PAIN IN THE NECK, PAIN IN THE BUTTOCK: WHAT REALLY MATTERS

THOMAS V GOCKE, DMSC, ATC, PA-C, DFAAPA PRESIDENT & CO-FOUNDER ORTHOPAEDIC EDUCATIONAL SERVICES, INC. BOONE, NC TOM@ORTHOEDU.COM WWW.ORTHOEDU.COM



Faculty Disclosures

Orthopaedic Educational Services, Inc.

Financial Intellectual Property No off-label product discussions

American Academy of Physician Assistants

Financial Splinting/Casting Workshop Director, Guide to the MSK Galaxy Course

- JBJS- JOPA Journal of Orthopaedics for Physician Assistants- Associate Editor
- Americian Academy of Surgical Physician Assistants Editorial Review Board
- Associate Professor, Rocky Mountian Univerity of Health Professions Financial

LEARNING GOALS

At the end of this sessions you will be able to:

- Identify and Treat MSK conditions involving the Neck and Shoulder
- Identify and treat MSK n conditions involving the Lumbar spine, Hip and Pelvis

Change the Way you look at Shoulder Pain complaints

Consider that the Cervical Spine and Shoulder are connected......especially in the Older patient



SHOULDER

Rotator Cuff Syndrome
 Rotator Cuff Tendonitis
 Sub-acromial Bursitis
 Sub-acromial impingement

- Biceps Tendonitis
- Acromioclavicular Joint Arthritis

SHOULDER A



Musculoskeletal Images are from the University of Weshington "Musculoskeletal Atlas: A Musculoskeletal Atlas of the Human Body" by Carol Teitz, M.D. and Dan Graney, Ph.D.

ROTATOR CUFF SYND

Epidemiology

- All ages
- Dull achy pain vs. sharp pain
- Gradual onset vs. sudden onset
- "Painful arc" 60-120 degrees ROM
- Night / sleep pain
- Overhead pain & weakness
- Deltoid pain
- Numbness small fingers affected side relative
- Weakness with daily activity or specific tasks
- Atrophy Shoulder Girdle (Supraspinatus & Infraspinatus)

Pathophysiology

- Progressive, age-related tendon changes
- Codman (1934) most tears are after age 40 and significantly increase after age 50
- Articular surfaces tears most common at insertion supraspinatus into greater tuberosity

Pathophysiology

- Anterosuperior Impingement syndrome
 - Involves: Acromion, Sub-acromial bursa, Coracoclavicular ligament & Acromioclavicular joint
 - Supraspinatus tendon inserts greater tuberosity anterior to Coracoacromial arch
 - Biceps tendon passes under Coracoacromial arch in forward flexion w/ shoulder internally rotated
 - Neer (1972) felt RTC tears were 2nd to impingement and aided by down sloping acromial spur

Presentation

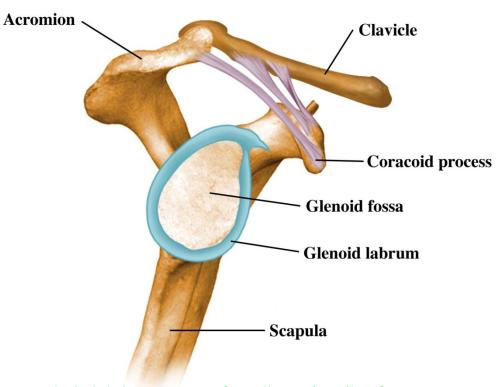
- "Painful arc" 60-120 degrees ROM
- Night / sleep pain
- Overhead pain & weakness
- Deltoid pain
- Numbness small fingers affected side relative
- Weakness with daily activity or specific tasks

Physical Examination:

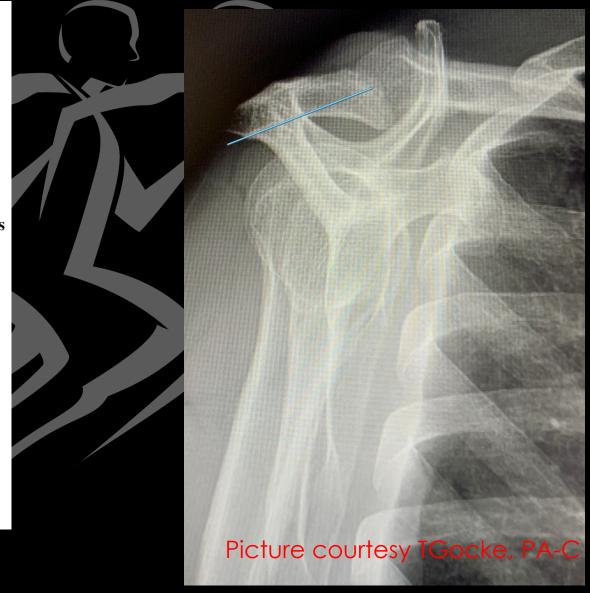
- Inspection: skin, muscle atrophy, deformities
- Palpation: AC, SC, clavicle, coracoid, posterior RTC
- Range-of-Motion: Flex, Ext, IR, ER
- Strength: Flex, Ext, IR, ER
- Neuro/Vascular: C5-T1
- Orthopaedic Tests:
 - Speeds: biceps/RTC
 - Empty Can: RTC (supraspinatus-infraspinatus)
 - Neer/Hawkins: RTC impingement
 - Crossover: AC joint
 - Apprehension/relocation: Stability
 - Obrien's: Labrial injury

Gocke TV: Shoulder Examination, Orthopaedic Educational Services, Inc., <u>www.orthoedu.com</u> 2019

SHOULDER ANATOMY



Musculoskeletal Images are from the University of Washington "Musculoskeletal Atlas: A Musculoskeletal Atlas of the Human Body" by Carol Teitz, M.D. and Dan Graney, Ph.D."



Treatment:

- Identify condition/Manage Pt. expectations
- Modification activities
- NSAIDS: oral vs. topical
 - Ibuprofen/Celecoxib/Meloxicam vs. Diclofenac 1 or 2%
- Therapy strength/ROM
- Injection
- MRI further diagnostic acute vs. failed therapies
- Surgery
 - Arthroscopy Sub-acromial decompression vs. Rotator repair

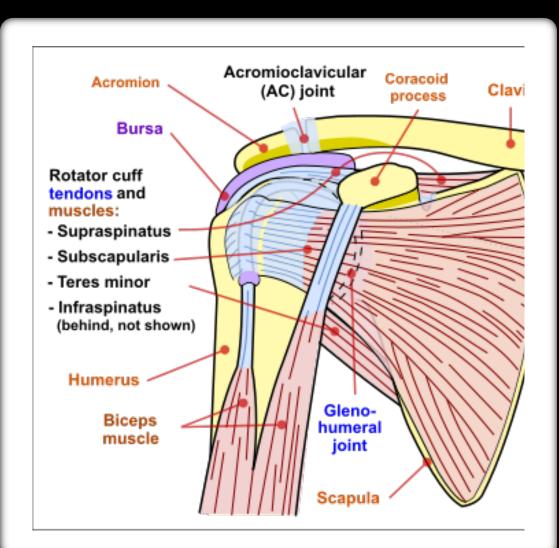
BICEPS TENDONITIS

Epidemiology

- Pain generator
- Associated w/ RTC dz.
 - Stenosis Bicepital groove
 - RTC tear: Subscapularis pathology
 - Inflammation at RTC interval-
 - Bicep tendon passes thru RTC
 - Attach on Superior Glenoid/Labrium

Anatomy

- Bicep Origin: Supraglenoid tubercle/superior Labrium
- Transverse Humeral Ligament- Bicepital groove



BICEPS TENDONITIS

Clinical Presentation

- Anterior Shoulder pain & down Biceps tendon
- Elbow Flexion and Supination pain/Weakness
- Associated RTC symptoms

Exam

- Tender Bicep groove worse 10^o internal rotation
- Positive Yergason test: pain with resistive supination
- Speeds Test: positive Biceps pain ? SLAP t

Treatment: Similar to RTC Impingement

Gocke TV: Shoulder Examination, Orthopaedic Educational Services, Inc., <u>www.orthoedu.com</u> 2019 Abbasi D, Keener J, Biceps Tendonitis, 2018 <u>www.orthobullets.com/shoulder-and-elbow/3045/biceps-tendonitis</u>

ACJOINT ARTHRITIS

Epidemiology

- Pain generator
- Confused w/ RTC symptoms
 - Hurts like RTC syndrome
 - Arthritic changes 2nd to OA or Trauma
 - Pain with Palpation on top AC joint
- Presentation: just like RTC symptoms

Treatment: see RTC treatment

DON'T FORGET CERVICAL DISEASE



CERVICAL SPONDYLOSIS

Epidemiology

- 40-50 yr old's
- Most common > 65 yrs
- Males > females
- C5-6 & C6-7 most common

Risk Factors

- Driving
- Smoking
- Repetitive Lifting
- Athletics/Trauma



https://www.hopkinsmedicine.org/healthlibrary/conditions/adult/spine_shoulder_and_pelvis_disorders /cervical_spondylosis_134,17

CERVICAL SPONDYLOSIS

Central Canal Stenosis- Narrowing

- Causes Clinical Myelopathy & Radiculopathy
 - Compression Spinal Cord
 - Motor weakness
 - Neck extension exacerbates symptoms
 - Cord pinched between anterior deg. Disc & hypertrophic ligamentum flavum/ facet joints

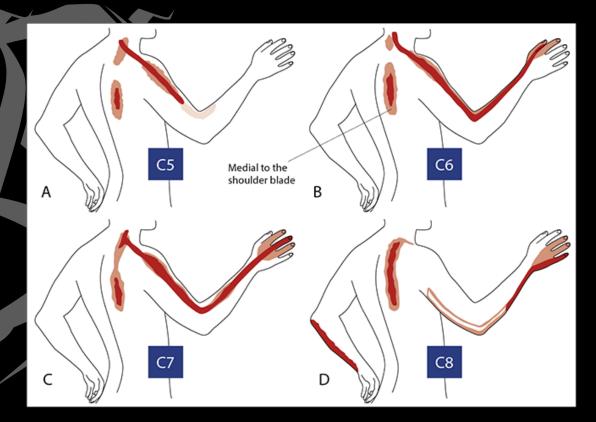
https://www.hopkinsmedicine.org/healthlibrary/conditions/adult/spine_shoulder_and_pelvis_disorders/cervic al_spondylosis_134,17

CERVICAL SPON

Symptoms

- Occipital headaches
- Trapezius/parascapular muscle pain/spasm
- Neck pain
 - Insidious v. motion
 - Discogenic v. mechanical
- Radiation symptoms: Shoulder Arm Hand
- Dermatomal changes- variable
- Weakness variable

https://www.orthobullets.com/spine/2030/cervical-radiculopathy



Steven Pasquini, PA-C Radiology Rapid Review: Cervical and Lumbar Patterns

https://smartypance.com/radiculopathy-rapid-review/

CERVICAL SPONDYLOSIS

Exam

- C4: Radiates to scapula/Winged scapula
- C5: Deltoid patch, Deltoid/Bicep weakness, Biceps reflex
- C6: Thumb region, Brachioradalis/wrist extensors, Brachioradalis reflex
- C7: Index/Middle/Ring, Triceps/Wrist flexors/Triceps reflex.
- C8: Hypothenar region, Finger ABD/ADD, no reflex

Tests

- Spurling's Test: Extend-Lateral flex-Rotate-Compress
- Overhead Arm Relief Test: Arm above head relieves symptoms

https://www.orthobullets.com/spine/2030/cervical-radiculopathy



Figure 1. Spurling Test for Cervical Radiculopathy

CERVICAL SPON

Treatment:

Identify condition/Manage Pt. expectations

- Modification activities
- NSAIDS:
 - Ibuprofen/Celecoxib/Meloxicam vs. Diclofenac 1 or 2%
 - Oral Steroid Dose Pak
- Physical Therapy minimize symptoms
- Injection -
- MRI further diagnostic acute vs. failed therapies
- Surgery- Failure of conservative Treatments

https://www.hopkinsmedicine.org/healthlibrary/conditions/adult/orthopaedic_disorders/CervicalMyelopathy_22,CervicalMyelopathy



Patients [and some medical providers] can't tell you the difference between hip and back pain

.....especially the symptoms

© 2020 ORTHOPAEDIC EDUCATIONAL SERVICES, INC ALL RIGHTS RESERVED

Think About Hip pain by location

- Anterior True Hip joint patholog
- Lateral- Trochanteric Pain Syndrome, Gluteal/External Rotator tendons
- Posterior Lumbar/Sciatic nerve Pathology

ANTERIOR HIP PAIN HIP JOINT AVASCULAR NECROSIS (AVN) HIP JOINT OSTEOARTHRITIS

© 2020 ORTHOPAEDIC EDUCATIONAL SERVICES, INC ALL RIGHTS RESERVED

Epidemiology

- M>F, 35-50 yrs. of age
- Bilateral occurrence 80%
- Groin & Anterior/Lateral Thigh pain

 Referred pain from Femoral nerve and Obturator nerve
- Idiopathic most common
 - Intravascular coagulation
 - Coagulopathy involving intraosseous micro-circulation;

HIP AVN

- DECREASED BLOOD FLOW TO FEMORAL HEAD - LEADS TO CHONDRAL FX AND HEAD COLLAPSE

- AVN 2ND TRAUMA
 - MICROVASCUALR INJURY TO FEMORAL HEAD BLOOD SUPPLY

Causes:

HIP AVN

- Irradiation
- Trauma
- Hematologic dz (Leukemia, Sickle Cell)
- Scuba diving
- ETOH
- Hyper-coagulopathies
- Lupus
- IV Drug use
- Drugs (protease inhibitors-HIV)
- Idiopathic

HIP AVN

Symptoms

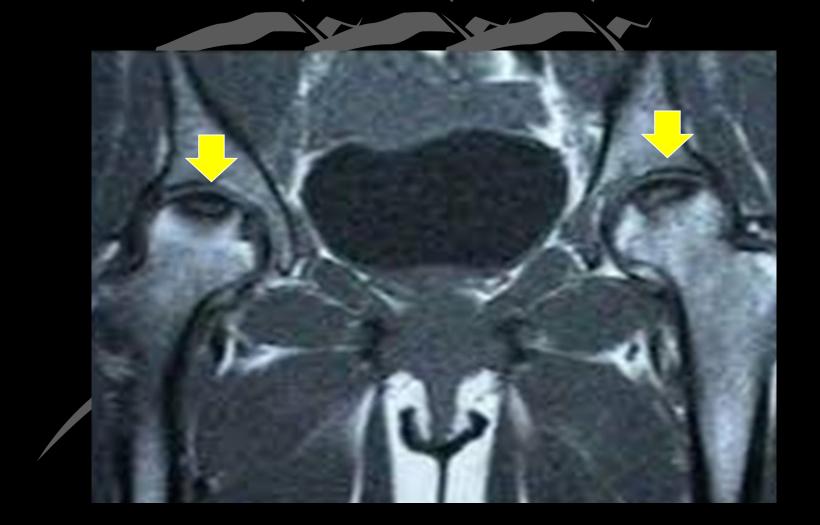
- Insidious onset
- "Can't tie my shoe"
- Pain intensified w/ stairs, inclines, Impact activity
- Anterior Hip pain vs. Anterior Thigh Pain
- Exam:
 - Hip exam- FABER test, FADIR test, Stinchfield's test
 Pain with ROM (advancing dz)

HIP AVN

Radiology

- X-ray
 - Pelvis, Bilateral AP Hip & Frog lateral
 - MRI
 - Most sensitive and specific dx AVN
 - Edema predictive of worsening dz





© 2020 ORTHOPAEDIC EDUCATIONAL SERVICES, INC ALL RIGHTS RESERVED

Treatment

HIP AVN

- NSAIDS, Acetaminophen, Intra-articular injection
- Bisphosphonates
 - Indicated pre-collapse AVN
 - Alendronate (Fosamax) prevents femoral head collapse in hip osteonecrosis with subchondral lucency
 - Results research trials variable
- Decompression
 - Relief of intraosseous hypertension & decreases pain
 - Stimulates healing via angiogenesis
- Total Joint Arthroplasty

HIP JOINT OST

- More Likely diagnosis of Older patients
- Gradual onset of symptoms
- Gradual decline in function-ability
- Limited Motion
- Consistent deep ache worse standing/sitting
- Start-up pain, distal thigh pain
- Pain with hip motion & worse extremes of motion
- Radiographs
 - Diminished joint space
 - Subchondral cystic change femoral head

Wilson JJ, Furukawa M, Evaluation of the Patient with Hip Pain, Am Fam Physician, 2014



HIP JOINT OSTEOARTHRITIS

Treatment:

- Identify condition/Manage Pt. expectations
- Modification activities
- NSAIDS:
 - Ibuprofen/Celecoxib/Meloxicam vs. Diclofenac 1 or 2%
- Physical Therapy minimize symptoms
- Steroid Injection US guided
- Surgery- Failure of conservative Treatments

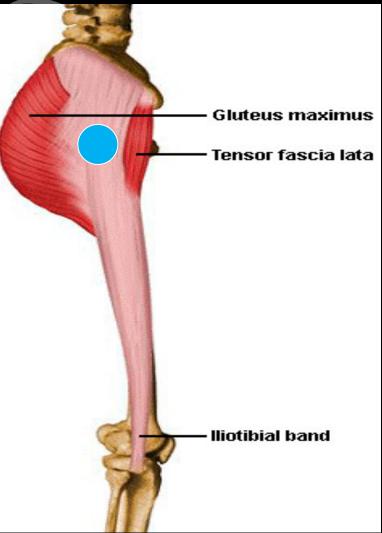
Wilson JJ, Furukawa M, Evaluation of the Patient with Hip Pain, Am Fam Physician, 2014;89(1):27-34

TROCHANTERIC PAIN SYNDROME FEMOROACETABULAR IMPINGEMENT SYNDROME (FAI)

TROCHANTERIC BURSITIS

- Trochanteric Bursa lies deep to the ITB & superficial to Gluteus medius tendon insertion @ greater trochanter
- Gluteus medius/minimus
 - Attach greater trochanter
 - ABDuct & Internal rotation
- AKA: Greater Trochanteric Pain Syndrome (GTPS)
- Trochanteric bursitis = Gluteal tendinosis
- Consider pts. with Trochanteric bursitis to have gluteal tendinosis/tear*

Bird PA et al: Prospective evaluation of magnetic resonance imaging findings in patients with greater trochanteric pain syndrome; Arthritis Rheum 2001;44(9): 2138-2145



Musculoskeletal Images are from the University of Washington "Musculoskeletal Atlas: A Musculoskeletal Atlas of the Human Body" by Carol Teitz, M.D. and Dan Graney, Ph.D."

Clinical Presentation

- Mechanism of injury
 - Repetitive/Change activity
 - Poor flexibility
 - Sedentary
 - Body habitus
- Symptoms
 - Start-up pain
 - Prolonged sitting
 - Side sleeping position
 - Isolated lateral hip pain
- Groin or Butt pain think something else

Gluteus maximus

Tensor fascia lata

lliotibial band

Musculoskeletal Images are from the University of Washington "Musculoskeletal Atlas: A Musculoskeletal Atlas of the Human Body"

by Carol Teitz, M.D. and Dan Graney, Ph.D."

Physical Examination

TROCHANTERIC BU

- Inspection
 - Have the pt. stand and point to location of their pain
- Palpation tender lateral trochanter/hip
- ROM/Strength ABD pain/passive ADD pain
- Neuro/vascular no changes
- Ortho exam
 - Stichfield's Test- hip joint
 - Patrick/FABER- joint dysfunction
 - Ober Test- positive tight IT band
 - Tight Hamstrings/Hip flexors/Quads
 - Consider lumbar spine exam too!!!

Four Common Types of Bursitis: Diagnosis and Management. Aaron, Daniel; Patel, Amar; Kayiaros, Stephen; Calfee, Ryan journal of the American Academy of Orthopaedic Surgeons. 19(6):359-367, June 2011.

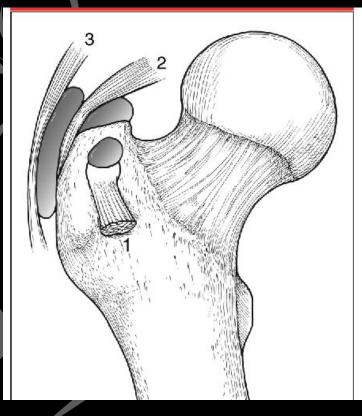


Illustration demonstrating the location of the trochanteric bursa between the gluteus medius (2) and the iliotibial band (3) as Trochanteric tendinobursitis. Joint Bone Spine 2006;73[4]:344-348. http://www.sciencedirect.com/science/journal/1297319X.)

TROCHANTERIC B

Tear short rotators

- Mimics Trochanteric Bursitis
- NO relief with injection
- Isolates pain in posterior aspect of Greater Trochanter

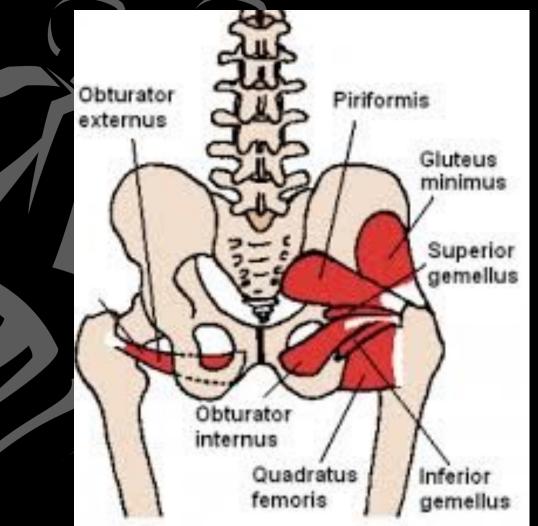


Image courtesy of Physio-pedia.com

TROCHANTERIC B

Treatment

- Modify activities
- Improve flexibility
- NSAIDS topical vs. oral
- Physical Therapy vs. HEP
- Injection
- Reassess causes for pain symptoms:
 - Lumbar Radiculopathy
 - Femoroacetabular Impingement (FAI)
 - Hip Dysplasia
 - Gluteal tendon rupture/tear

IT Band /

FEMOROACETABULAR IMPINGEMENT (FAI)

Epidemiology

- Common cause for hip pain 2nd to:
 - early onset hip dysfunction
 - Affects young and physically activ
 - Insidious onset pain
 - Worse sitting, start-up, leaning forward
 - Groin pain with radiation to anterior/Lateral Hip
- Proximal femur abuts acetabulum
 - More common hip flexion ROM
 - Pincer impingement: acetabulum or thickened labrum overhang
- Decrease Internal Rotation contributes contraction short Ext. rotators & compresses Sciatic nerve

Bassett AJ, Tjoumakaris FP, Femoroacetabular Impingement, Operative Techniques in Orthopaedics, 2019;29(4), Article 100735

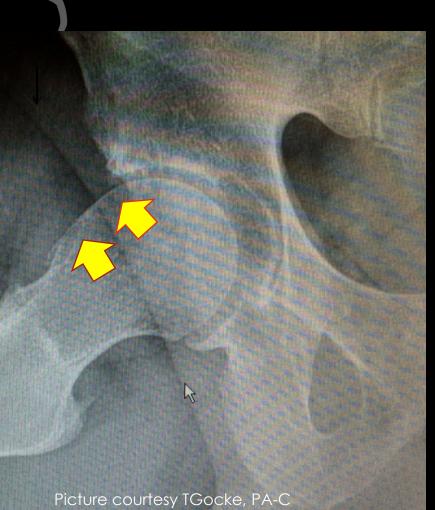
FEMOROACETABULAR IMPINGEMENT

Impingement mechanisms

Cam impingement

- Femoral neck impinges on anterior acetabulur
- Cam impingement:/head/neck/femur too/broa
- femoral based disorder
- younger athletic males
- Anatomical variations:
 - decreased head-to-neck ratio
 - previous Slipped Capital Femoral Epiphysis ?

Bassett AJ, Tjoumakaris FP, Femoroacetabular Impingement, Operative Techniques in Or Article 100735



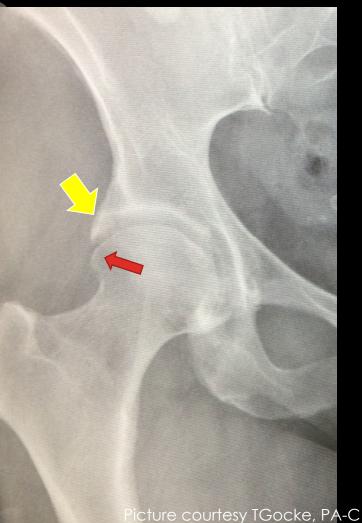
FEMOROACETABULAR IMPINGEMENT

Pincer impingement:

- acetabular based
- more often seen in active middle-aged women
- anatomical variations
 - superior rim overhang
 - acetabulum retroversion
 - acetabulum protrusio
- **Cam/Pincer** impingement

Impingement comes from contributions of both femur & acetabulum/labrum

Bassett AJ, Tjoumakaris FP, Femoroacetabular Impingement, Operative Techniques in Orthopaedics, 2019;29(4), Article 100735



FEMOROACETABULAR IMPINGEMENT (FAI)

Physical Examination

- Present w/ hip/groin pain; activity related
 - May have anterior/Lateral thigh pain
 - Flexion worse
 - FABER test, FADIR test, STINCHFIELD'S test
 - Catching/locking sensation (mechanical)
 - gluteal or trochanteric pain 2nd gait change

DON'T FORGET LABRAL INJURIES

Wilson JJ, Furukawa M, Evaluation of the Patient with Hip Pain, Am Fam Physician, 2014;89(1):27-34

FEMOROACETABULAR IMPINGEMENT (FAI)

Treatment

- Nonoperative
 - Conservative care Just like Hip OA, AVN, Trochanteric Bursitis
 - Minimal symptoms
 - Minimal changes ADL and activities
 - Symptoms controlled with NSAIDS and activity modification
 - US guided Intra-articular Steroid Injection

Conservative Therapy fails – need surgery

Bassett AJ, Tjoumakaris FP, Femoroacetabular Impingement, Operative Techniques in Orthopaedics, 2019;29(4), Article 100735



Epidemiology

- Complaints of posterior Hip Pai
- Osteoarthritis Lumbar spine
- Defines a degenerative process affecting Disc, Facet Joints and Vertebral Bodies
- Diagnosis made by clinical exam & Radiographic assessment
- Results for accumulation of stressors
- Microtrauma increase stress spine
- Increasing age is prime risk factor

Nagpal A, Swearingen A, Lumbar Spondylosis without Myelopathy, PM&R Knowledge NOW, Updated 2/14/2018, https://now.aapmr.org/lumbar-spondylosis-without-myelopathy/

Presentation

- Gradual progression
 - Stiffness
 - Loss of mobility
 - Increased symptoms Posterior Hip pair
- Pain: unilateral vs. Bilateral
 - Increased w/ Extension, rotation & Standing
 - Relieved w/ Lying flat and Flexion
- S

nyder DL, Doggett D, Turkelson C, Treatment of Degenerative Lumbar Spinal Stenosis, Am Fam Physician. 2004 Aug 1;70(3):517-520 Genevay S, Atlas SJ. Lumbar spinal stenosis. *Best Pract Res Clin Rheumatol*. 2010;24(2):253–265. doi:10.1016/j.berh.2009.11.001

Central Canal Stenosis- Narrowing

- Causes Clinical Myelopathy & Radiculopathy
 - Compression Thecal sac and exiting nerve roots
 - Motor weakness
 - Lumbar extension exacerbates symptoms
 - Thecal Sac/Exiting Nerve Root pinched between anterior deg. Disc & hypertrophic ligamentum flavum/ facet joints

Ahn L, Moore D, Lumbar Spinal Stenosis, OrthoBullets, August 18, 2018 https://www.orthobullets.com/spine/2037/lumbar-spinal-stenosis?expandLeftMenu=true

Treatment:

Identify condition/Manage Pt. expectations

- Modification activities
- NSAIDS:
 - Ibuprofen/Celecoxib/Meloxicam vs. Diclofenac 1 or 2%
 - Steroid Dose Pack
- Physical Therapy minimize symptoms
- Injection focused therapy, Fluoro guided
- MRI further diagnostic acute symptom changes vs. failed therapies
- Surgery- Failure of conservative Treatments

https://www.hopkinsmedicine.org/healthlibrary/conditions/adult/orthopaedic_disorders/CervicalMyelopathy_22,CervicalMyelopathy



THANK YOU www.orthoedu.com

© 2020 ORTHOPAEDIC EDUCATIONAL SERVICES, INC ALL RIGHTS RESERVED

- Roy A: Rotator Cuff Disease, eMedicine Medscape; updated Sept 14, 2014
- Brox JI, Staff PH, Ljunggren AE, Brevik JI. Arthroscopic surgery compared with supervised exercises in patients with rotator cuff disease (stage II impingement syndrome). *BMJ*. Oct 9 1993;307(6909):899-903.
- https://www.hopkinsmedicine.org/healthlibrary/conditions/adult/spine_shoulder_an d_pelvis_disorders/cervical_spondylosis_134,17
- Abbasi D, Keener J, Biceps Tendonitis, 2018 <u>www.orthobullets.com/shoulder-andelbow/3045/biceps-tendonitis</u>
- Gocke TV: Shoulder Examination, Orthopaedic Educational Services, Inc., www.orthoedu.com 2019

- Abbasi D, Piriformis Muscle Syndrome, 2016 www.orthobullets.com/knee-andsports/3095/piriformis-muscles-syndrome
- Hatch D, Hip Osteonecrosis, 2018 www.orthobullets.com/recon/5006/hip-osteonecrosis
- Lamb JN, O'Conner P, Giannoudi PV, Avascular Necrosis of the Hip, BMJ 2019;365:I2178
- Wilson JJ, Furukawa M, Evaluation of the Patient with Hip Pain, Am Fam Physician, 2014;89(1):27-34
- Bassett AJ, Tjoumakaris FP, Femoroacetabular Impingement, Operative Techniques in Orthopaedics, 2019;29(4), Article 100735



- Ahn L, Moore D, Lumbar Spinal Stenosis, OrthoBullets, August 18, 2018 https://www.orthobullets.com/spine/2037/lumbar-spinalstenosis?expandLeftMenu=true
- Snyder DL, Doggett D, Turkelson C, Treatment of Degenerative Lumbar Spinal Stenosis, Am Fam Physician. 2004 Aug 1;70(3):517-520
- Genevay S, Atlas SJ. Lumbar spinal stenosis. *Best Pract Res Clin Rheumatol*. 2010;24(2):253–265. doi:10.1016/j.berh.2009.11.001
- Nagpal A, Swearingen A, Lumbar Spondylosis without Myelopathy, PM&R Knowledge NOW, Updated 2/14/2018, https://now.aapmr.org/lumbar-spondylosis-withoutmyelopathy/