



Standard of Care: Greater Trochanteric Pain Syndrome

ICD 9 Codes: 726.5, enthesopathy of hip

Case Type / Diagnosis:

Definition-Trochanteric bursitis is a regional pain syndrome that presents typically for outpatient physical therapy evaluation and treatment at a subacute or chronic stage. It is seldom an “isolated” diagnosis and is often accompanied with or referred from lumbar degenerative disease and/or gluteus medius tendonopathy (1).

Epidemiology-The incidence peaks in the 4th to 6th decade of life but can occur at any age. The female to male preponderance is 2 to 4:1. In the athletic community, long-distance runners present more commonly w/ trochanteric bursitis (2).

Pain Behavior- Local swelling in area of the greater trochanter, usually most intense along the posterior trochanteric line, which can radiate laterally down femur (ITB) or proximally into the ipsilateral buttock. Typical pattern is chronic, insidious onset, with intermittent aching localized over lateral aspect of hip. If the condition is acute or subacute, then the symptoms may be sharp and intense. The symptoms extend to the lateral aspect of the thigh in 25%-40% of the cases; it rarely extends to the posterior aspect of the thigh or distal to the knee, but is often associated with LBP or lateral knee pain. Classically, they may exhibit a *Trendelenburg* gait.

Aggravating Factors- Prolonged standing, sitting or lying on the affected side may provoke symptoms; walking, rising from a chair, climbing, and running will likely be painful and limited. On examination, hip AROM, especially abduction and external rotation, or stretching of the posterolateral hip muscles into FLEX/ADD/IR will reproduce Sx's.

Muscle Imbalance or Weakness, Joint Hypermobility or Instability - Hip abductor or adductor hypomobility and accompanying pelvic hypermobility or instability, can be common. Weak or inhibited gluteus medius secondary to L4/5 facilitation, SI or hip joint hypermobility/instability should be carefully assessed and treated as the primary impairment. Overactivation of the hip rotator complex secondary to distal knee or ankle hypermobility/instability should also be considered during the lower quarter scan.

Joint Hypomobility or Myofascial Restrictions – Lumbopelvic, hip, knee, and/or ankle hypomobility, potentially contributing to abnormal femoroacetabular forces via reduced “centric positioning” and resulting in hip rotator cuff tissue irritability.

Standard of Care: Greater Trochanteric Pain Syndrome

Indications for Treatment:

Manual therapy is often indicated for hip and lumbopelvic joint and soft tissue mobilization. In a randomized clinical trial of patients with hip OA, treatment w/ manual therapy and exercise were superior to treatment w/ exercise alone, with regards to increase in hip ROM and function (5). These findings were further supported by a case series study (6). Since lack of hip mobility has been implicated in the development of lateral hip pain, clinical reasoning suggests that patients with “greater trochanteric pain syndrome” would also benefit from this form of treatment.

Contraindications for Treatment:

- Patient with active signs/ symptoms of infection
 - Fever, chills, prolonged and obvious redness or swelling at hip joint
- Visceral referred pain- Lower urinary tract infections and prostate Cx can refer to lateral upper thigh.

Precautions for Treatment:

- OA – presence of calcium deposits on radiograph must be taken into account when establishing goals and treatment plan.
- RA – patient may be at higher risk of infection; cysts formation may be present on radiograph; the cyst may communicate with bursa; erosions of bone and quality of synovial lining of joint must be taken into account when establishing goals and treatment plan.
- DM – risk of infection
- Autoimmune disease(s)- risk of infection
- Tuberculosis – rare cases of musculoskeletal TB/ MRI + for multicystic lesions
- Osteoporosis
- Spinal pathology or dysfunction

Evaluation:

Medical History:

- Previous repetitive strain/overuse involving lower extremities
- Trauma (LE)
- Calcifications found in hip region tendons or bursae
- Arthritis of ipsilateral/contralateral hip, knee, ankle, or lumbar spine
- Lumbar spondylosis
- Leg length discrepancy
- Autoimmune disease
- Respiratory, cardiovascular, renal disorders and/or depression may affect the patient’s overall tolerance and ability to perform and participate in the rehabilitation of this condition.

Standard of Care: Greater Trochanteric Pain Syndrome

Copyright © 2007 The Brigham and Women's Hospital, Inc., Department of Rehabilitation Services. All rights reserved

Medical History Cont'd:

- Diagnostic Tests
 - Review results of any recent back, pelvis or lower extremity radiographs, MRI, blood work or urine analysis.
 - Bone scintigraphy or MRI have been used increasingly for diagnosis (1)
 - X rays can be valuable in helping to r/o femoral avulsion or stress fracture.

History of Present Illness:

- Is there a history of trauma to the joint? Have you started a new activity or performed any activity more than usual?
- What positions/activities aggravate the pain?
For example, how does it feel when you are:
 - Going up/down stairs?
 - Transferring from sit to stand or getting in/out of car?
 - Crossing the affected leg over the other?
 - Lying on the involved side?
- How long can you tolerate: sitting, standing, and walking?
- Pain Qualifiers: Is there a time of day when the pain is worse? Is the pain localized or does it radiate? Is the pain getting better, worse, or staying the same?
- Easing Factors: Have you taken any NSAIDS? Have you received an injection? If so, for how long or when and what were the results?
- Have you used/are you using assistive device?

Social History:

- Nature of work – especially noting if patient is at risk due to faulty biomechanics or postural strain (prolonged standing or sitting)
- Recreational activities- frequency/ duration/ type (especially if impact sport)
- Lifestyle- active or sedentary
- Support systems – motivation, ability to follow-up with recommendations

Medications:

- NSAIDs; Cox2 inhibitors; analgesics for direct management of pain and inflammation, Cortisone or Lidocaine injections.
- Note especially if patient is on any corticosteroids, immunosuppressants or antidepressants.

Examination

This section is intended to capture the most commonly used assessment tools for this case type/diagnosis. It is not intended to be either inclusive or exclusive of assessment tools.

Subjective:

- Capture functional impairment using, for example, the Lower Extremity Functional Scale (LEFS), devised by Binkley et al. (7)
- Capture pain rating w/ visual analog scale (VAS), and pain location w/ a body diagram

Standard of Care: Greater Trochanteric Pain Syndrome

Copyright © 2007 The Brigham and Women's Hospital, Inc., Department of Rehabilitation Services. All rights reserved

Posture and Gait:

- Note excessive lordosis; weight bearing avoidance or intolerance on affected lower extremity; excessive external rotation of hip or lower extremity; note single limb stance R vs. L.
- Note if gait is antalgic, uneven stride; decreased stance on affected limb; cadence; ask patient to increase speed to brisk walk and note further impairments; note balance and safety with locomotion; assess stair climbing ability. Note if any type of device(s) - cane, shoe lift

Lower Quarter Scan and Biomechanical Exam:

Functional Balance and Strength

Assess for ability to perform a squat, step, and assume a tandem or one-leg balance stance. Add varying proprioceptive challenges as appropriate.

DTR's/Myotomes/Dermatomal/Dural Testing

Patient may report numbness or parasthesia-like symptoms in the upper thigh that do not follow any dermatomal segment; note if L4-5 dermatomal pattern is present; Assess Lower Limb Neurodynamic Tension Testing

General Mobility and Stability Testing

Especially comparing hip A/PROM; flexibility of back, hamstrings, gastrocnemius & soleus, plantar fascia; pelvic stability

Special Tests

Thomas, Ober, Scour Quadrants, Faber, resistive hip motions in varying planes, PNF diagonals, and tissue tension lengths, leg length discrepancy (true or adaptive) assessment. Please refer to the appropriate physical therapy orthopedic assessment texts (8).

Specific Hip, SI, and Lumbar Joint Mobility (PPAM/PPIVM) Testing

End-feel/accessory gliding: Hip-long axis, lateral distraction, inferior gliding, Iliosacral-Anterior and Posterior rotation, Lumbar-Flexion and Extension

Specific Muscle Testing

Hip abductors which are often weak in greater trochanteric bursitis and core/local musculature (*TA, multifidus, pelvic floor, diaphragm*)

Palpation

- Note amount of pressure applied and level of tissue irritability.
- Attempt to localize between the three bursas in the region:
 - The gluteus maximus and medius
 - The gluteus maximus and greater trochanter
 - The gluteus medius and greater trochanter.
- Directly palpate over greater trochanter; explore if other associated trigger points or areas of hypersensitivity (Sciatic nerve, lower back, ITB)

Standard of Care: Greater Trochanteric Pain Syndrome

Copyright © 2007 The Brigham and Women's Hospital, Inc., Department of Rehabilitation Services. All rights reserved

Musculoskeletal Differential Diagnosis:

Age Specific Considerations: Transient synovitis in the *very young*, Legg-Calves Perthes disease in prepubescents, slipped capital femoral epiphysis more commonly observed in obese adolescent males, femoral neck stress fractures, apophyseal and epiphyseal injuries in younger adult endurance athletes (3). Although hip degenerative joint disease pain in the *older adult* population is more classically defined as the groin region, this diagnosis can alter hip mechanics and could contribute to lateral hip irritation. In a 1999 MR imaging study by Chung et. al., gluteus medius tendon tears and avulsive injuries were found to be underdiagnosed or misdiagnosed (4).

Spondylogenic and Neurogenic Influence: Lumbar n. roots/discs/facet joints, L5 supplies motor branch to the hip abductors and the superior gluteal nerve arises from the lumbosacral plexus. Sacroiliac joint or (S1-3) n. roots, lower limb neurodynamic tension signs, and peripheral nerve entrapments (Iliohypogastric, subcostal, and lateral femoral cutaneous) can all refer pain to the lateral hip as well. In the Walker study, “the major predictor of relapse of ...lateral hip pain patients who received an injection of local anesthetic and glucocorticoids...was the presence of moderate to severe lumbar degenerative disease seen on scintigraphic imaging” (1).

Myofascial Syndromes: Gluteus medius, gluteus minimus, tensor fascia lata, piriformis, and/or quadratus lumborum tendonitis, tendonosis, or tears. Bilateral trochanteric region are a common “Trigger Point” in patients w/ immunologic disorders and myofascial pain syndrome.

Summary: Clinical reasoning and research suggests that perhaps a large percentage of these “lateral hip pain” patients are exhibiting exhaustive adaptive potential, of the hip abductors or rotator cuff muscles secondary to either a compromised motor supply or chronic overactivation, predisposing the gluteus medius to tendonitis, tendonosis, or tearing. Consequently this would alter gait dynamics, and would increase frictional forces on the trochanteric bursa as well.

Assessment:

Problem List (Identify Impairment(s) and/ or dysfunction(s)):

- Limited function (see subjective portion of examination)
- Knowledge deficit – condition; self-management; home program; prevention
- Decreased ROM
- Decreased muscle strength or impaired muscle performance
- Posture dysfunction
- Pain

Standard of Care: Greater Trochanteric Pain Syndrome

Copyright © 2007 The Brigham and Women's Hospital, Inc., Department of Rehabilitation Services. All rights reserved

Interventions Cont'd:

- Adjunctive Modalities
 - Moist heat/Ice for pain & symptom management
 - Efficacy for TENS / iontophoresis / phonophoresis / and US have not been strongly established in the current literature, but selected application may be indicated for this patient population.

Frequency & Duration:

- Largely dependent on severity, irritability, and stage of healing process
- ~1-2x/wk for 4-6 weeks as a general guideline
- Expected range of number of visits per episode of care: 6-15.
- After 2 re-evaluations, actively follow-up with recommendations or referrals

Patient / Family Education:

- Joint protection techniques
- Proper use of assistive device
- Posture and Positioning
- Home exercise program
- Pain self-management

Recommendations and referrals to other providers:

- Orthopedist
- Orthotist
- Pain Management Clinic
- Physiatrist
- PCP
- Rheumatologist

Re-evaluation

- Significant change in the signs and symptoms, fall or acute trauma
- Failure to progress as per established short-term goals
- Complication or worsening of associated conditions including co-morbidities, living environment, and motor abilities

Standard of Care: Greater Trochanteric Pain Syndrome

Copyright © 2007 The Brigham and Women's Hospital, Inc., Department of Rehabilitation Services. All rights reserved

Discharge Planning

Commonly expected outcomes at discharge:

- Non-antalgic gait
- Strong and painless hip abduction on muscle testing or repeated functional squatting, stair climbing, and (age appropriate) one-leg stance proprioceptive and muscular endurance testing
- Full and pain free hip active and passive ROM
- Resolved palpable edema or tenderness to lateral hip palpation

Patient's discharge instructions:

- Continue with maintenance home program until symptom free for ~2 to 3 months, and gradual return to previous level of activity and sport per physical therapy general guidance instructions.
- Periodically (~every few months) have patient "self-check" endurance of hip rotator cuff muscles with repeated resisted exercises and address with previously issued strengthening program.

Authors:

Amy Jennings
Janice McInnes
Marie-Josée Paris
05/10/04

Reviewers:

Ken Shannon
Heather Renick-Miller

Revised:

Nick Karayannis
12/13/'07

Reviewers:

Janice McInnes

REFERENCES

1. Walker, Peter FRACS(Orth); Kannangara, Siri FRACP; Bruce, Warwick JM FAOrthoA; Michael, Dean FRCS (Tr & Orth); Van der Wall, H PhD. "Lateral Hip Pain: Does Imaging Predict Response to Localized Injection?" [Section II: Original Articles: Hip]. Lippincott Williams & Wilkins, Inc., 2007.
2. Fagerson, Timothy L. *The Hip Handbook*. Boston; Butterworth-Heinemann. 1998: pp. 66-67.
3. Adkins, SB and Figler, RA. "Hip pain in athletes". *American Family Physician*. 61(7):2109-18, 2000 Apr 1.
4. Chung CB, Robertson JE, Cho GJ, Vaughan LM, Copp SN, Resnick D. "Gluteus medius tendon tears and avulsive injuries in elderly women: imaging findings in six patients". *American Journal of Roentgenology*. 173(20):351-3, 1999 Aug.
5. Hoeksma HL, Dekker J, Ronday HK, Heering A, Van der Lubbe N, VelC, Breedveld FC, Van den Ende CH. "Comparison of manual therapy and exercise therapy in osteoarthritis of the hip: a randomized clinical trial". *Arthritis and Rheumatism*. 51(5):722-9, 2004 Oct 15.
6. Macdonald CW, Whitman JM, Cleland JA, Smith M, Hoeksma HL. "Clinical outcomes following manual physical therapy and exercise for hip osteoarthritis: a case series". *Journal of Orthopaedic and Sports Physical Therapy*. 2006 Aug; 36(8): 588-99.
7. Binkley, et. al. "The Lower Extremity Functional Scale (LEFS): Scale Development, Measurement Properties, and Clinical Application." *Physical Therapy*: Vol. 79, No.4, April 1999, pp 371-383.
8. Magee, David J. *Orthopedic Physical Assessment*. Philadelphia; W.B. Saunders Company, 1992.

Standard of Care: Greater Trochanteric Pain Syndrome

Copyright © 2007 The Brigham and Women's Hospital, Inc., Department of Rehabilitation Services. All rights reserved