

Greater Trochanteric Pain Syndrome- A Review Article

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Abstract

Greater trochanteric pain syndrome (GTPS), also known as “trochanteric bursitis” is a common clinical condition faced day to day by the practising physicians and orthopaedic surgeons. The important pre-disposing factors, clinical implication of its etio-pathology and the latest update on the management options have been discussed in this article. Not all GTPS require an MRI. Also, not all respond favourably to a steroid injection. The management of GTPS essentially relies on individualizing treatment option on a case to case basis.

Keywords: Trochanteric Pain; GTPS; MRI; Cortico-steroid injections; Arthroplasty

Introduction

Greater trochanteric pain syndrome (GTPS), commonly known as “trochanteric bursitis” contributes to cause significant morbidity in industrialised societies. It was first described by Stegemann in 1923 as lateral hip pain [1]. The previous term trochanteric bursitis has been given up as 3 symptoms of inflammation namely, redness, swelling and raised local temperature are uncommon [2,3]. Though, conventionally defined as chronic, intermittent, pain and tenderness at lateral hip [2,4], GTPS covers a spectrum of presentation including, pain and reproducible tenderness at GT, buttock or lateral thigh. Due to its varied presentation, it has been described as a “great mimicker” [5]. It affects around 5.6 patients per thousand population [6] and is a self-limiting condition usually which responds to conservative measures.

Relevant Anatomy

Upto 21 bursae have been described around the hip joint. However, 3 - 4 bursae are most commonly present.

Figure 1 shows the anatomy of various primary and secondary bursae. The trochanteric bursa lies deep to the gluteus maximus muscle and superficial to the medius tendon. Other commonly involved bursae are the one deep to the gluteus medius tendon, and in relation to the gluteus minimus tendon [7]. The significance of knowledge of anatomy lies in the fact that there is differential response to steroid injections in patients of GTPS, hence the importance of injecting all the bursae when using ultra-sound guidance [8].

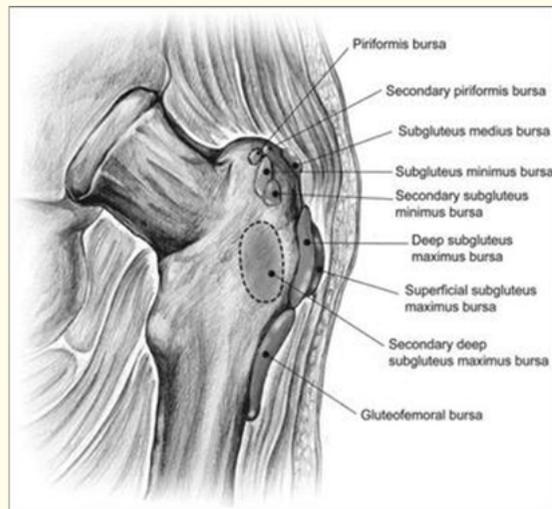


Figure 1: Anatomy of various primary and secondary bursae [Olive Chung].

Pre-disposing factors

Almost 10-20% of adults of more than 60 years' age group experience some type of hip pain. However, GTPS is more common in the 4th-6th decade. It is 3-4 times more common in females than males. The pre-disposing factors include low backache, knee arthritis, ilio-tibial band tenderness, obesity, leg-length inequality and rheumatoid arthritis [9]. Interestingly, increased acetabular ante-version and wide trochanters in relation to iliac wings have been found increasingly associated with GTPS [10].

Etio-Pathology

Contrary to common belief, bursitis is not always present in GTPS. Infact, in a study based on MRI, features of bursitis were present in only 8% of GTPS [11]. Nearly, all cases had abnormality of glutei in some form. It is hypothesized that frictional overuse of abductor apparatus, trauma or high tension of ilio-tibial band result in inflammation or tears of the gluteus medius/minimus tendons, which may ultimately progress to secondary bursitis. Other causes of lateral hip pain include trigger points (discrete, focal, hyperirritable spots located in a taut band of skeletal muscle), iliotibial band disorders, meralgia paresthetica, osteoarthritis, lumbar spine disorders. Histopathological study of proven cases of GTPS showed no changes of acute or chronic inflammation in the trochanteric bursae [12]. A word of caution exists while dealing with acute trauma, as pain of neck of femur fracture may mimick GTPS occasionally [13].

Clinical Features

Patients with GTPS present with lateral hip pain, usually intermittent. The pain is exacerbated by lying on the affected side, prolonged standing, transitioning to standing, sitting with affected leg crossed, climbing stairs, running or other high impact activities [5]. 50% patients experience pain radiating along lateral aspect of thigh to knee [14]. Ege Rasmussen KJ described a criterion for diagnosis of GTPS.

Positive first two criteria along with one other criterion can be termed as GTPS. Examination reveals point tenderness (jump sign) postero-lateral to greater trochanter. Resisted active abduction along with external rotation and sometimes internal rotation typically reproduces the pain. Rarely, extension produces pain. Trendelenburg's test was noted to be the most accurate test in detecting a tendon tear, with a sensitivity of 73% and a specificity of 77% [16].

1	Lateral hip pain
2	Distinct tenderness about the greater trochanter
3	Pain at the extreme of rotation, abduction, or adduction
4	Pain on hip abduction against resistance
5	Pseudo radiculopathy–pain radiating down the lateral aspect of the thigh
6	Patrick-FABERE (Flexion, abduction, external rotation, extension)

Table 1: Determination of GTPS [15].

Differential Diagnosis

Differentiating GTPS from other causes of lateral hip pain forms mainstay in management of the patient. Neuropathic symptoms due to damage to superior or inferior gluteal nerve can mimic GTPS [17]. Painful flexion and extension along with groin pain may indicate osteoarthritis. Avascular necrosis must be differentiated from GTPS by noting history of waxing and waning of symptoms, associated etiology (corticosteroids, smoking, alcohol, and childhood illnesses) and differential hip rotation on examination. Ilio-tibial band syndrome must be considered with positive Ober's test (Patient positioned in side-lying with hips and knees flexed, aligning the shoulders with the hips and ankles, with the legs stacked on top of each other. The clinician then holds the patient's top leg with the forearm in supination, supporting the lower leg and knee (90°), while his or her other hand stabilizes the pelvis. Finally, the clinician takes the leg back into hip external rotation and extends to 0°, then allows the leg to passively adduct from a position of neutral hip extension and rotation, without allowing pelvis motion and maintaining the femur in neutral) [18]. Also, it is important to ask the patient about history of snapping while walking, jogging, cycling etc. Meralgia Paresthetica can be well differentiated by presence of burning sensation over antero-lateral thigh aggravated by extension of hip. Lumbar disorders are the most important and difficult to differentiate due to co-existence in many cases. However, symptoms of radiculopathy and positive nerve stretch signs points towards spinal etiology. Sacro-iliac joint involvement present as a more posterior based pain with positive sacro-iliac tests like Gaenslen's test, pump handle test etc.

Investigations:

GTPS is essentially a soft-tissue disorder. However, a plain radiograph of pelvis with both hips is important. It helps in exclusion of important pathologies like osteoarthritis, femoro-acetabular impingement, stress or avulsion injuries, and fractures. Chronic GTPS may show findings of trochanteric exostoses or osteophytes. Insertional tendinopathic calcification (than bursal) may be seen in Upto 40% of cases [19]. Ultrasound depicts tendinous pathology in the form of loss of fibrillar architecture, hypo echogenicity, thickening within- tendinopathy, intratendinous hypoechoic or anechoic foci- partial tear, 'bald' facet- full-thickness tear. Also, calcific gluteal tendinopathy is seen better than MRI. Bursitis may be visualised in the form of crescent-shaped hypoechoic/anechoic collection deep to gluteus maximus tendon. Dynamic ultrasound helps in diagnosing snapping hip syndrome (externa coxa saltans) [20]. MRI is a highly sensitive imaging modality. It helps in detection of soft-tissue elements like gluteal insertion tears/ abnormalities. However, owing to presence of such findings in asymptomatic individuals, it is not a very specific modality [21]. It is useful in cases of uncertain diagnosis, recalcitrant cases and in cases whom specialist referral is required.

Treatment

GTPS is a self-limiting condition and usually responds to conservative measures. A wide spectrum of treatment modalities is available. However, no modality can claim to cure this condition. Recent hypothesis suspects presence of degenerative enthesopathy as cause than inflammation, hence no curative treatment. Oral analgesics, physical therapy, weight reduction and ice application have all shown to benefit in controlling symptoms due to GTPS and form the mainstay of treatment [22]. Low energy shock wave therapy has been shown to

improve patient outcomes as well [23]. Cortico-steroid injections seem to be the most attractive treatment modality at present. Response rates vary from 60 to 100% with prospective studies claiming 77% success rate [5]. There is no role of fluoroscopic guidance, however ultra-sound guidance helps in injecting all 4 bursae around the greater trochanter. Most common causes for failures include other bursae involvement, tendonitis, misdiagnosis, inaccurate needle placement and recurrence of symptoms [5]. Injection technique includes using 40 - 80 mg of methylprednisolone combined with 4-6 ml of 1% lignocaine. Half of the mixture is injected at the point of maximal tenderness with the rest infiltrated in the surrounding tissues. Complications, although rare, include sterile abscess, nerve injury, granulomatous reaction and skin atrophy [2]. Dry needling is a recent treatment modality in GTPS. It involves electrical stimulation-2 Hz, 250 microseconds with the help of needles [24]. Peri-articular hip endoscopy [25] involves suture-anchor repair of tendinous tears (gluteus medius/minimus) to greater trochanter, bursectomy for recalcitrant trochanteric bursitis and iliotibial band release (diamond shape resection) for external snapping.

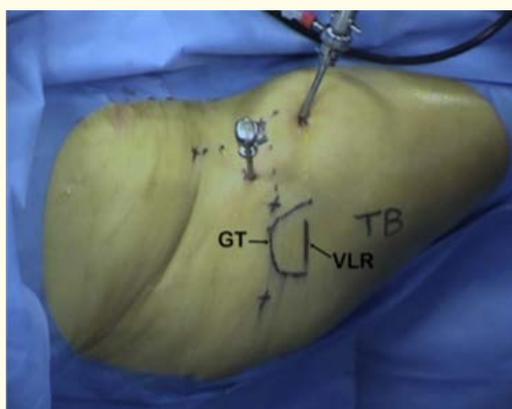


Figure 2: Bursectomy for recalcitrant trochanteric bursitis and iliotibial band release [24].

Other options for recalcitrant cases include ITB Z-lengthening, open reduction trochanteric osteotomy and platelet-rich plasma injections. There is increasing trend of use of platelet-rich plasma injections in treatment of GTPS; however, there is no good evidence in literature available to our knowledge, about its efficacy.

Trochanteric pain in post-hip arthroplasty

15% of bursae are involved when observed while doing the primary hip replacement for osteoarthritis. There is increasing trend of recognition of problem of trochanteric pain following total hip replacement. Though the management of these cases is similar to those of conventional GTPS, there is an inherent fear among surgeons of injecting Cortico-steroid in a clinic setting owing to the risk of infection and most surgeons prefer to inject in sterile operating room.

Conclusion

Due to overlapping presentation of various pathologies, excluding GTPS from other causes is the main challenge in management of GTPS. MRI is gold standard for difficult, recalcitrant cases not responding to conservative measures. Conservative management forms mainstay of treatment. Corticosteroids have proven role in management of symptoms, however, must be used judiciously and only when conservative measures fail.

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