HIP PAIN THROUGH THE AGES

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Disclosures

- Arthrex – Consultant
- None relevant to this discussion
Hip Pathology Across All Ages

- Genetically Predetermined
  - DDH
  - FAI
  - Perthes
  - Femoral Version
  - Coxa Valga

- Acquired Injuries
  - Hip Dislocation
  - Gluteal Tendon Tear
  - Hamstring Tear
  - Pelvic Floor Dysfunction
  - AVN
Hip Pathology Across All Ages

When in life an anatomic “abnormality” will show up varies with
- Concomitant anatomic factors
- Activity level
- Pain tolerance
Pediatric Hip Conditions

- Conditions which are present at birth or arise during childhood and cause potential long term sequelae
  - Developmental Hip Dysplasia
  - Legg Calvé Perthes
  - Slipped Capital Femoral Epiphysis
  - Apophyseal Injuries
Developmental Hip Dysplasia

- Often noted at birth
- May present as dislocated or dislocatable hip
- Can be effectively treated with Pavlik harness early
- More difficult when missed as newborn
Legg-Calvé-Perthes
- Temporary disruption of blood supply to the capital femoral epiphysis
- Can be bilateral but not in the same stage of disease
- Final morphology of femoral head is varus, coxa magna, coxa plana
Slipped Capital Femoral Epiphysis (SCFE)

- Epiphysis slips posterior and inferior to the neck
- Associated with obesity
- Can cause AVN
- Can cause cam type deformity
Pediatric Hip Conditions

- Apophysitis or Apophyseal Avulsion Fractures

- ASIS
  - n=58 (30%)
  - Male=51 (75%)

- AIIS
  - n=112 (49%)
  - Male=92 (82%)

- Iliac crest
  - n=23 (10%)
  - Male=12 (52%)

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Transitional Hip Conditions

- Conditions which may arise or become symptomatic during adolescent, young adult, or adult years
  - Femoroacetabular Impingement
  - Acetabular Dysplasia
  - Abnormal Femoral Torsion
  - Snapping Psoas
  - Snapping IT Band
Femoroacetabular Impingement (FAI)

- Early, abnormal abutment of the femoral head-neck junction and the acetabular rim during functional range of motion

- Everyone impinges eventually

- Pathology and symptoms may depend on what you ask your hip to do...
Femoroacetabular Impingement (FAI)

- CAM: deformity of femoral head neck junction
- Males > females
- Aspherical head trying to "cam" into spherical socket
Gender Differences in Hip Morphology

- **Males:**
  - More narrow pelvis
  - Larger cam (63° vs 47°)
  - More femoral retroversion

- **Females:**
  - Wider pelvis
  - Smaller cam
  - More acetabular and femoral anteversion
Female Cam morphology

- Generally smaller, more decreased head-neck offset than true convex cam
Femoroacetabular Impingement (FAI)

- Pincer: overcoverage of head by the socket
- Females > males
- Ossification of the labrum in response to injury over time
  - Worsens the deformity
Typically pain in groin with hip flexion, rotation, or running
  - Pain due to labral inflammation/tearing

Less common in general (and when it occurs its usually women, of course) is pain laterally or posteriorly
Operative Treatment of FAI
CAM-type Femoroacetabular Impingement

- Labral repair
- Goal to restore suction seal
Operative Treatment of FAI
CAM-type Femoroacetabular Impingement

- Cam resection
Operative Treatment of FAI
Pincer-type Femoroacetabular Impingement

- Pincer resection
- Labral reconstruction
Extra articular impingement

- AIIS
- Trochanter and pelvis
- Ischiofemoral impingement
Acetabular Dysplasia

- Dysplasia which becomes symptomatic in young adulthood or adulthood may or may not have been noted at birth
Peri Acetabular Osteotomy

- To address acetabular dysplasia
Snapping Hip Syndromes

Internal snapping
- Psoas tendon over the femoral head
- Also mostly in women
- Femoral anteversion and increased joint mobility
- Circumduction or supine bicycle test
Snapping Hip Syndromes

External snapping

- Iliotibial Band (ITB) over the greater trochanter
- Often in women
- Increased offset of the trochanter
- Bicycle Test in Lateral Position
Gluteal Tendon Tears

- “Rotator Cuff of the Hip”
- Often more chronic and degenerative in nature
  - Can be acute
- Symptoms vary from pain to weakness
Gluteal Tendon Tears

Treatment Strategies

- Physical Therapy
- Corticosteroid
- Prolotherapy
- PRP

- Surgical Repair
  - Open
  - Arthroscopic
Avascular Necrosis of the Femoral Head

- Associated with steroid use (systemic), chemotherapy, thrombophilia, Sickle Cell, EtOH, fractures
AVN

Presentation
- Gradual onset of groin pain
  - Deep throbbing
- Buttock pain without radiation
- Remember: knee pain may = hip pathology
- Associated with weight bearing, activity
- Eventually pain at rest
- Often no mechanical symptoms
- 40-80% bilateral
AVN Treatment

- Weight bearing restriction
- Bisphosphonates
- Core Decompression with or without BMAC
- Osteochondral Allografting
- THA
Transient Osteoporosis  
Bone Marrow Edema Syndrome of Pregnancy

- Painful bone marrow edema often seen during pregnancy or post-partum
- Generally self limiting but can be debilitating
- Treatment with weight bearing rest, bisphosphonates and iloprost are reported, but cannot be used with pregnancy or breastfeeding
- Rare cases of progression to AVN
Transient Osteoporosis
Bone Marrow Edema Syndrome of Pregnancy

- **Transient Osteoporosis**: Involves the entire femoral head and neck.
- **Avascular Necrosis of the Femoral Head**: Usually involves the superior anterior aspect of the femoral head.
Femoral Torsion Abnormalities

- Normal femoral torsion is 10-15 deg anteversion

- Increased femoral anteversion is common in females
  - Femoral retroversion is common in dancers

- Both can cause abnormal loading on the joint and/or exacerbate impingement
A Tangent...Dancers have unique needs for hip ROM

- External Rotation!!! Also flexion, abduction.

- Hip does 50-70% of turnout

- Females have increased arc of hip motion
Femoral Retroversion

- Causes femoral neck to contact acetabulum earlier in flexion and IR
  - Essentially a “cam”
- Common in ballet dancers
- Allows for increased ER
  - Retroversion more common in 11-14 year old dancers who train more than 6 hours a day
  - Chicken or egg???
Femoral Osteotomy

- To correct femoral retroversion or anteversion
- Must consider if unilateral or bilateral
  - Uneven arc of ROM not tolerated
Ligamentous Laxity

- More common than we realize...
- Doesn’t have to be Ehlers-Danlos or Marfans
- Assess Beighton's score
- Laxity in combination with above exacerbates FAI/dysplasia
Often intraarticular pathology is worse than expected due to additional microinstability.
Proximal Hamstring Injuries

- Most common in 40-70 age range
- Eccentric hamstring contracture
- Repair advocated in 3 tendon tear retracted 2-3 cm
- Can be partial and chronic
  - PT, PRP
Stress Fractures

- Often noted during vigorous training
- Can be associated with nutritional deficiencies, energy imbalance
- Tension sided - needs prophylactic fixation
- Compression sided – can trial NWB if small
THANK YOU