TROCHANTERIC BURSITIS
(AKA GREATER TROCHANTERIC PAIN SYN DROME)
Outline

- Hip anatomy
- Presentation of Trochanteric pain syndrome
- Aetiology
- Pathological process
- Examination
- Differential diagnosis
- Treatment – traditional and current research.
- Prognosis
- Practical – some of tests
Hip Joint

- Synovial ball and socket joint
- Acetabulum faces laterally, anteriorly and inferiorly
- Hip joint two incongruent surfaces, distributes load better, protecting cartilage to excessive stress.
- Cartilage thickest superior surface head and acetabulum as most stress here
- Labrum runs circumferentially around acetabular perimeter.
- Ligaments iliofemoral, pubofemoral ligament (anteriorly), ischiofemoral ligament (posteriorly). Transverse ligament inferiorly
- Nerve supply femoral, obturator and superior gluteal nerve (L2-S1).
Gluteus Maximus

- Largest muscle hip 16% cross sectional area.
- Gluteal surface ilium behind posterior gluteal line, iliac crest, coccyx, posterior sacrum, upper part sacrotuberous ligament, 80% inserts ITB and gluteal tuberosity femur
- Extends and laterally rotates, accelerate body upward and forward from position hip flexion. Importance in gait and standing, forward bend. Upper – abduct, lower adduct
- Inferior gluteal nerve (L5, S1 and S2. Skin (L2 and S3)
Gluteus medius

- Fan shaped lateral aspect hip, between iliac crest and greater trochanter
- Superior ilium (iliac crest to sciatic notch). Anterior, middle and posterior fibres.
- Abduction (anterior/middle fibres).
- Downward tilt ilium ipsilateral side, raise opposite side pelvis.
- Superior gluteal nerve (L4, 5 and S1).
Gluteus minimus

- Triangular shape, lateral aspect hip
- Gluteal surface of ilium down to anterior superior aspect of greater trochanter.
- Medially rotate (anterior fibres) if leg fixed raise opposite side pelvis.
- Support and control pelvic movement.
- Superior gluteal nerve L4, 5 and S1.
Deep external rotators

- Obturator internus – lateral rotator below 90° and medial rotator at 90°. Nerve supply obturator internus L5, S1 and S2.
- Gemellus superior gluteal surface of ischial spine, laterally and down to blend tendon obturator internus. Nerve supply obturator L5, S1 and S2.
- Gemellus inferior arises upper part ischial tuberosity, blends obturator tendon. Nerve supply quadratus femoris L4, 5 And S1
Tensor fascia lata

- Anterolateral thigh superficial gluteus minimus.
- Anterior part of iliac crest (iliac tubercle, anterior inferior iliac spine)
- Inferiorly to iliotibial tract, below greater trochanter
- Action flexion, abduction, medial rotation hip. Tightens iliotibial tract.
- Stabilise pelvis
- Superior gluteal nerve (L4 and L5)
GTPS Clinical presentation

- Pain over the greater trochanter, may report aggravated with stair climbing and descending, standing for long periods, pain with side lying, localised tenderness to touch.

- Pain can be described with active abduction, passive adduction.
Aetiology

- Altered ‘force vectors’ over the hip, causing adverse hip biomechanics. (Del Buono et al, 2011).
- Common in sedentary/overweight individuals possibly due to overloading of hip if overweight, can present in runners on downside leg of road camber.
- More common in women aged 40-60 years 4:1 ratio against males. Altered biomechanics of women in terms of orientation of pelvis and position of ITB, bursitis can result due to micro trauma (Williams & Cohen, 2009).
- Peri and post menopausal women, loss of tensile strength collagen, increased abdominal adipose tissue.
- Affects 10-25% of the population, increased to 35% for patients with LBP or leg length discrepancy. Evidence that strong association to other pathologies OA, RA, lumbar spine degeneration and/or mechanical LBP, Hip OA, knee OA, fibromyalgia, labral tears and hip arthroplasty. Can be related to repetitive activity, trauma, crystal deposits or even infection (specific to Tuberculosis).
Pathological process

- Traditionally thought inflammation of one or more of bursae, sub gluteus maximus bursa most commonly.
- Chronic micro trauma, overuse or acute injury (Williams & Cohen, 2009).
- Rare that find signs of inflammation, redness, heat and swelling as would be expected MRI showed bursal inflammation in less than 10% of individuals (Tortolani et al, 2002).
- MRI evidence that gluteus medius pathology present – tear or tendinitis in 83% cases for 24 individuals with GTPS (Bird et al, 2001). Can be related to overuse or falls.
- Grimaldi – can be proliferative stage, but only seen when symptomatic degeneration of gluteal tendons is present.
- Continual compression, change proteoglycans becomes larger, with thickening increased disorganisation tendon → collagen breakdown → tears.
Objective

- Tenderness over Greater trochanter most consistent sign, can refer down as far as fibula laterally
- Can be painful with flexion, abduction and external rotation of hip.
- In this position resisted abduction compressed glut med tendons
- Leg length discrepancy? Scoliosis?
- Trendelenburg sign? Standing posture (hang on hip)
- Obers test – usually lengthened, can assess abduction
- Active and passive discrepancy abduction more than 5-10 degrees loss of strength of deep abductors.
- Palpate gluteus medius, tensor fascia latae
- Lack of definitive signs other than palpation (Williams & Cohen, 2009).
Imaging

- X rays (calcification and screen Hip OA, AVN or SIJ).
- US abductor tendon thickening, tendinopathy, partial or complete tears.
- MRI considered gold standard can detect tendinosis, tendon tear partial/complete, bursal fluid, muscular fatty atrophy, bony changes, calcification. Use of thorough clinical exam, ‘carefully selected special investigations and imaging indicated’ (Hugo & de Jongh, 2012).
Positive Trendelenburg sign could be indicative of gluteus medius lesion – has good sensitivity, specificity and intraobserver reliability (Bird et al, 2001) – possibly investigate MRI for tendon tear gluteus medius.
Differential diagnosis

- Low back pain with radiculopathy – L2, L3, L4 dermatomes, cannot rule out facet joints, sacroiliac joint or lumbar disc with nerve root irritation (Tortolani et al, 2002).
- Possibly related to degenerate spine disease as compromise of function of superior gluteal nerve L4, L5 and S1 (supplies gluteus medius and minimus) (Hugo & Jongh, 2012).
- Inferior gluteal nerve – ventral rami L5-S2 (innervates gluteus maximus).
Other diagnosis’

- Iliotibial band syndrome,
- Meralgia paraesthetica – lateral cutaneus nerve
- OA hip.
- Trauma present then must rule out femoral neck fracture or avascular necrosis (Williams & Cohen, 2009).
- Piriformis syndrome, possibly due to anatomical abnormalities of piriformis (bipartite) or hypertrophic muscle
- Obturator internus syndrome which lies inferior to piriformis – medial surface of pubis covers obturator foramen inserts at greater trochanter laterally.
- Femoral acetabular impingement – can present as c–sign over lateral hip (Meknas et al, 2011).
Conservative treatment

- NSAIDS, ice, weight loss and activity modification.
- Physiotherapy for flexibility, strengthening and improving joint mechanics (mobilising hip, muscle patterning). Stretch compression and exacerbate?
- Traditionally Ultrasound and massage.
- ITB adduction stretch, ↑↑compression?!!
- Extra corporeal shock wave therapy – poor quality evidence of efficacy.
Conservative treatment

- Education – reduce compression, standing, sitting.
- Exercise – activate deep abductors. Clams – activate TFL.
- Eccentric strengthening of gluteals, graded approach as patient can tolerate static → concentric → eccentric (functional).
- Bridging double → single.
- Consider co existing spinal pathology, think innervation of gluteals
- Now more use of imaging in order to get correct diagnosis, suggesting poorly inappropriate management in the past.
Injection

- Failure of conservative measures may progress to injection.

- Relief in 60-100% cases, recent high quality studies with long term follow up lacking. Injection providing relief either temporarily or longer lasting can help confirm diagnosis.

- Injections not significantly improved with use of fluoroscopic guidance, but cost is ‘dramatically increased’ (Del Buono et al, 2011).

- No studies looked at placebo effect of injections.

- If poor response could be poor needle placement or misdiagnosis (Hugo & de Jongh, 2012).
Surgical options

- Failure of conservative management and injections.
- Open bursectomy and debridement with removal of calcifications shown to have good long term follow up.
- ITB z lengthening for persistent GTPS shown to be effective 16 of 17 cases.
- Glutues medius tendon repair and arthroscopic surgery for other pathology e.g. labral tear – good results at 2 year follow up (Hugo & de Jongh, 2012).
- Some studies looked at surgical tenotomy of internal obturator tendon shown to relieve symptoms (Meknas et al, 2011)
Prognosis

- Need to correctly diagnose, exclude pathology of spine and pelvic area.
- More likely gluteal tendinopathy/tear (MRI & research)
- No evidence of efficacy of physiotherapy, confident diagnosis.
- Injections success rate of between 60-100%, follow up varying in published studies (Cohen et al, 2009).
- Surgery has evidence of good results, with varying length of follow up.
Practical Examination

- Gait – valgus knees, pelvic sway, trendelenburg?
- Standing – valgus, trendelenburg.
- Progress single leg squat if able.
- Leg length – standing, supine, long sitting.
- Hip flexion, abduction, lateral rotation, resisted abduction.
- Obers test, resisted abduction.
- Palpation relaxed, abduction (function).
- Active insufficiency – superficial abductors dominant?


