What is FAI? And Why are we getting Hip Problems?

Why is Hip pain so common NOW?

- Greater awareness
- More accurate imaging – MRI
- Fashionable??
- Geography
- Arthroscopy
- used to be OP now FAI!

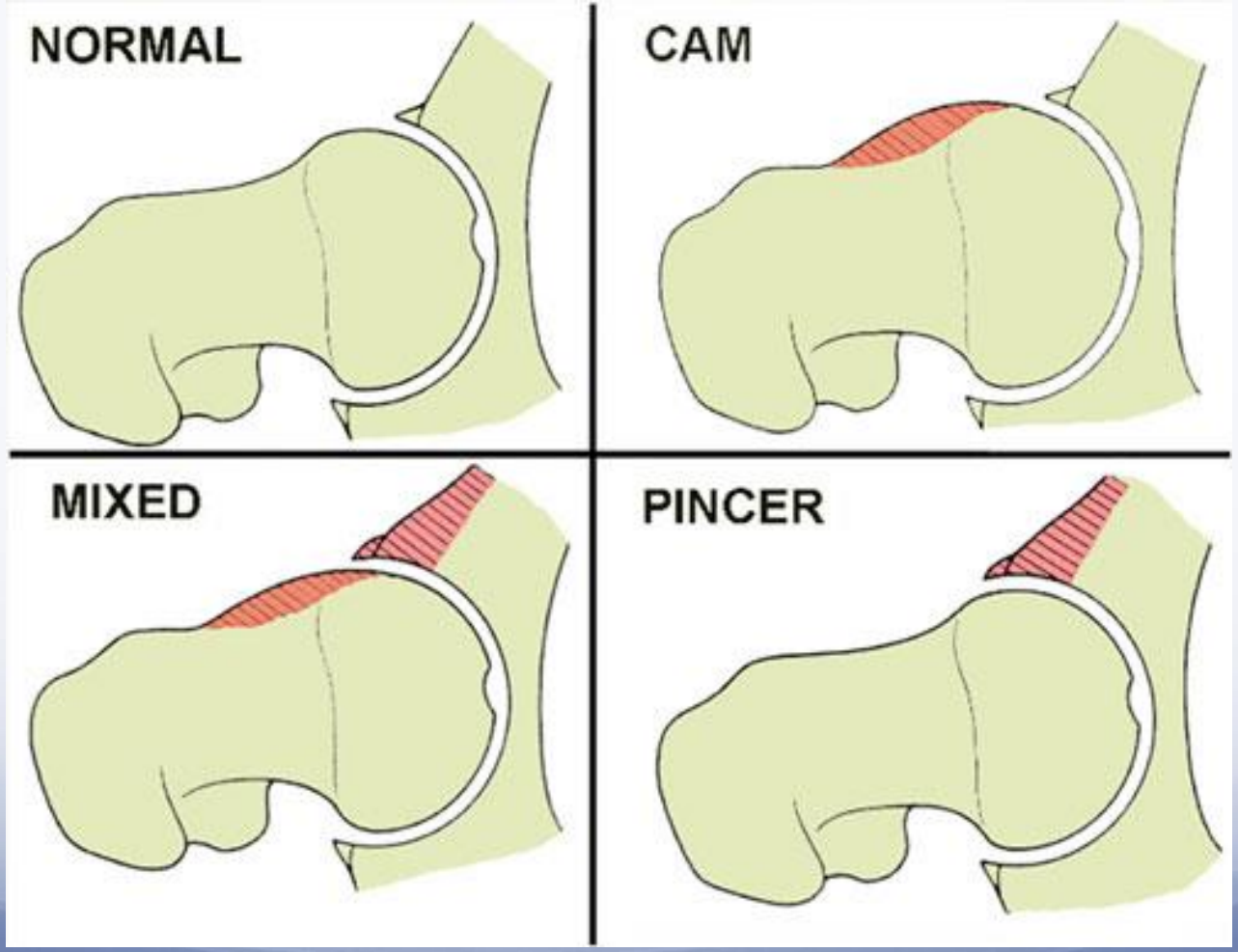
Why is Hip pain so common NOW?

- More intense workouts (time poor)
- Greater demands on junior athletes, dancers etc
- High intensity training in adolescence can cause Cam deformity
- Greater professionalism with training
- More flexible, faster, stronger
- Squats

What is FEMORO-ACETABULAR IMPINGEMENT (FAI)

- FAI arises from impingement between the femoral head, and/or neck junction of the femur and the acetabulum.
- It can place a squeezing stress on the labrum (Hip cartilage)

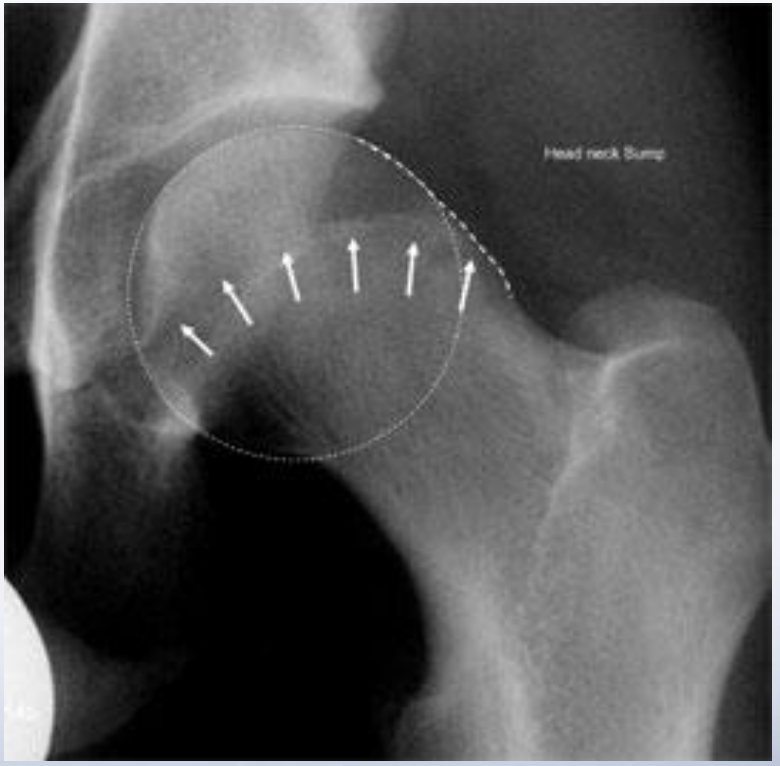
FAI – 2 Main Types
Cam Lesion +/- Pincer



CAM IMPINGEMENT

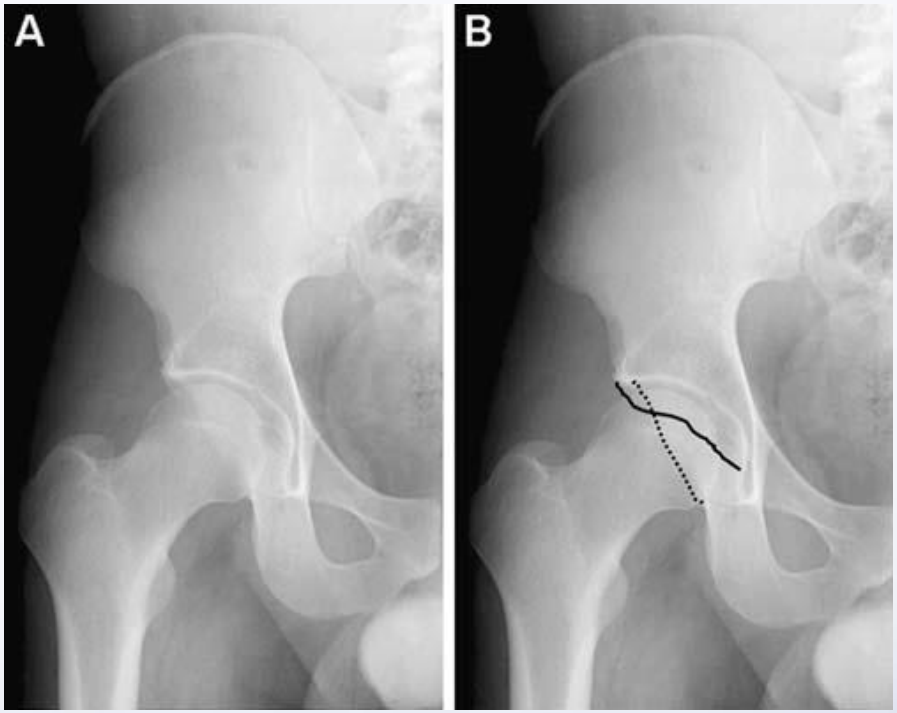
- CAM impingement or ‘femoral’ FAI is due to an abnormal morphology of the anterior femoral head–neck junction
- “bony growth top/front of femoral neck”
- Insufficient waist of head-neck junction and due to poor hip biomechanics it is forced extra hard into the acetabular cartilage causing abrasive lesions
- Typically seen in younger individuals, esp Men
- Affects Chondral surface first, labrum second.
- Labrum often stays intact until late stage

CAM IMPINGEMENT



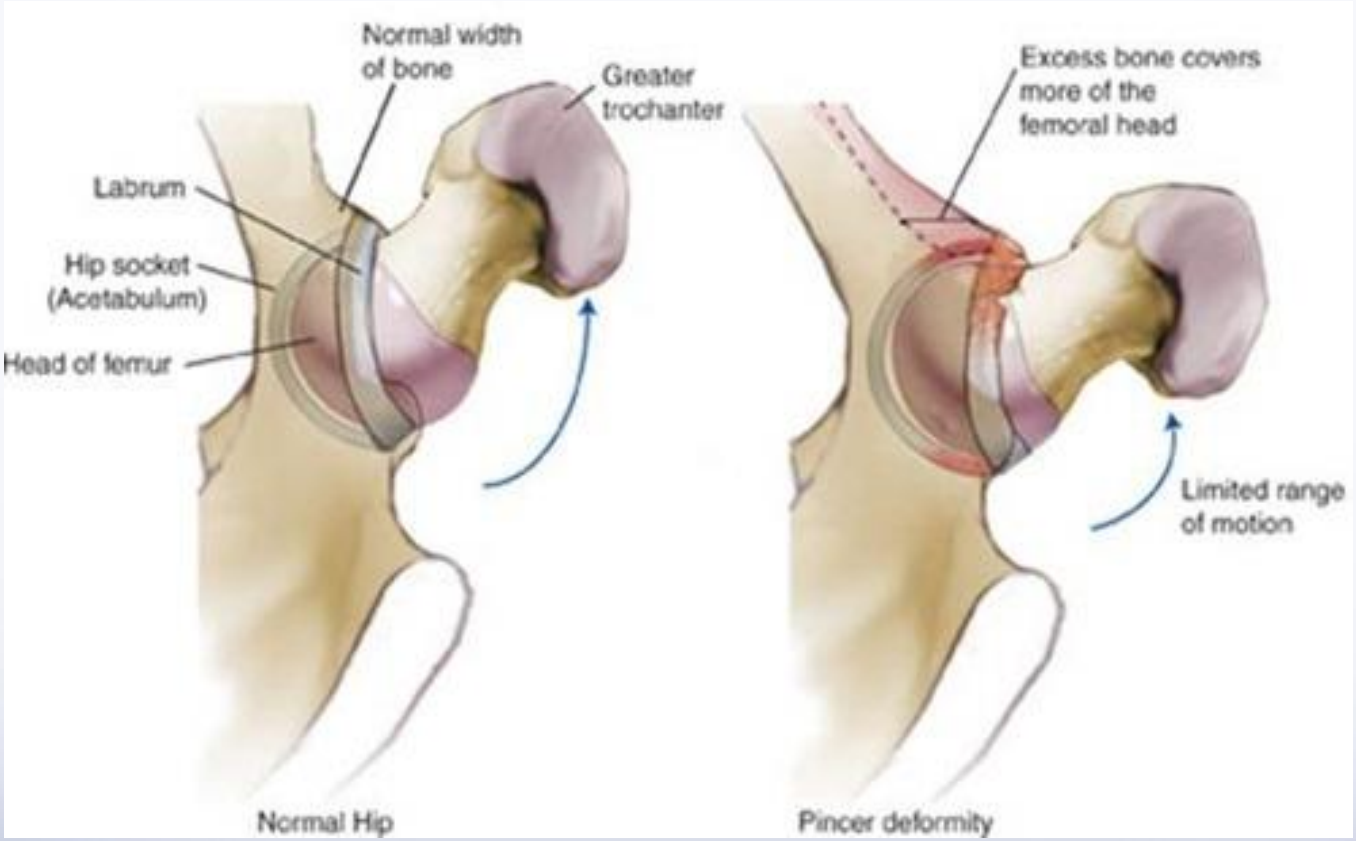
PINCER IMPINGEMENT

- Abutment of the femoral head-neck junction on the acetabular rim due to acetabular over coverage → Labral damage
- Often caused by anterior over coverage (acetabular retroversion) – acetabulum faces backwards instead of forwards
- Increased coverage = repetitive impact = degeneration and ossification = further coverage
- Affects labrum first, then chondral surface
- Order Cross Table X-Ray for imaging
- MRI – gold standard



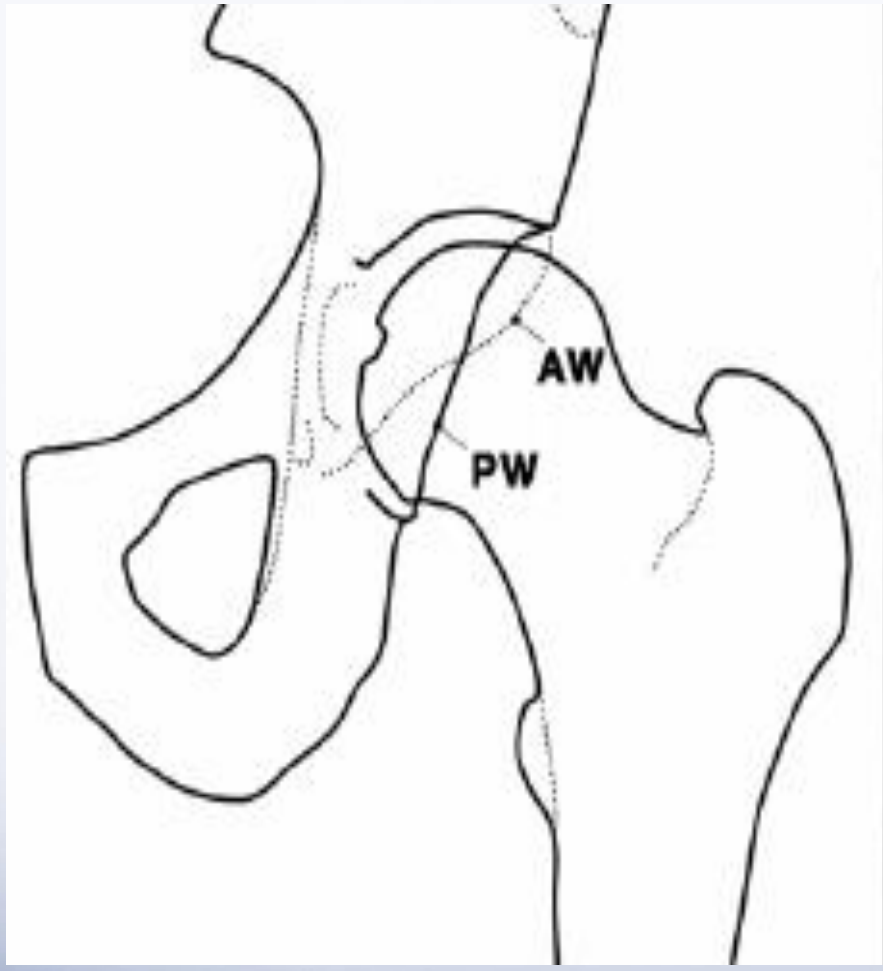
A – Normal anterior acetabular placement
B – PINCER Lesion due to acetabular retroversion – observe ant (black line) and posterior acetabular dotted) rims

PINCER LESION



Can also be enlarged labrum

PINCER LESION

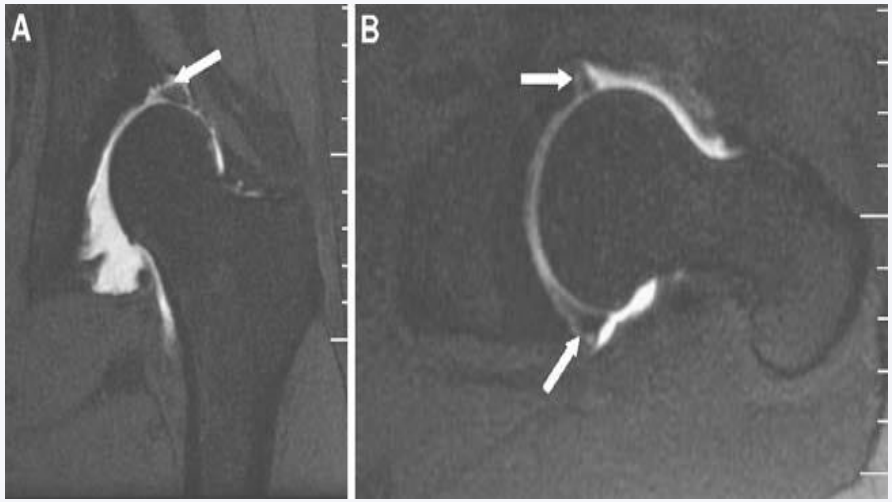


Acetaular retroversion – anterior over coverage – the crossover sign

Anatomical Variant – not much you can do

LABRAL TEARS

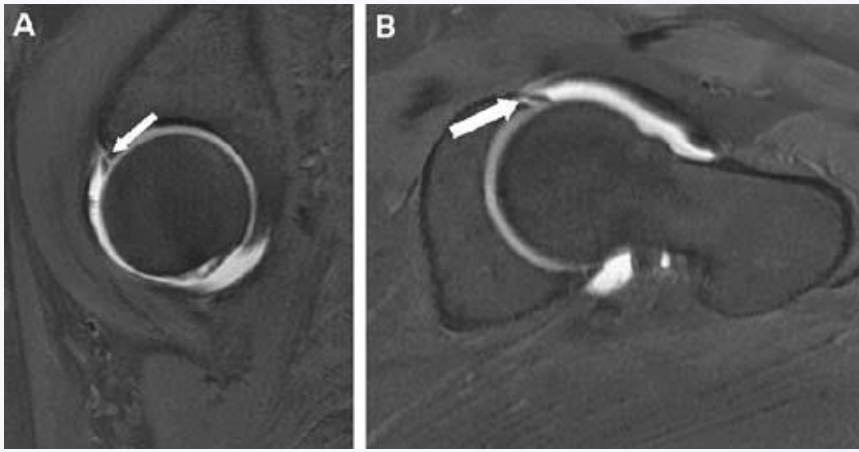
- Labral tears increasingly recognized as a cause of hip pain
- Signs
  - Clicking/Catching of hip (also snapping hip)
  - Click after twisting/snapping injury
  - Pain in Flex/IR (FADIR)
  - Subtle, dull, activity induced pain.
  - Deep discomfort in anterior groin
  - “Grasp sign”



A - Anterior Labral tear
B - Bucket Handle Tear (Anterior to Posterior)

LABRAL TEARS

- Early diagnosis and treatment of tears is important because it not only provides pain relief but may prevent the early onset of osteoarthritis
- Causes degeneration of Articular surface/ Chondral defects (McCarthy et al 2003)
- Athletes – Generally anterior tears, can get caught between rim and femoral head = FAI



A/B – Small anterior Labral tears

What causes FAI?

To a certain degree some FAI is normal – BUT we don't want symptoms

Uncontrollable Factors

- Growth of growth plate down femoral neck
- Slipped Upper Femoral Epiphysis
- Genetic Disposition
- Hip Dysplasia

What causes FAI?

- Over-sitting (modern life)
  - Long lazy gluts, poor core, trunk control
- Over- training – strong evidence intense exercise increases Cam lesions ie. Junior footballers
  - Modern professionalism of junior clubs
  - Under 9's??
  - Modern Dance choreography
- Intense Gym Work-outs
- People less active BUT train more intensively
  - - deep flexion – squats, rower, leg press, kettlebells, high step ups

Why does FAI matter?

- **Labral Tears**
- **Chondral wear**
- **Early OA**
- **Early THJR**

Os Acetabulae

- Normal variant ???
- Maybe Not
- Possibly contributes to acetabular overcoverage

Ligamentum Teres

- ? Role – Often found to be injured during arthroscopy (1/3 most common finding at scope)
- Wear and tear
- ? Significant dynamic stabiliser of rotation in the hip joint
- LT Test

Treatment

- Common Sense
- Don’t rush for MRI
- Don’t rush to see a hip surgeon
- Wait and see
- Avoid all aggravators
- Give it time to settle

Treatment

- **REST may need 12 weeks**
- **NSAIDS**
- **Strengthen Gluteals**
- **Modify gym program**
- **Some will need surgery**
- **Some don’t do well post surgery**
- **ROM and Pain Intensity**

GYM SPECIFIC

- **AVOID AGGS**
  - **Deep squats**
  - **high step ups**
  - **deep rower**
  - **Deep leg press**
- **Avoid painful hip stretches**
- **High jumps -plymometrics**

REHAB

- Get glut activation in neutral 1st
- Educate to activate gluts in standing, sit to stand
- Standing posture
- Abdominals / pelvic alignment
- Work on lateral pelvic stability
- Single leg squats, balance etc

REFERENCES

- Managing the Hip and Pelvis in Sport – Lecture by Leanne Rath 2010
- Donna G. Blankenbaker, Michael J. Tuite. The Painful Hip: New Concepts. Skeletal Radiol (2006) 35: 352–370
- McCarthy J, Noble P, Aluisio FV,Schuck M, Wright J, Lee J. Anatomy,pathologic features, and treatment of acetabular labral tears. Clin Orthop 2003;406:38–47
- Altenberg AR. Acetabular labrum tears: a cause of hip pain and degenerative arthritis. South Med J 1977;70:174–175
- McCarthy JC, Busconi B. The role of hip athroscopy in the diagnosis and treatment of hip disease. Orthopedics 1995;18:753–756
- Ranawat and Kelly 2005
- Ganz R. Femoral acetabular impingement: What forms does it take? How do you recognize it? Presented atthe 15th Combined Open Meeting of the Hip Society and American Association of Hip and Knee Surgeons. Feb 28, 2008. Las Vegas.