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## Trochanteric Bursitis

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## Introduction

Trochanteric bursitis (TB), also known as greater trochanteric bursitis (GTB) or greater trochanteric pain syndrome (GTPS) is a common disorder and frequent cause of lateral hip pain. The bursa, a small fluid-filled sac, acts as a lubricating medium for nearby gluteus tendons to gracefully slide over during the physiologic range of motion. The trochanteric bursa is located on the lateral aspect of the hip, lying superficial to the hip abductor musculature and deep to the iliotibial band (ITB). Due to its superficial position and proximity to large tendons, the trochanteric bursa can become inflamed and is a common pain generator and a common reason for presentation to the orthopedic surgeon or family physician.

Inflammation to the bursa can be due to repetitive microtraumas such as running or exercise, tendinopathy of surrounding musculature, gross trauma including fall from a height with direct compression to the bursa, or inflammation can be idiopathic without a discernable cause. Diagnosis is clinical and based primarily on history and physical examination although imaging, including plain film radiographs, is important to rule out other causes of hip pain. Treatment modalities are nearly exclusively nonoperative in nature and include non-steroidal anti-inflammatories (NSAIDs), physical therapy and stretching, and cortical steroid injections are often provided for pain relief. Surgical excision of the trochanteric bursa is reserved for refractory cases that do not respond to nonoperative treatment.

## Etiology

The underlying cause of trochanteric bursitis can be repetitive microtrauma, blunt trauma, or idiopathic. Overuse of the surrounding musculature leading to tendinopathies of the gluteus medius and/or minimus is common. Repetitive hip abduction seen in stair climbing or cycling can contribute to an inflammatory cascade of the bursa. Older patients who sustain falls directly over the bursa can initiate an inflammatory cascade within the tissue. Sedentary or bed bound patients are also prone to trochanteric bursitis as constant pressure over the greater trochanter of the proximal femur can also initiate the inflammatory response of the bursa.

## Epidemiology

Trochanteric bursitis is transmodal in distribution affecting those of all ages. GTB is common and thought to affect roughly 15% of women and 8% of men.[1] Middle-aged women are most commonly affected,[2] although young female athletes are also prone to developing GTB. Females have increased Q angles which leads to tighter ITBs which cause strain over the bursa when exposed to repetitive motion including running and jumping.

## History and Physical

Patients will often present complaining of unilateral lateral hip pain. Suspicion for trochanteric bursitis should be high in the differential if the pain onset was gradual, the patient maintains the ability to ambulate, and pain improves with over-the-counter anti-inflammatory medication. The patient will often be able to localize the pain focally to the area

directly over the greater trochanter of the proximal femur. Younger patients may include a history of repetitive athletics including running, cycling, or jumping sports. Middle age and older patients may have a history of direct compression from sustained immobilization or low energy trauma such as ground-level falls.

Physical examination is the gold standard for the diagnosis of trochanteric bursitis. It is important to rule out a hip fracture on clinical physical examination. Patients should maintain their ability to straight leg raise without pain, and log roll (internal and external rotation of the leg at the hip joint with the hip flexed to 90 degrees) will also not elicit pain in the hip joint. Patients will have localized pain with deep palpation over the greater trochanter on the lateral aspect of the proximal femur. Pain often worsens with prolonged activity, or maneuvers involving stabilization of pelvis such as standing on one leg.[3] Examination of the skin is often normal, without erythema or increased warmth as etiology is non-infectious. Pain is often elicited with adduction of the femur and relieved with abduction as this tensions and relieves tension on the overlying ITB, respectively.

## Evaluation

### Imaging Evaluation

Following the physical examination in patients with a high clinical suspicion for trochanteric bursitis, plain film radiographs including a two-view hip and AP pelvis should be obtained to rule out associated fracture of other osseous abnormalities. Plain films will be unremarkable in the setting of trochanteric bursitis. Advanced imaging is rarely necessary for the diagnosis of trochanteric bursitis but is often ordered if there is a concern for occult fracture of the femoral neck. Trochanteric bursitis will show up as an area of increased signal on T2 sequence magnetic resonance imaging (MRI) is obtained, however, this is not necessary for diagnosis.[4] Ultrasound is also not routinely employed for diagnosis but would show increased fluid signal with the trochanteric bursa.

### Laboratory Evaluation

Laboratory workup is not routinely performed if clinical suspicion is high for trochanteric bursitis, in the absence of constitutional symptoms. If the patient has associated fevers, chills, or other signs of systemic infections, CBC with differential can be obtained to look for the presence of leukocytosis. If suspicion exists clinically for an underlying septic hip joint, acute inflammatory markers including ESR and CRP can be obtained.

## Treatment / Management

Initial management for trochanteric bursitis is always nonoperative. Antibiotics are not indicated in the management of trochanteric bursitis.

### Pharmaceutical

Oral non-steroidal anti-inflammatories (NSAIDs) assist in blocking the inflammatory cascade and aid in symptomatic pain relief and propagation of bursitis. Prior to initiating NSAIDs, it is important to ensure patients have no contraindications to the medications. NSAID therapy should be bypassed in those who are currently on blood thinners or are at high risk of gastrointestinal bleeding.

### Physical Therapy

Physical therapy directed toward quadriceps strengthening and ischial tibial band stretching is important in addressing the underlying pathology. Hip abduction exercises directed at stretching and strengthening gluteus medius and minimus should also be initiated.[5][6] Teaching proper running and jumping form and technique to the adolescent athlete is also important. It is important to maintain hip mobility and flexibility while treating trochanteric bursitis.

### Corticosteroid Injections

Trochanteric bursitis is also amenable to steroid injection. Injections deliver a localized dose of cortisone often coupled with local anesthetic lidocaine or marcaine to provide relief and directly target local inflammation. Injections can be delivered by both orthopedic surgeons or primary care providers. These are minor outpatient procedures

performed under the usual procedural sterile technique. Long term outcomes are similar in those who receive corticosteroid injections versus those who undergo physical therapy.[7]

### **Platelet-Rich Plasma Injections (PRP)**

The use of PRP throughout the field of orthopedics and sports medicine remains a continued hot topic of debate.[8] A recent Level, I systematic review of available randomized clinical trials (RCTs) and case series in the literature (3 RCTs and 2 case series), noted improvement in patients at 3- and 12-month follow up although the authors noted the lack of high-quality evidence supporting PRP injections over the other aforementioned nonoperative modalities. [9] Thus, PRP is not considered the standard of care for GTB at this time.

### **Surgical Management**

Surgical management for trochanteric bursitis is rarely employed. Surgery is reserved for refractory cases or for those that do not respond to usual conservative therapy. Surgical management includes sharp excision and debridement of the bursa.

### **Differential Diagnosis**

The differential diagnosis for trochanteric bursitis includes snapping hip syndrome (iliopsoas tendinitis), fracture of the greater trochanter, femoral neck or intertrochanteric hip fracture, a hamstring avulsion injury or simple muscle strain or sprain.[10] Femoral acetabular impingement should also be considered in athletic patients presenting with hip pain and must be ruled out.[11] Trochanteric bursitis can be easily differentiated from the aforementioned pathology by history, careful physical examination, localizable pain over the trochanter, and negative plain film radiographs.

### **Prognosis**

Prognosis is promising with trochanteric bursitis, as patients can expect complete resolution of symptoms with conservative management without any long term sequelae. Resolution with NSAIDs and/or corticosteroid injection can be expected within just several days of initiation of treatment. Refractory bursitis is rare although some patients do report return of symptoms with re-irritation or repetitive trauma.

### **Complications**

Complications of trochanteric bursitis are rare. Complications are more closely associated with NSAID use and infrequently corticosteroid injection. NSAIDs can cause gastric ulceration and subsequent bleeding in those that are high risk or are taking anticoagulants. Gastrointestinal (GI) bleeding can be occult, and patients should be counseled regarding signs or symptoms of anemia. Complications associated with corticosteroid injections include elevated for blood glucose levels (especially in those with poorly controlled diabetes), injection site irritation, or injected site bleeding.[12]

### **Deterrence and Patient Education**

While proper stretching, form, and training technique can help prevent trochanteric bursitis in the young athlete, many cases are secondary to trauma or are idiopathic and therefore not preventable. However, it is important to educate patients on the positive prognosis and success of non-operative management. Reassurance along with initiation of anti-inflammatories and/or corticosteroid injections typically lead to resolution of symptoms and patient satisfaction. It is important that clinicians counsel patients on the potential side effects of NSAIDs and corticosteroid injections before initiating treatment. Patients should understand the risk: benefit ratio before proceeding with treatment.

### **Enhancing Healthcare Team Outcomes**

Interprofessional education is important for both the diagnosis and treatment of trochanteric bursitis. Primary care physicians and nurse practitioners should be educated in the diagnosis and treatment as they are often the first to

encounter patients with trochanteric bursitis and can prevent the increased healthcare costs associated with specialist consultation. For most patients, the outcomes are excellent, but recovery may take a few weeks.[13] (Level I)

## Questions

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