

Greater Trochanteric Pain Syndrome (GTPS) after Lumbar Spinal Injections: A Case Series

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Abstract

Subjects: Five patients with low back pain and radicular symptoms.

Case description: Five patients presented with low back pain radiating to the lower extremity, which correlated with pathology identified on MRI. After undergoing the appropriate spinal injection, each patient complained of severe back pain, difficulty in ambulation and lateral hip pain with maximum tenderness at the ipsilateral greater trochanteric area. All experienced complete pain relief with injection of the greater trochanteric bursa.

Discussion: After undergoing a Spinal interventional procedure, patients may complain of acute onset of severe pain in the back, hip, and leg. Prior to proceeding with costly investigations, it is important to rule out GTPS. 20% of patients referred to spine specialists with back pain/sciatica have been found to have GTPS.

Conclusion: This report highlights the importance of ruling out other possible causes of low back pain/sciatica before and after interventional spinal injection therapy.

Keywords: Bursitis; Spinal injections; Musculoskeletal pain; Low back pain

Introduction

Greater Trochanteric Pain Syndrome (GTPS) is characterized by chronic, intermittent aching pain over the lateral aspect of the hip and tenderness to palpation of the bursa that is located just superficial to the greater trochanter [1-4]. It usually occurs between the fourth and sixth decades of life, though it has been described in all age groups [1-3]. While trochanteric bursitis can be caused by trauma (23-64%) [2,4], it more often develops as a result of repetitive friction between the iliotibial band and greater trochanter during active hip flexion and extension [5]. Risk factors for GTPS include female gender, overuse, obesity and alterations in gait [6]. It is usually unilateral and is more common in women [3], whose prevalence is four times higher than among males [2,4,7,8]. Pain is typically located posterolaterally over the greater trochanter, without radiation of pain [9]. However, the pain of GTPS has been reported to extend into the lateral aspect of the

thigh in 25-40% of cases and rarely into the posterior aspect of the thigh or distal to the knee [2,4]. This report presents a series of cases encountered by the Interventional Pain Service, in which patients successfully treated for MRI-documented spinal pathology and symptoms were found to have underlying GTPS which was unmasked by the spinal interventional injection therapy itself, and required subsequent greater trochanteric bursal injections (GTBI).

Case Results

Five female patients aged between 35 and 63 presented with low back pain radiating to one or both lower extremities. Data for these five patients are summarized in Table 1. Their individual symptoms were consistent with lumbar pathology that was identified by MRI scan. Two of the patients were diagnosed with unilateral lumbar radiculopathy (Cases 1 and 5), one of the patients was diagnosed with bilateral lumbar radiculopathy (Case 4), and two were diagnosed with lumbar facet arthropathy (Cases 2 and 3).

	Age	Sex	Diagnosis	Treatment	Onset of Pain	GT Tenderness	Resolution of Pain
1	35	F	L. Lumbar radiculopathy	Left L5 TFES	Next day	No	Yes
2	36	F	L. Lumbar Facet arthropathy	Left Lumbar facet block	Immediate	Mild (Left)	Yes
3	51	F	L. Lumbar Facet arthropathy	Left Lumbar facet block	Next day	Mild (Left)	Yes
4	43	F	Bilateral Lumbar radiculopathy	Bilateral L5 TFES	Immediate	Mild (Right)	Yes

5	63	F	R. Lumbar radiculopathy	Right L5 TFES	Immediate	No	Yes
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Table 1: Case results of five female patients.

All five patients were subsequently scheduled for fluoroscopically-guided interventional spinal injections, either lumbar facet block (Cases 2 and 3) or transforaminal epidural steroid injection (TFES) (Cases 1, 4 and 5). The two patients with unilateral lumbar radiculopathy had no greater trochanteric (GT) tenderness prior to undergoing TFES. The patient with bilateral lumbar radiculopathies (Case 4) had mild right sided GT tenderness prior to undergoing bilateral TFES. Both patients with lumbar facet arthropathy (Cases 2 and 3) had mild ipsilateral GT tenderness prior to undergoing ipsilateral lumbar facet block.

After undergoing the appropriate interventional procedure based on their pathology, all five patients complained of severe back pain, difficulty in ambulation and lateral hip pain with maximum tenderness at the ipsilateral greater trochanteric region. Three patients (Cases 2, 4 and 5) developed pain immediately following injection and two (Cases 1 and 3) developed the pain on the following day. All five patients reported complete pain relief following GTBI with a combination of corticosteroid and local anaesthetic.

Discussion

Approximately 14 to 21 bursae have been described in the hip region. Four of these are usually present directly around the greater trochanter, three of which are constant; the subgluteus medius and subgluteus maximus bursae are considered major while the subgluteus medius bursa is considered minor [2,10]. Inflammation and irritation of these bursae can lead to GTPS, which may not be immediately suspected, and it is important to maintain a high index of suspicion for it. Twenty percent of patients referred to spine specialists with back pain or lumbar radiculopathies have been found to have GTPS, [11,12]; and as high as 30-35% of patients with chronic low back pain have been found to have GTPS [13].

Though the structures surrounding the greater trochanter and the greater trochanteric bursa are innervated by the superior gluteal nerve, inferior gluteal nerves, and the sciatic nerve, cadaveric dissection by Genth et al. showed that none of these nerves supplied branches to innervate the greater trochanter periosteum or bursae. Rather, a branch of the femoral nerve proper which runs with the medial circumflex femoral artery and vein and their trochanteric offshoots as a neurovascular bundle was found to innervate the greater trochanter and its bursae [14]. However, an anatomic variant of 2 out of 16 cadaver subjects was dissected by Dunn et al. which showed branches off the inferior gluteal nerve entering the subgluteus maximus bursae in addition to the surrounding tissues. Whereas the femoral nerve forms from the ventral rami of the second, third and fourth lumbar nerves, the inferior gluteal nerve forms from the ventral rami of the fifth lumbar and first and second sacral spinal nerves; persons with this anatomic variation and greater trochanteric pain syndrome may be anatomically prone to radiating pain to the foot, calf, and buttock [15].

GTBI may be performed blind or under image guidance, such as fluoroscopy or ultrasound [16]. GTBI performed with corticosteroid and local anesthetic have been shown to provide good pain relief, with response rates ranging from 60 to 100% [2,5]. Shbeeb and Matteson

found higher doses of corticosteroid to be associated with the greatest symptom relief [2]. GTBI with a mixture of a local anesthetic and long acting corticosteroid with subsequent relief of pain provides both treatment for and diagnosis of GTPS [17,18].

After undergoing a spinal interventional procedure, patients may complain of acute onset of severe pain in the back, hip, and/or leg. A broad range of musculoskeletal conditions can present as radicular low back pain, one of which is GTPS which can be easily diagnosed based on clinical examination [19]. MRI can be utilized to confirm the diagnosis of GTPS if clinically warranted [20]. The five cases reported in this study highlight the importance of ruling out GTPS prior to proceeding with costly investigations into the source of post-procedural pain. GTPS may not be immediately suspected, and it is important to maintain a high index of suspicion for it.

Conclusion

This is the first case series of GTPS unmasked after spinal injection; it highlights the importance of awareness of the many possible differential diagnoses of low back pain/sciatica before and after interventional spinal injection therapy. The etiology of acute onset of GTPS is unclear in the above cases.

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