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Retrospective Review of Pyriformis Syndrome - Extra Spinal Sciatica : A Missed Entity.

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Abstract: *The pyriformis syndrome is an uncommon and often under-diagnosed cause of buttock and leg pain. The knowledge regarding this syndrome is important especially for a clinician, as being unaware of this entity leads to delayed or misdiagnosis. The patient at times is referred for psychiatrist consult due to mismatch of symptoms and spinal MR findings. In the present study, we retrospectively reviewed charts of patients treated for pyriformis syndrome and their outcome. A total of 21 patients were treated for pyriformis syndrome by the senior author during the period. Of them, 14 were male patients and average age of the study group was 35.2 years (24-41 years). Average visit of patient to an orthopaedician before diagnosis of pyriformis syndrome was 3.6. Pyriformis syndrome is a relatively uncommon condition that is commonly missed entity in orthopaedic practise, which if diagnosed early can benefit patient. MR diagnosis of the condition is a definitive sign in conjunction with clinical assessment.*

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I. Introduction

The pyriformis syndrome is an uncommon and often under-diagnosed cause of buttock and leg pain (1). Hallin previously reported that the pyriformis syndrome is responsible for 6–8% of low back pain conditions associated with sciatica.(2) The typical physical examination findings include tenderness on the buttocks from the sacrum to greater trochanter, pyriformis tenderness on pelvic/rectal examination, or pain provocation by FAIR (flexion, adduction, and internal rotation) test [Fig 1], Pace sign, Freiberg test, and so forth. (3) The knowledge regarding this syndrome is important especially for a clinician, as being unaware of this entity leads to delayed or misdiagnosis. The patient at times is referred for psychiatrist consult due to mismatch of symptoms and spinal MR findings. The mainstay of treatment is conservative management with physical therapy, anti-inflammatory medications, muscle relaxants, and correction of biomechanical abnormalities. However, in resistant cases, a pyriformis injection of anesthetic and/or corticosteroids may be considered. Because of its small size, proximity to neurovascular structures, and deep location, the pyriformis muscle is often injected with the use of computed tomography (CT), magnetic resonance imaging (MRI), ultrasound (US), fluoroscopy, electrical stimulators, or EMG. (4) In the present study, we retrospectively reviewed charts of patients treated for pyriformis syndrome and their outcome.

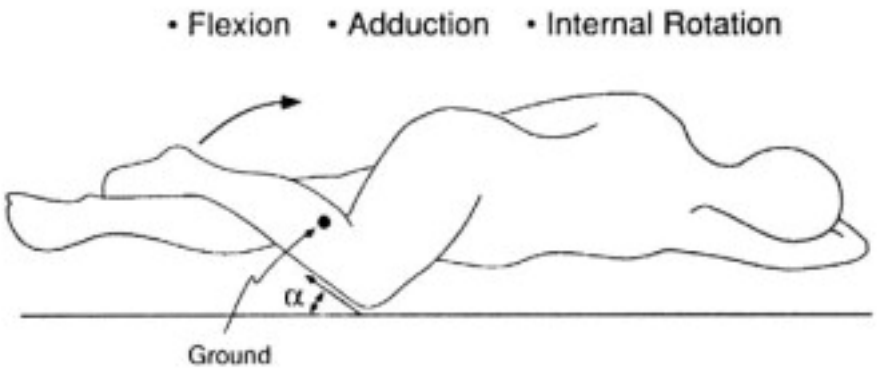

Fig 1 : The FAIR position. Simultaneous downward pressure at the flexed knee and passive superolateral movement of the shin, with both acetabula oriented vertically, maximizes adduction and internal rotation at the flexed thigh. This position is important in treating piriformis syndrome as well.

II. Methodology

Patients who were diagnosed as pyriformis syndrome clinically and who were managed at our centre from 2011-2016 were included in the study. A retrospective analysis was done on their charts. Number of OP visits, diagnosis of the condition on which visit, neurological examination, radiological investigation done, treatment given were documented. Interval free period of symptoms between symptoms in the treatment period and also time for recurrence was documented. Symptoms recurring after 3 months of asymptomatic phase after initial treatment was considered as relapse. patients with minimum follow up of 2 years were included in the study.

III. Results

A total of 21 patients were treated for pyriformis syndrome by the senior author during the period. Of them, 14 were male patients and average age of the study group was 35.2 years (24-41 years). Average visit of patient to an orthopaedician before diagnosis of pyriformis syndrome was 3.6 (2-12). Local infiltration of anaesthetic drug had complete short term relief in all the 21 patients. Non of the patients had relief with conservative trial. A corticosteroid injection was given for all the patients following local anaesthesia infiltration using anatomical landmarks. Only 4/21 patients had relief of symptoms with this technique.12/17 had relief after ultrasound guided corticosteroid inflitration. 3/5 had relief after c-arm guided corticosteroid injection. Rest of the two patients had complete relief after CT guided corticosteroid injection. Relapse of the condition was seen in 8/21 of patients treated with USG guided corticosteroid injection. All the 8 patients were given the steroid again at an average time of 4.6 months(2-11 months).

IV. Discussion

The Pyriformis Muscle originates from the pelvic surface of the sacral segments S2-S4, the adjacent sacro-iliac joint, the anterior sacro-spinous ligament and the sacro-tuberous ligament. It courses through the greater sciatic notch to insert onto the greater trochanter of the femur. The sciatic nerve exits the pelvis below the belly of the muscle. Many congenital variations exist; the nerve may divide proximally, the nerve or a division of the nerve may pass through the belly of the muscle through its tendons or between the part of a congenitally bifid muscle. (5) The Pyriformis Syndrome was first reported some 70 years back in literature as a rare yet disputed cause of sciatic nerve entrapment (6). It is due to an abnormality of Pyriformis muscle such as its hypertrophy, inflammation or anatomical variation.(7) This results in impingement of sciatic nerve.(8) It is an important cause of radiating leg pain found to be present in 6% sciatica cases seen in general practice.(6) In patients with Pyriformis Syndrome MR scanning of pelvis provides anatomical details in a sophisticated way revealing muscle abnormalities and the relationship of nerve course to muscle fibres as well as greater sciatic notch. Pyriformis syndrome is characterized by shooting/radiating pain with numbness and tingling in unilateral hip, thigh and distribution of sciatic nerve.(7) These symptoms can be elicited on physical examination by digital pressure over this muscle on lateral pelvic wall. Initially the diagnosis was made only on the basis of clinical picture and imaging was ignored. Now it is an established fact that MRI is a valuable noninvasive mode of imaging not only revealing the pyriformis muscle anatomy but also its relationship to sciatic nerve.(4,9) MRI can detect oedema of the nerve fibres and can rule out other possible etiologies like disc herniation, spinal canal stenosis, bony lesions or mass lesions.(9)

The following medical conditions are frequently associated with complaints of the piriformis syndrome: (1) preceding fall, (2) direct gluteal trauma, (3) overuse of piriformis muscle, (4) LLD (leg length discrepancy), (5) lumbar spinal stenosis, (6) myofascial pain syndrome (MPS), (7) piriformis muscle infection, and (8) local invasion of piriformis muscle by cervical cancer [10-15]. After a fall or direct gluteal blow there may be localized hematoma followed by scarring in between sciatic nerve and small hip extensors. Sometimes piriformis muscle spasm may irritate the underlying sciatic nerve [16]. LLD can be subdivided into two etiological groups: a structural LLD defined as those associated with a shortening of bony structures and a functional LLD defined as those that are a result of altered mechanics of the lower extremities or spine. The most controversial musculoskeletal disorder associated with leg length discrepancy is low back pain [14]. Gait pattern may be altered or remain unchanged in leg length inequality. Sustained stress on piriformis muscle with resultant impact on both stance and swing phases can produce altered gait pattern in LLD [16]. Overuse of piriformis muscle can occur following unaccustomed long distance walking, running, repeated squatting, kneeling, cycling, and so forth [12]. Piriformis pyomyositis is an infective condition involving the piriformis muscle, a clinical scenario that may report following vaginal delivery and usually is associated with fever and raised inflammatory biochemical markers [10]. Association of piriformis syndrome and lumbar stenosis can be explained by double crush hypothesis [16].

In our study, none of the patients had relief with conservative trial of management against most studies, wherein about 79% patients are treated conservatively for the same condition.[17] Probably ours being a referral

centre, we were getting only patients whose condition is recalcitrant for conservative trial. Corticosteroid injection is a good anti inflammatory measure decreasing the pressure symptoms on sciatic nerve. Mode of injecting it at the right spot remains the mainstay of treatment. Blind anatomic tenchnique is difficult in moderate to obese built patients and perhaps the bulky muscles around the gluteal regions could have not located the right spot in this technique. Ultrasound guided injections are however not bad and yield good results as well. Ultrasound being less invasive, relatively cheap and done as a out patient procedure is a popular method of injecting corticosteroid.

In the present study we did not measure the outcome of the method of injection vs BMI of the patient. Perhaps that would yield which is a better method of injection technique.

V. Conclusion

Pyriformis syndrome is a relatively uncommon condition that is commonly missed entity in orthopaedic practise, which if diagnosed early can benefit patient. MR diagnosis of the condition is a definitive sign in conjunction with clinical assessment.

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