The MRI scans were evaluated for four criteria: 1) Course of the sciatic nerve (normal or aberrant), 2) size of the piriformis muscle (normal, enlarged, reduced), 3) Fibrovasular structures abutting the sciatic nerve (present, absent), 4) Mass adjacent to sciatic nerve (present, absent). Findings were agreed upon by consensus. The findings were then evaluated to see if they correlated to the side of patient symptoms.

Results: The course of the sciatic nerve was normal bilaterally in 43/44 (98%) of patients. In one patient the right sciatic nerve was aberrant with some fibers passing through the piriformis muscle. This correlated to the side of patient symptoms. The size of one piriformis was judged enlarged in 6/44 patients (14%). In 3/6 (50%) of these patients with unilateral piriformis muscle enlargement, the unilateral enlargement correlated to the side of patient symptoms while in 3/6 (50%) of patients the contralateral side was symptomatic. Fibrovascular structures were seen adjacent to the sciatic nerve in all 44 patients. In 2/44 (5%) of patients masses were seen near the sciatic nerve (1 myxoma, 1 suspected neurofibroma). Both of these masses occurred on the same side as patient symptoms.

Discussion: MRI has some value in the assessment of patients with suspected piriformis syndrome. MRI is effective at diagnosing perisciatic soft tissue masses that can cause sciatica and anomalies of the anatomy of the sciatic nerve. The presence of a perisciatic soft tissue mass or an aberrant sciatic nerve has a correlation to patient symptoms although the percentage of patients with these findings is small. The enlargement of the priformis muscle does not look to have a significant correlation to the side of patient symptoms. Fibrovascular structures adjacent to the sciatic nerve were universally present in this series and are felt to be a normal anatomic finding.

Summary: Piriformis syndrome remains a poorly understood entity. While pathology at the level of the sciatic notch may be diagnosed by MRI, the role of imaging may be of less value than previously described. Phyiscal exam findings, evaluation of other more common causes of sciatica, and electrophysiologic studies all also play an important role in the diagnosis of Piriformis syndrome.