29th Annual Gabor Racz Advanced Interventional Pain Conference and Workshop

Budapest, Hungary August 24-26, 2026

PBL & Case Discussion:

Musculoskeletal Joint Disorders Hip Joint & Greater Trochanteric Pain Syndrome

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Conflict of Interest

Proctoring et teaching

Involvement in different societies (SSIPM, WIP, Pain School International, ESRA, INS) as teacher and examiner to promote ultrasound, interventional pain procedures and neuromodulation

No conflict of interest in this presentation

Case:

53-year-old female patient, administrative assistant and avid recreational walker.

She complains about achy, persistent pain over the lateral aspect of her right hip for the past 4 months.

Pain has progressively worsened. It is sharp when she stands up after sitting at her desk for long hours or when climbing stairs. She notes significant difficulty sleeping on her right side due to intense localized tenderness.

Walking more than 15 minutes triggers a dull ache.
She denies any recent trauma, radiation of pain down to her foot, or systemic symptoms like fever or unexplained weight loss.

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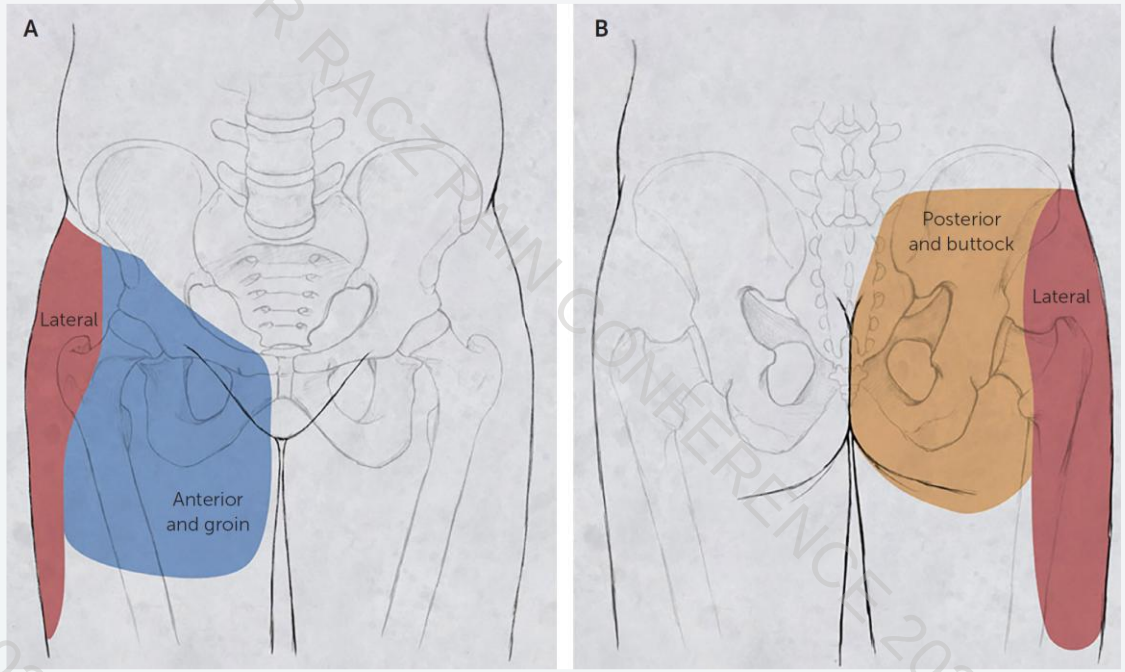
Give a differential diagnosis of hip pain



Wilson et al Am Fam Physician. 2014

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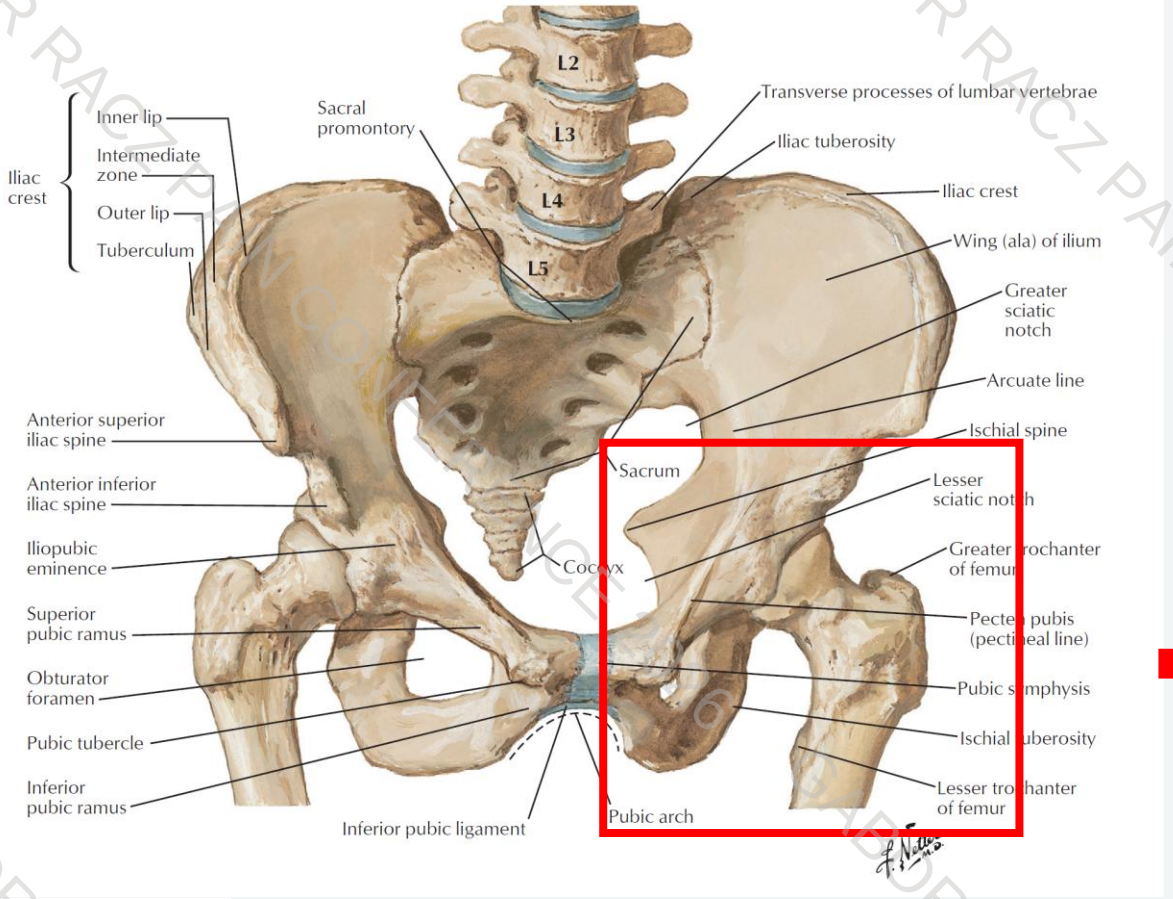
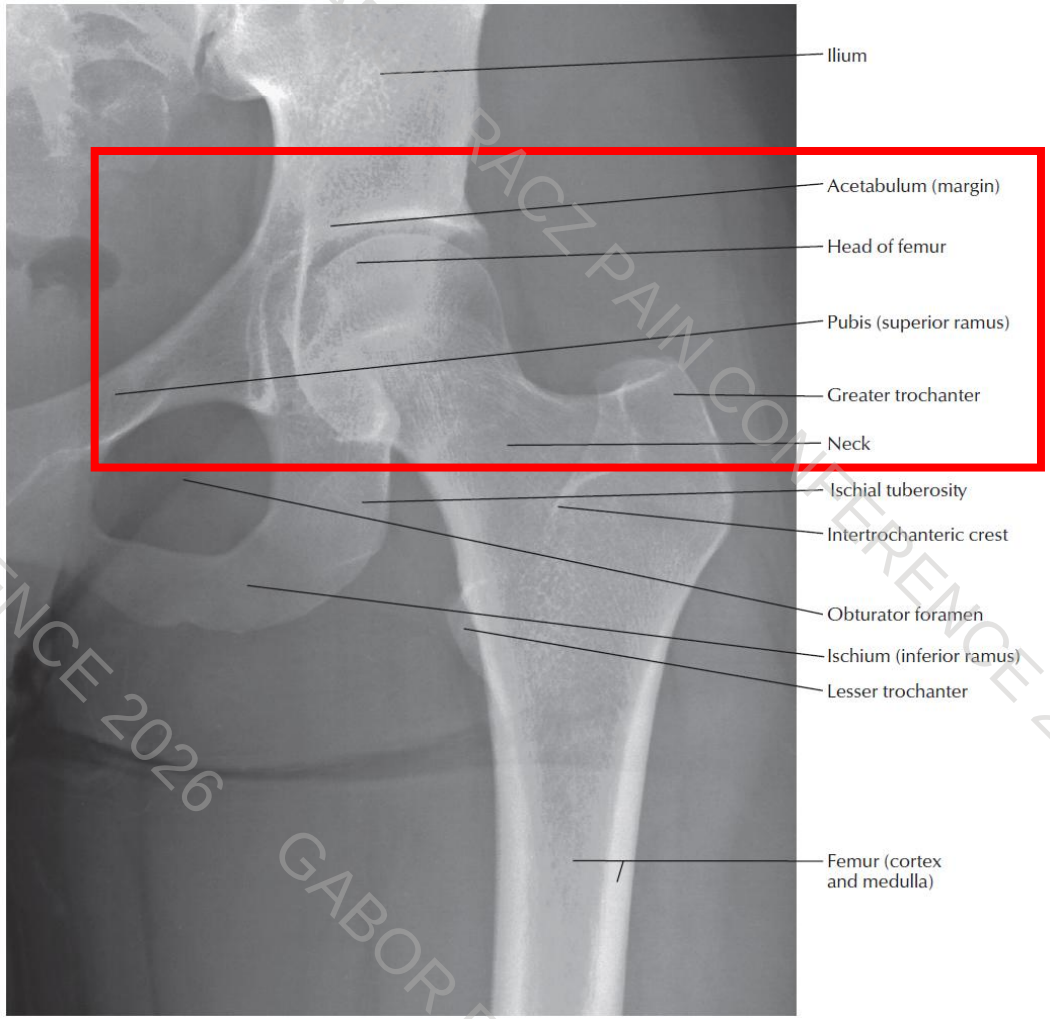
Hip joint anatomy



Netter Atlas, 6th ed. 2014



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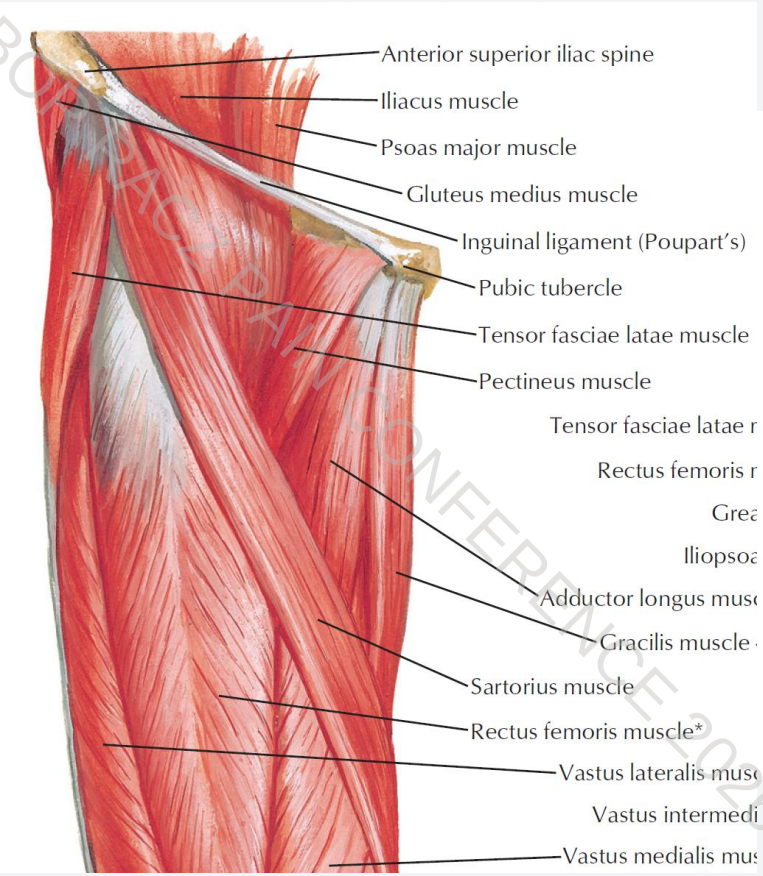
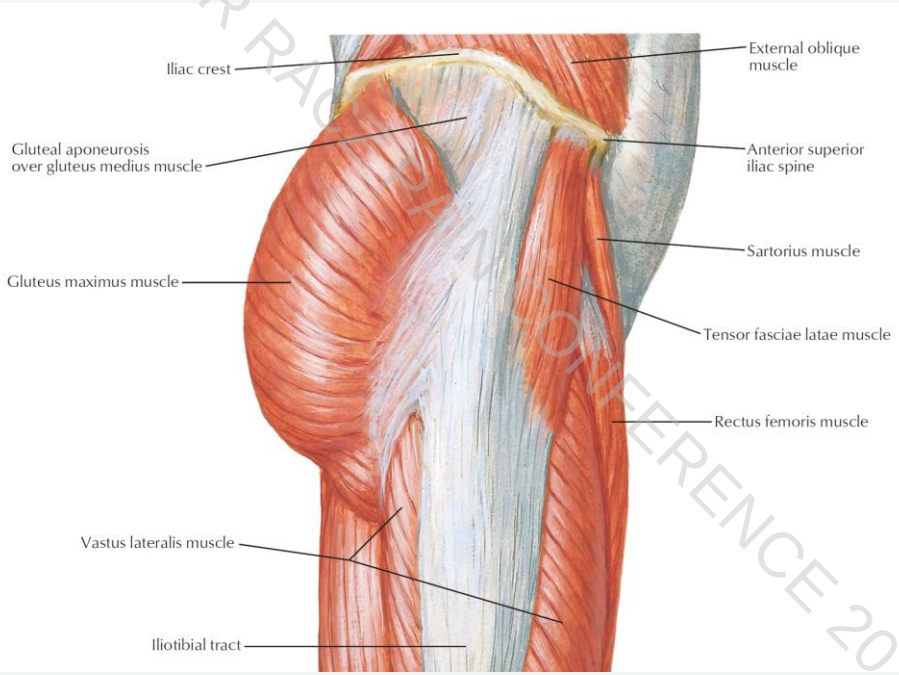
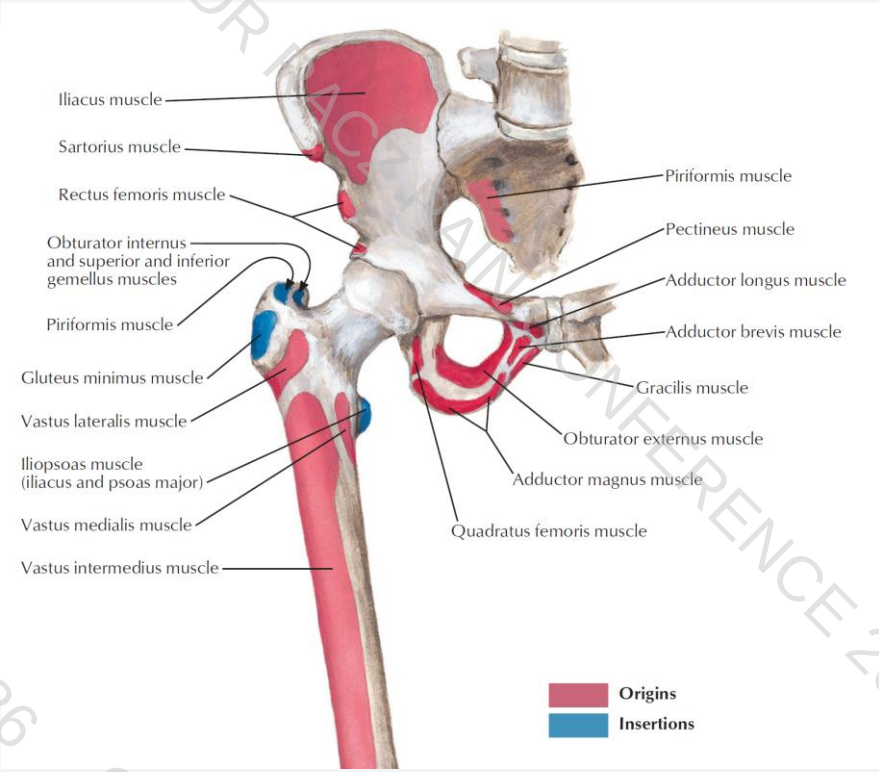
Anterior hip



Lateral hip





Netter Atlas, 6th ed. 2014

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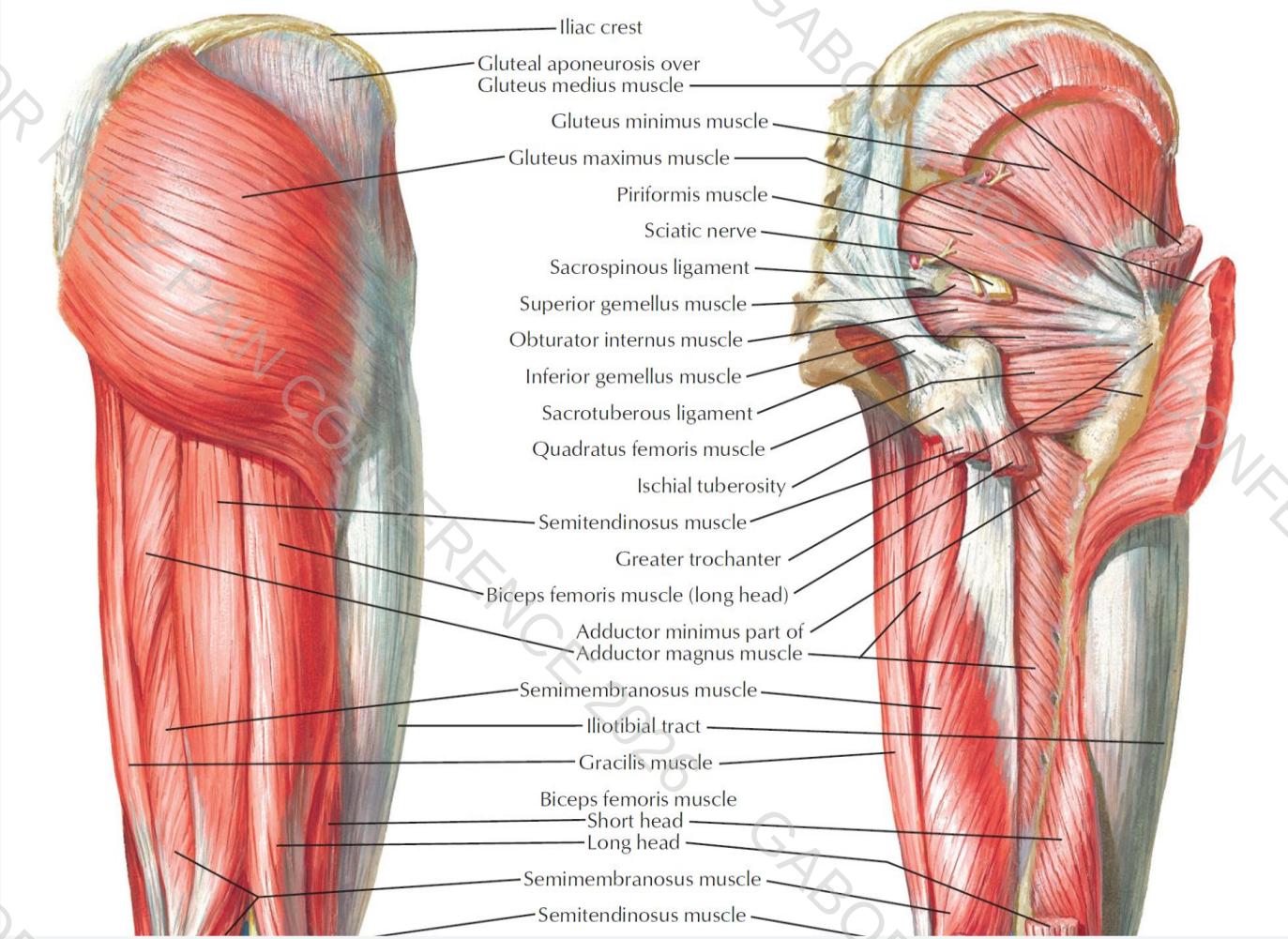
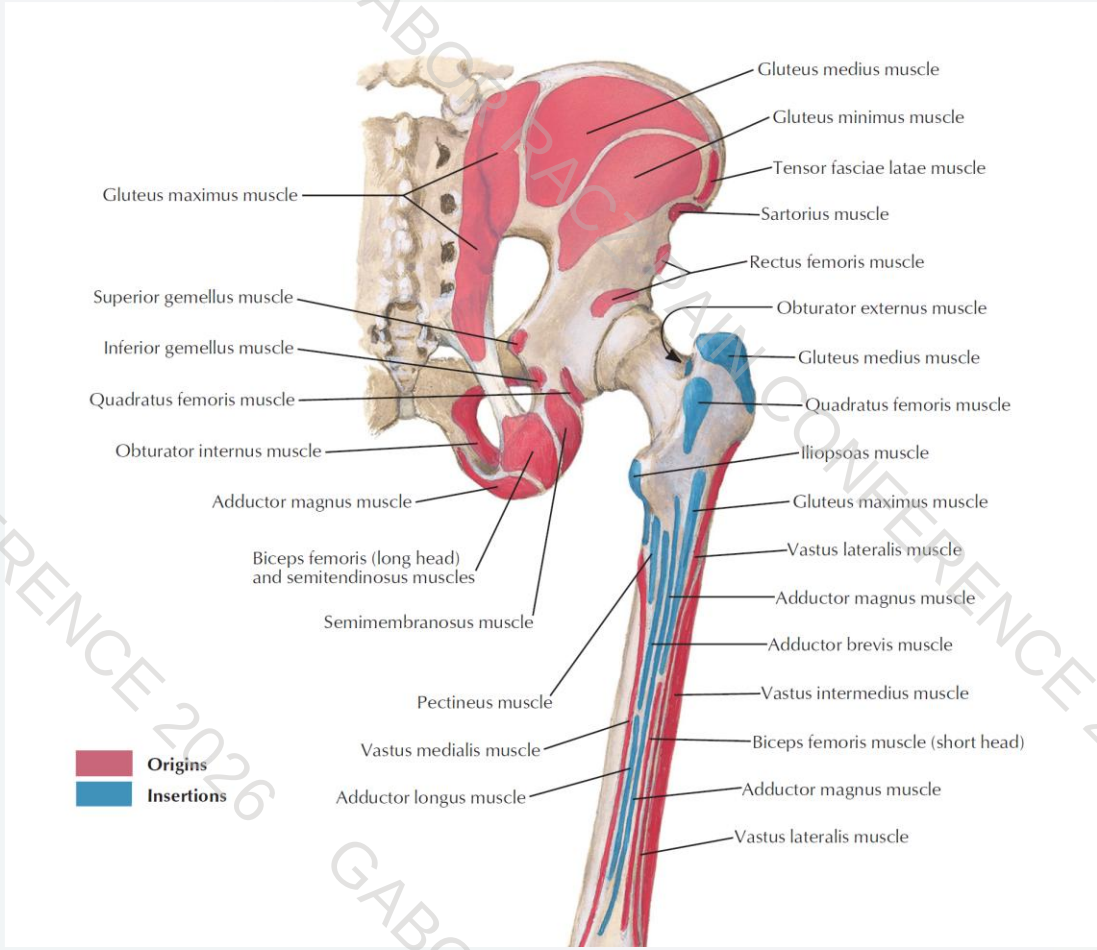
Posterior hip





Netter Atlas, 6th ed. 2014

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La Tour Medical Group

Clinical hip pain / differential diagnosis

Prevalence: 7-10% adult ≥ 45 years old *Birkell et al, Rheumatology 2005*

© Full Circle Orthopedics

Type of pain	History	Physical examination
Anterior		
Referred		
Intra-abdominal or intrapelvic[4-6]	Pain associated with urinary or bowel symptoms, cyclic pain associated with menses	Abdominal and/or pelvic examination
Extra-articular		
Flexor tendon[5,6]	Overuse activities, acute strain or injury with hip flexion activities	Pain over the hip bony prominence, anterior superior iliac spine, anterior inferior iliac spine, or pubic symphysis; pain with hip flexion strength testing
Intra-articular		
Femoroacetabular impingement[2,5,7,8]	Young, athletic patient; gradual onset; pain with hip range of motion; history of slipped capital femoral epiphysis or developmental dysplasia	Positive FADDIR and FABER test results
Labral tear[5,9]	Young, athletic patient; acute injury (vs. gradual onset); pain with hip range of motion; mechanical symptoms	Positive FADDIR and FABER test results
Femoral neck stress fracture[5,10]	Overuse/overtraining, energy imbalance in athletes	Antalgic gait, pain with range of motion and ambulating
Avascular necrosis[11,12]	Middle or older age, smoking, alcohol use, systemic corticosteroid use, hemoglobinopathies, chemotherapy, metabolic syndrome, and obesity	Antalgic gait, pain with range of motion, limited range of motion
Osteoarthritis[3,4,7,13]	Older age, gradual onset, pain with sitting or ambulating for long periods	Antalgic gait, pain with flexion and internal and external rotation, limited range of motion
Hip fracture[4,14]	Older age, osteoporosis, fall/trauma	Inability to walk on the affected limb; shortened, externally rotated, abducted leg
Lateral		
Greater trochanteric pain syndrome, including bursitis, gluteus medius tendinopathy or tear, external snapping, or iliotibial band friction[7,15,16]	No injury, middle age, female sex, overweight, pain with sleeping on affected hip, pain aggravated by physical activity or sitting for long periods	Tenderness to palpation over the lateral hip/greater trochanter, Trendelenburg gait or positive Trendelenburg test, positive resisted external derotation test
Posterior		
Referred pain		
Intra-abdominal or intrapelvic[4,17]	Pain associated with urinary or bowel symptoms, cyclic pain associated with menses	Abdominal and/or pelvic examination
Deep gluteal syndrome[17,18]	Deep buttock pain; no injury; worse with sitting, especially in a car; sciatica (burning pain shooting down the leg)	Seated piriformis stretch test
Ischiofemoral impingement[19]	Gradual onset of deep buttock pain that worsens with activities requiring a long stride (e.g., running)	Long-stride walking test
Lumbar spine or muscle[4,17]	Pain in the low back (above L5) and hip/buttock, history of lumbar spinal problems	Tenderness over the lumbar spine or lumbar musculature above L5
Sacroiliac joint pain[17]	No history of lumbar spinal issues	Tenderness over the sacroiliac joint, no tenderness above L5
Proximal hamstring tendinopathy or tear[20]	Overuse injury with hip extension activities (vs. acute injury with forceful hip extension)	Tenderness to palpation over the ischial tuberosity, pain with hamstring strength testing; acute tears cause ecchymosis of the posterior thigh

FABER = flexion abduction external rotation; FADDIR = flexion adduction internal rotation.

Information from references 2-20.

Importance of physical exam correlated to radiological images

Chamberlain, Am Fam Physician 2021

CLINIQUE DE LA DOULEUR

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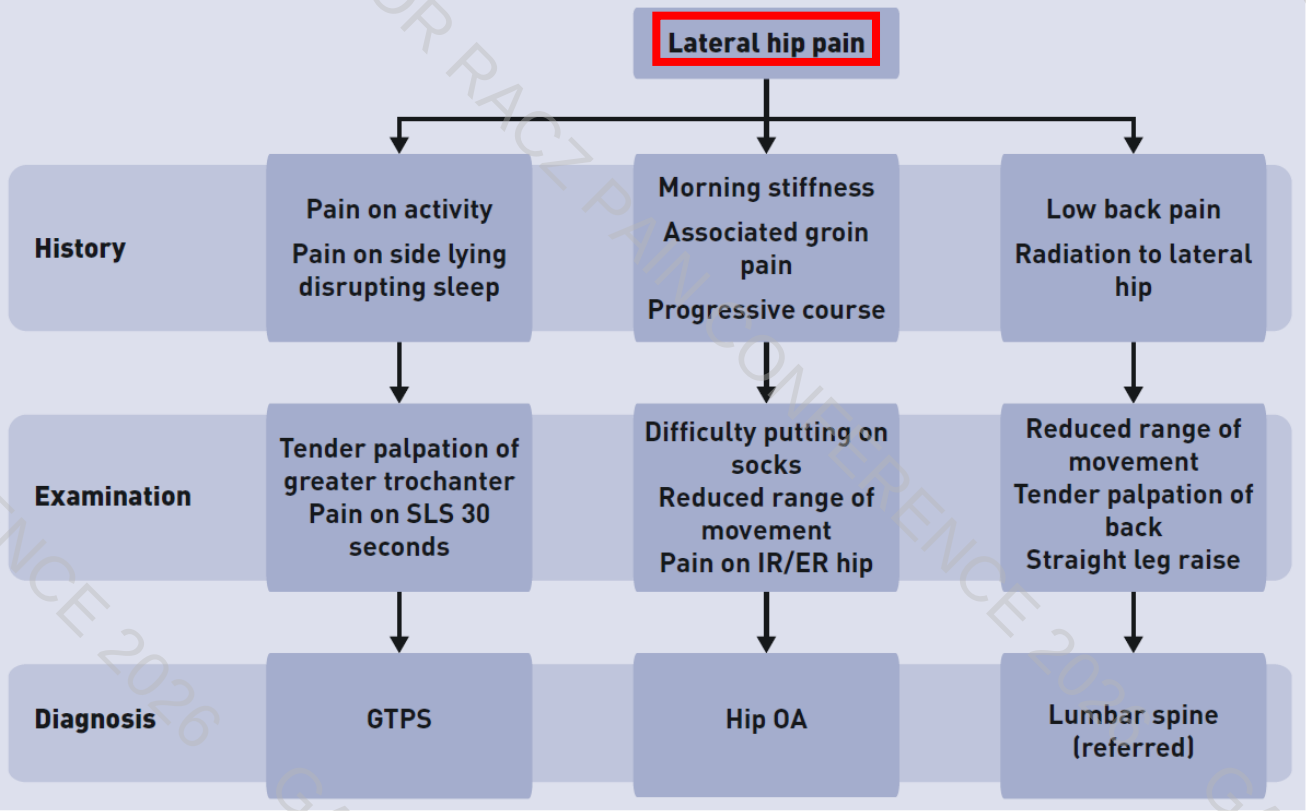
Diagnosis orientation



Speers and Bhogal, British Journal of General Practice 2017

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Clinical tests for the hip

FAIR (FADDIR) test: Flexion adduction internal rotation test

sensitivity of 59% to 100% and specificity of 4% to 75% for intra-articular hip pathology

FABER test: Flexion abduction external rotation test.

42% to 81% sensitivity and 18% to 25% specificity for intra-articular hip pathology

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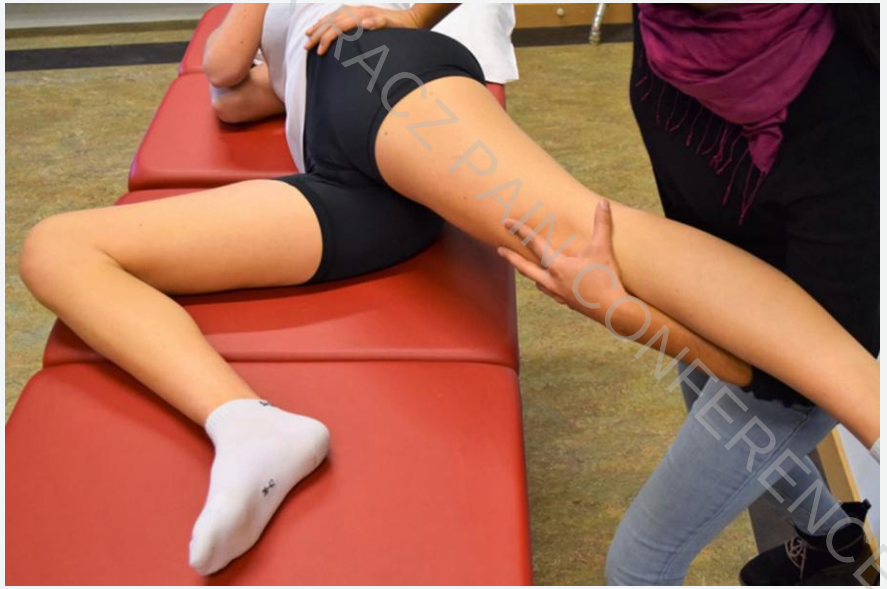
Specific test for GTP Syndrome

Modified Trendelenburg test (single-leg stance test)

23% to 97% sensitivity and 77% to 96% specificity for gluteal tendinopathy

Resisted external derotation test

88% sensitivity and 97% specificity for gluteal tendinopathy



Ober test

Evaluates IT band and tensor fascia lata

Chamberlain, Am Fam Physician 2021

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Our case

Physical Examination:

- **Inspection:** No obvious swelling, erythema, or pelvic asymmetry during standing.

- **Palpation:** Exquisite tenderness pinpointed directly over the posterior aspect of the greater trochanter.

- **Range of Motion:** Passive internal and external hip rotation are full and painless when tested in supine position.

- **Special Tests:**

  Positive single-leg stance test (reproduces lateral pain within 30 seconds).
  Resisted hip abduction in lateral decubitus worsens the pain.
  Negative FABER test for intra-articular or sacroiliac pathologies

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GTP syndrome

Painful condition causing chronic or intermittent discomfort along the outer side of the hip, thigh, or buttock.

Primary Causes

- Tendon overload or degenerative micro-tears in the gluteal muscles
- Bursitis (secondary to tendon strain)
- Spikes in physical activity levels
- Muscle weakness or poor flexibility around the hip
- Sedentary lifestyle, high body weight, repetitive friction from the iliotibial band

→ Represents 10-20% of hip pain
Female 40-60y

Speers and Bhogal, British Journal of General Practice 2017

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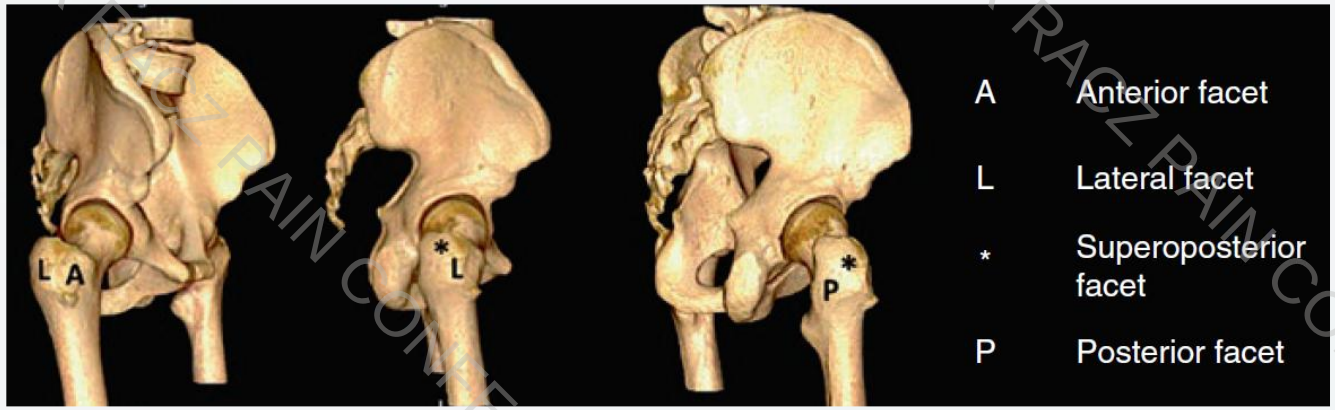

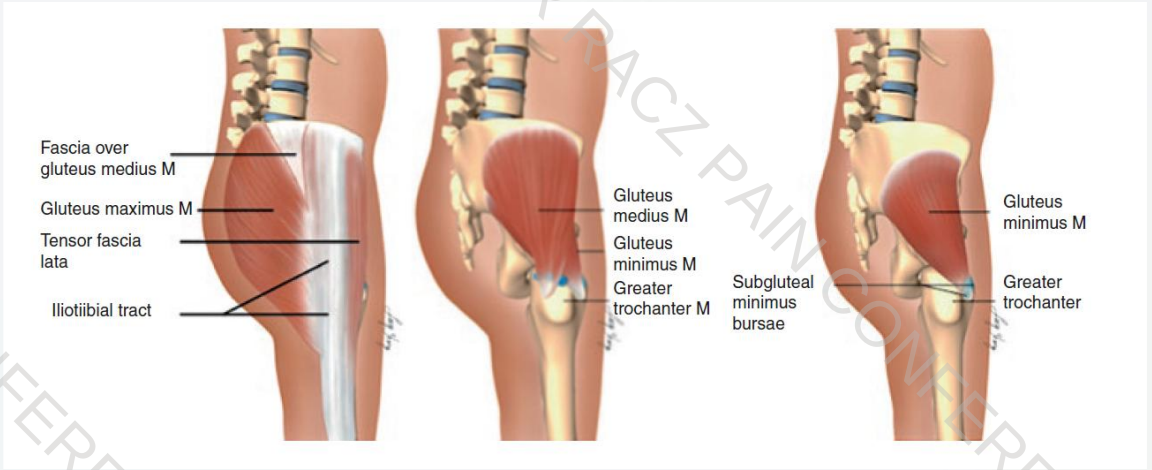

- **Gluteus minimus -> anterior facet**
- **Gluteus medius -> lateral facet (inferior) and posterosuperior facet** → Abduction + internal rotation
- **Gluteus maximus -> ilio-tibial band + femur (not GT)** → Abduction, extension + external rotation
- **Piriformis, gemelli, obturator internus -> posterior facet** → external rotation

Ultrasound for interventional pain management, Peng Springer 2020

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Radiological examination

- MRI
- Ultrasound

Treatment of GTP syndrome

Conservative

- NSAID *Reid, J Orthop 2016*
- Ice
- Avoid direct contact or stretching on the tendons

- Physiotherapy (progressive loading) isometric to eccentric *Rees et al, Am J Sports med 2009*
- Shockwave therapy - > increase blood flow and healing

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Interventional pain treatments

- Corticosteroid injections
- Regenerative medicine (PRP, prolotherapy)
- Surgery (bursectomy, tendon repair, IT band release)

Kuhns et al, Arthroscopy 2026

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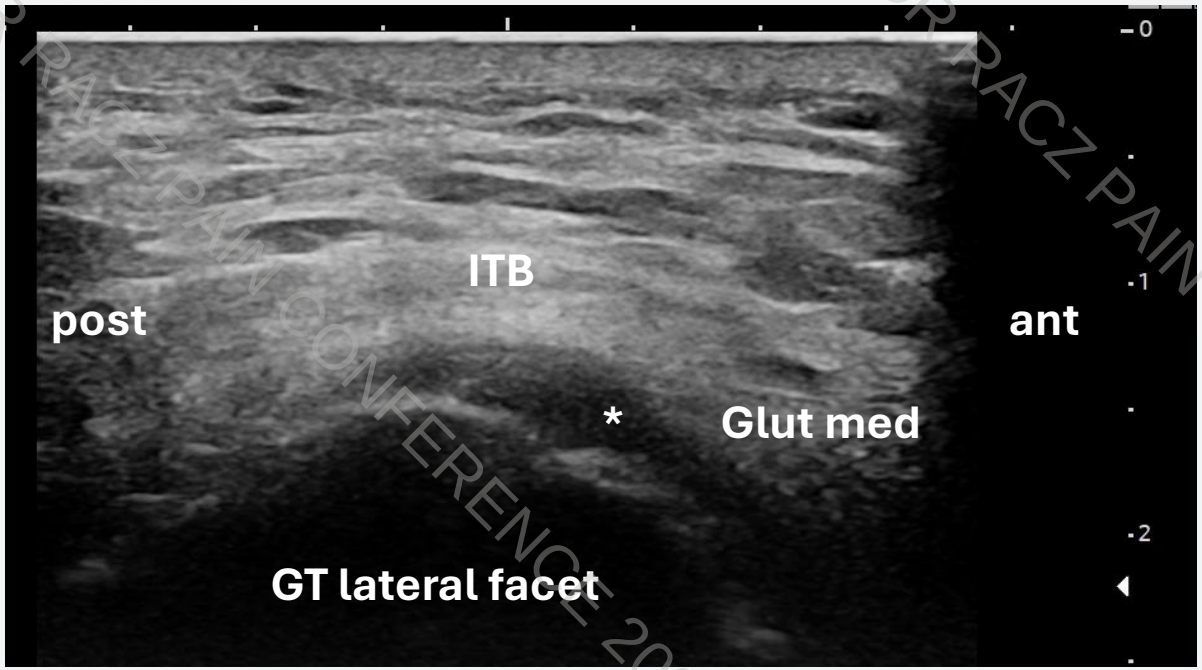

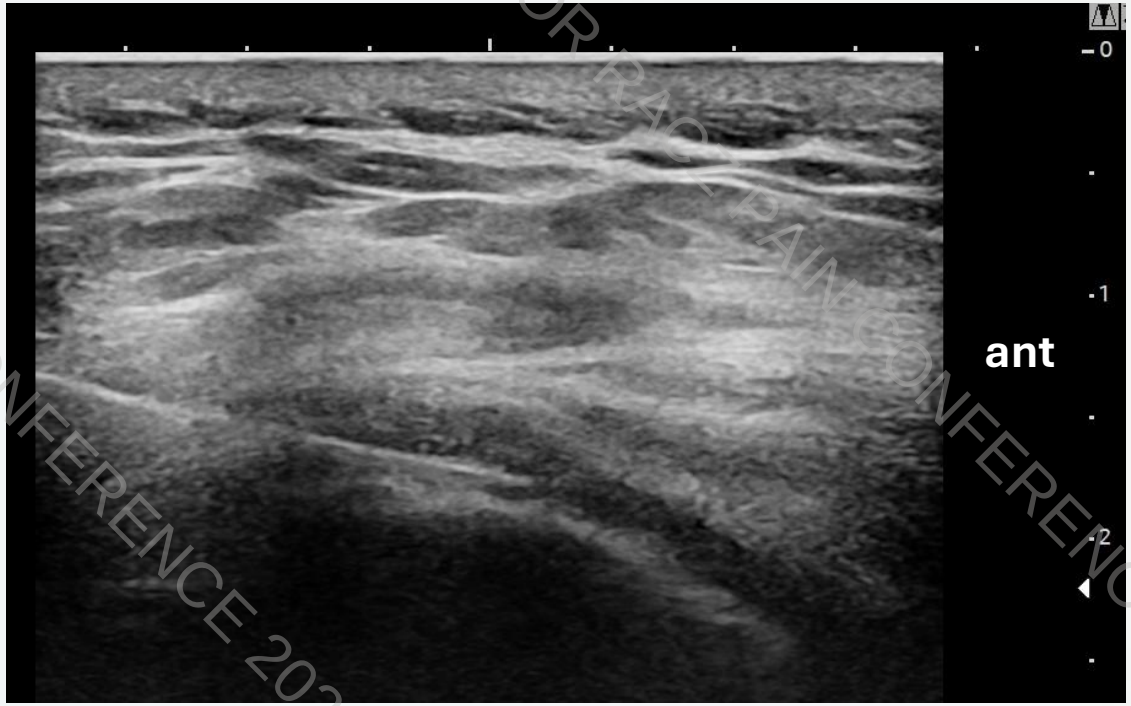

* gluteus medius bursitis

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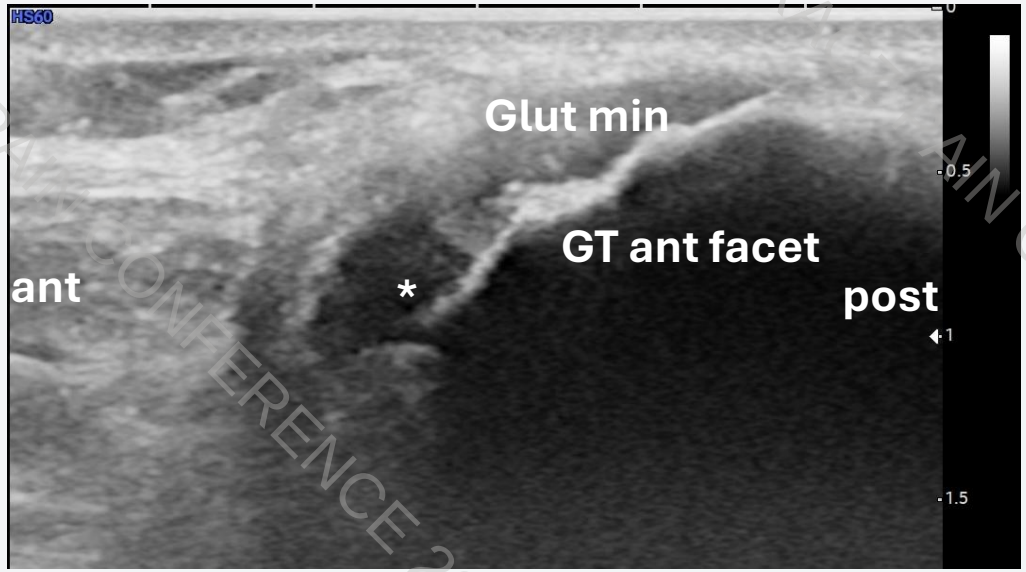

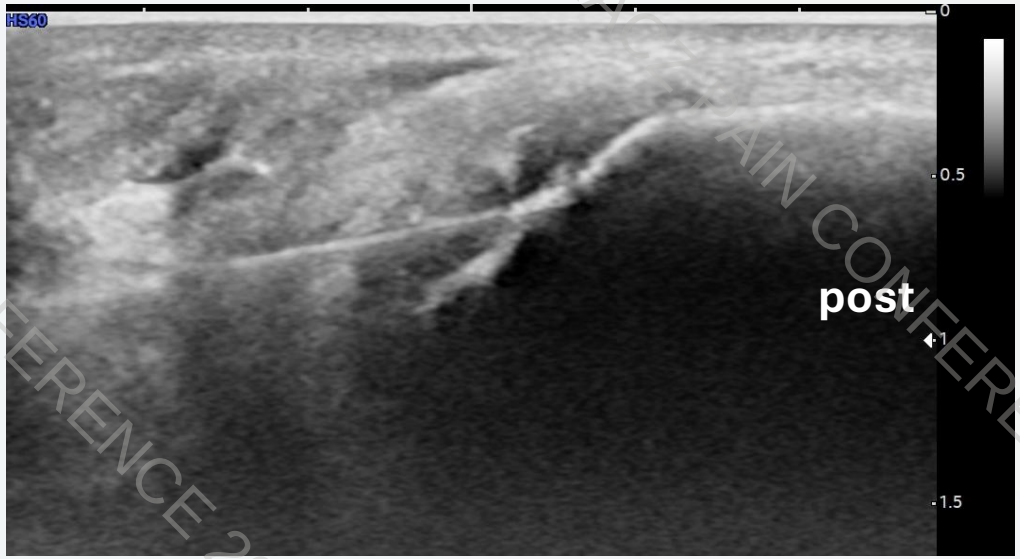

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*** gluteus minimus bursitis**

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Conclusion

- GTP syndrome is most of the time a compressive tendinopathy due to overuse
- The diagnosis is clinical
- Conservative treatments (exercise therapy) is the most recommended and efficient treatment
- Regenerative therapies (PRP) should be recommended for resistant symptoms
- Surgery is performed as a last resort

Wang *et al Journal of Orthopaedic Surgery and Research 2025*

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