Relationship between Femoral Offset and Hip Labral and Chondral Injury in Painfull Non Arthritic Hips

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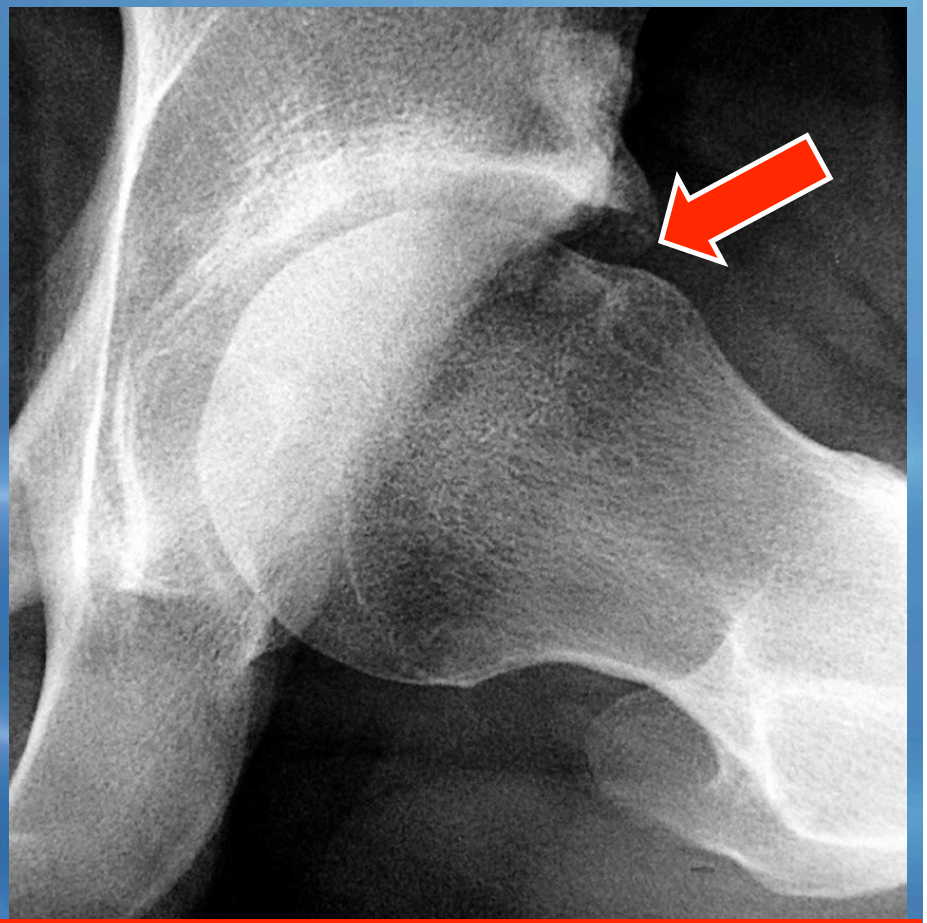
Without benefit for any of the authors for the presentation submitted

Femoral Head-Neck Anterior Offset

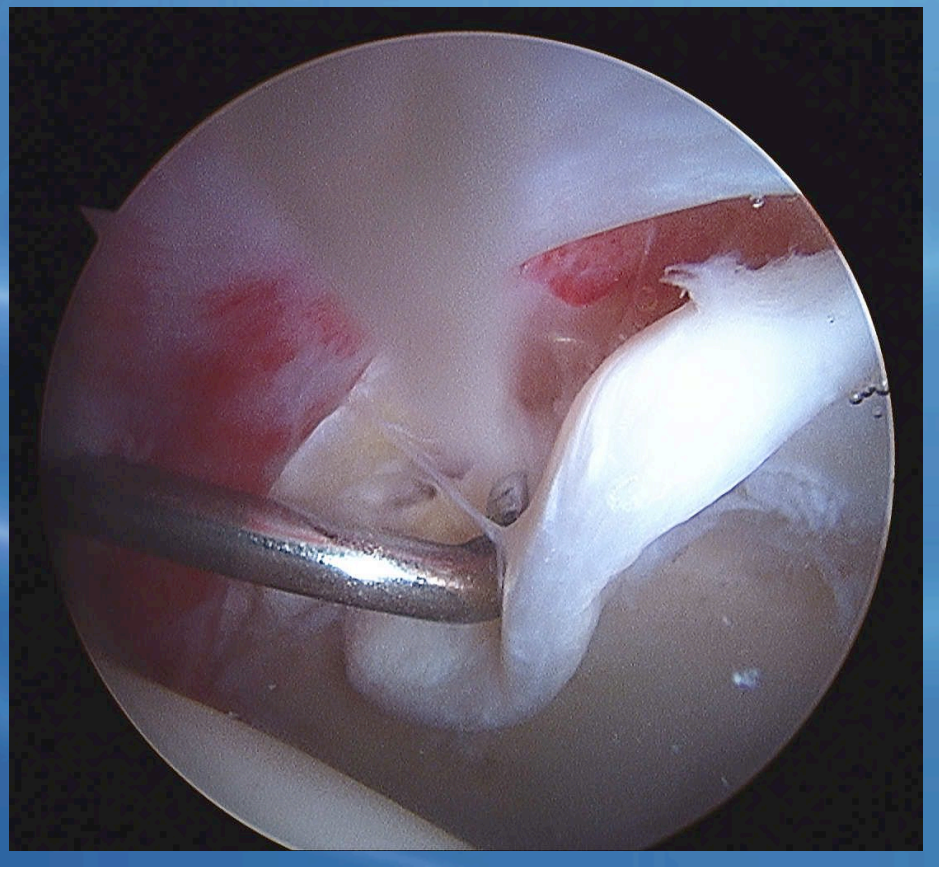
Cam

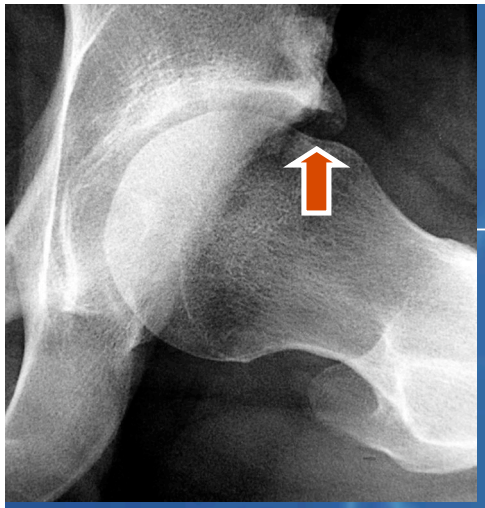


Femoro-Acetabular Impingement

Femoro-Acetabular Impingement

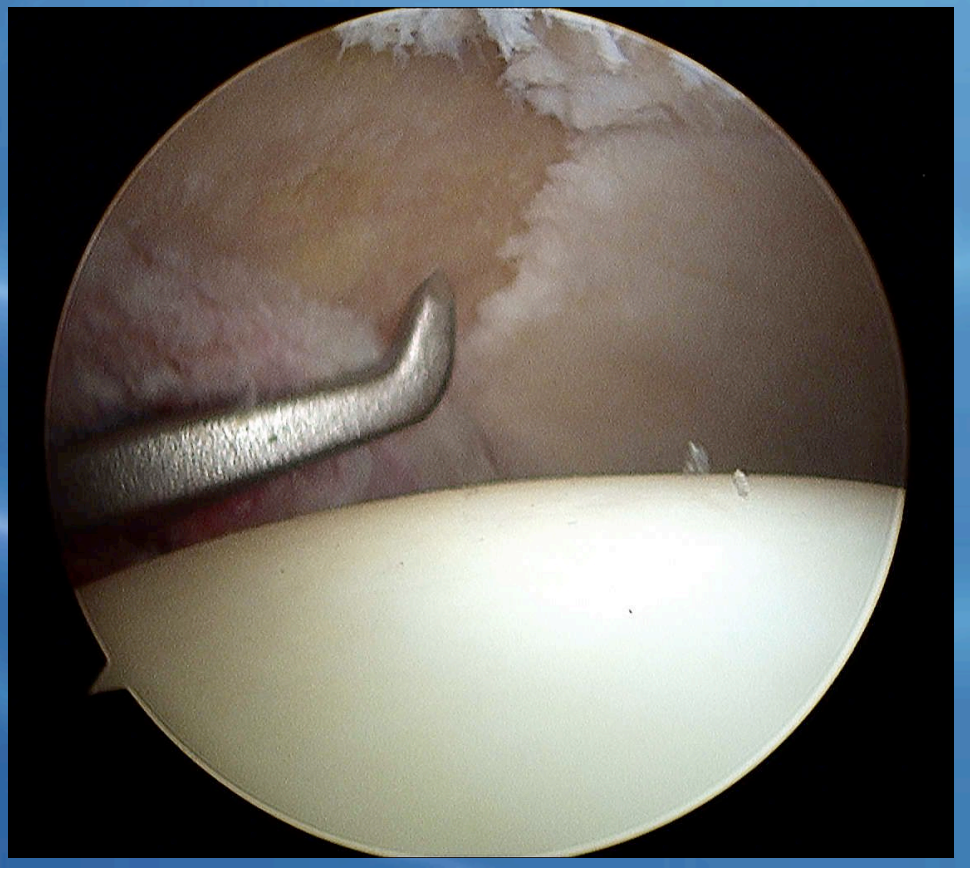
Cam effect

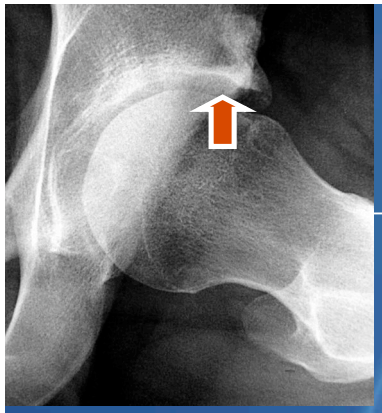




Femoro-Acetabular Impingement

Cam effect



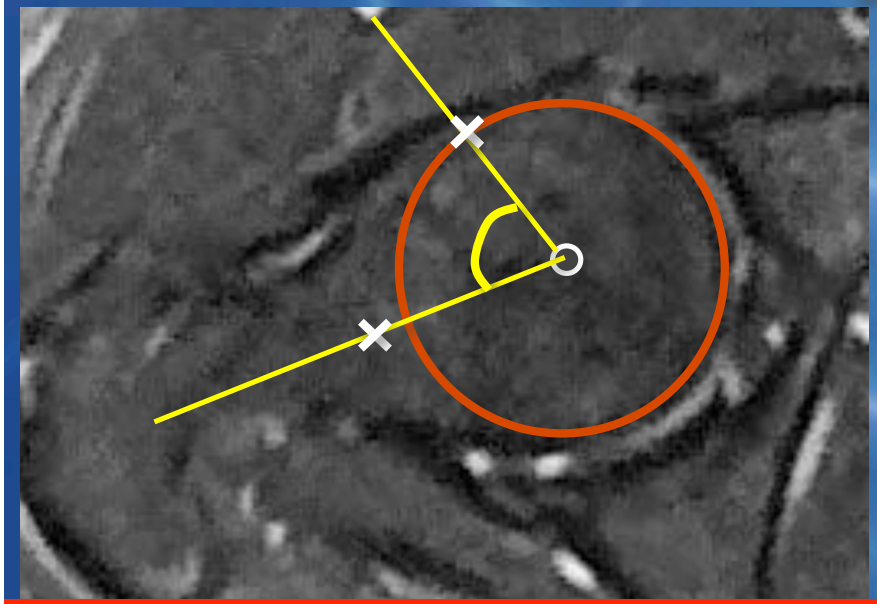


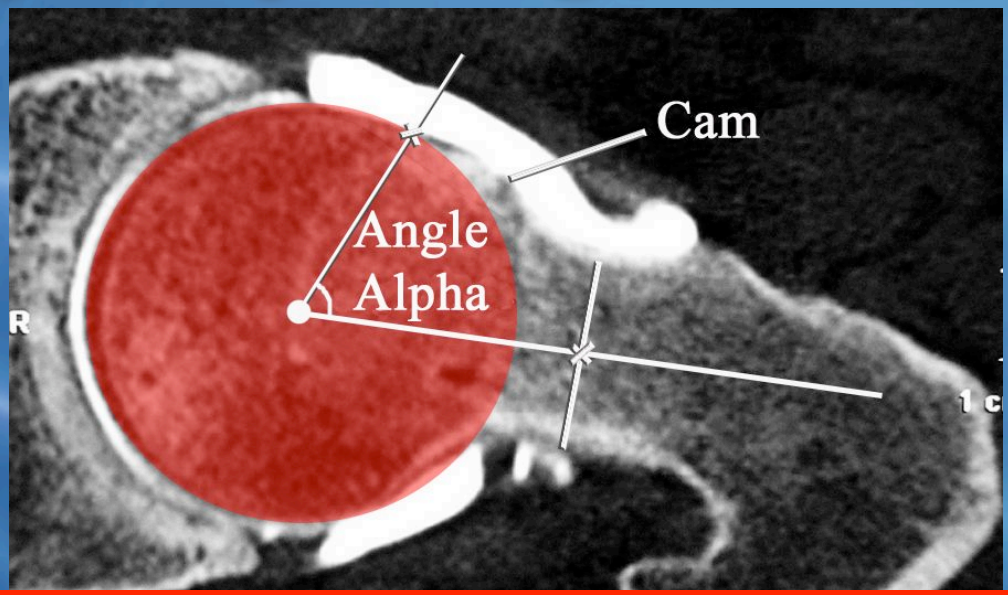
Cam Measurement (Notzli)

Notzli, *JBJS Br,* 84(4), 2002

MRI Axial Plane Along Femoral Neck Axis

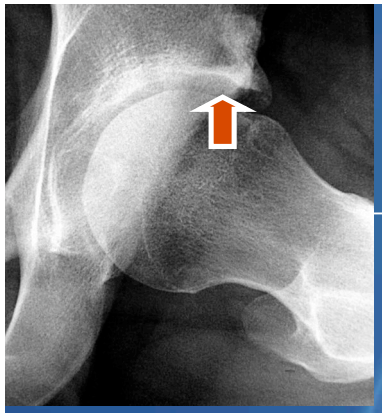
- Normal Offset Alpha Angle (< 50°)





CT- Arthrography can be used

(Beaulé, P.E. *J Orthop Res,* 23: 1286-92, 2005)

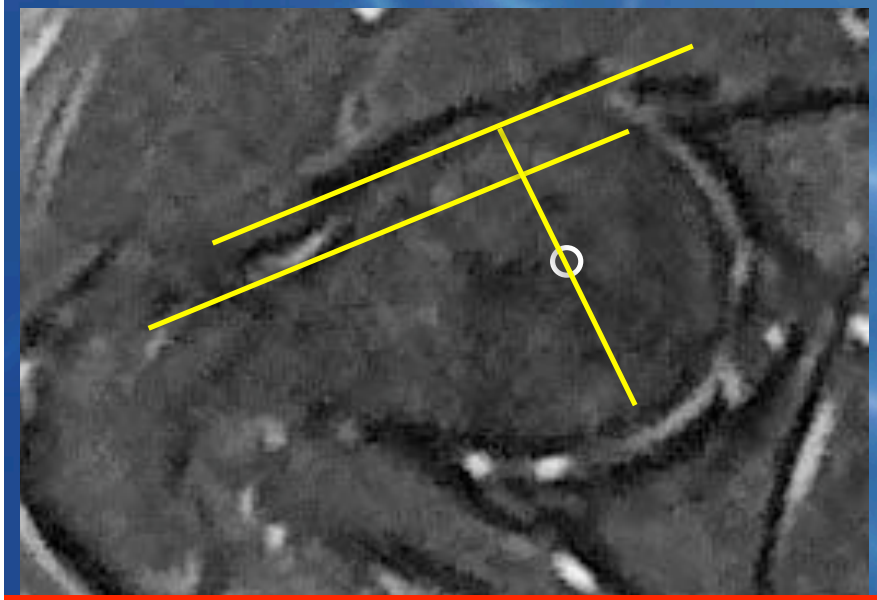


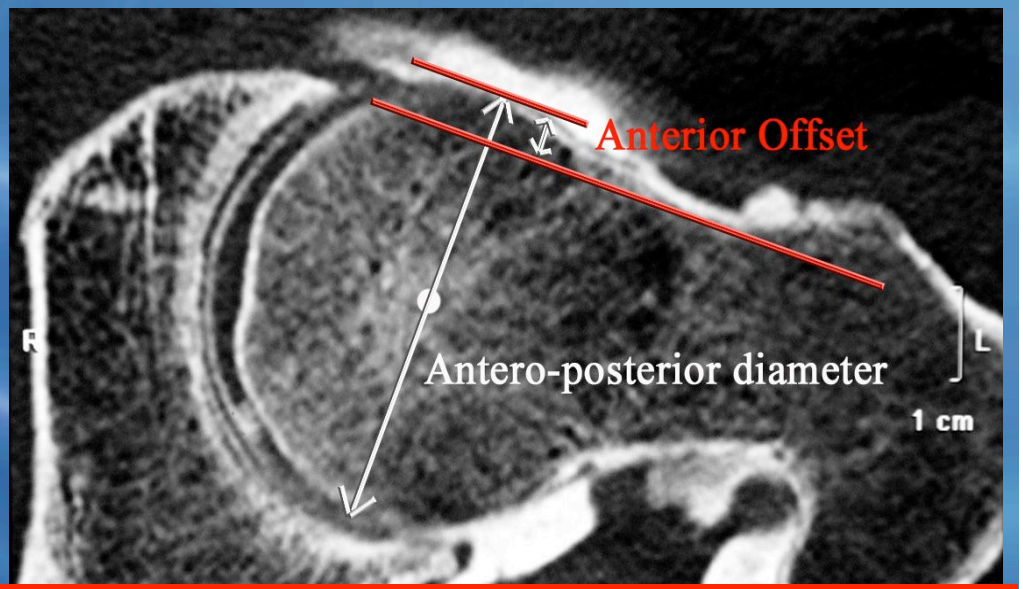
Cam Measurement (Eijer)

Eijer, *J Orthop Trauma*, 15(7), 2001

MRI Axial Plane Along Femoral Neck Axis

- Normal Head-Neck Ant. Offset (>0,19)

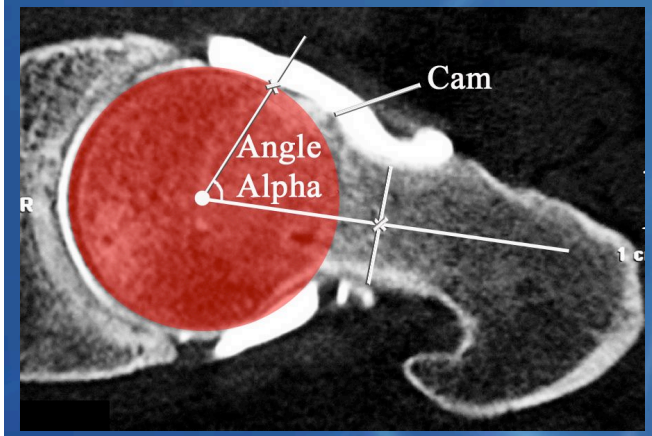




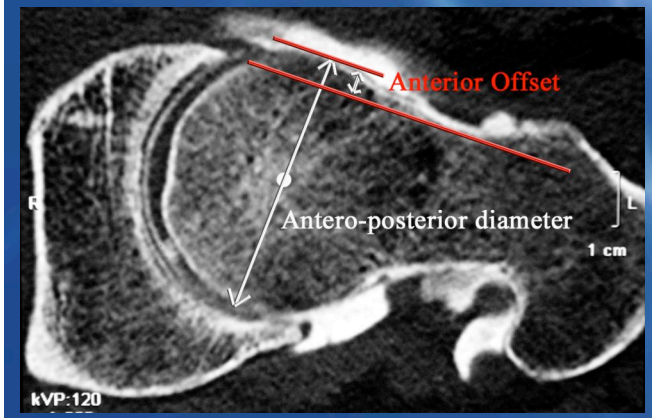
CT- Arthrography can be used

(Beaulé, P.E. *J Orthop Res*, 23: 1286-92, 2005)

Relationship Measurement - FAI?



- ✓ **Alpha Angle**
  - **- Labral/Chondral Lesions**

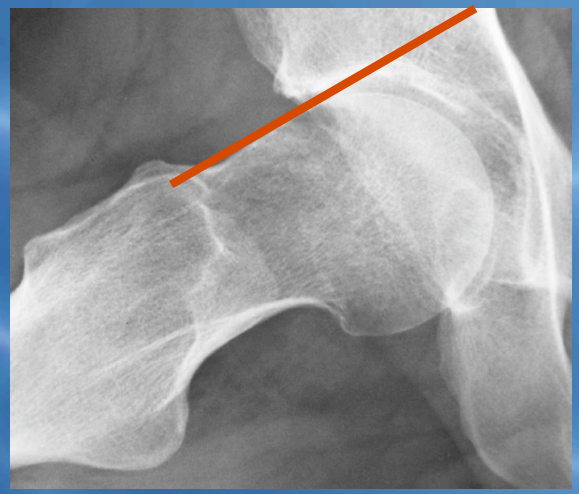


- ✓ **Head Neck Anterior Offset**
  - **- Labral/Chondral Lesions**

CT- Arthrography

Material and Method

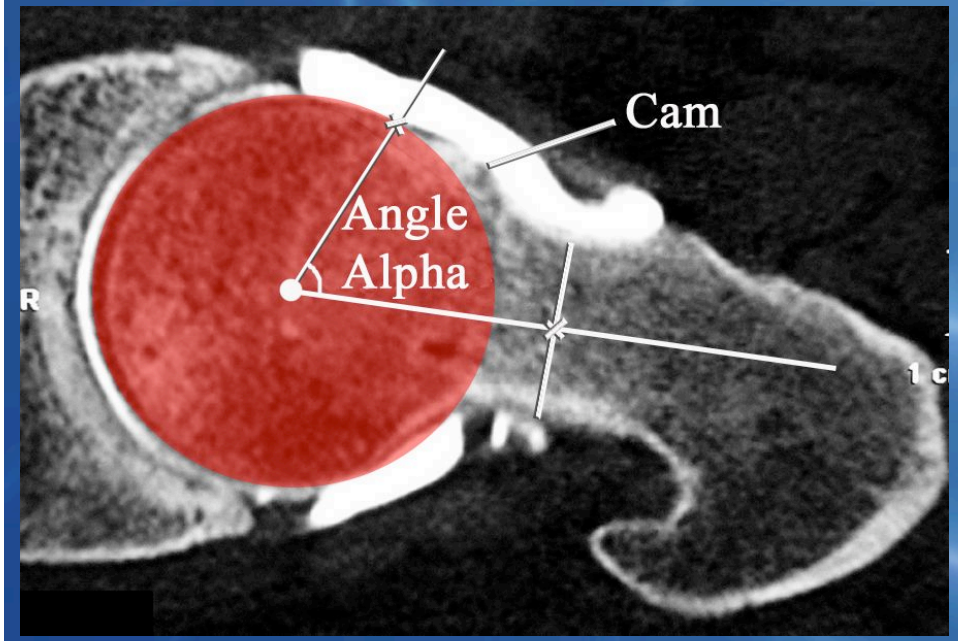
- ✓ **50 CT- Arthrography** ***(FAI Assessment)***
  - **Anterior or Trochanteric Hip Pain**
  - **Pain that Limited Activity**
  - **Pain in FAdIR +**
  - **Xr = Classic Evidence for FAI**

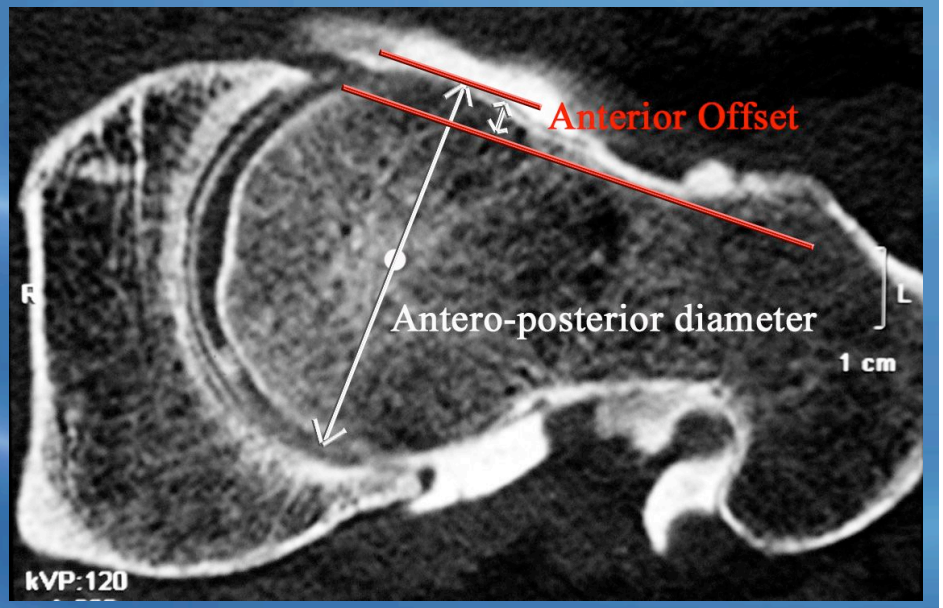


- **Sex Ratio 0,8**
- **Mean Age 32 ys** *(16 to 66)*
- **Right = Left**

Material and Method

- ✓ **50 CT- Arthrography** ***(FAI Assessment)***
  - **- Alpha Angle Measurement**
  - **- Head-Neck Anterior Offset Measurement**

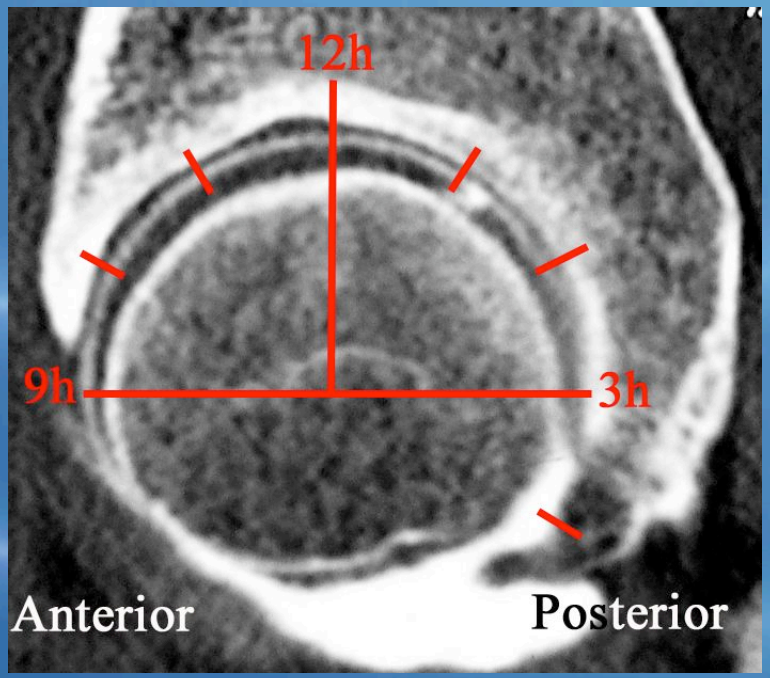




1 Investigator

Material and Method

- ✓ **50 CT- Arthrography** ***(FAI Assessment)***
  - **Labral Lesions**
  - **Chondral Injury Evaluation**



Another Investigator

StatEl
(Ad Science Society, Paris)

Results

- **Mean Alpha Angle = 65° *(40-100°)***
  - ***1 patient < 50°***

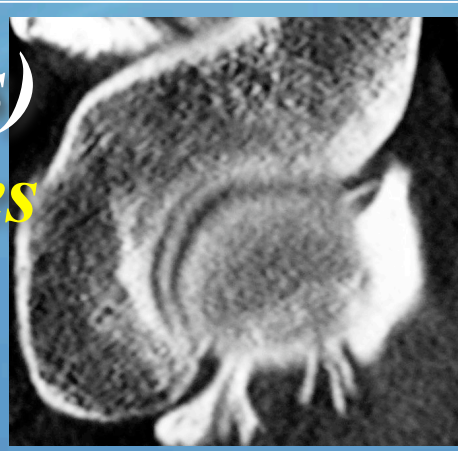
- **Mean Head Neck Anterior Offset = 0,09 *(0,22-0)***
  - ***2 patients > 0,19***

Correlation Alpha Angle / H-N Anterior Offset *p<0,05*

Notzli, *JBJS Br,* 84(4), 2002

Results

- **Labral Lesions= 56% *(28 patients)***
  - ***Midsubstance labral tears 18 cases***
  - ***Labral Base tears 7 cases***
  - ***Complex tears 3 cases***



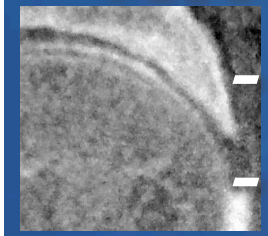
Correlation Alpha Angle *p<0,01*

Correlation Patient's Age *p<0,05*

No Correlation H-N Anterior Offset p=0,16

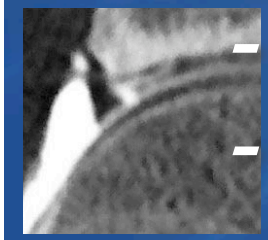
Results

- ✓ **Acetabular Chondral Lesions= 100%**



- *Grade 1 (Minimal abrasion)= 44% (22 patients)*
- *Grade 2 (Thinning)= 20% (10 patients)*

Superficial Lesions 64%



- *Grade 3 (Fissuration/delamination)= 8% (4 pat.)*
- *Grade 4 (Chondral defect)= 28% (14 patients)*

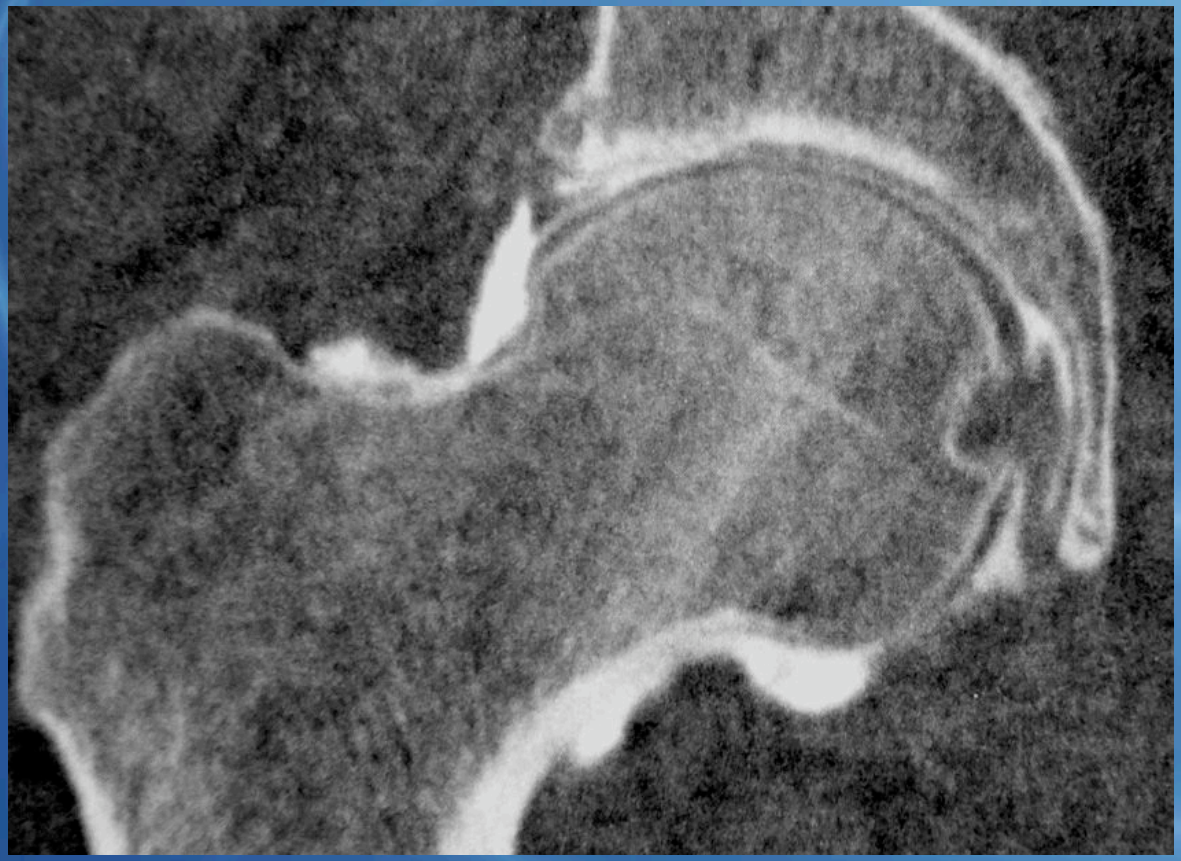
Deep Lesions 36%

Correlation Alpha Angle $p=0,05$

Correlation Patient's Age $p<0,01$

No Correlation H-N Anterior Offset $p=0,2$

✓ Labral Lesions / Chondral Lesions



Highly Significant Correlation *p<0,001*

Discussion

Limitations of the study

One radiographic and one surgeon observer

CT- arthrographic study with no Clinical outcome

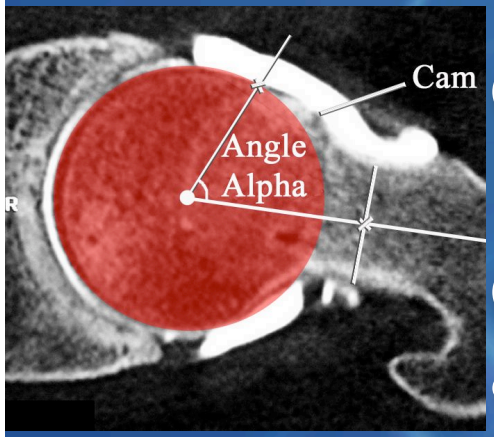
Nevertheless

Specific intention: **identifying correlation beetwen cam measurement & acetabular lesion**

CT-Arthrography: **>90%Sensitivity/Specificity/Accuracy for Acetabular Labral & Chondral injuries**
(Wyler, *Osteoarthitis Cartilage*, 2008)

> MR-Arthrography on sagittal and transverse chondral sections **(Yamamoto,** *Arthroscopy,* 23(12), 2007)

Discussion



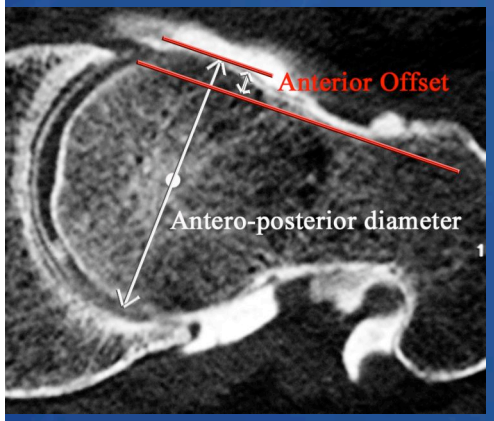
Offset Alpha Angle

Correlation with Symptomatic Hips

(Notzli, *JBJS Br,* 84(4), 2002)

Correlation with Arthroscopic Labral & Chondral Lesions ***(Plain X-ray Alpha Angle measurement)***

(Philippon, *Arthroscopy,* 24(6), 2008)



Head Neck Anterior Offset

Correlation with Symptomatic Hips

(Ganz, *JBJS Br,* 83(2), 2001)

Conclusion

Cam Effect = Alpha Angle > 50

Most symptomatic patients = Cam Type FAI

1/2 Labral Tear

1/3 Deep Chondral Acetabular Lesions

Alpha Angle => Cam Effect

Excellent Predictive Factor

of Acetabular Labral and Chondral Injuries

LYONORTHOCLINIC

Conclusion

set ?

G

BU

s

osis?

Age ↗

Thank You