Manual Osteopathic Intervention for Trochanteric Bursitis or Greater Trochanteric Pain Syndrome (GTPS)

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Abstract

Trochanteric bursitis, better known as Greater trochanteric pain syndrome (GTPS), results from friction on the bursae in the lateral aspect of the hip, causing swelling and pain and is a common complaint in the primary care setting. GTPS can include many possible conditions, including trochanteric bursitis, gluteus medius and minimus inflammation, and abductor-adductor imbalances. Initially, many patients may go to their primary care provider, a walk-in clinic, chiropractic and osteopathic offices, and physical therapy clinics. It is recommended that conservative therapy, or a nonsurgical approach, be utilized before considering more invasive surgical interventions. The manual osteopathic practitioner may be a proven choice to work alongside other conventional medical interventions to treat the whole patient and improve symptoms quicker than conventional medicine alone. Osteopaths can provide a range of treatments that include muscular energy techniques and joint mobilization techniques to manage pain, improve range of motion, and stretch and relax muscle groups. Conservative therapy, more specifically osteopathic manual therapy, is a safe and beneficial way to improve the symptoms of GTPS. To date, results of patients with GTPS treated by osteopaths have been positive and encouraging, but more research may be needed to confirm this position further.

Introduction

Aches and pains of the joints are some of the most common causes of ailments leading to the consumption of medical attention at the primary care level.¹ These conditions lead to high costs, morbidity, and overall discomfort in many.¹ Bursitis is one of the most common causes of aches and pains in the knee, elbow, hip, and heels, to name a few.² However, this condition needs to be differentiated from other common causes of joint pain such as arthritis, tendonitis, infections, neoplasms, and even fracture or injury.² The condition may need further investigation because septic and aseptic bursitis can develop from either infectious or non-infectious reasons, making it hard to diagnose for many clinicians.²

While bursitis can develop from many different inflammatory non-infectious causes and conditions, infection is usually the focus of diagnosing bursitis.² Today, some tests can be completed to differentiate between and diagnose bursitis conditions.² Moreover, knowing which etiology bursitis comes from is one thing; another is trying to find out which kind of bursitis it is and where it is ailing a patient.

Common Types of Bursitis and Their Prevalence

Four common types of bursitis are addressed frequently by clinicians. The common types of bursitis include:

Prepatellar – Develops from the subcutaneous prepatellar bursa, or the superficial infrapatellar bursa, collectively making up the prepatellar bursa.² Bacteria and microorganisms such as different Staphylococcus, Streptococcus, Mycobacterium, Brucella, and fungal species have all been found to cause septic bursitis in the prepatellar region.^{3,4} Further, 80% of the septic cases of prepatellar bursitis are caused by Staphylococcus aureus.³ The incidence of prepatellar bursitis is currently unknown. However, it is suggested that prepatellar bursitis and olecranon bursitis may account for 0.01% and 0.1% of hospital admissions.⁵

- Olecranon This type of bursitis is typically non-infectious in origin and happens when fluid and inflammation build in and around the bursa due to traumatic, inflammatory, or infectious factors.² This is the most common superficial bursitis known, and 20% of all cases result in sepsis.⁶ The incidence of olecranon bursitis is also currently unknown. But the 0.01% to 0.1% hospital admission rate also applies here.⁵ It is also suggested that olecranon and prepatellar bursitis are underestimated due to only the severe cases admitted to the hospital.⁵ Further, it is thought that prepatellar and olecranon bursitis are some of the most found forms of bursitis amongst the population.^{7,8}
- Trochanteric Trochanteric bursitis (TB) is found in the hip, pelvic girdle, or buttock area, causing diffuse pain to the lateral thigh or buttock and marked tenderness in the greater trochanter region.⁹ It is now more commonly called greater trochanteric pain syndrome (GTPS) and is widely seen as a complaint in primary care offices.¹⁰ The pain experienced by 10-20% of patients seen for hip pain in primary care can be attributed to GTPS.¹¹ In a study of 164 patients with a mean age of 55, 80% were female, and 34% were troubled with the condition when doing work-related activities.¹² Further, the incidence of GTPS was found to be 1.8 patients per 1,000 per year in primary care.¹² GTPS disproportionately affects females versus males with an approximate between 3 or 4 to 1 ratio.¹³⁻¹⁵
- Retrocalcaneal This type of bursitis affects the Achilles tendon and even the bony insertion and, in severe cases limiting function and causing pain.² The aseptic version of retrocalcaneal bursitis is seen in physically active and sporting adults commonly.¹⁶ conversely, the septic version, or retrocalcaneal bursitis, has rarely been seen or reported in English literature.¹⁷⁻¹⁹ A study found that 28% of cases treated are due to retrocalcaneal bursitis.²⁰ This can be a common occurrence in athletes, runners, and people who wear tight or rigid heel shoes a lot, causing heel pain in the Achilles tendon area.²¹⁻²³

All the listed types of bursitis are related to common musculoskeletal pain.² We found that though the different common types of bursitis occur at different rates in many individuals, overall, bursitis accounts for 0.4% of visits to a primary care provider.²⁴ Yet, the incidence is still higher in athletes and even more so in those that run (up to 10%).²⁴ Also, men account for 85% of septic superficial bursitis cases.²⁴ Further, even though the types of bursitis mentioned above are all fairly standard, GTPS can be misdiagnosed and has limitations in the diagnosis process, like retrocalcaneal bursitis. Moreover, there are limitations in treatments and scarcity of literature and reviews on GTPS, which is why this study will focus more on this bursitis moving forward.²⁵

Etiology and Diagnosis of GTPS

GTPS can be one of the most elusive and deceiving forms of bursitis due to it being able to mimic other conditions that may cause chronic, intermittent pain that can have tenderness.²⁵⁻²⁸ It has been found that the term GTPS describes TB a lot more completely than identifying it as bursitis due to some of the more fundamental symptoms of inflammation, erythema, edema, and rubor being uncommon.^{29,30} The term GTPS is agreed upon in the medical community due to the pain produced in the buttock and lateral thigh region having many roots.^{25,28,30} Causes can be a muscle tear, tendonitis, trigger points, iliotibial band (ITB) disorders, sports hernias, nerve entrapment syndrome, acetabular labral tears, and even general and localized pains in the area.^{25,28,30}

The fact that the true etiology of TB cannot definitively be decided in the medical community helps GTPS all but replace it as the more accurate referral to the pain found in the region.²⁵ What is agreed upon is the more precise etiology of the base symptoms that can lead to gaining a GTPS diagnosis from providers. This pivot stems from the risk factors for GTPS being more understood by healthcare professionals. The main risks that are most common in patients found with GTPS are knee osteoarthritis, ipsilateral ITB pain, female gender, age, low back pain, and obesity.^{13,31} Other risk factors found in a study by Schapira et al.³² were peripheral osteoarthritis, rheumatoid arthritis, and lumbosacral arthritis seen in 91.6% of patients diagnosed with TB.

However, there is a trauma factor that can contribute to GTPS in many patients. Mainly the trauma occurs from friction between the bursae and greater trochanter and happens with overuse and fall type trauma.^{29,33} Traumatic differential diagnoses can be femoral neck fractures, avascular necrosis, and loose bodies found by medical providers.³³ Still, misdiagnosis can be expected due to evidence of bursal inflammation in only 8% of cases.³⁴ Further, it is said that actual bursal inflammation may come from microtraumas, regional muscular dysfunction, and overuse or acute injury.^{24,29,33} Actual TB has been said to be most common among overweight middle-aged women and usually occurs from acute traumas, overuse, and mechanical factors of the body.²⁴ Also, it is stated that GTPS could also be caused by frictional trauma, overuse of the gluteus Medius/Minimus muscles, or their tendinous insertions, from the tension created by the ITB.^{24,25} Factors that can cause GTPS other than actual bursal inflammation, in addition to the ones listed above, are lumbar spine disorders, meralgia paresthetica, and dysfunction of the gluteus medius muscle.^{29,31}

With all the different ways GTPS can form, it can be difficult to diagnose TB alone definitively. Regardless of the techniques used, TB should be analyzed by ruling out other conditions that it could be or through the differential diagnosis.² This is done to ensure that due to it being considered GTPS, it will not be misdiagnosed as something else, delaying the appropriate care for the definitive condition. The other mimic conditions that should be ruled out to confirm TB are spinal stenosis, spondylosis, radiculopathy, osteoarthritis, osteonecrosis, stress fracture, soft-tissue infection, and bone/soft-tissue tumors.^{25,35} Different imaging techniques are found to be the best at diagnosing GTPS and TB, respectively.

MRIs have been more accurate in diagnosing TB precisely. In contrast, radiographs have been used to evaluate and provide a differential diagnosis for the trochanteric region for trauma and arthritic diseases and disorders of the hip joint.²⁵ More directly, the Trendelenburg sign/assessment was found to be the most sensitive, specific, and reliable in diagnosing TB and GTPS when confirmed with MRI.³⁶ Further techniques used in the differentiation of TB and GTPS have been the more traditional palpation of the affected side and a clear patient history leading up to the visit.²⁴ Understanding what could play a role in diagnosing the condition more accurately is that the pain is worse on the affected side.²⁴ Physical activity and stretching could be making things worse, finding tenderness during palpation of the area, and not sleeping well of discomfort when contacting the affected side.²⁴

Two other tests accompany the Trendelenburg test that are used when not using imaging techniques that have been successful in diagnosing GTPS in the past with good differentiation. Those techniques are the Ober and the FABER tests.^{2,10,25} The Ober test was found to be a good test irrespective of where the pain was centered. This test is used to detect the contracture of the iliotibial band, with the patient in a lateral position during testing. During the test, the leg is abducted, and the hip is extended with the knee in extension.² The FABER test is good if the pain can be reproduced in the later hip upon examination.¹⁰ This test is used more due to ease since it looks at pain in the sacroiliac region.²

Symptoms of GTPS

The symptoms of GTPS, including TB, are vast, which may contribute to why it may be so challenging to determine the former from the ladder. The conditions have remarkably similar symptoms, which is why the etiology and diagnosis are practically identical. GTPS will typically present as chronic pain to the lateral hip and buttock.²⁵ TB will present almost identically with the condition and radiate pain into the groin or lower back.² Both conditions have symptoms exacerbated by ambulation, walking uphill, stair climbing, standing from a sitting position, lying on the affected side, prolonged standing, stilling with the affected leg crossed, running, or other high impact activities.^{2,25}

From this point, we will return to speaking about TB and GTPS as just GTPS due to the consensus on both conditions being indecipherable almost all the time.^{2,24,25,29,33} The base or fundamental presentation and symptoms of GTPS are, as mentioned, pain to the lateral hip, buttock region, radiation to the grain and lower back, tenderness upon palpation of the lateral or posterior aspect of the GT.^{2,25} While that pain is pretty standard and looked for on exams by many clinicians, pain on internal or external rotation, abduction, adduction, or with forceful contracture of the hip abductors(while the knee is bent), and flexion of the lateral hip and pseudo-radiculopathy where pain may radiate down the lateral aspect of the hip are also more definitive symptoms that will guide one to the GTPS diagnosis.^{2,25}

Why Osteopathic Manual Therapy (OMT)?

When GTPS is diagnosed or suspected in a patient, different things may help alleviate pain from this condition and possibly stop the progression or exacerbation. Suppose the condition does not resolve on its own, and is found early. In that case, many healthcare providers will recommend a more conservative approach which may include ice, weight loss, behavioral modification, exercise, oral NSAIDs, and physical therapy.^{2,10,25} This recommendation is made by providers because most patients respond to nonsurgical management of GTPS.² Only when these interventions fail is when surgical, steroidal, and combination therapies are explored.^{2,10,25},

After early identification of GTPS, OMT may be the most effective and appropriate approach given the aim of providers to improve flexibility, muscle strength, and joint mechanics and decrease pain on range of motion.²⁵ Further, OMT is intended to help support the mechanisms for healing within the body by improving the range of motion, mechanical factors, assisting with restrictions of musculotendinous blocks, or symptomatic dysfunctions.¹⁰ The focus of OMT with a GTPS patient will be clear after evaluating the patient's lumbar spine area, pelvis, and hip region.^{2,10,37} These regions should be assessed by an osteopath before selecting a treatment path. The assessment should occur because there is a possible contribution to excessive strain on the hip through abnormal movement in the femoro-acetabulum.¹⁰

The differential diagnosis of femoroacetabular impingement syndrome (FAIS) should be ruled out for proper and effective OMT. A patient can also be experiencing dysfunction and pain in the knee, ankle, and even foot which can make this condition, at times, hard to spot in specific individuals.³⁷ Also, paying attention to the different contributions, anatomy, cause-and-effect/agonist-antagonist correlations in the body is what makes an osteopath the perfect provider to see.¹⁰ The goal is to stop GTPS from getting worse or evolving in a patient with indicative symptoms, which could make the healing and recovery process longer and harder. The underlying pain and understanding the contributing factors will dictate what methods and techniques are used to treat a patient that presents with GTPs.

Treatment with Osteopathic Manual Therapy

A manual osteopathic clinician can provide many different treatments that will target pain, manage chronicity, and ultimately help maintain or improve the range of motion for a patient. For GTPS, an osteopathic practitioner could use a combination of mobilization and muscle energy techniques. Osteopaths and physical therapists use mobilization techniques to help restore, increase, and maintain the range of motion and the flexibility of joints and ligaments. Moreover, Joint Mobilization techniques are considered a type of manual medicine used in conjunction with the body to help manage dysfunction, improve articulation and range of motion, and increase the body's function at different points.

Fred Mitchell, Sr D.O., first established muscle energy techniques (MET), an American osteopath in 1948. It involves the positioning of a body segment to stretch a muscle to a limited range.¹⁰ METs orchestrate voluntary contraction of muscles against a distinct counterforce from a particular site and in a specific direction. METs improve muscle function, motion, flexibility, reduce pain, and are considered active and not passive techniques. METs may provide certain benefits to the patient, such as stretching muscles thoroughly, strengthening muscles, decrease spasms and hypertonicity, relax muscles, reduce localized edema and pain, and can be preventative in preventing some injuries.

Both mobilization techniques and METs can help improve a patient's condition by combining active and passive forces helping to reduce symptomology. While mobilization techniques can help joints and may have specific benefits, many osteopaths agree on METs as being most effective to start. Once the osteopath understands this, the patient is placed in a position that will best stretch the muscles to extremes without further injury and help pass the dysfunctional barrier.¹⁰ Further, muscles and joints are then contracted, and resistance is applied for seconds at a time for around three to five times to perfume the treatment techniques with each patient.¹⁰

Joint mobilization techniques would focus around the hip and sacral area. The mobilization techniques would involve traction, extension, rotation, and leg lifting techniques that would help facilitate the patient's movement. However, these techniques would be used after METs because the muscles surrounding the joints and bones may need attention first to perform the mobilization techniques without further pain better. METs would also focus on the hip area and sacral areas with a combination of abduction, adduction, extension, rotation, and leg lifting techniques. These techniques will be chosen based on the patient's individual history, anatomy, and evaluation to get the best results.

METs have different types and forms, but once the most beneficial are discussed and chosen with the patient, gentle contractions will be produced from the patient on affected muscles; and the osteopath will resist them for several seconds.¹⁰ The patient is then repositioned, and a new barrier is found and placed through the same cycle around three to five times. There are also times when isolytic METs may need to be used to exceed a patient's force, resulting in a lengthening stretch to the patient to reset the patient's dysfunctional barrier better.³⁸ The isolytic MET has been found to more directly affect GTPS when used with the Adductor Magnus on the ipsilateral side and may also anecdotally show long term resolution potential for GTPS.^{10,38}

Osteopaths may also explore orthotics options due to a possible association of a predisposed shortened leg from organic or functional causes.³⁹ Since GTPS can be linked to the friction of the tendons in the area above the bursae and result in pain and swelling over the lateral hip area, walking and running can be prominent factors.³⁹ Therefore, orthotics to help correct *pes planus* may be an option for some patients.³⁹ Further, the METs for the hip, trying to correct torsion in the pelvic area, and more METs specific to the sacroiliac region may warrant use for a combination of treatments.

Soft tissue METs around the gluteal muscles, hip, and sacral muscles may also prove useful to some patients in improving the tension and pain in those areas. Finally, all should consider NSAIDs with these treatments due to some possibly leaving the patient feeling sore. Over time treatment will better improve the functionality, pain, and feeling of GTPS and possibly help a patient not need further surgical intervention. However, as stated above, if treatments are not working for some patients, as may happen, a follow-up with one's general practitioner will be warranted for further imaging and possible consultations for surgical or more invasive intervention.^{2,25,10,37,39}

Conclusions

There are many reasons that a patient may have pain or swelling in the trochanteric region of the hip, which has led to the use and adoption of the term GTPS over trochanteric bursitis.²⁵ Correctly diagnosing the pain is what will lead to the application of the correct treatments. When symptoms and patient examinations warrant a conservative therapy or nonsurgical approach, osteopaths are best positioned to treat GTPS patients. The goal of any patient treatment is to improve and reduce the pain and dysfunction of the ailment they may have. In the case of GTPs, mobilization techniques and METs could be leveraged to accomplish this task effectively.

Refractory symptomology and pain to treatments should always be referred for further imaging and surgical intervention. The studies mentioned above have shown that conservative therapy, more specifically osteopathic manual therapy is a safe and beneficial way to improve the symptoms of GTPS. To date, results of patients with GTPS treated by osteopaths have been positive and encouraging, but more research may be needed to confirm this position further.¹⁰

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