

Femoroacetabular Impingement Aspects of current Management

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- ▶ FAI is a distinct pathological entity and can be defined as the abutment between the proximal femur and the acetabular rim*

**Lavigne M, Parvizi J, Beck M, et al. Anterior femoroacetabular impingement. Part I: techniques of joint preserving surgery. Clin Orthop 2004;418:61-6.*

Mechanism of femoroacetabular impingement

- ▶ A widening of the femoral neck or a decreased offset at the anterolateral head-neck junction



results in decreased joint clearance*

**Tanzer M, Noiseux N. Osseous abnormalities and early osteoarthritis: the role of hip impingement. Clin Orthop 2004;429:170-7.*

- ▶ This results in repetitive contact between the femoral neck and the acetabular rim



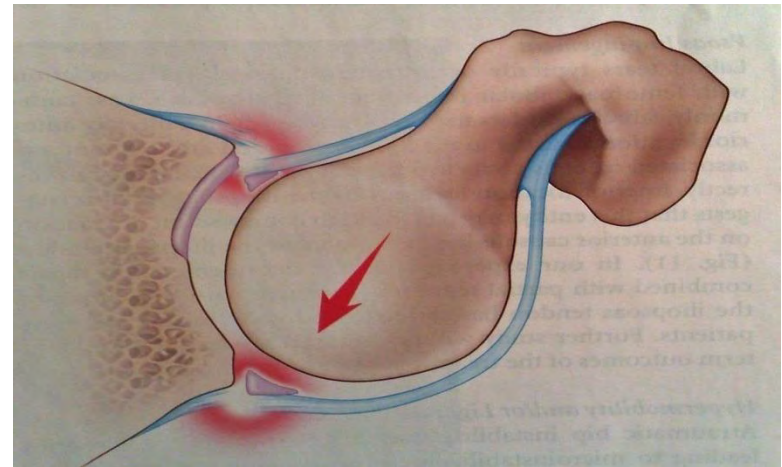
injuries including

anterior hip pain

labral tears

acetabular articular cartilage

damage



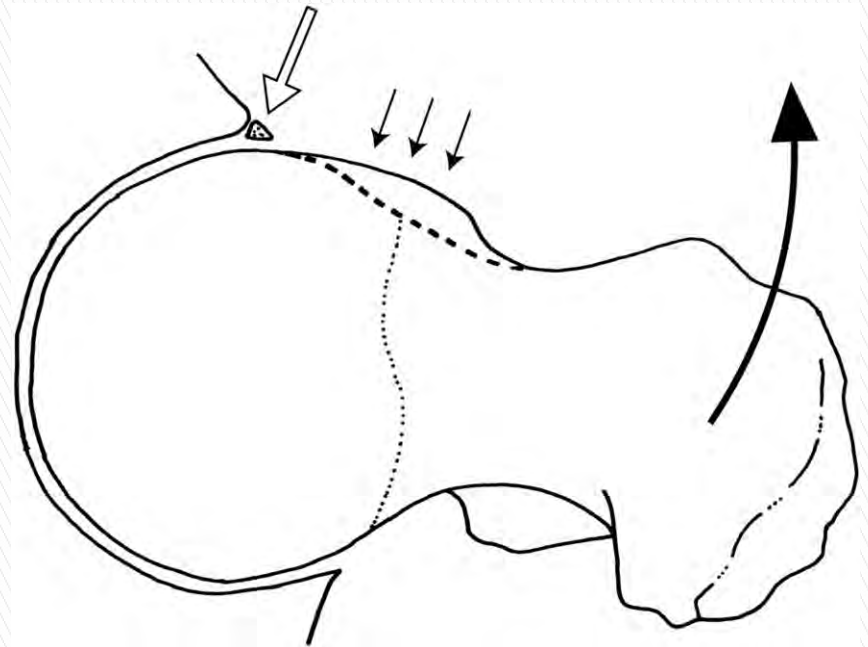
- ▶ Several studies have shown that FAI can cause a progressive degenerative process and lead to early osteoarthritis of the hip.*

**Ganz R, Parvizi J, Beck M, et al. Femoroacetabular impingement: a cause for osteoarthritis of the hip. Clin Orthop 2003;417:112–20.*

**Leunig M, Beck M, Woo A, et al. Acetabular rim degeneration: a constant finding in the aged hip. Clin Orthop 2004;413:201–7.*

Types of FAI.

- ▶ young, athletic men.
- ▶ nonspherical portion of the femoral head abutting against the acetabular rim especially in flexion and internal rotation
- ▶ outside-in abrasion of the acetabular cartilage
- ▶ avulsion from the labrum and subchondral bone
- ▶ Anterosuperior



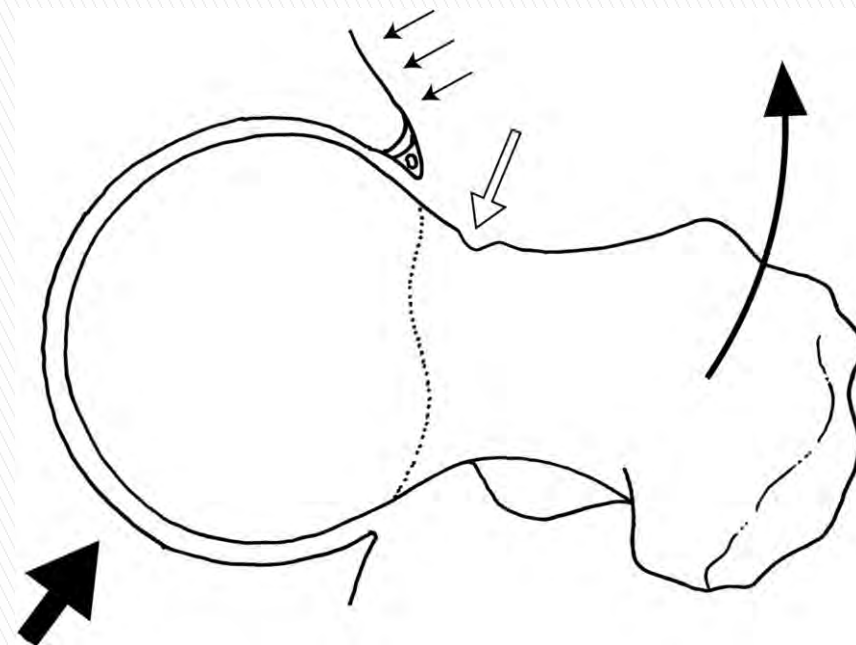
CAM Impingement

- ▶ middle-aged athletic women
- ▶ contact between the femoral head-neck junction and the acetabular rim

- ▶ Degeneration of labrum

intrasubstance ganglion formation, ossification

of the acetabular rim



pincer impingement

Mixed lesion

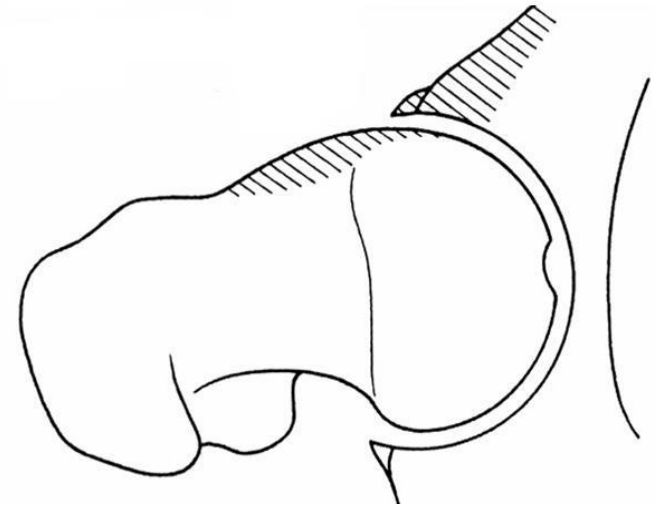
- ▶ Beck et al*

In their study of 149 hips

isolated cam:- 26 hips

isolated pincer:- 16 hips

Remaining were both hence named
mixed cam- pincer Impingement.



**Beck M, Kahlhor M, Leunig M, Ganz R. Hip morphology influences the pattern of acetabular cartilage damage. J Bone Joint Surg [Br] 2005;87-B:1012-18.*

Aetiology

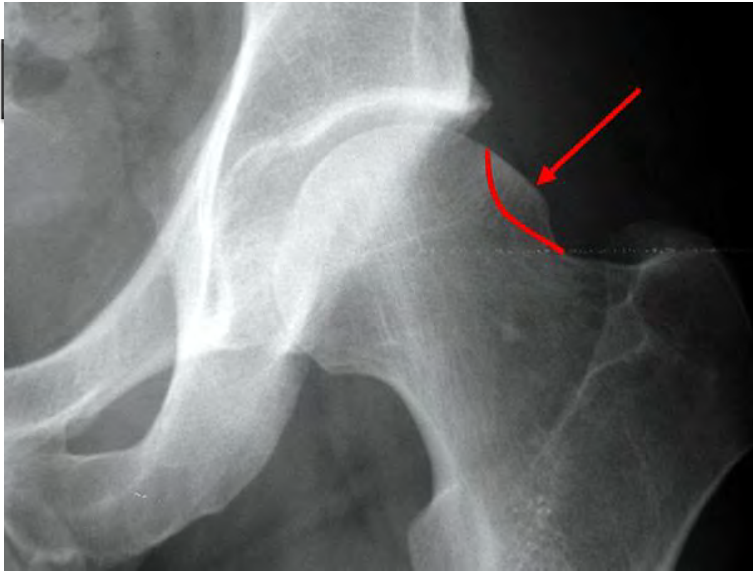
- ▶ slipped capital femoral epiphysis with posterior tilt of the femoral head
- ▶ femoral head necrosis with subsequent flattening,
- ▶ previous fracture of the femoral neck with minor rotational malunion
- ▶ femoral head with a nonspherical extension anterosuperiorly
- ▶ Acetabular retroversion where the anterolateral acetabular edge obstructs flexion
- ▶ Coxa profunda which increases the relative depth of the acetabulum

Cam impingement

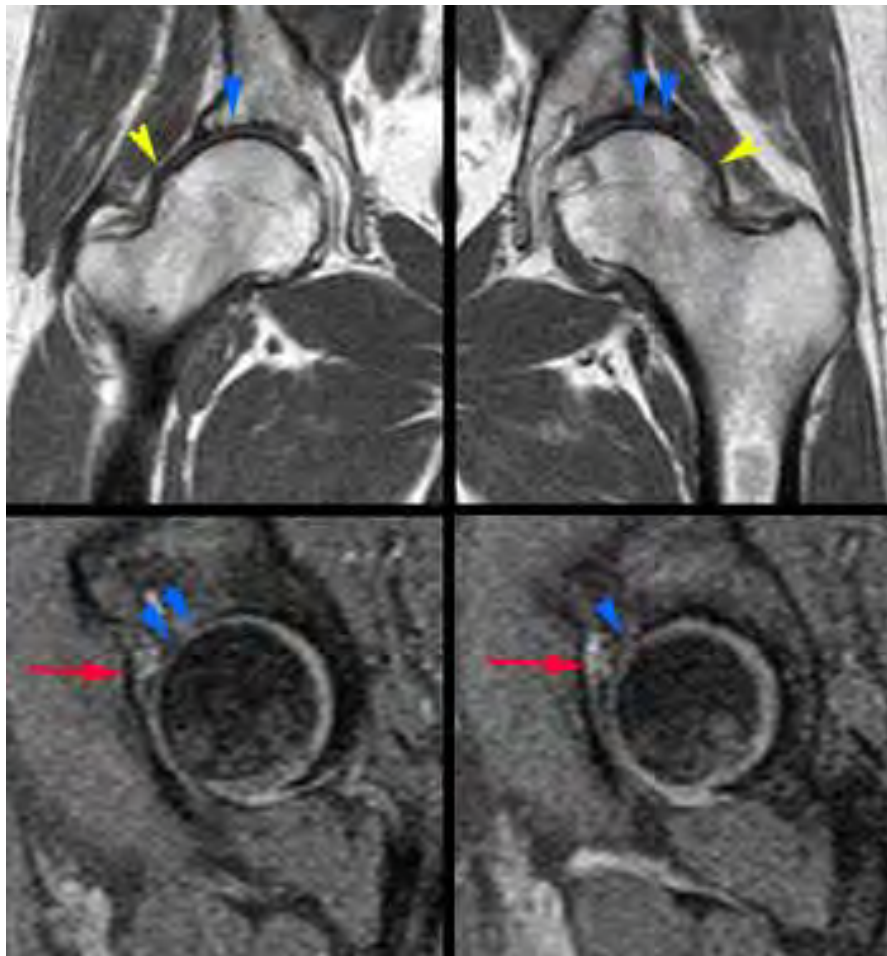
Pincer impingement

Establishing a diagnosis

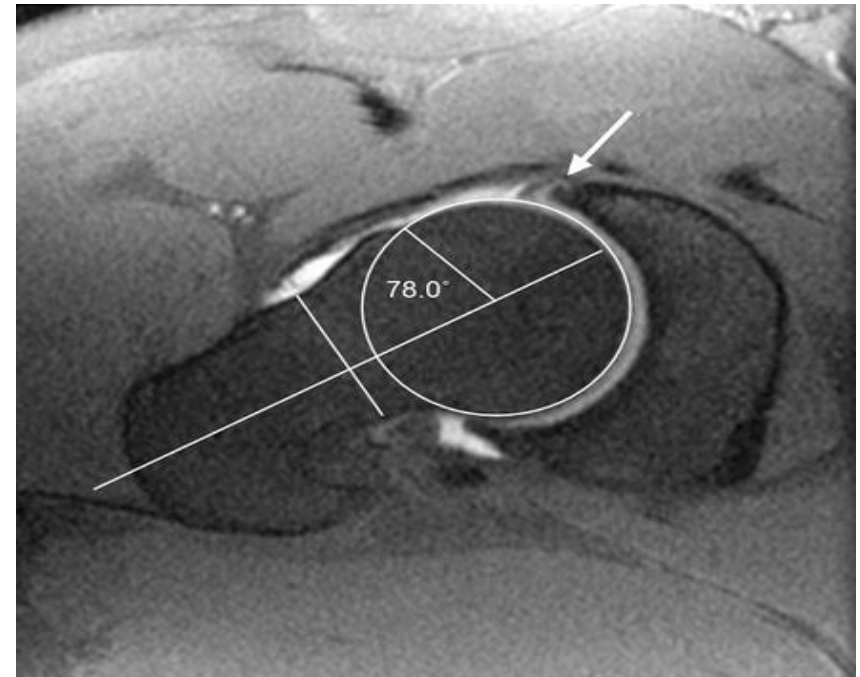
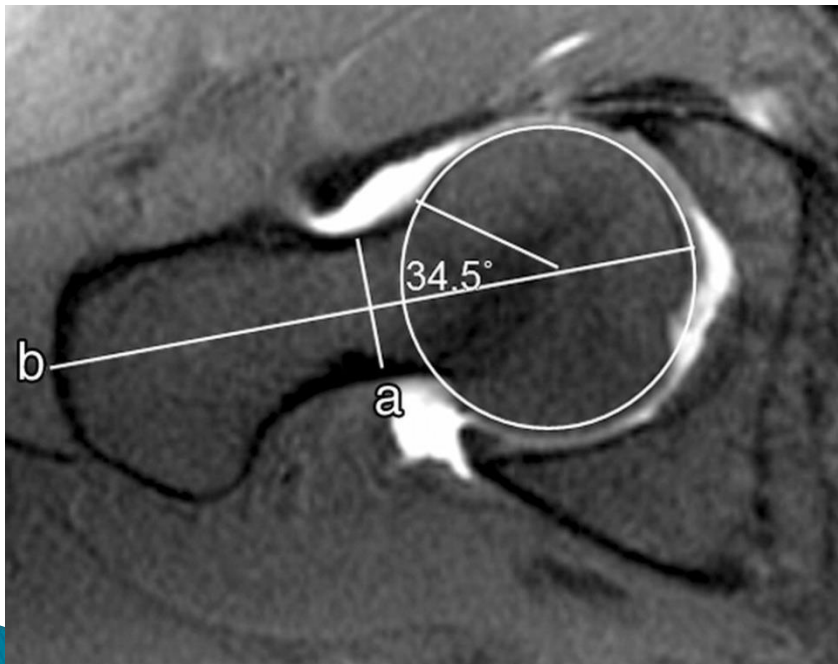
- ▶ Groin Pain with little or no H/O Trauma
- ▶ With activity or sitting for long time
- ▶ Some restriction of hip movements especially flexion, adduction with IR
- ▶ +ve Positive Impingement test
- ▶ Posteroinferior Impingement test



MRI/ MRA



- ▶ MRI – triad (Kassarian et al)
 - Anterosuperior labral tear
 - Anterosuperior cartilage lesion
 - Abnormal alpha angle



ALPHA ANGLE MORE THAN 55 Degree indicates abnormal head neck morphology

Management

- ▶ Non Operative*
modification of activity,
avoiding excessive hip movement
and regular non-steroidal anti
inflammatory medication

**Lavigne M, Parvizi J, Beck M, et al. Anterior femoroacetabular impingement. Part I: techniques of joint preserving surgery. Clin Orthop 2004;418:61-6*

Operative

- ▶ Open Surgical Dislocation

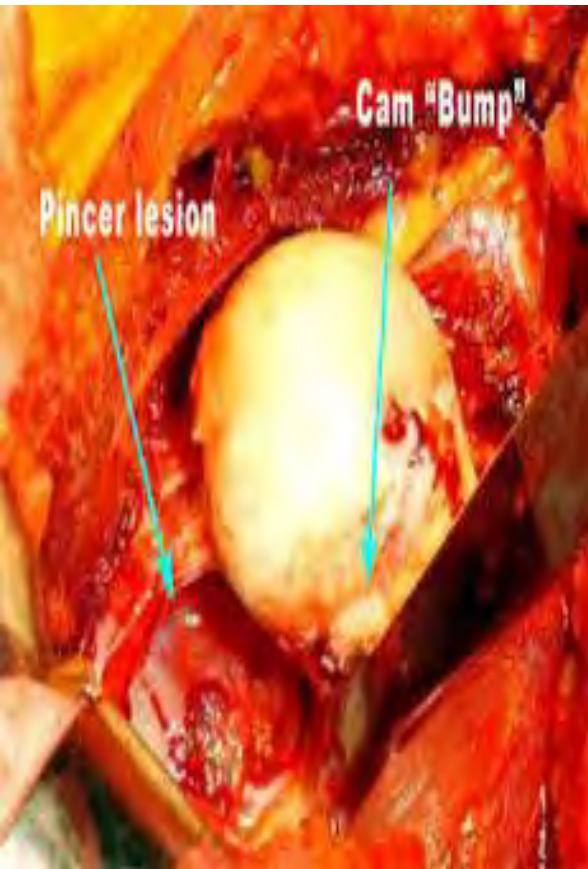


- ▶ Mini Open



- ▶ Arthroscopic

OPEN



Results of Open surgery

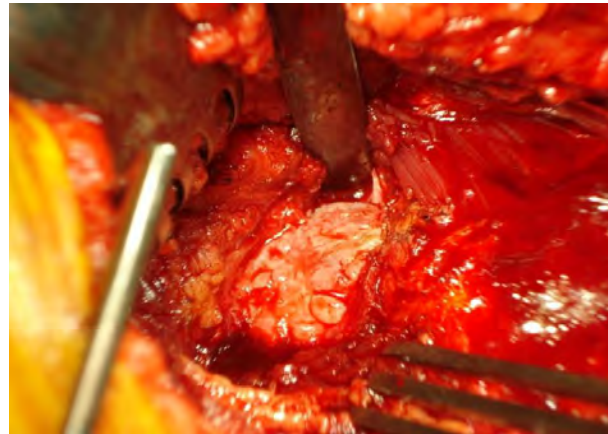
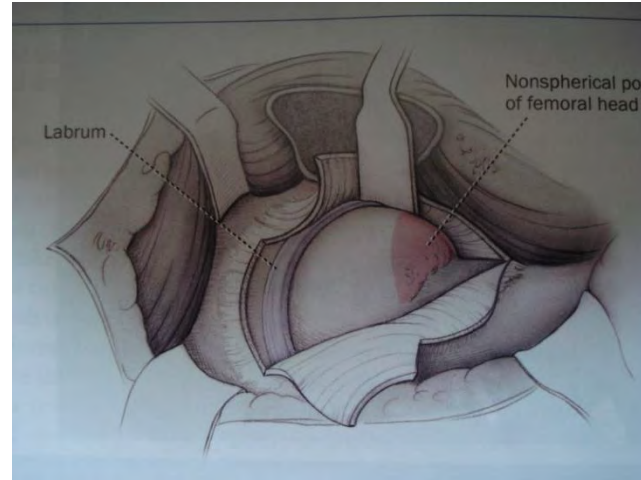
- ▶ **Murphy S et al**
 - 23 Pts
 - 12 yr FU
 - 7- THR
 - 1- further arthroscopy
 - 15- no further intervention

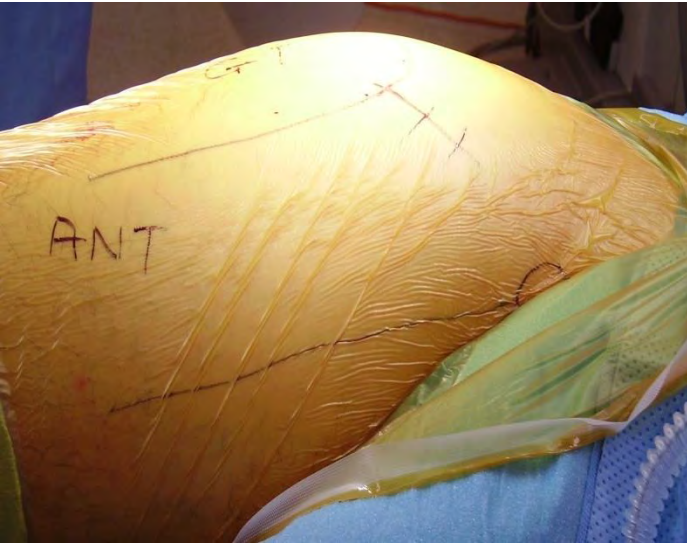
- ▶ **Beck M et al**
 - 19 pt
 - mean FU 4.7 yrs
 - 14 good results
 - no osteonecrosis

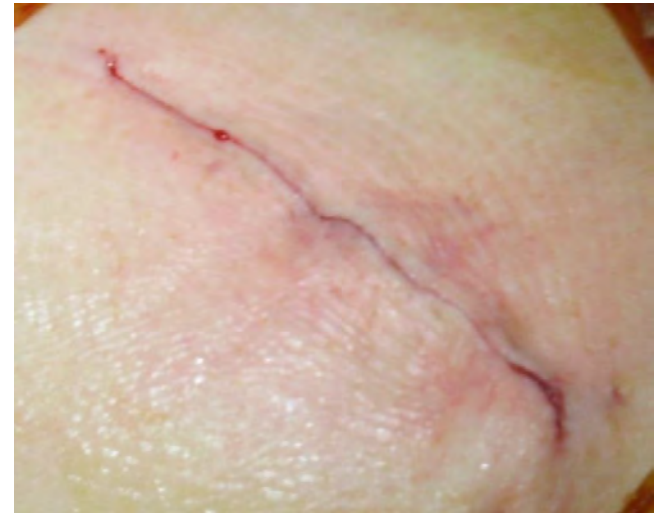
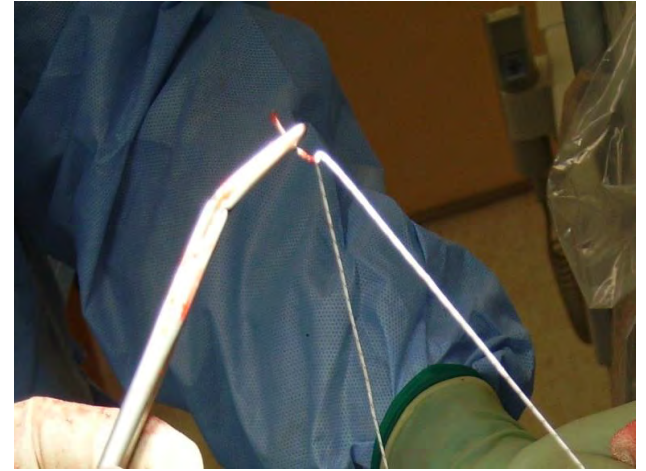
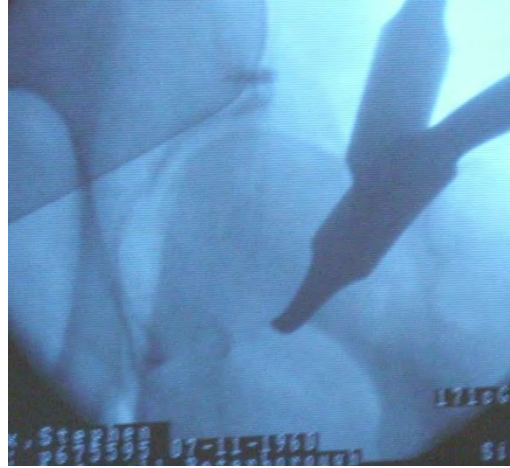
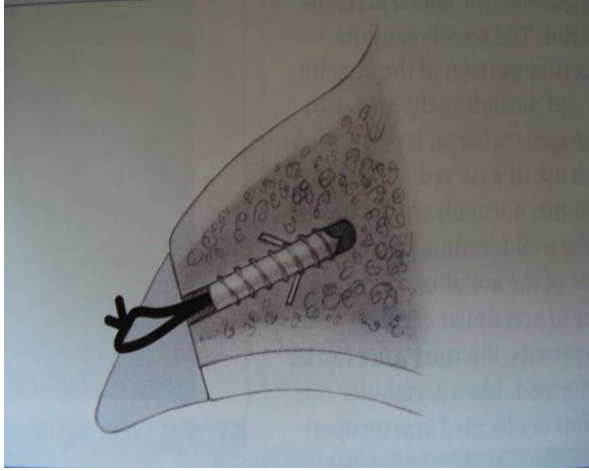
Murphy S, Tannast M, Kim Y, Buly R, Millis MD. Debridement of the adult hip for femoroacetabular impingement: indications and preliminary clinical results. Clin Orthop 2004;429:178-81.

Beck M, Leunig M, Parvizi J, et al. Anterior femoroacetabular impingement. Part II: midterm results of surgical treatment. *Clin Orthop* 2004;418:67-73.

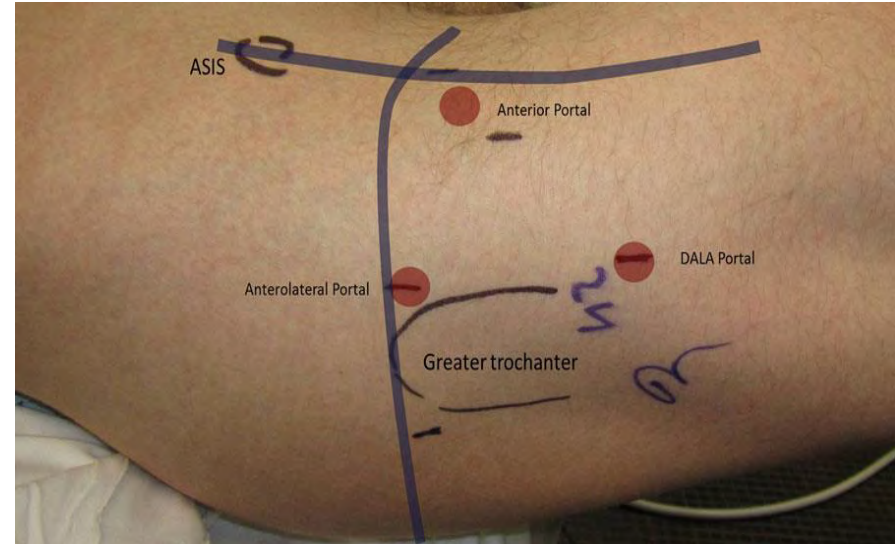
Mini Open

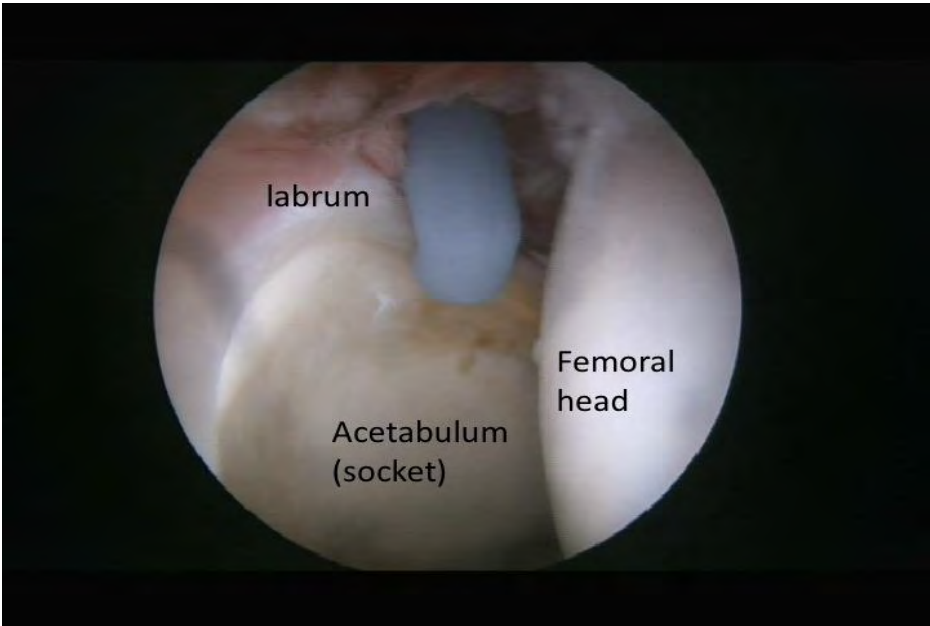






Arthroscopy





Sampson et al

158 pt arthroscopic surgery

3 months:- 50%

5 months:- 75%

12 months:- 95%

Sampson TG. Arthroscopic treatment of femoroacetabular impingement. *Techniques in Orthopaedics* 2005;20:56-62.

Conclusion

- ▶ FAI surgery does give good outcome with symptomatic patients / early degenerative changes hip.
- ▶ Not effective in advanced degenerative changes
- ▶ Early correction does improve hip pain from FAI
- ▶ Insufficient evidence to recommend prophylactic surgery in asymptomatic patients with radiographic evidence of FAI

Thank you

