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Latin America Cadaverlab

Hip Arthroscopy

April 29th to 30th, 2019

April 29th to 30th, 2019
University of Colorado
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IHC
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Peritrochanteric Pain, Causes and Treatment

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Imperial Hospital de Caridade

Disclosure

STRYKER – HIP CONSULTANT

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GREATER TROCHANTERIC PAIN SYNDROME (GTPS)

"GTPS encompasses trochanteric bursitis, external coxa saltans and abductor tendinopathy"

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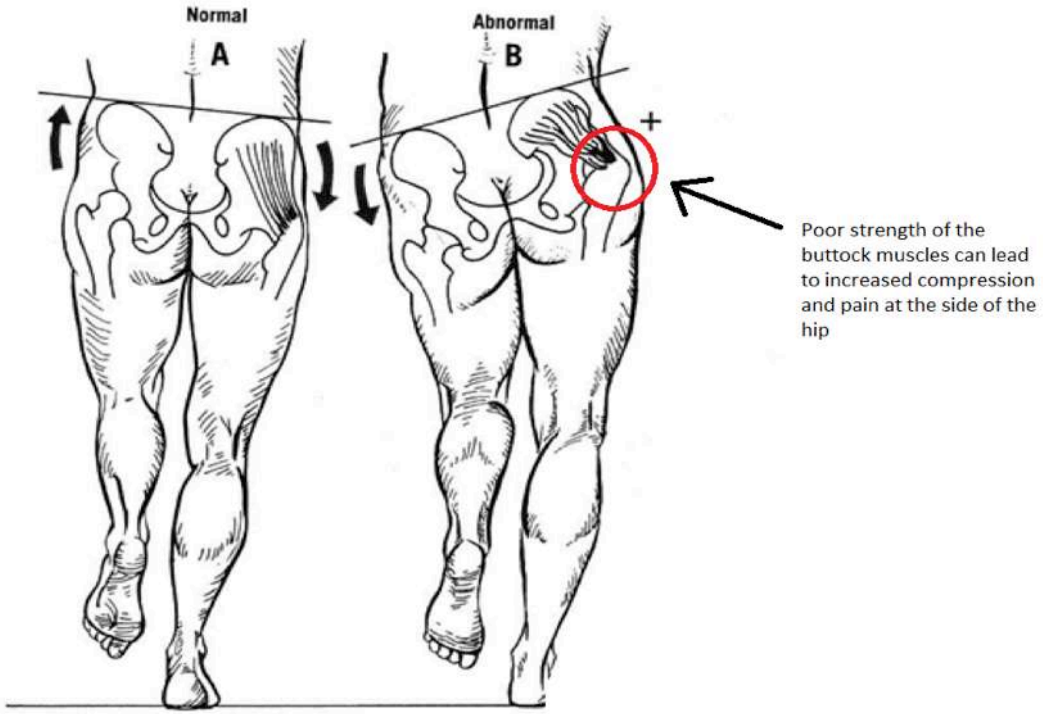
Greater Trochanteric Pain Syndrome
John M. Redmond, Austin W. Chen, Benjamin G. Domb
J Am Acad Orthop Surg 2016;24: 231-240

History

- Diagnosed with trochanteric bursitis
- Treated with PT, anti-inflammatory and corticosteroid injections
- lateral-sided hip pain may be as debilitating as end-stage degenerative joint disease
- Nonsurgical treatment should be used initially in most patients
- In select patients, surgical treatment via an open approach or peritrochanteric endoscopy is appropriate.



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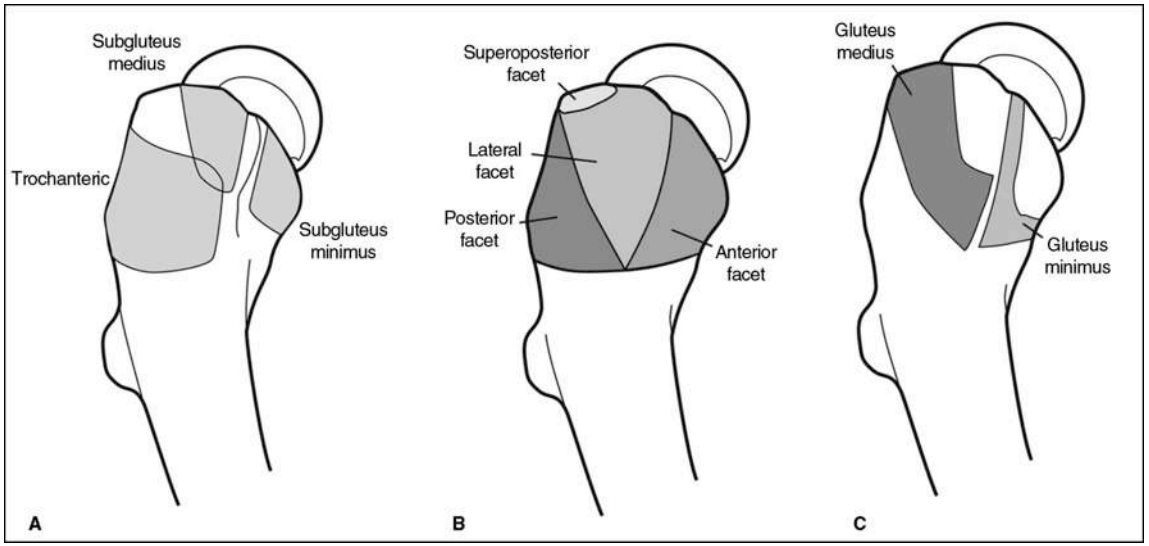
Fearon AM, Cook JL, Scarvell JM, Neeman T, Cormick W, Smith PN: Greater trochanteric pain syndrome negatively affects work, physical activity and quality of life: A case control study. J Arthroplasty 2014;29(2):383-386.

Anatomy

- Most patients have three bursae peripheral to the greater trochanter

- The largest is the subgluteus maximus bursa (trochanteric)



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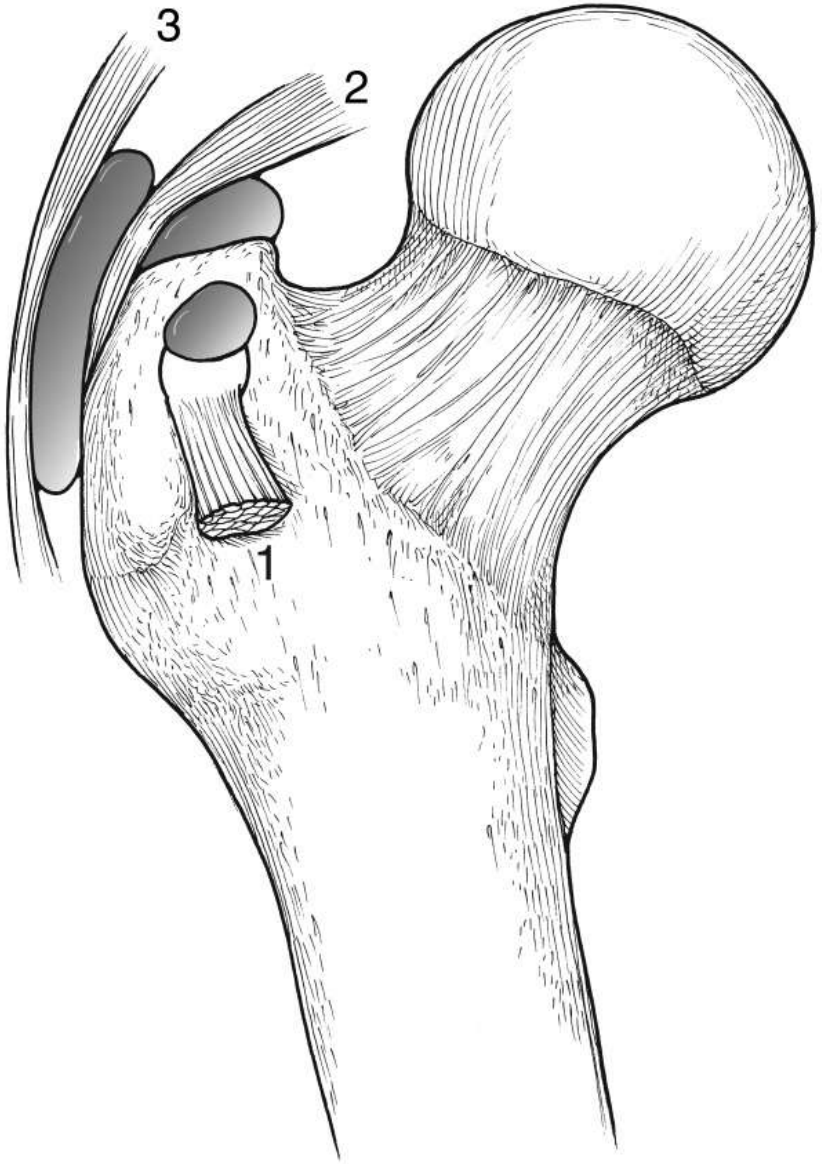
Anatomy

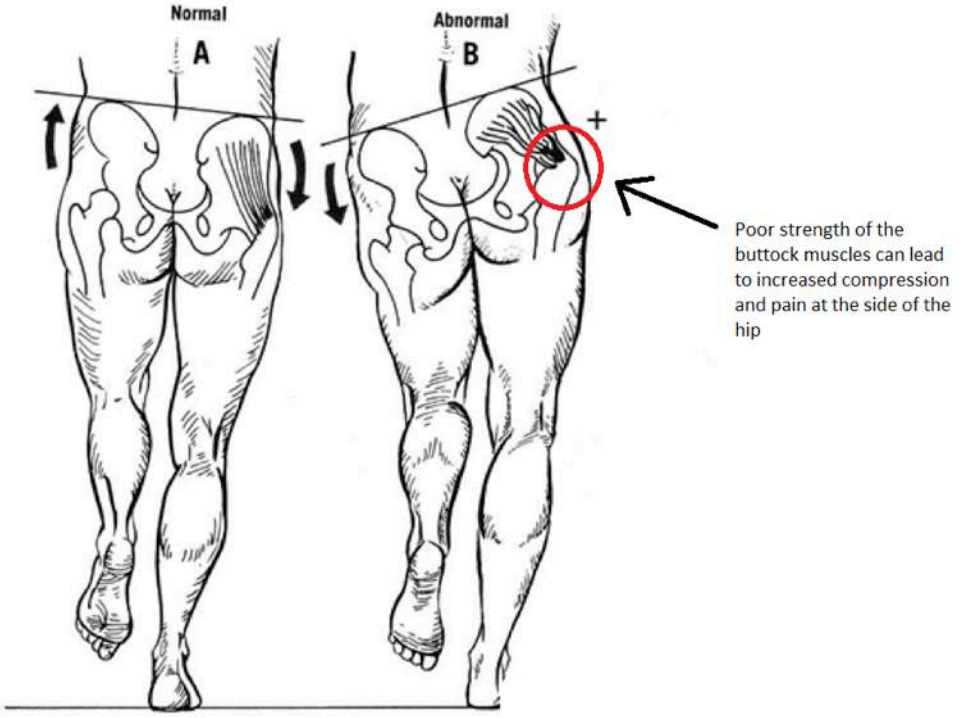
- Location of the trochanteric bursa between the gluteus medius (2) and the iliotibial band (3) as well as the bursa located between tendon and bone at the gluteus minimus (1)



Four Common Types of Bursitis: Diagnosis and ManagementJohn Daniel L. Aaron, Amar Patel, Stephen Kayiaros, Ryan Calfee
J Am Acad Orthop Surg 2011;19: 359-367

Etiology

- Repetitive friction between the greater trochanter and ITB associated with overuse, trauma, and altered gait patterns



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- The gluteus medius and gluteus minimus have been referred to as the “rotator cuff of the hip.”

Comparison of the Shoulder Rotator Cuff and the Analogous Structure in the Hip

Characteristic	Shoulder	Hip
Functional anatomy		
Internal rotator	Subscapularis	Iliopsoas
Stabilizers and rotators; initiation and assistance in abduction	Supraspinatus and infraspinatus	Gluteus medius and gluteus minimus
Abduction	Deltoid	Tensor fascia lata
Clinical presentation	Pain with motion, tenderness, weakness in abduction	Tenderness over lateral aspect of hip, weakness in abduction
Imaging	MRI and ultrasonography	MRI and ultrasonography
Mechanism of pathology	Degenerative tearing	Degenerative tearing
Arthroscopic evaluation	Articular tears can be visualized as exposed footprint or delamination	Undersurface tears cannot be easily visualized

Adapted with permission from Domb BG, Nasser RM, Botser IB: Partial-thickness tears of the gluteus medius: Rationale and technique for transtendinous endoscopic repair. *Arthroscopy* 2010;26(12):1697-1705.

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Bunker TD, Esler CN, Leach WJ: Rotatorcuff tear of the hip. J Bone Joint Surg Br 1997;79(4):618-620

Etiology

- Repetitive friction between the greater trochanter and ITB associated with overuse, trauma, and altered gait patterns
- The gluteus medius and gluteus minimus have been referred to as the "rotator cuff of the hip."
- Tendon degeneration and eventual tearing analogous to that of the shoulder rotator cuff.

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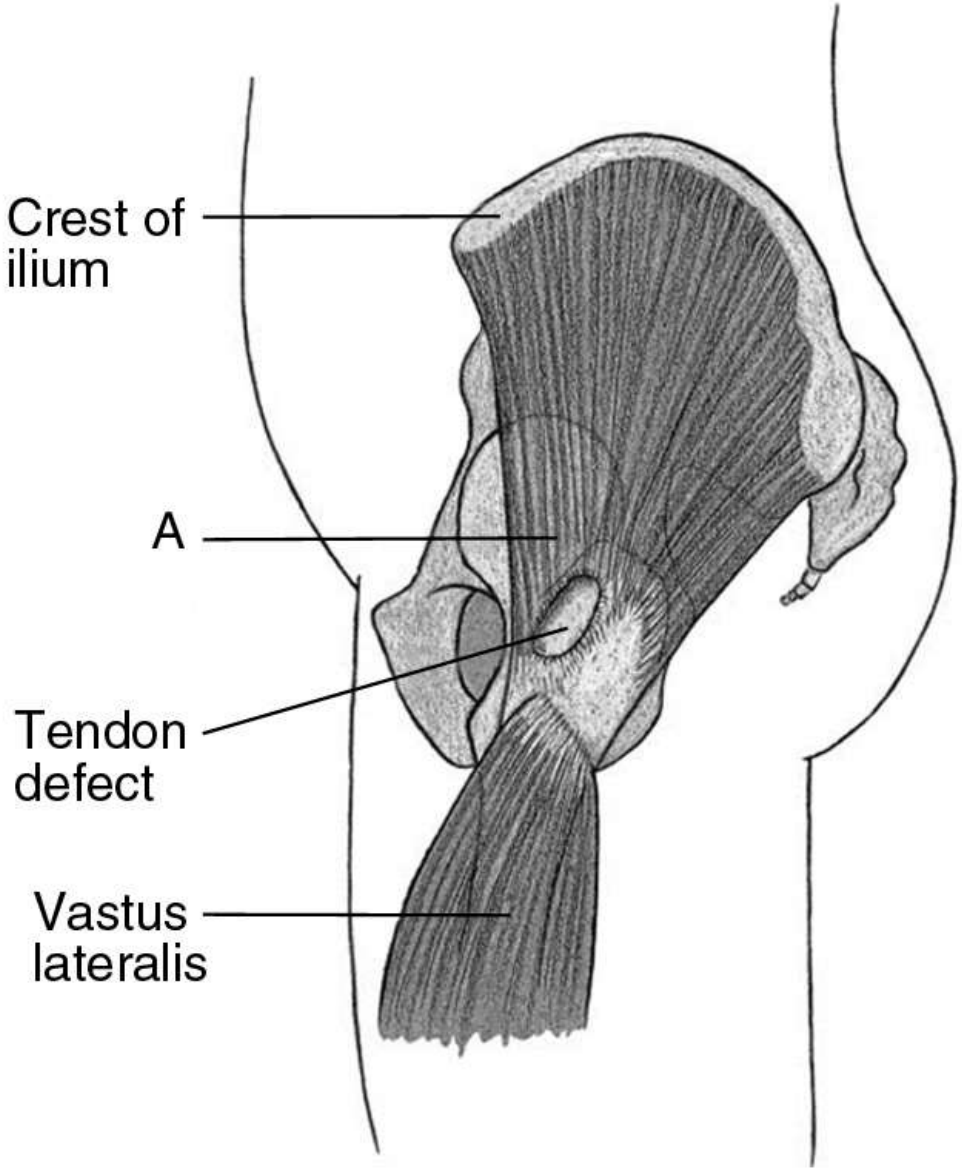
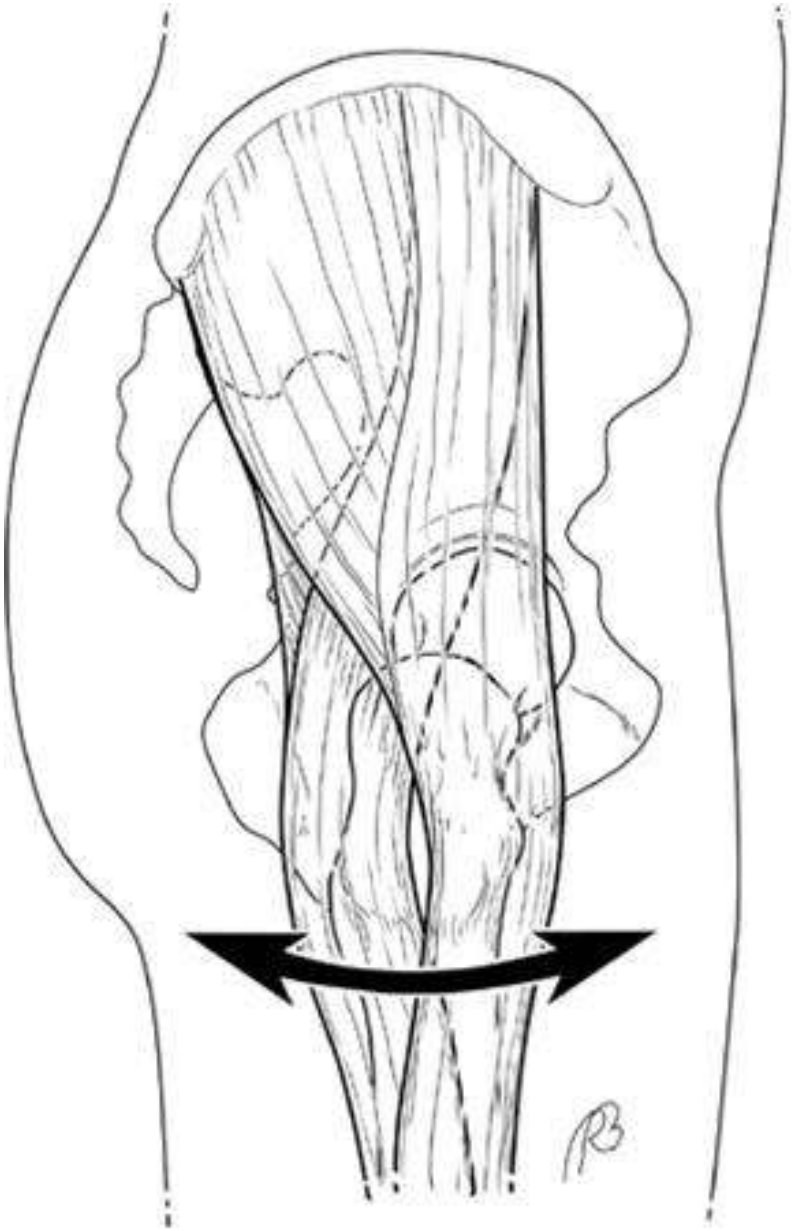
- Tendon degeneration and eventual tearing analogous to that of the shoulder rotator cuff.
- Tendon tears in the hip range from interstitial to full-thickness



Bunker TD, Esler CN, Leach WJ: Rotator-cuff tear of the hip. J Bone Joint Surg Br 1997;79[4]:618-620

Etiology

- External coxa saltans is most often the result of rubbing of the ITB over the greater trochanter.



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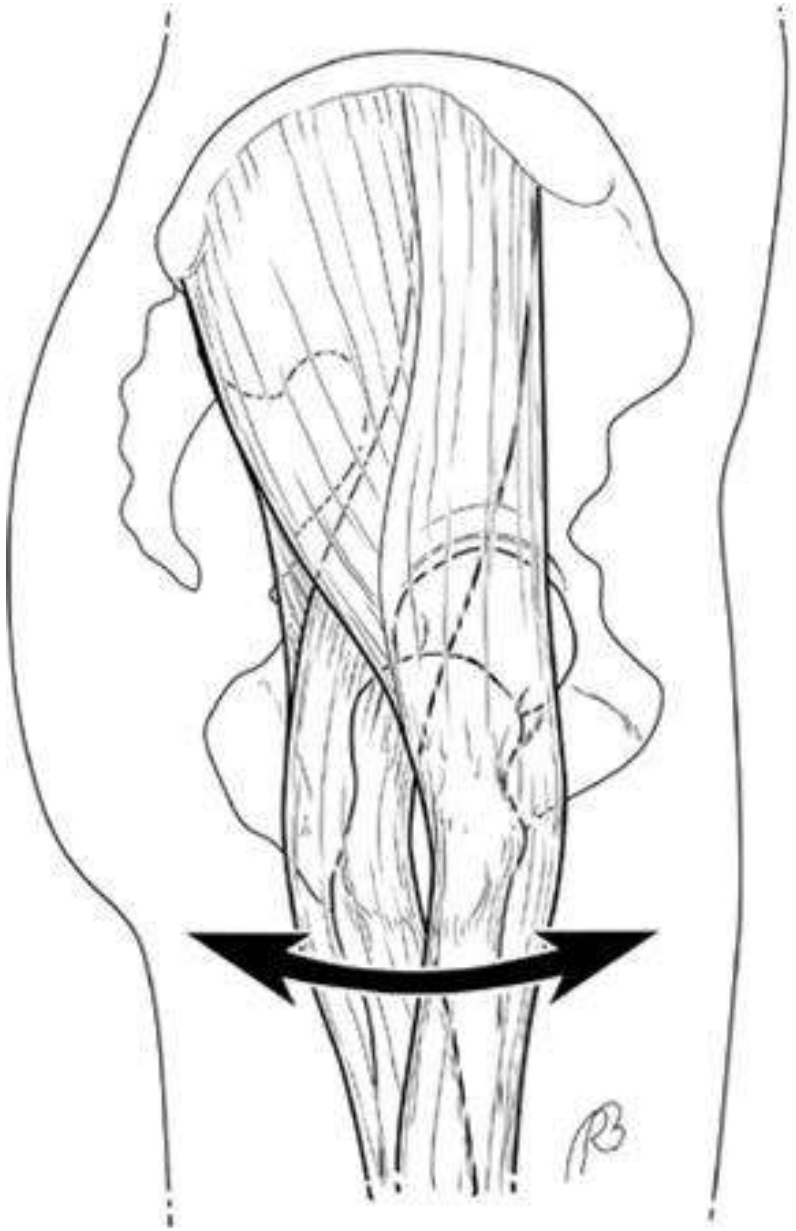
Etiology

- External coxa saltans is most often the result of rubbing of the ITB over the greater trochanter
- When the hip moves from extension to flexion, the ITB moves from posterior to anterior in relation to the greater trochanter



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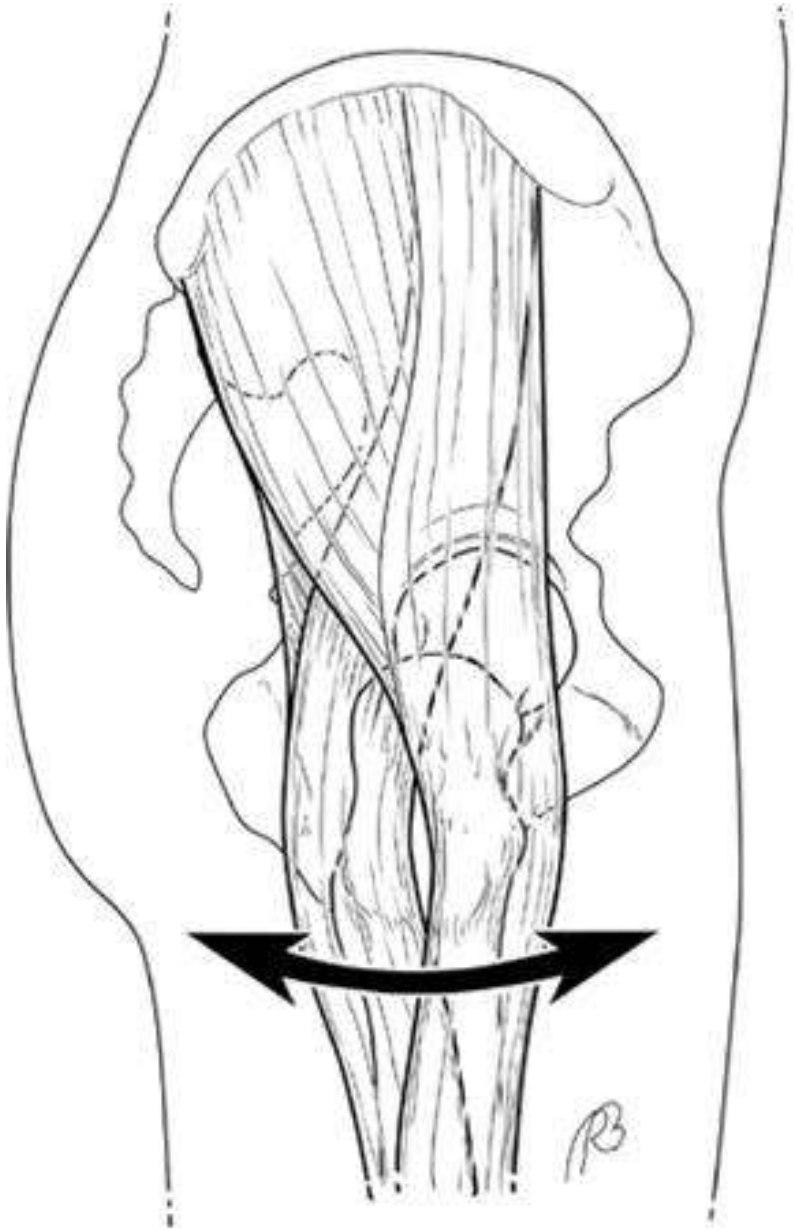
- When the hip moves from extension to flexion, the ITB moves from posterior to anterior in relation to the greater trochanter
- Snapping can be audible and painful and lead to a thickened ITB and trochanteric bursitis



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History

- Lateral pain

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History

- Lateral pain
- Aggravating factors can include sleeping on the affected side, and prolonged sitting

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History

- Lateral pain
- Aggravating factors can include side-bending, sleeping on the affected side, and prolonged sitting
- Painful mechanical symptoms of snapping, catching, clicking and locking

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Physical Examination

- Examination of gait may demonstrate an antalgic gait, an abductor lurch or a short-leg limp

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- Palpate the peritrochanteric compartment with the patient in a lateral decubitus position triggers pain

The Adult Hip: hip preservation surgery
John Clohisy, Aaron Rosemberg
Third Edition

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Physical Examination

- Examination of gait may demonstrate an antalgic gait, an abductor lurch or a short-leg limp

- Palpate the peritrochanteric compartment with the patient in a lateral decubitus position triggers pain

- Abduction strength test also be performed with the knee flexed and extended

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Physical Examination

- Examination of gait may demonstrate an antalgic gait, an abductor lurch or a short-leg limp
- Palpate the peritrochanteric compartment with the patient in a lateral decubitus position triggers pain
- Abduction strength test also be performed with the knee flexed and extended
- Supine position with the hip flexed to 90 degrees, abducted and externally rotated – provocative test for GTPS.

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Differential Diagnosis

- A detailed history, physical examination, and appropriate imaging will help narrow the differential diagnosis

- Diagnostic injections can assist in further differentiating intraarticular pain from lateral hip pain

Differential Diagnosis of Hip Pain

Location of Pain	Structures Affected	Disorders
Intra-articular hip	—	Femoroacetabular impingement
		Dysplasia
		Labral tear
		Ligamentum teres tear
		Synovitis
		Capsulitis
		Loose body
		Degenerative joint disease
		Osteonecrosis
Extra-articular hip	Muscle/tendon/ bursa	Adductor strain
		Iliotibial band syndrome
		Iliopsoas complex disorders
		Piriformis/hip external rotator disorders
		Greater trochanteric pain syndrome
		Hamstring complex disorders
	Bone	Stress fracture
		Epiphysitis
		Transient osteoporosis
	Nerve	Meralgia paresthetica
		Genitofemoral nerve disorders
		Ilioinguinal nerve disorders
		Sciatic nerve disorders
	Other	Sports hernia
		Pelvic visceral pain
Outside the hip	Axial	Disk disorders
		Facet disorders
		Lumbar strain
		Vertebral fracture
	Sacroiliac	Sacroiliac disorders
	Radicular	Spinal stenosis
		Radiculopathy
		Spondylolisthesis

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Imaging

- Routine radiography can assist in ruling out hip degenerative joint disease, femoroacetabular impingement, and dysplasia

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Imaging

- Routine radiography can assist in ruling out hip degenerative joint disease, femoroacetabular impingement, and dysplasia
- Intrabursal calcification, calcific abductor tendinosis, and enthesophytes are frequently encountered
- Surface irregularities of the trochanter of 2 mm had a 90% correlation with abductor tendon abnormalities

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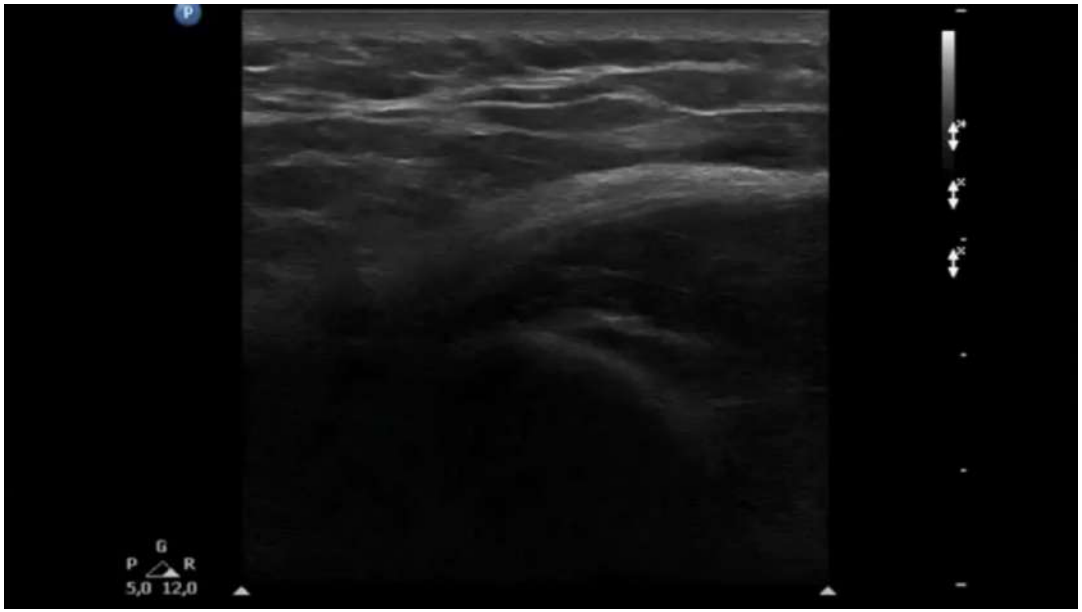
Steinert L, Zanetti M, Hodler J, Pfirrmann CW, Dora C, Saupe N: Are radiographic trochanteric surface irregularities associated with abductor tendon abnormalities? Radiology 2010;257(3):754-763

Imaging

- Ultrasonography has been shown to be an effective tool

- Ultrasonography has the benefit of allowing dynamic evaluation, which can be beneficial for confirming external snapping of the hip



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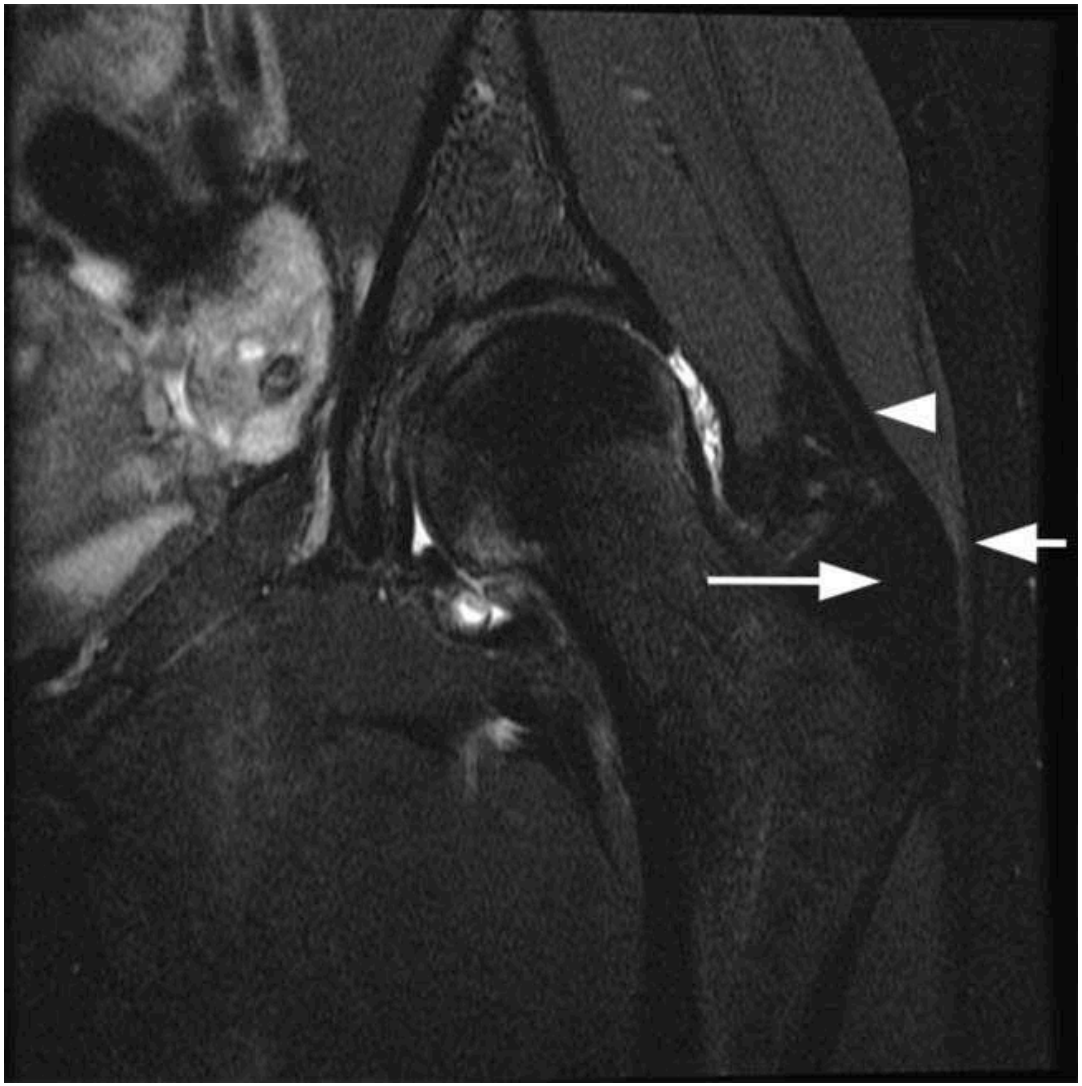
Westacott DJ, Minns JI, Foguet P:
The diagnostic accuracy of magnetic resonance imaging and ultrasonography in gluteal tendon tears: A systematic review.
Hip Int 2011;21(6):637-645

Imaging

- The “gold standard” of evaluating a patient for GTPS is MRI
    - The arrowhead indicates the gluteus medius tendon
    - the long arrow indicates the greater trochanter
    - the short arrow indicates the iliotibial band



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Hip Int 2011;21(6):637-645

Imaging

- Trochanteric bursitis
  - The arrow indicates inflammation of the trochanteric bursa
  - The arrowhead indicates the greater trochanter

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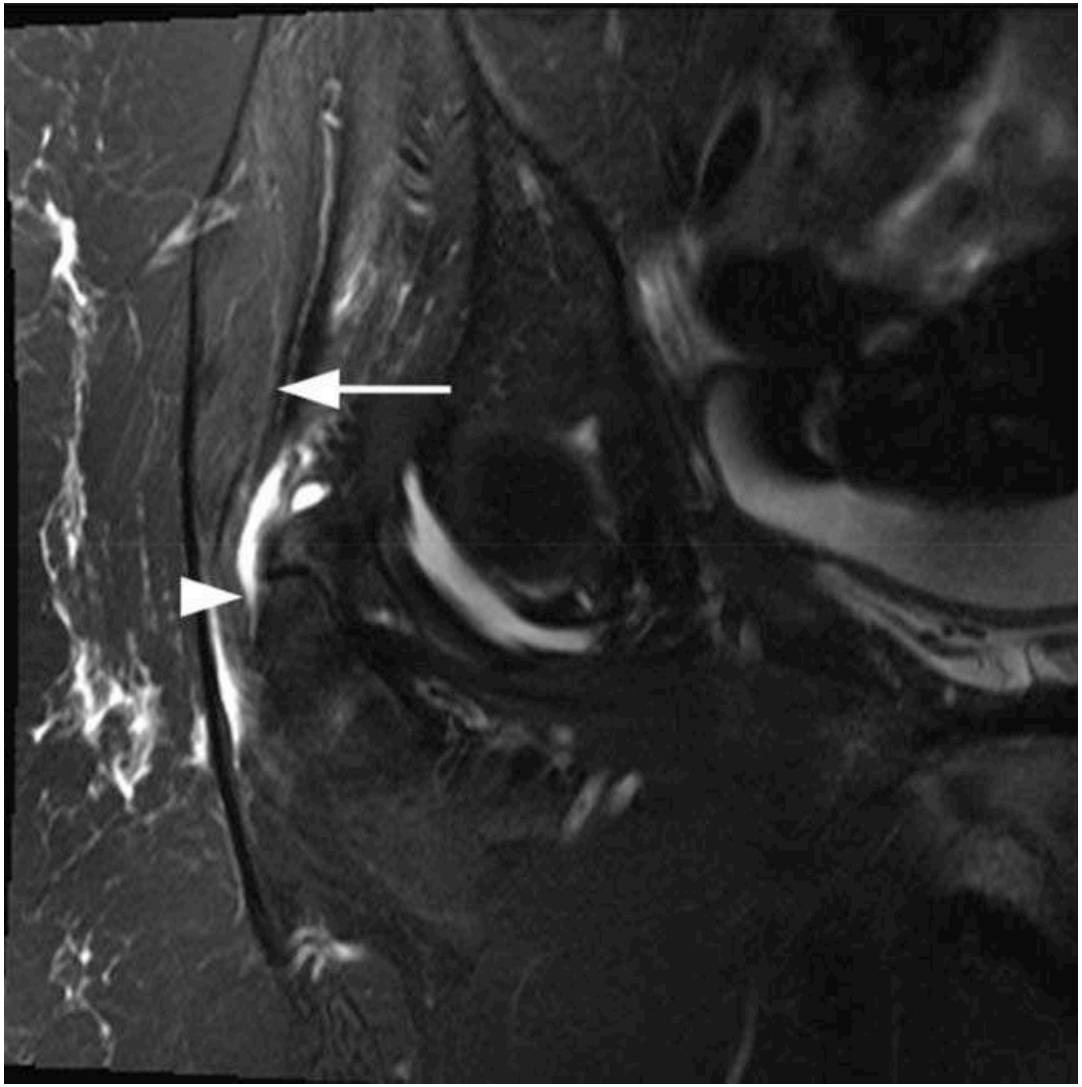
Imaging

- Abductor Tendinopathy:
  - Tendinosis: a thickened tendon
  - Partial-thickness: focal discontinuity
  - Complete tears: retraction of the tendon
  - The arrow indicates the gluteus medius muscle
  - The arrowhead indicates disruption of the gluteus medius insertion on the greater trochanter.



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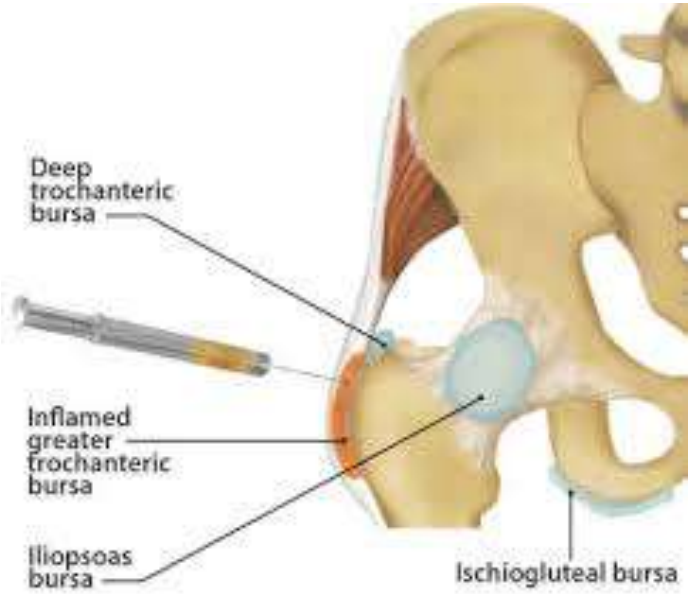
Hip Int 2011;21(6):637-645

Treatment

- anti-inflammatory
- physical therapy
- corticosteroid injections
- improvement ranged from 49% to 100%



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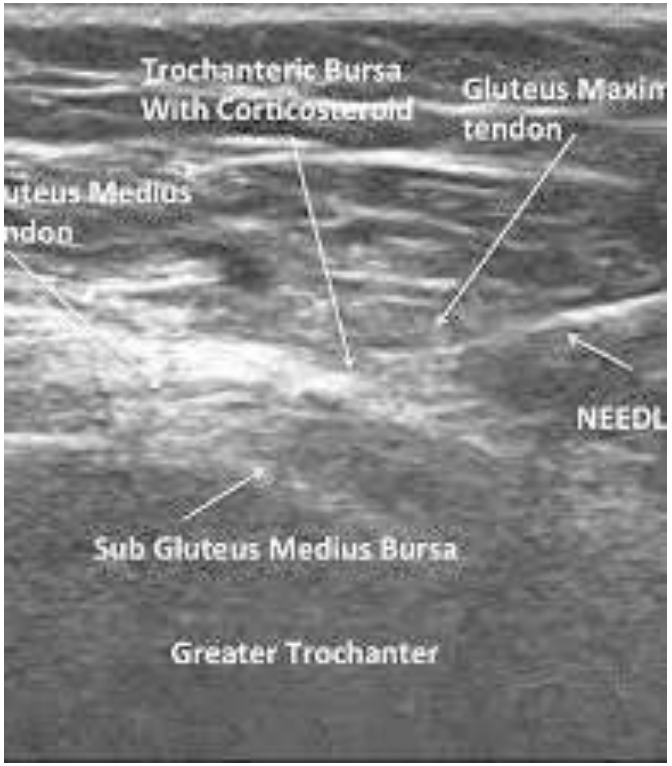
Lustenberger DP, Ng VY, Best TM, Ellis TJ:
Efficacy of treatment of trochantericbursitis: A systematic review.
Clin J Sport Med 2011;21(5):447-453

Treatment

- anti-inflammatory
- physical therapy
- corticosteroid injections
- improvement ranged from 49% to 100%
- Ultrasonography guided injection may be helpful in patients in obese patients



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Treatment

- Extracorporeal shock wave therapy (ESWT)
  - randomized trial
  - Compared three methods: ESWT, corticosteroid injection and physical therapy
  - Pain scores were evaluated at 1 month, 4 months, and 15 months
  - 1 month – injection is better
  - 15 moths= ESWT and Physical Therapy are better
  - Pain scores in the ESWT and physical therapy groups decreased from 6.3 to 2.4 and from 6.2 to 2.7, respectively

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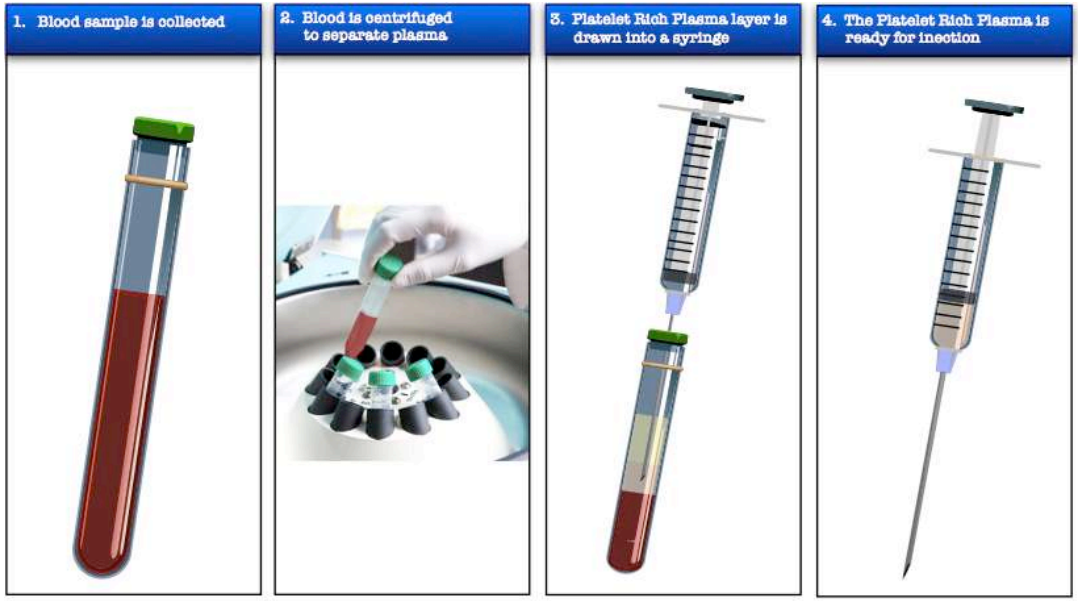
Rompe JD, Segal NA, Cacchio A, Furia JP, Morral A, Maffulli N: Home training, local corticosteroid injection, or radial shock wave therapy for greater trochanter pain syndrome.
Am J Sports Med 2009;37(10):1981-1990

Treatment

- Platelet-rich plasma (PRP)
  - Data are limited
  - Patients with chronic gluteal tendinopathy >4 months
  - single platelet-rich plasma (PRP) injection was compared with a corticosteroid injection
  - 80 patients were randomized
  - mHHS showed no difference at 2 weeks or 6 weeks
  - mHHS was significantly improved at 12 weeks in the PRP group



Fitzpatrick J, Bulsara MK, O'Donnell J, McCrory PR, Zheng MH.
The Effectiveness of Platelet-Rich Plasma Injections in Gluteal Tendinopathy: A Randomized, Double-Blind Controlled Trial Comparing a Single Platelet-Rich Plasma Injection With a Single Corticosteroid Injection.
Am J Sports Med. 2018 Mar;46(4):933-939

Treatment

- Surgical management should be reserved for patients with symptoms that have been present for a minimum of 6 to 12 months and in whom nonsurgical treatment has been unsuccessful

- Multiple techniques

- Open or endoscopic approaches

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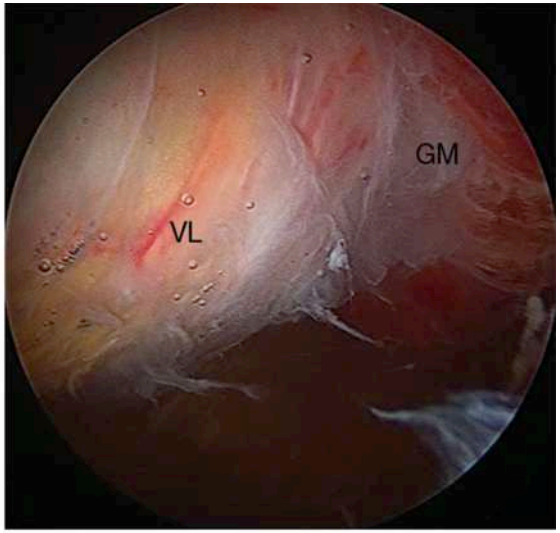
Treatment

- Trochanteric Bursitis
  - Isolated trochanteric bursectomy can be performed arthroscopically
    - (A) thickened bursal tissue
    - (B) bursectomy

A



B

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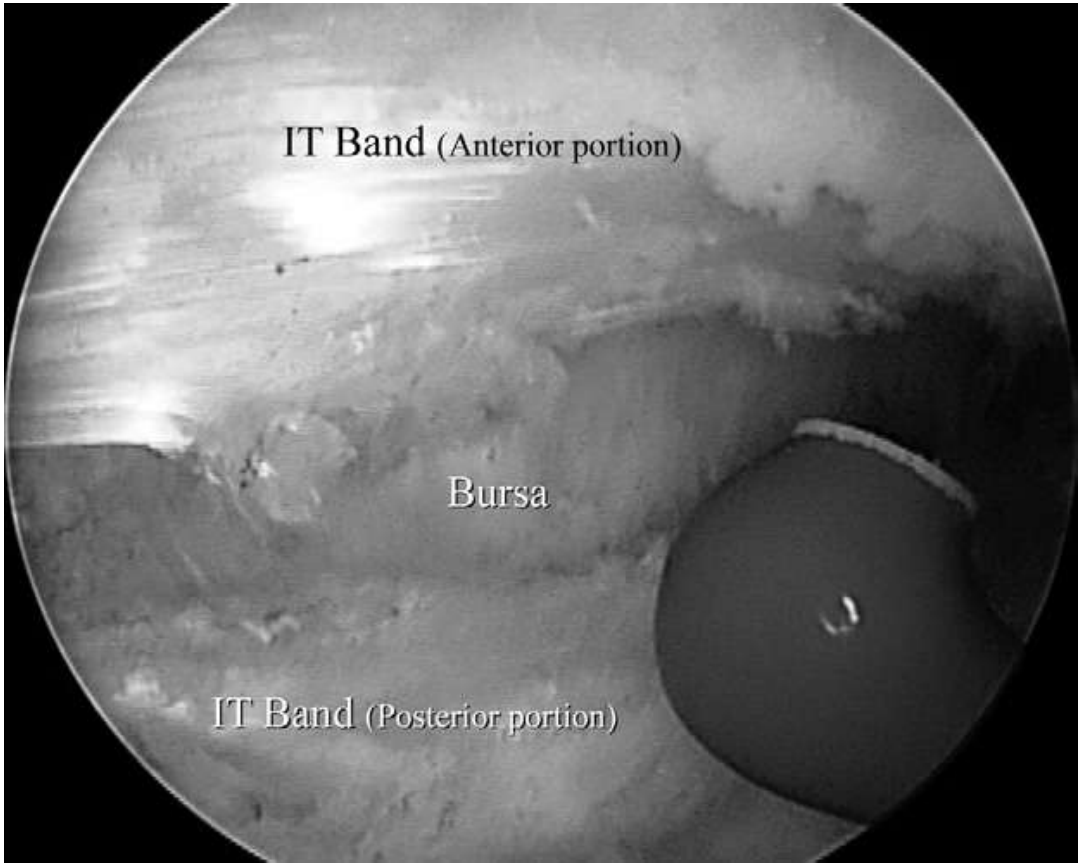
Fox JL:
The role of arthroscopic bursectomy in the treatment of trochanteric bursitis. Arthroscopy 2002;18(7):E34

Treatment

- Trochanteric Bursitis
  - Isolated trochanteric bursectomy can be performed arthroscopically
    - (A) thickened bursal tissue
    - (B) bursectomy
  - Associated with longitudinal incision in the ITB with an ablator



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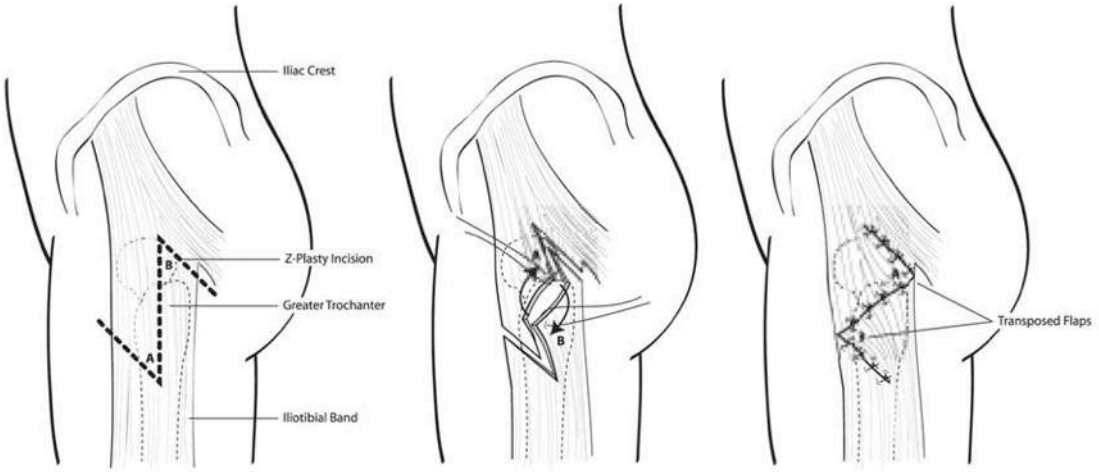
Baker CL Jr, Massie RV, Hurt WG, Savory CG:
Arthroscopic bursectomy for recalcitrant trochanteric bursitis.
Arthroscopy 2007;23(8):827-832.

Treatment

- External Snapping of the Hip
  - Open techniques have involved Z-plasty and ITB release, usually in combination with trochanteric bursectomy
  - may affect hip abduction strength



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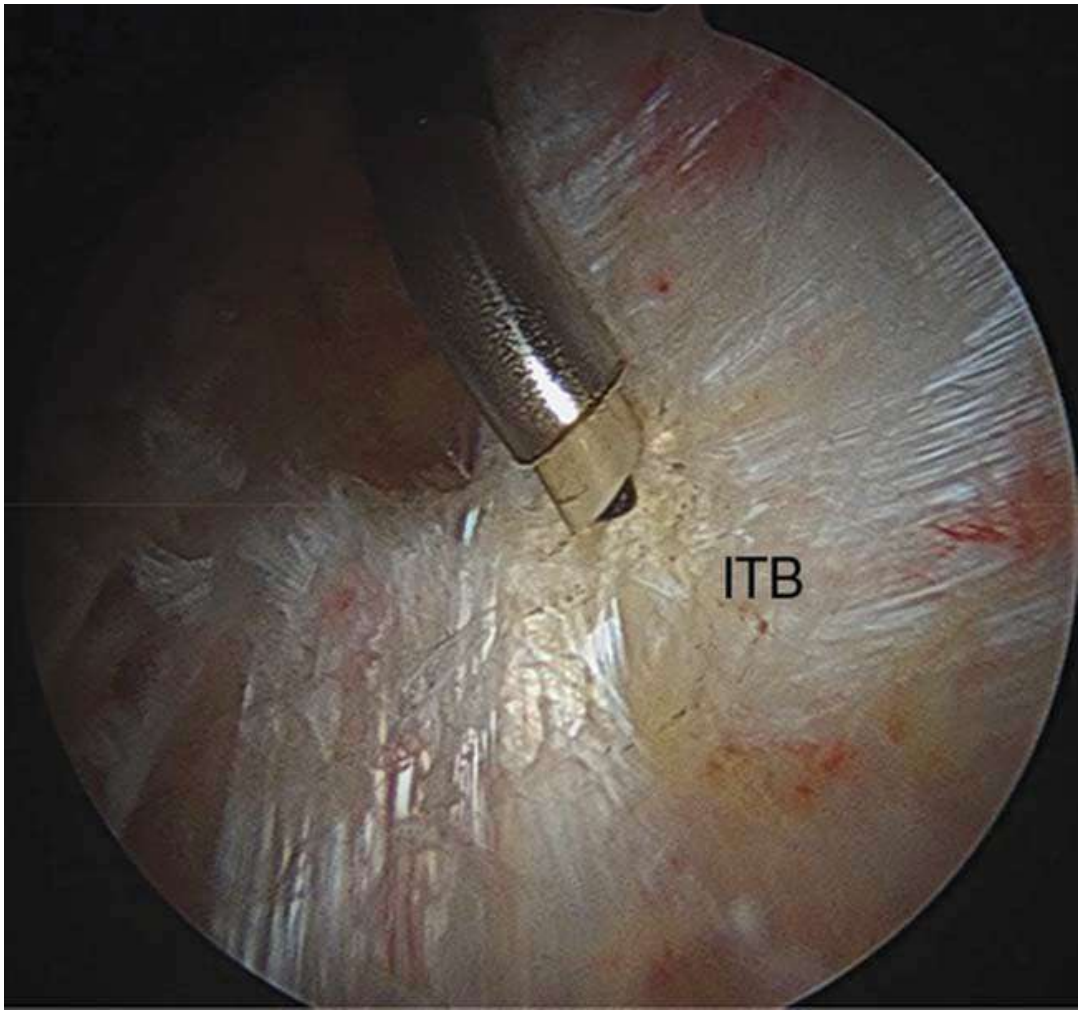
Provencher MT, Hofmeister EP, Muldoon MP:
The surgical treatment of external coxa saltans (the snapping hip) by Z-plasty of the iliotibial band.
Am J Sports Med 2004;32(2):470-476.

Treatment

- External Snapping of the Hip
  - Arthroscopic ITB release involved making a diamond-shaped window over the trochanter
  - Procedure is more time consuming and costly but is less invasive than open surgical treatment



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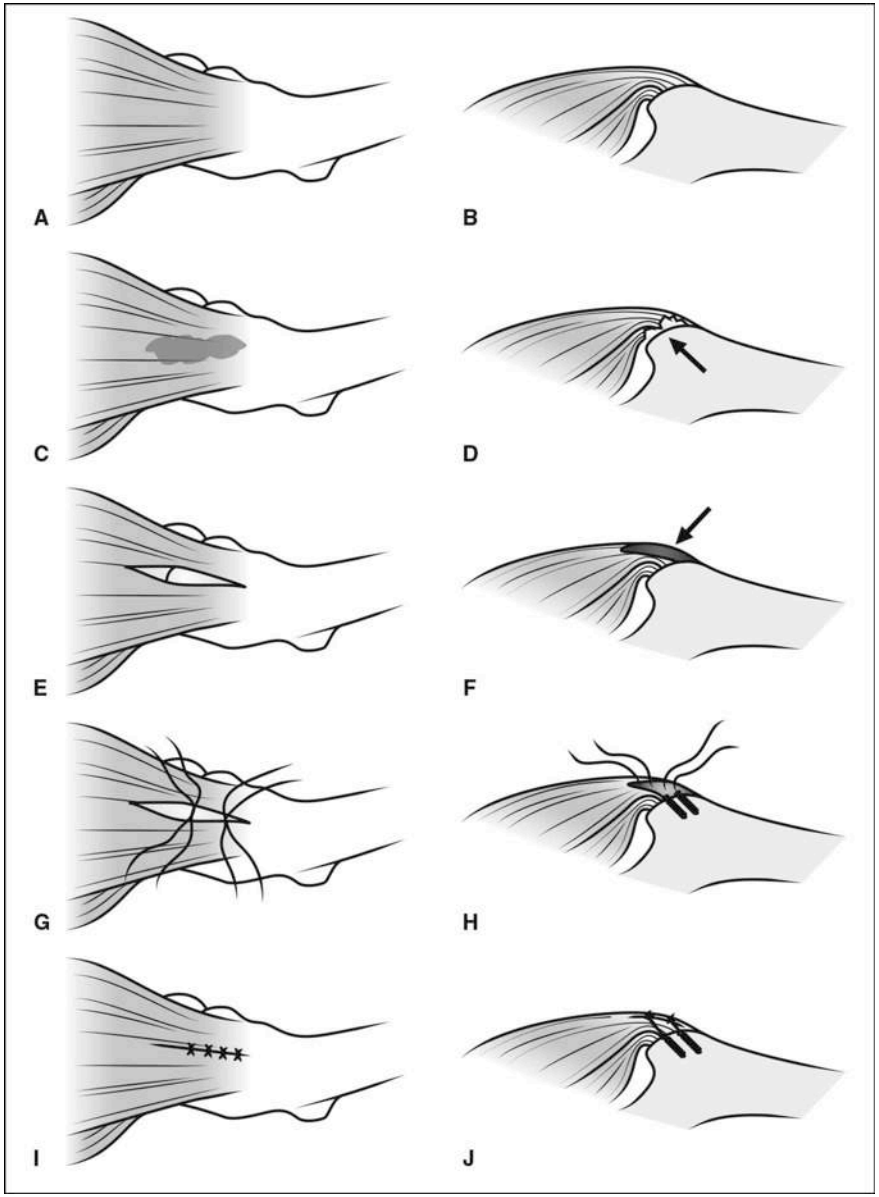
Ilizaliturri VM Jr, Martinez-Escalante FA, Chaidez PA, Camacho-Galindo J: Endoscopic iliotibial band release for external snapping hip syndrome. Arthroscopy 2006;22(5):505-510

Treatment

- Hip Abductor Tears
  - Arthroscopic treatment of abductor tendon tears of the hip has also been described in several case series



Domb BG, Botser I, Giordano BD:
Outcomes of endoscopic gluteus medius repair with minimum 2-year follow-up.
Am J Sports Med 2013;41(5):988-997.

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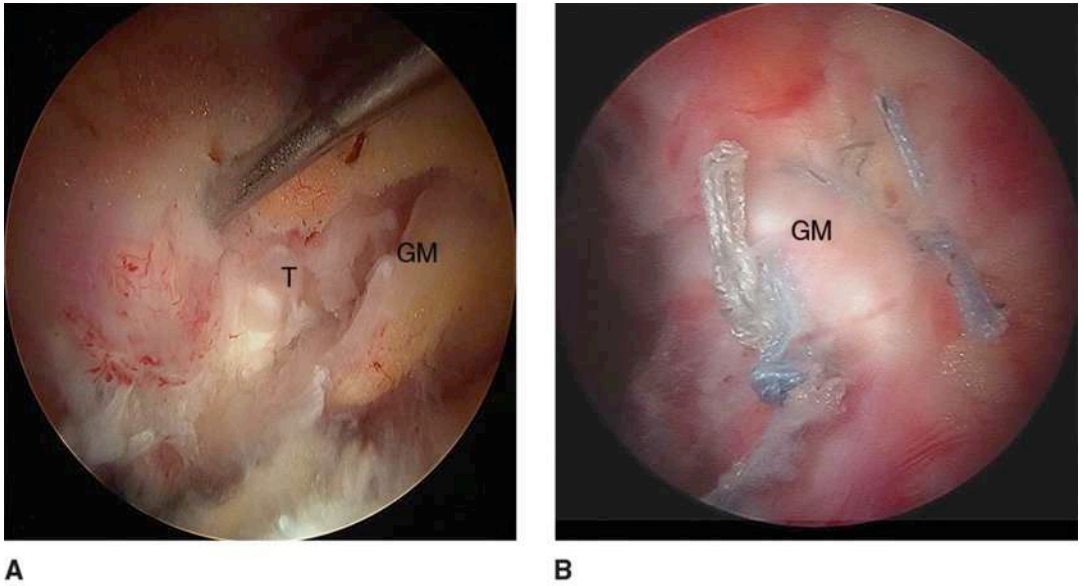
Treatment

- Hip Abductor Tears
  - Arthroscopic treatment of abductor tendon tears of the hip has also been described in several case series
  - (A) A high-grade partial-thickness tear of the gluteus medius with the exposed trochanter
  - (B) The GM has been repaired with suture anchors.



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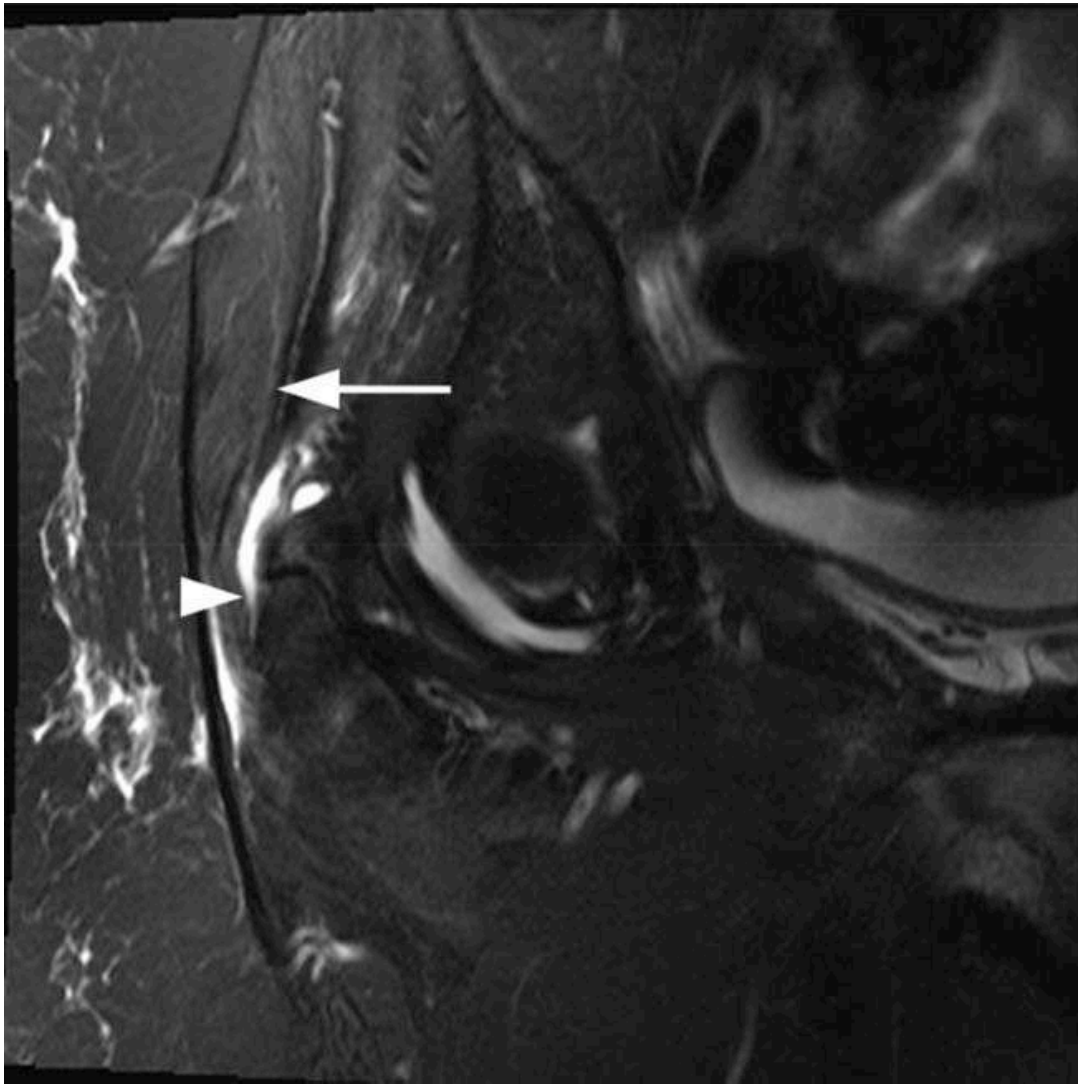
McCormick F, Alpaugh K, Nwachukwu BU, Yanke AB, Martin SD:
Endoscopic repair of full-thickness abductor tendon tears: Surgical technique and outcome at minimum of 1-year followup.
Arthroscopy 2013;29(12):1941-1947

Treatment

- Hip Abductor Tears
  - In patients with chronic, complete avulsions of the gluteus medius, mobilizing the tendon back to its trochanteric attachment may be impossible.



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Treatment

- Hip Abductor Tears

  - In patients with chronic, complete avulsions of the gluteus medius, mobilizing the tendon back to its trochanteric attachment may be impossible.

  - If the gluteus medius muscle has not atrophied, an allograft tendon can be used

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Fehm MN, Huddleston JI, Burke DW, Geller JA,Malchau H:
Repair of a deficient abductor mechanism with Achilles tendon allograft after total hip replacement.
J Bone Joint Surg Am 2010;92(13):2305-2311.

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- Hip Abductor Tears
  - In patients with chronic, complete avulsions of the gluteus medius, mobilizing the tendon back to its trochanteric attachment may be impossible.
  - If the gluteus medius muscle has not atrophied, an allograft tendon can be used
  - For patients with an atrophied gluteus medius muscle was described a transfer of the gluteus maximus and tensor fascia lata to the trochanter.

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Whiteside LA:
Surgical technique: Transfer of the anterior portion of the gluteus maximus muscle for abductor deficiency of the hip.
Clin Orthop Relat Res 2012;470 (2):503-510

Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- AP

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Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- AP
- 45 Dunn

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Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- AP
- 45 Dunn
- 90 Dunn

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Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- AP
- 45 Dunn
- 90 Dunn
- Lequesne

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Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- CT

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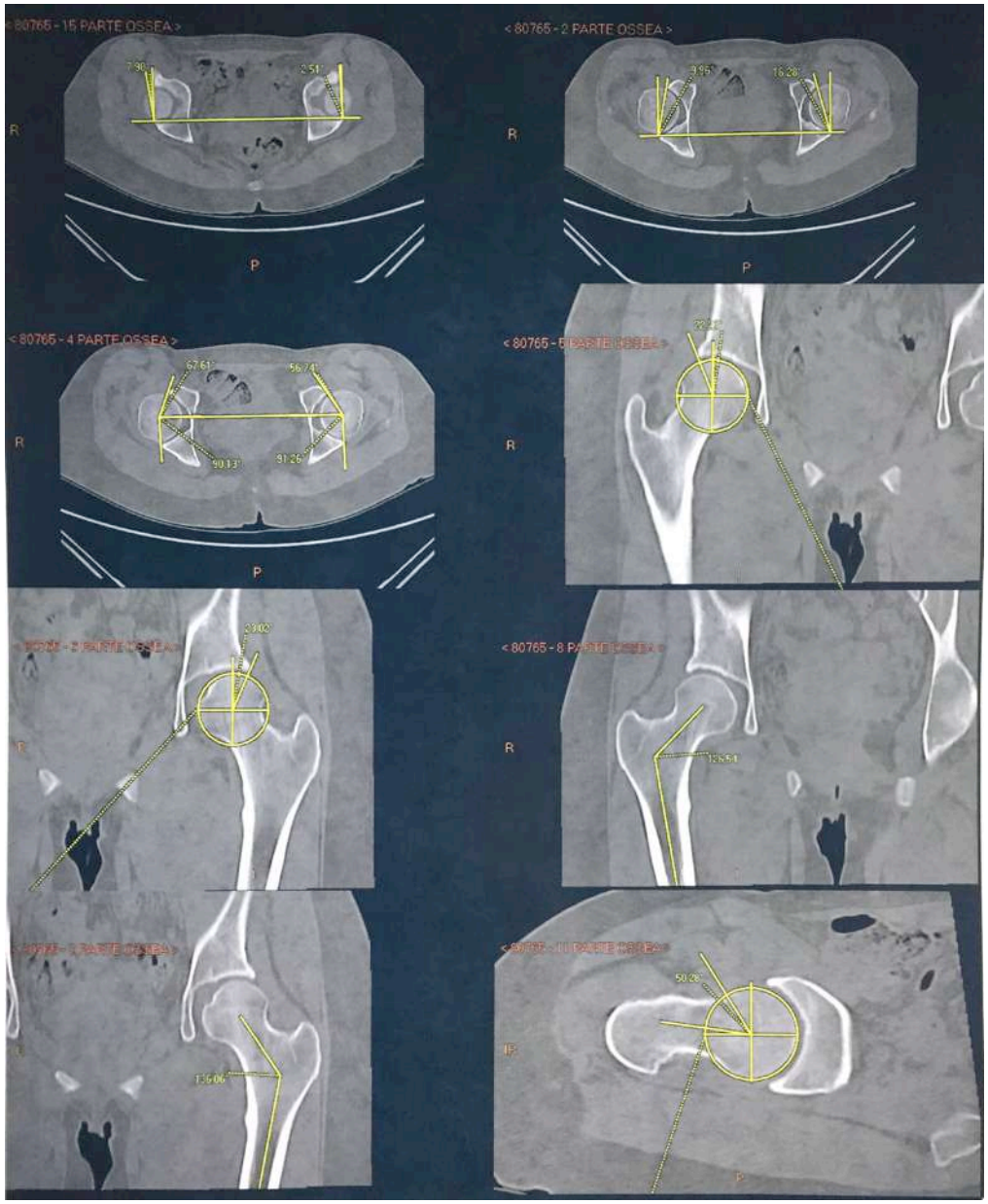
Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- CT
- Angles:
  - Acetabular roof: 22
  - Acetabular version in its supraequatorial portion: 7 retroversion
  - Acetabular version in its middle third: 9 anterversion
  - Alpha angle: 50
  - cervidiaphyseal angle: 126



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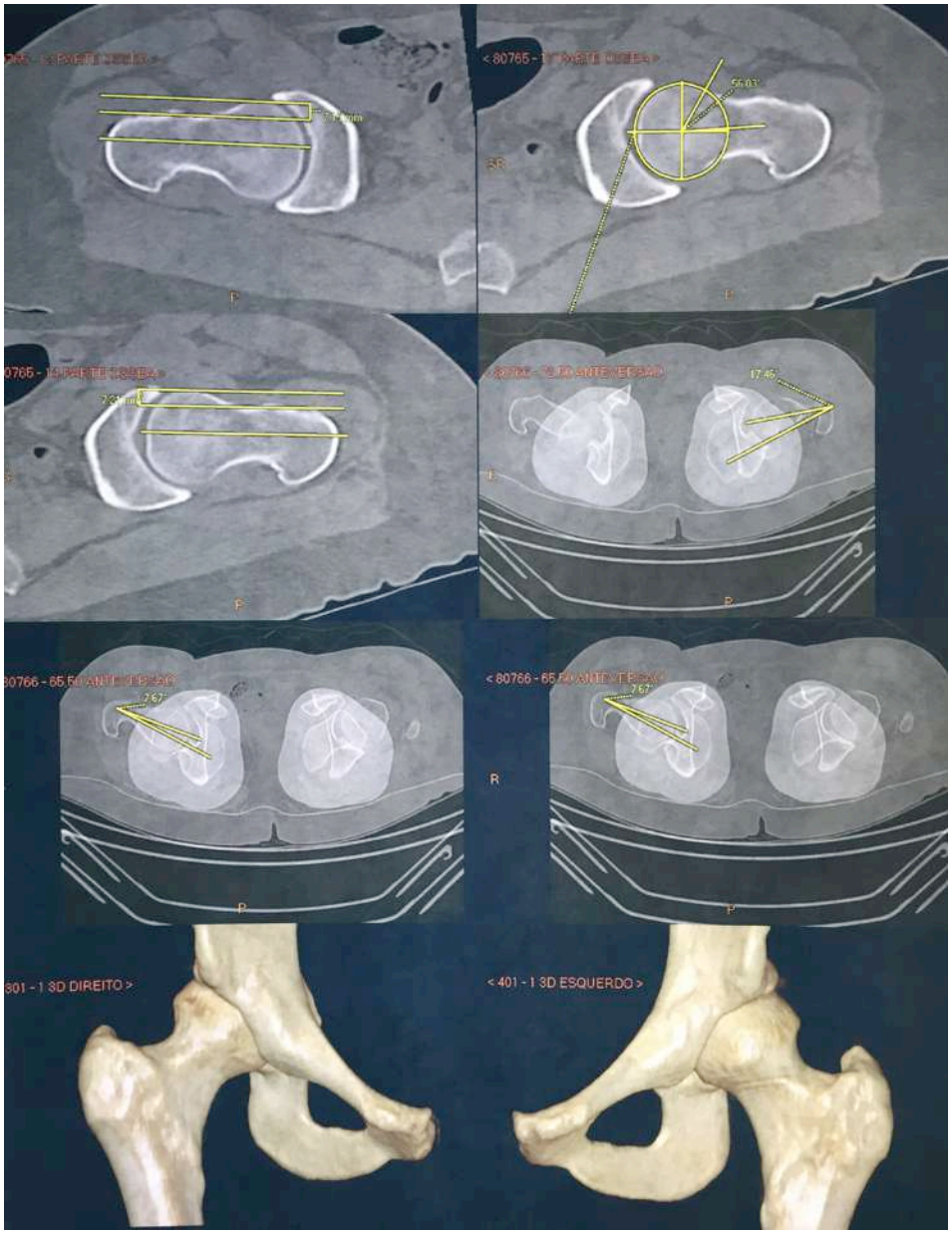
Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- CT
- Angles:
  - Acetabular roof: 22
  - Acetabular version in its supraequatorial portion: 7 retroversion
  - Acetabular version in its middle third: 9 anterversion
  - Alpha angle: 50
  - cervidiaphyseal angle: 126
  - headneck offset: 7 mm
  - femoral version: 7



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Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- MRI

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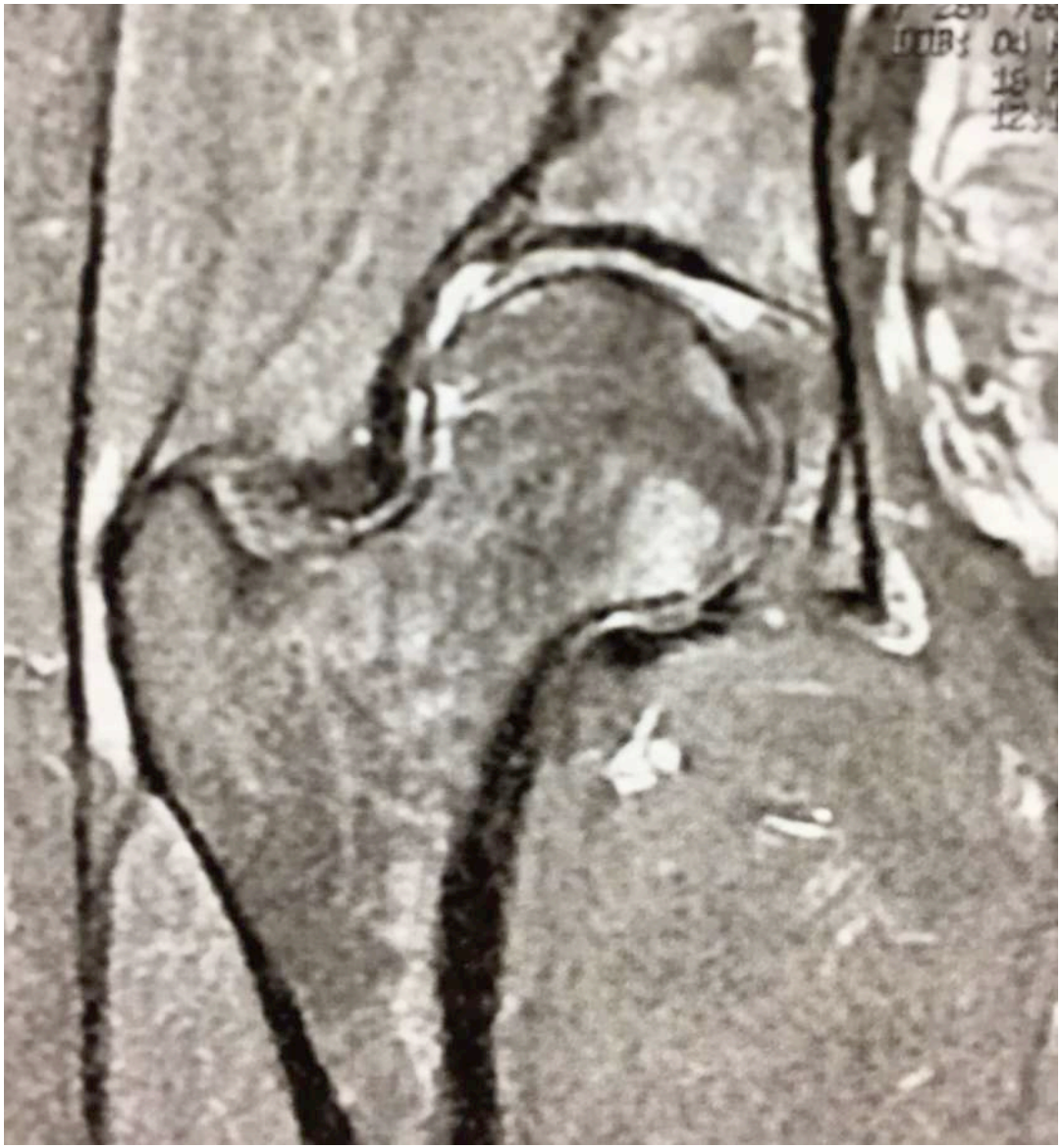
Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- MRI



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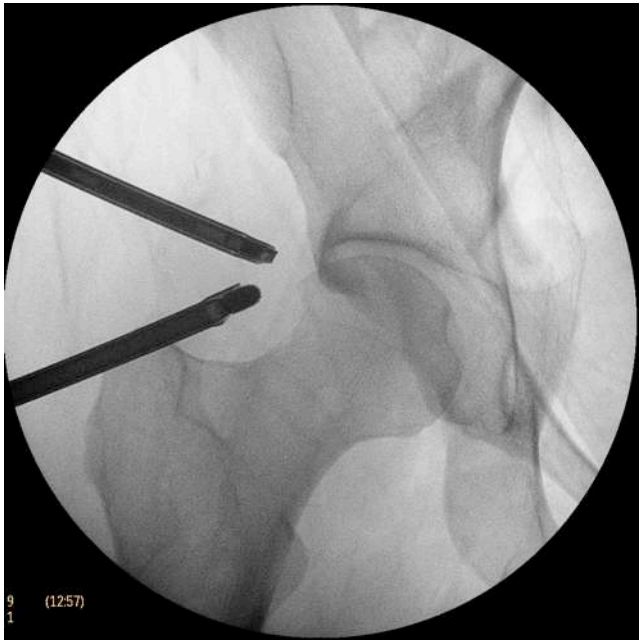
Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- Fluoroscopy
  - AP



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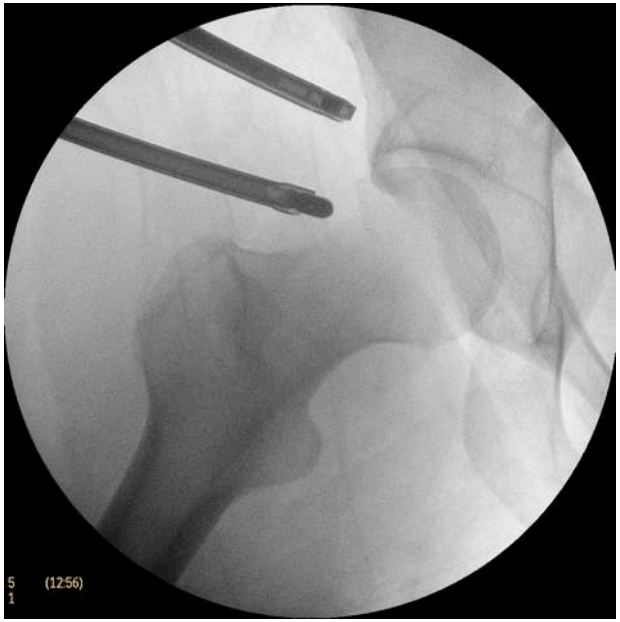
Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- Fluoroscopy
  - AP
  - 45 DUNN



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Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- Fluoroscopy
  - AP
  - 45 DUNN
  - 90 DUNN

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Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- Surgery:
    - Labral tear

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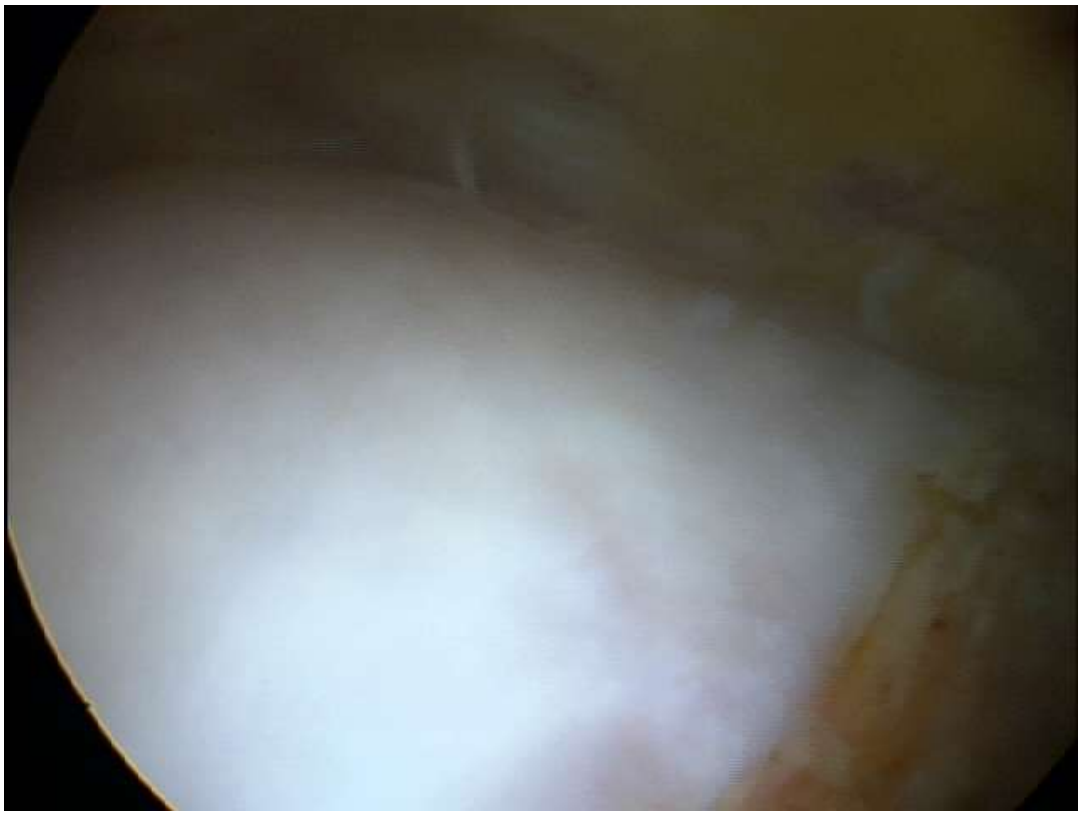
Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- Surgery:
  - Labral tear
  - BUMP



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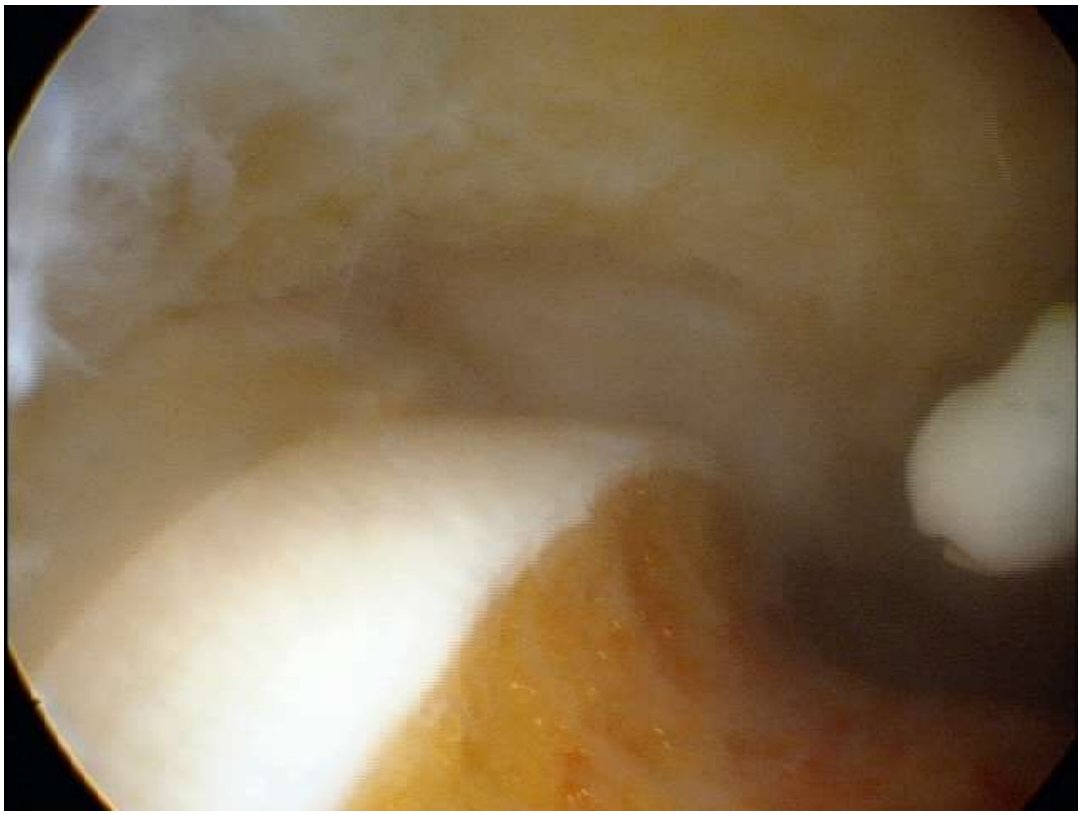
Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- Surgery:
  - Labral tear
  - BUMP
  - Femoral Osteochondralplasty



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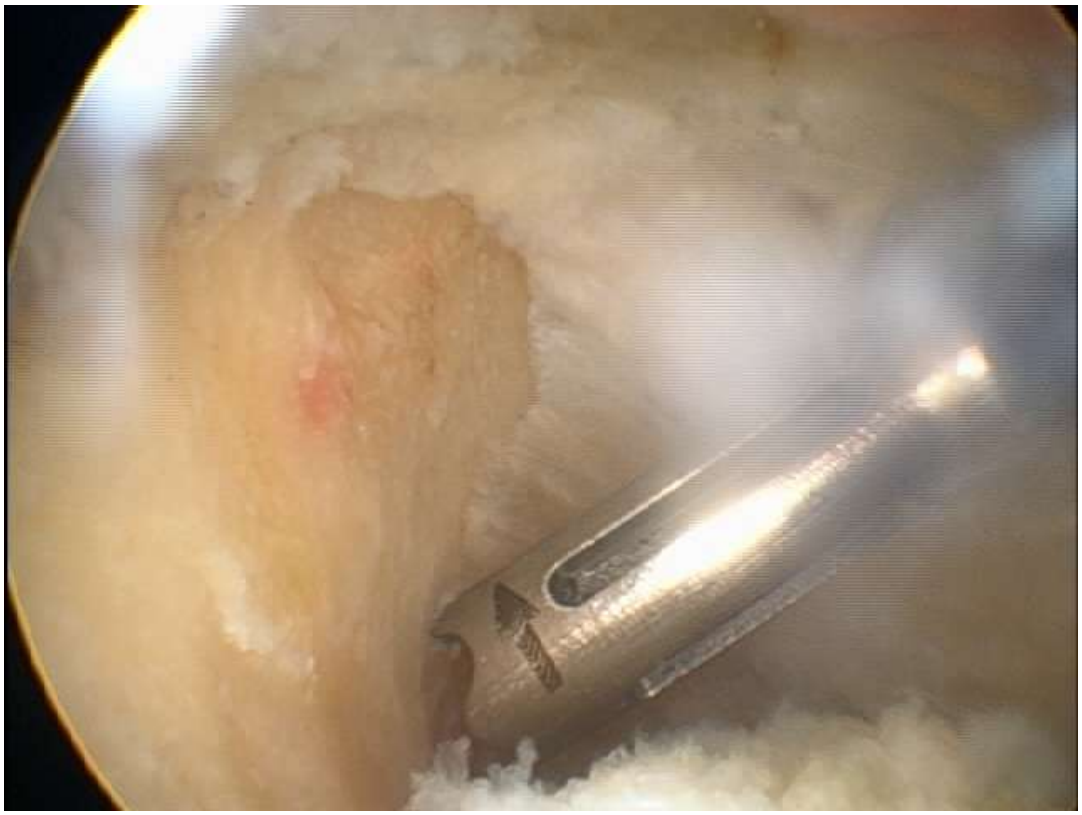
Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- Surgery:
  - Labral tear
  - BUMP
  - Femoral Osteochondralplasty
  - Rim trimming



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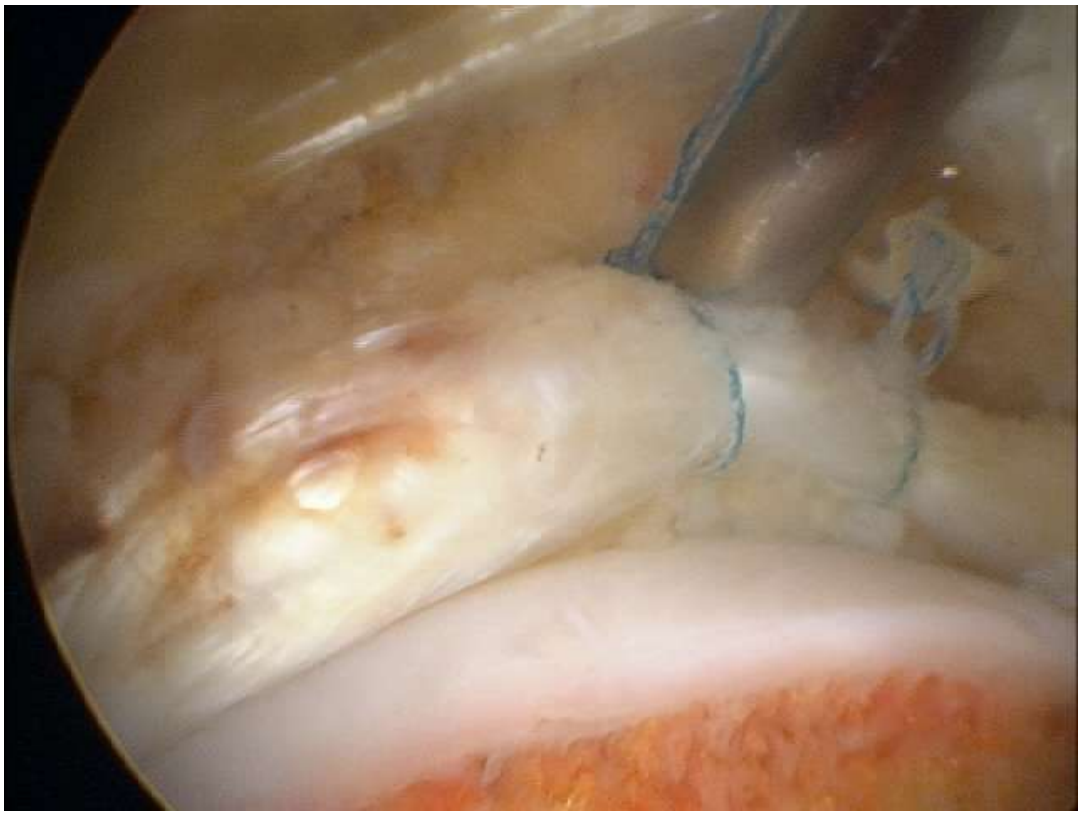
Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- Surgery:
    - Labral tear
    - BUMP
    - Femoral Osteochondralplasty
    - Rim trimming
    - Labral repair



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Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- Surgery:
  - Labral tear
  - BUMP
  - Femoral Osteochondralplasty
  - Rim trimming
  - Labral repair

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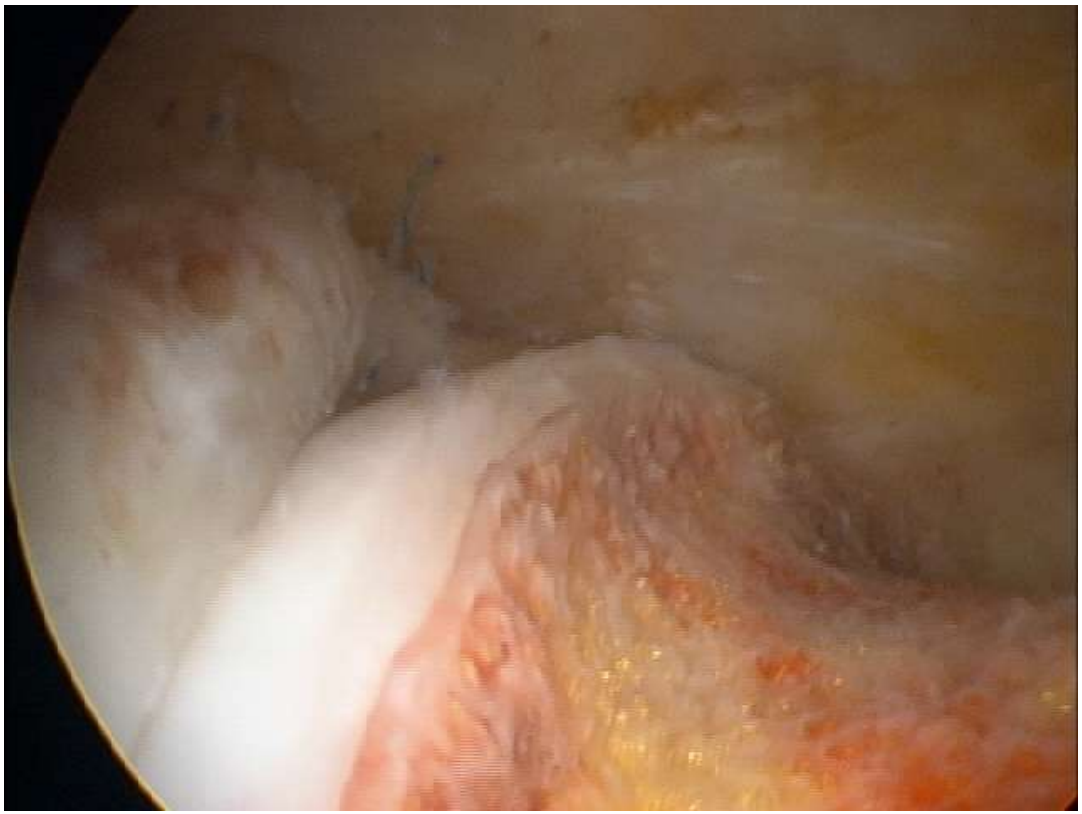
Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- Surgery:
    - Labral tear
    - BUMP
    - Femoral Osteochondralplasty
    - Rim trimming
    - Labral repair



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Case Discussion

- JBES, female, 35yo
- Pain in both hips, lateral and groin
- Surgery:
  - Labral tear
  - BUMP
  - Femoral Osteochondralplasty
  - Rim trimming
  - Labral repair
  - Bursectomy

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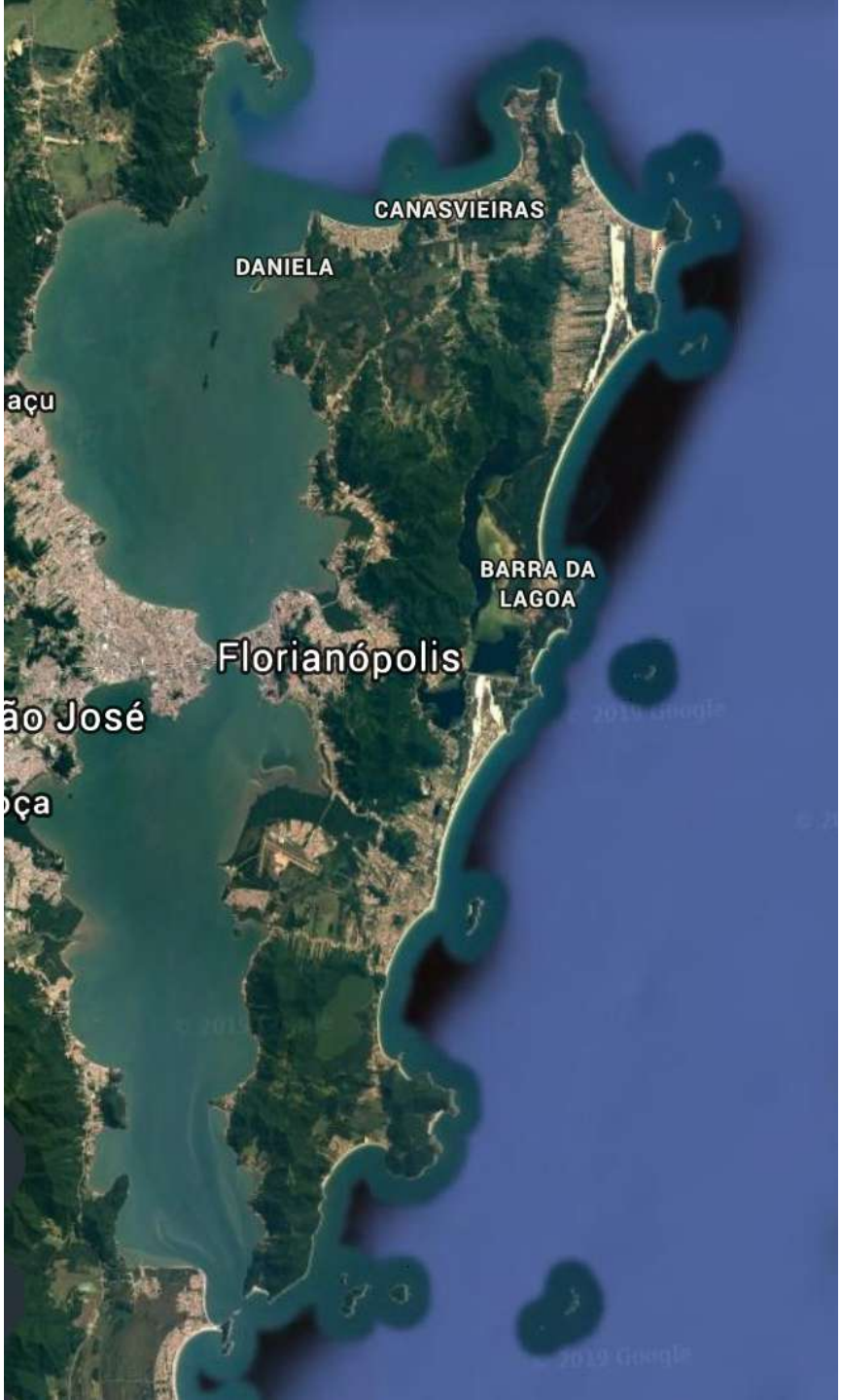

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