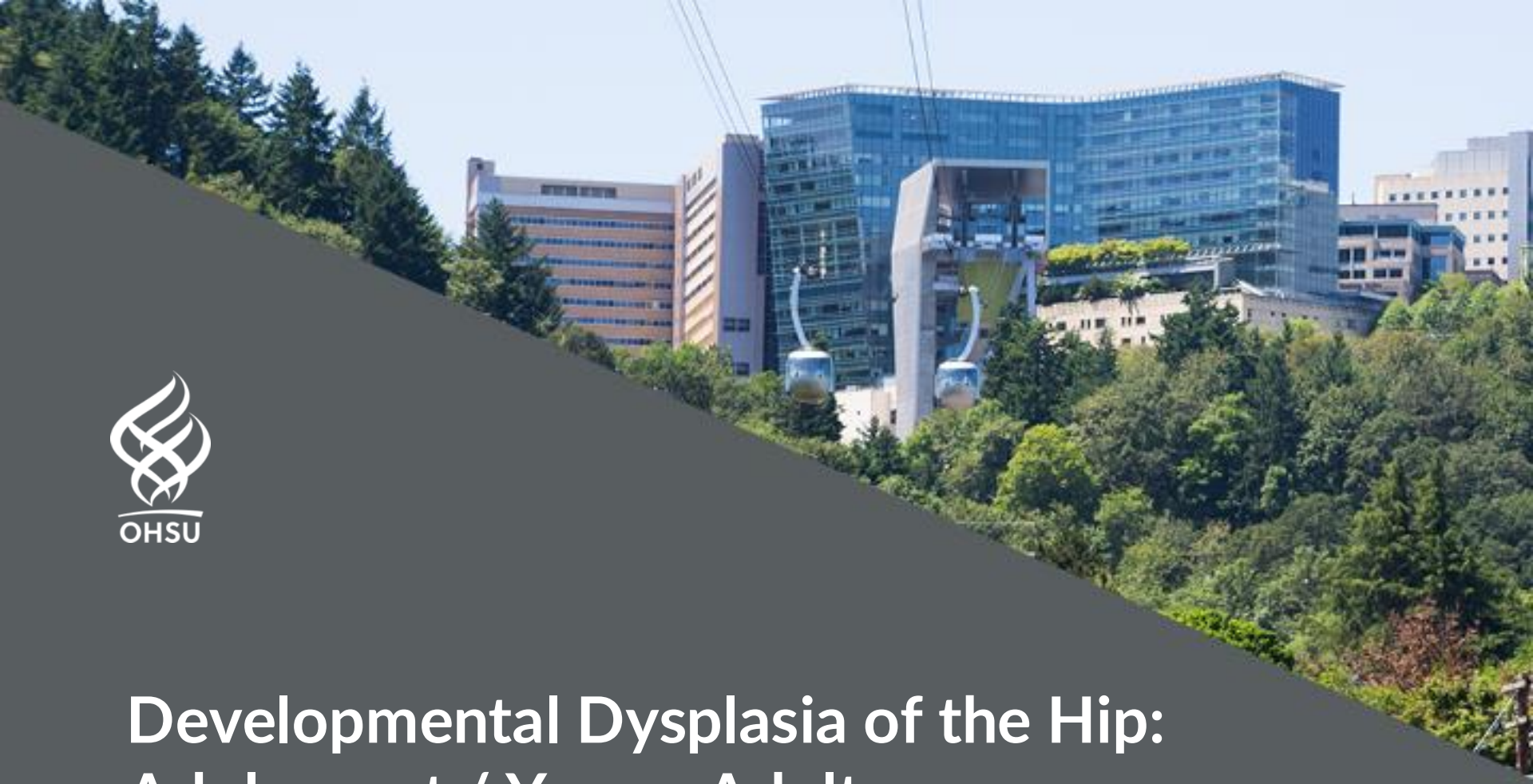


Developmental Dysplasia of the Hip: Adolescent / Young Adult

Ryland Kagan MD

September 27th, 2025 OAOS, Portland, Oregon

Disclosures

- Consulting
  - Enovis
  - Smith and Nephew
  - OrthAlign
- Research
  - OrthoDevelopment
  - OrthAlign
  - Smith and Nephew
  - 3M
- Committee Appointments
  - AAOS Hip Program Committee
  - AJRR Research Committee
  - AAHKS Evidence Based Medicine Committee

OHSU

Overview

- Developmental Dysplasia of the Hip (DDH) Adolescent / Young Adult
  - Physical Exam
  - Symptoms
  - Imaging

- Surgical Treatments and Outcomes, Case based discussion
  - Case #1 18 yo F
  - Case #2 32 yo F

DDH

- Blanket term for abnormal development of the hip joint
- Dysplasia: Abnormal development or growth
- Most people with hip dysplasia have it from birth
- Many patients will not have symptoms or know they have DDH until adolescence or adulthood

OHSU

Young Children DDH

- In young children this includes subluxation or dislocation of the femoral head from the acetabulum
- Critical to maintain reduction for normal development

OHSU

Symptoms

- Adolescent & Young Adults
  - Pain
  - “injury” during sports
  - Mechanical Symptoms (clicking, pop)

- Adult
  - Pain
  - Early osteoarthritis

OHSU

Imaging

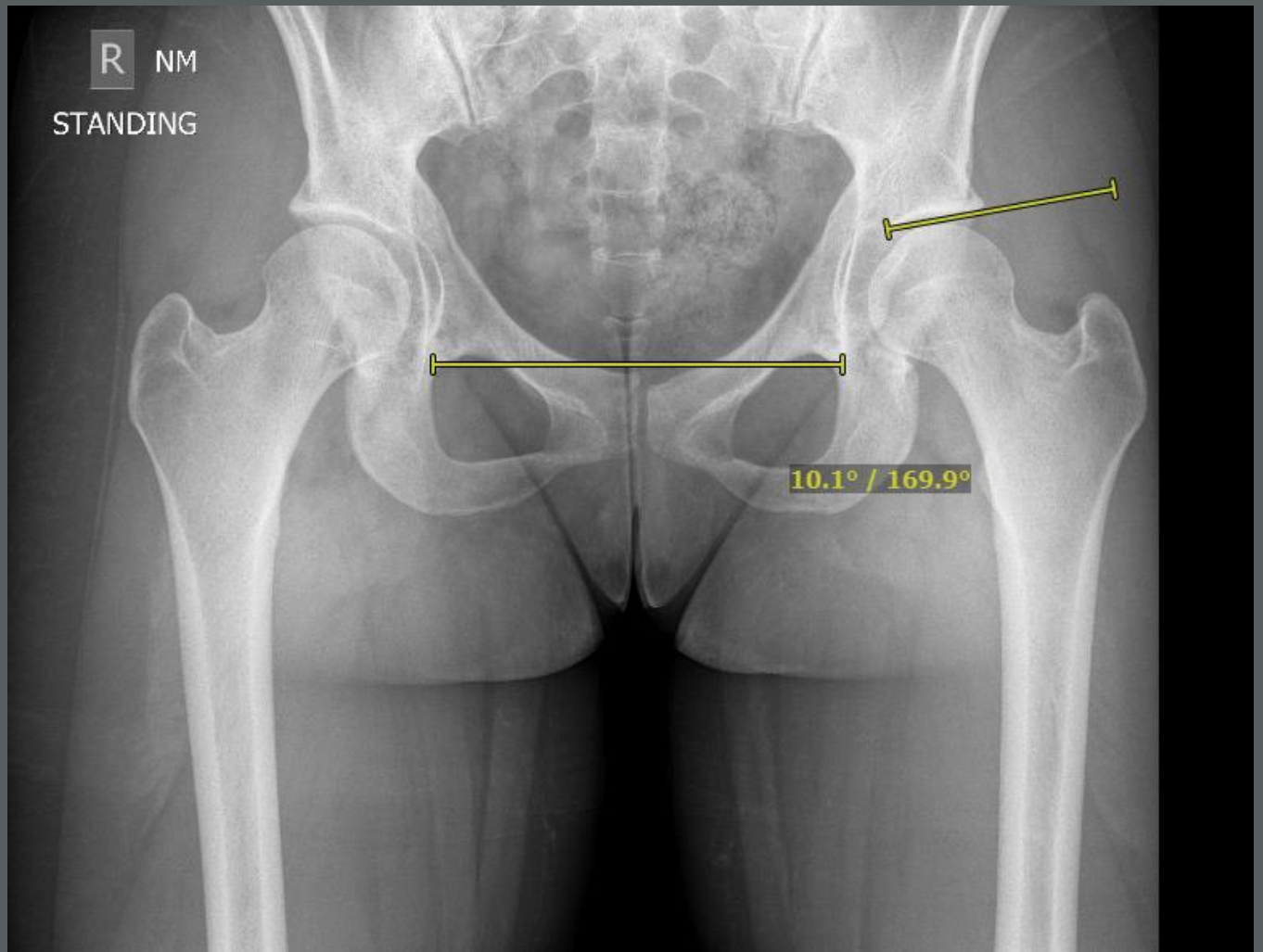
- Radiographs
  - Standing AP Pelvis (MUST)
  - Can also consider
    - False Profile
    - Cross Table Lateral

- MRI
  - MRI vs MR-Arthrogram
    - Controversial, would not order as initial imaging.

OHSU

Imaging Adolescents DDH

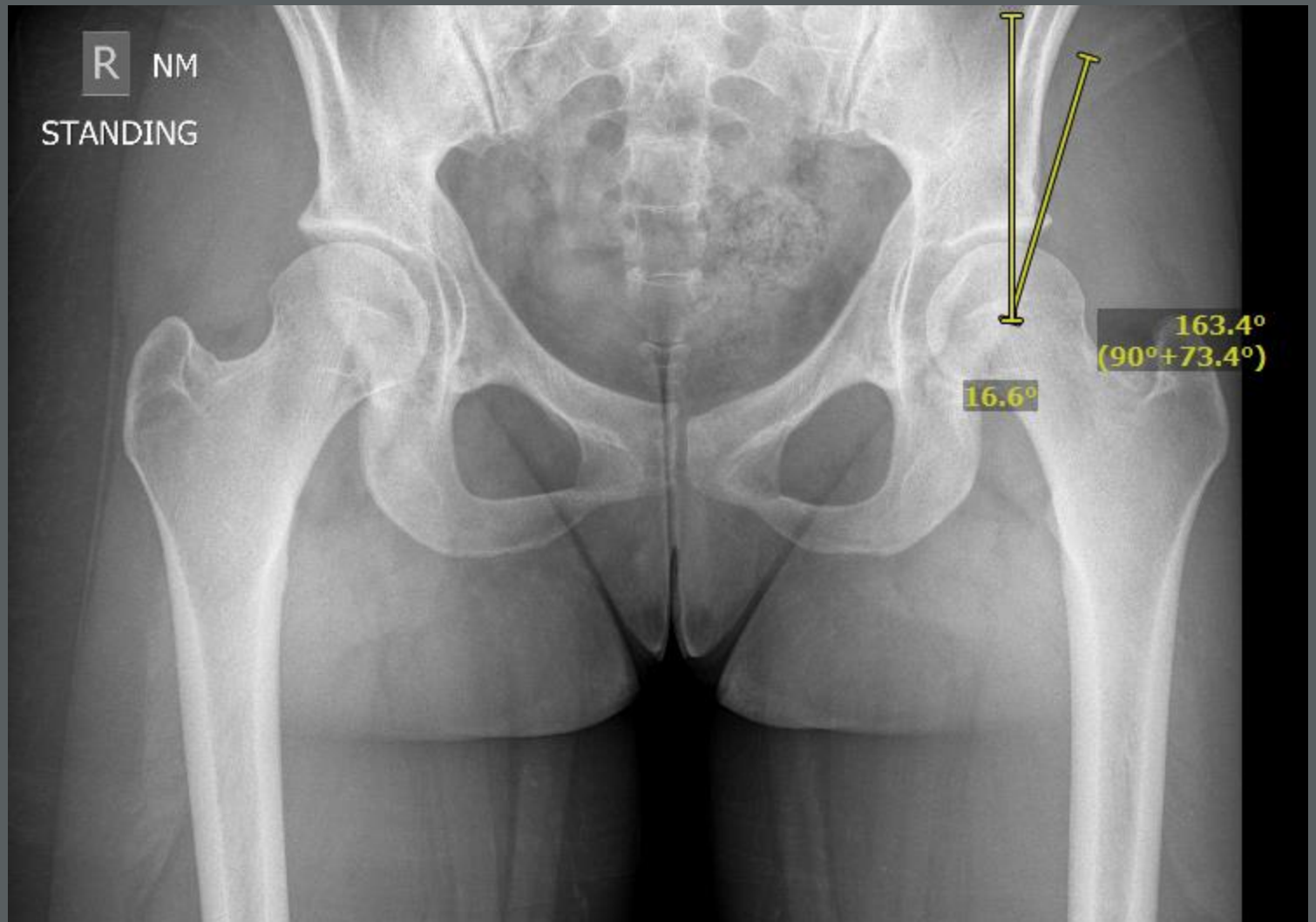
- Tonnis Angle



OHSU

Imaging Adolescents DDH

- Lateral Center Edge Angle (LCEA)



OHSU

Imaging Adolescents DDH

- False Profile View

OHSU

Surgical Treatments & Outcomes

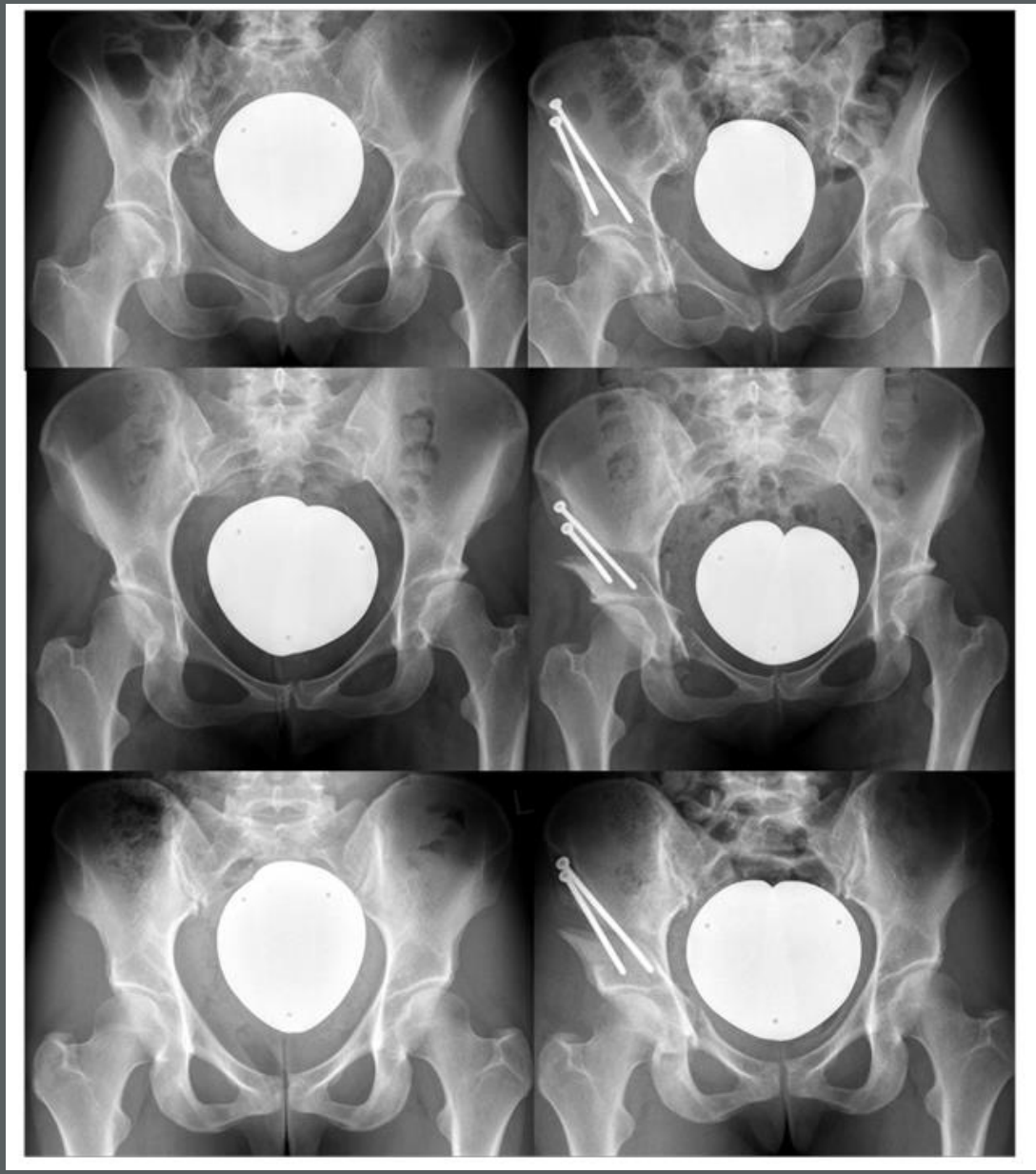
- DDH in the young patient
  - Surgery focused on maintaining congruency and reduction of the hip to allow for development
  - Various options but key to keep the hip reduced

- DDH as we near skeletal maturity
  - Periacetabular osteotomy

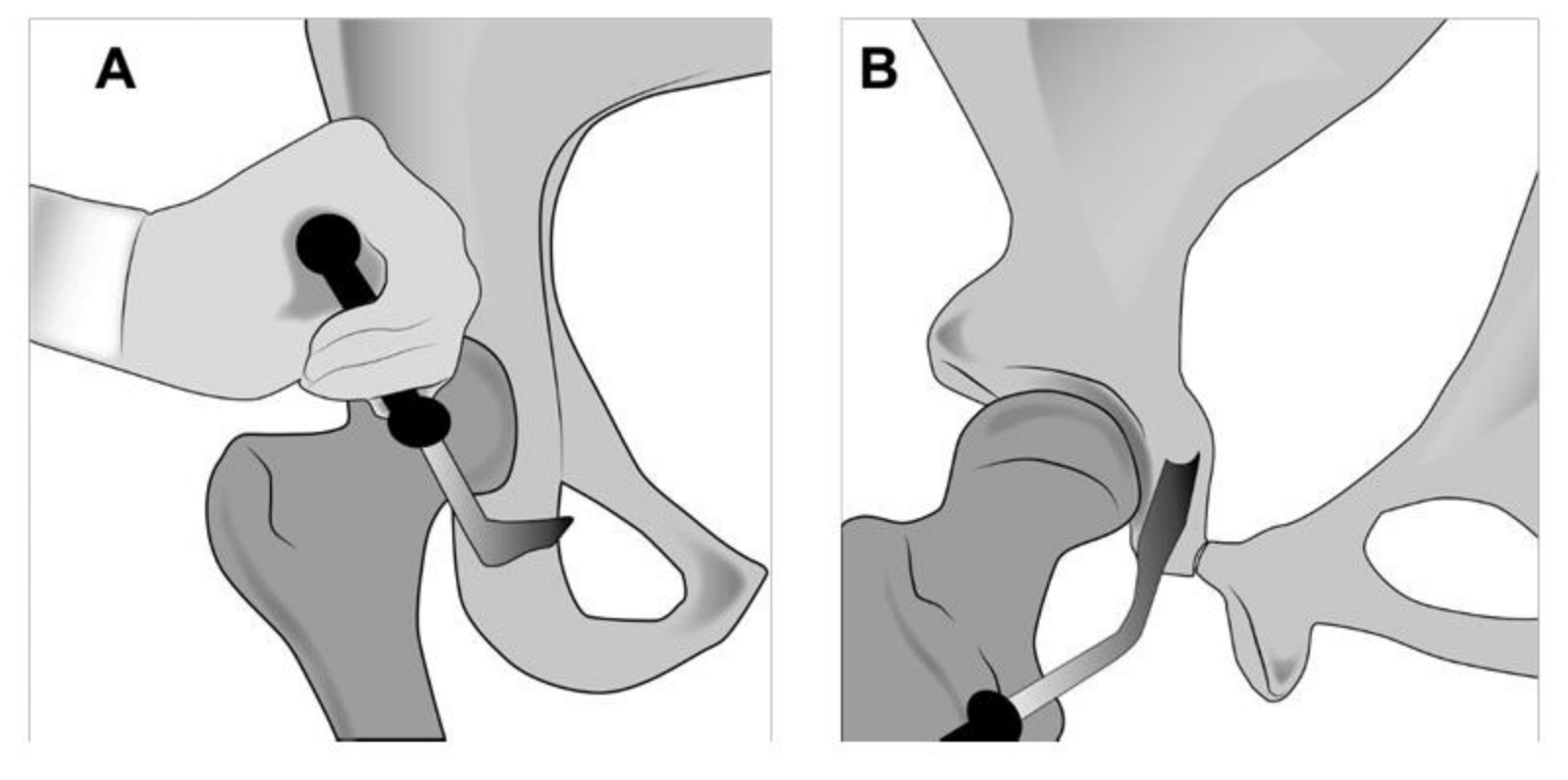
OHSU

Periacetabular Osteotomy (PAO)

- First described by Reinhold Ganz in 1988
- Bern, Switzerland
- Revolutionary in the world of hip preservation surgery

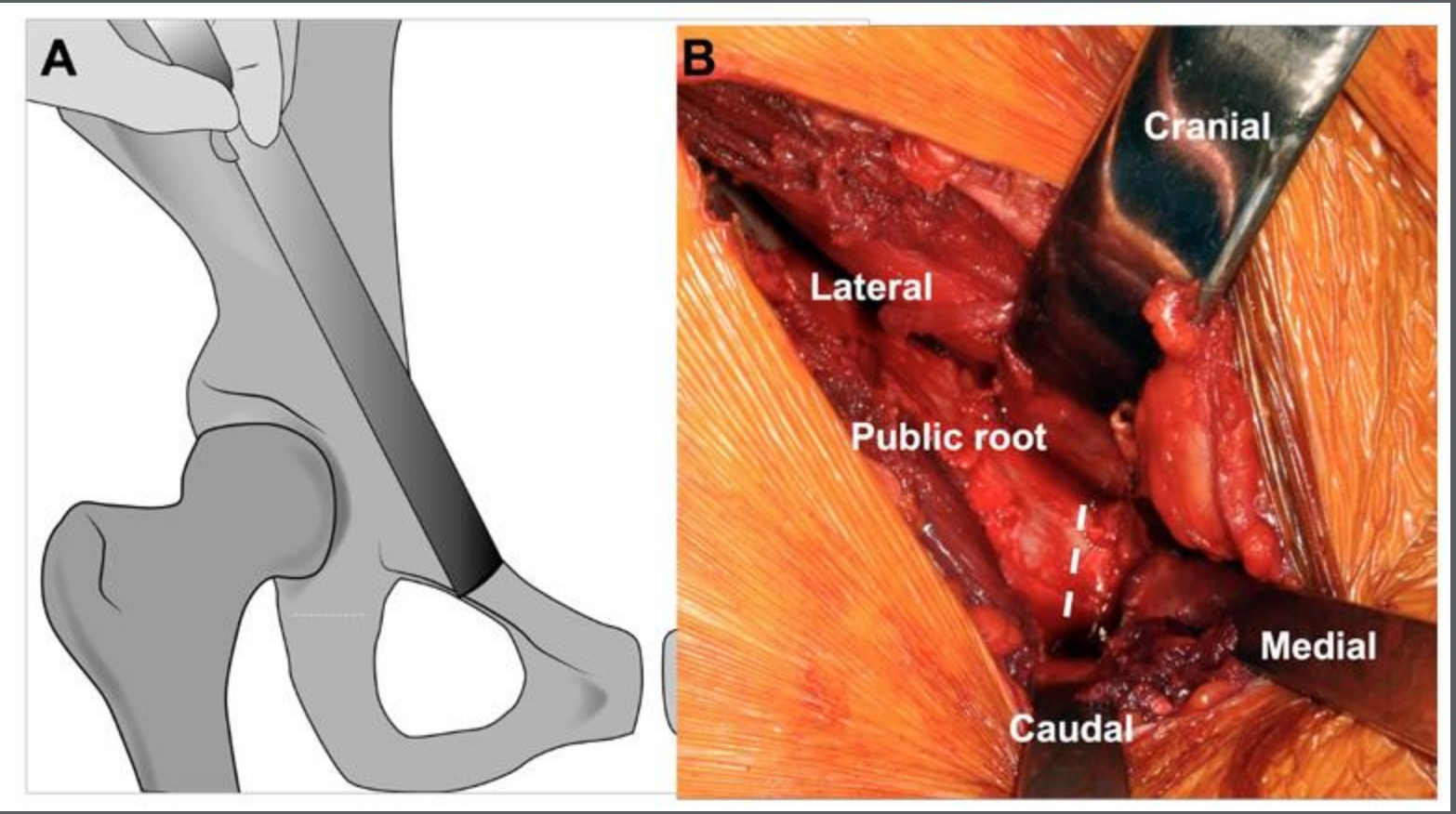


Ischial Osteotomy



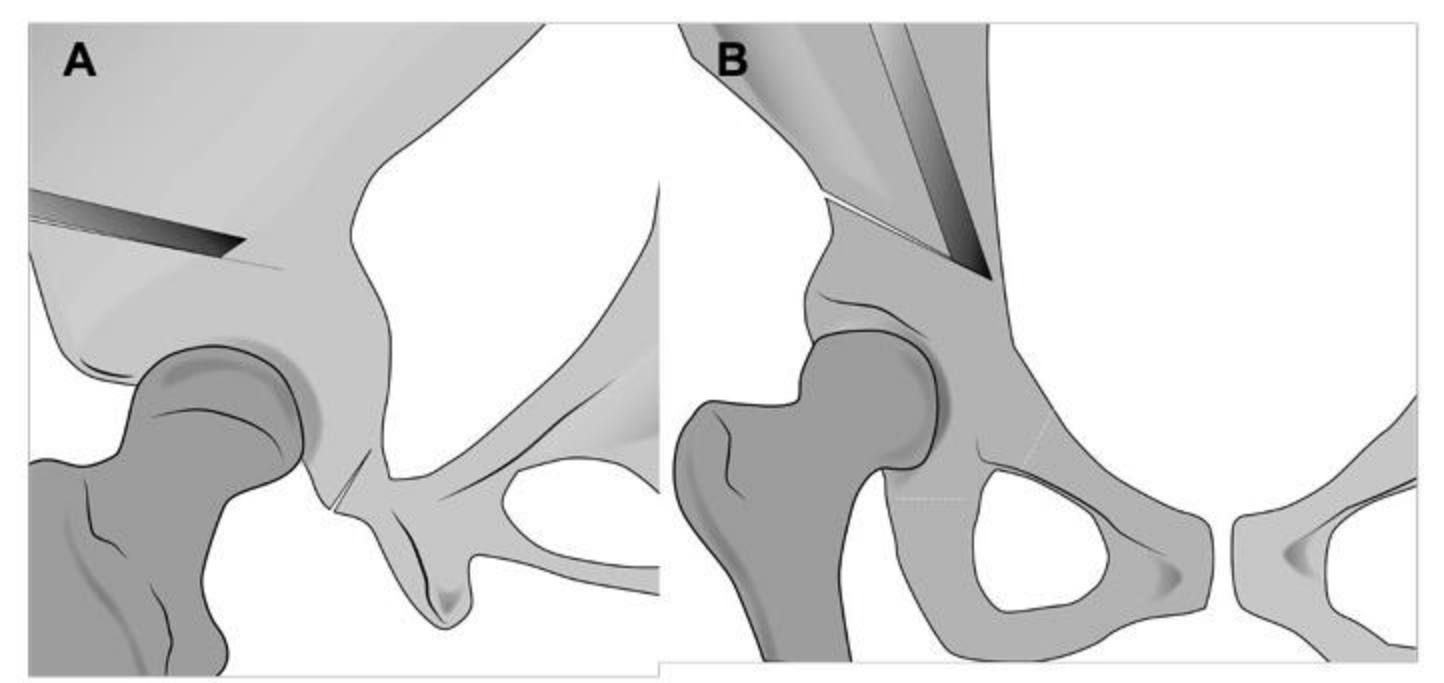
OHSU

Pubis Ostotomy



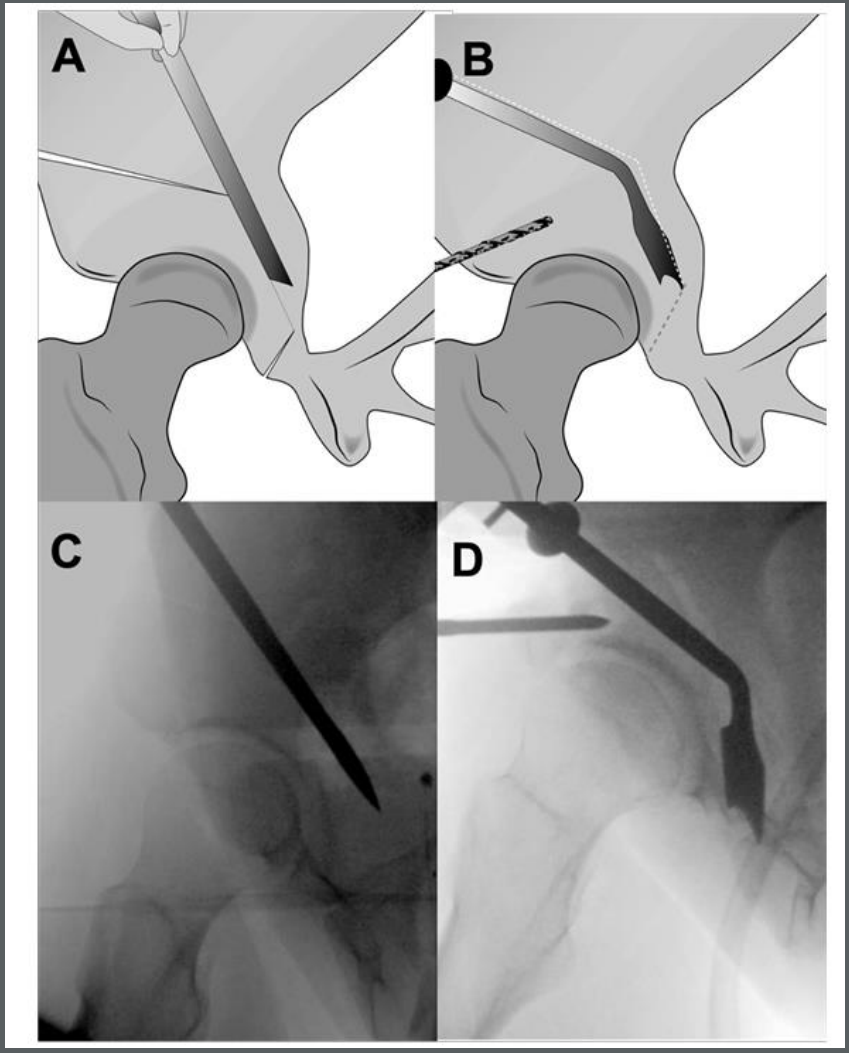
OHSU

Ilium Ostotomy



OHSU

Posterior Colum Osteotomy



OHSU

Early PAO days

- Learning curve of 18 cases……
  - OR times of 5 ½ hrs, 3000 cc blood loss and intra-articular propagation of osteotomies
- 10 years later
  - Fu of Ganz original series published and despite the learning curve in the first 18
  - 82% of hips preserved 11 years fu
  - 73% demonstrated good-to-excellent results
- Modern experiences with PAO
  - Recent Meta-Analyses Hip Survivorship
  - 5 years 96%
  - 10 years 91%
  - 15 years 85%
  - 20 years 68%

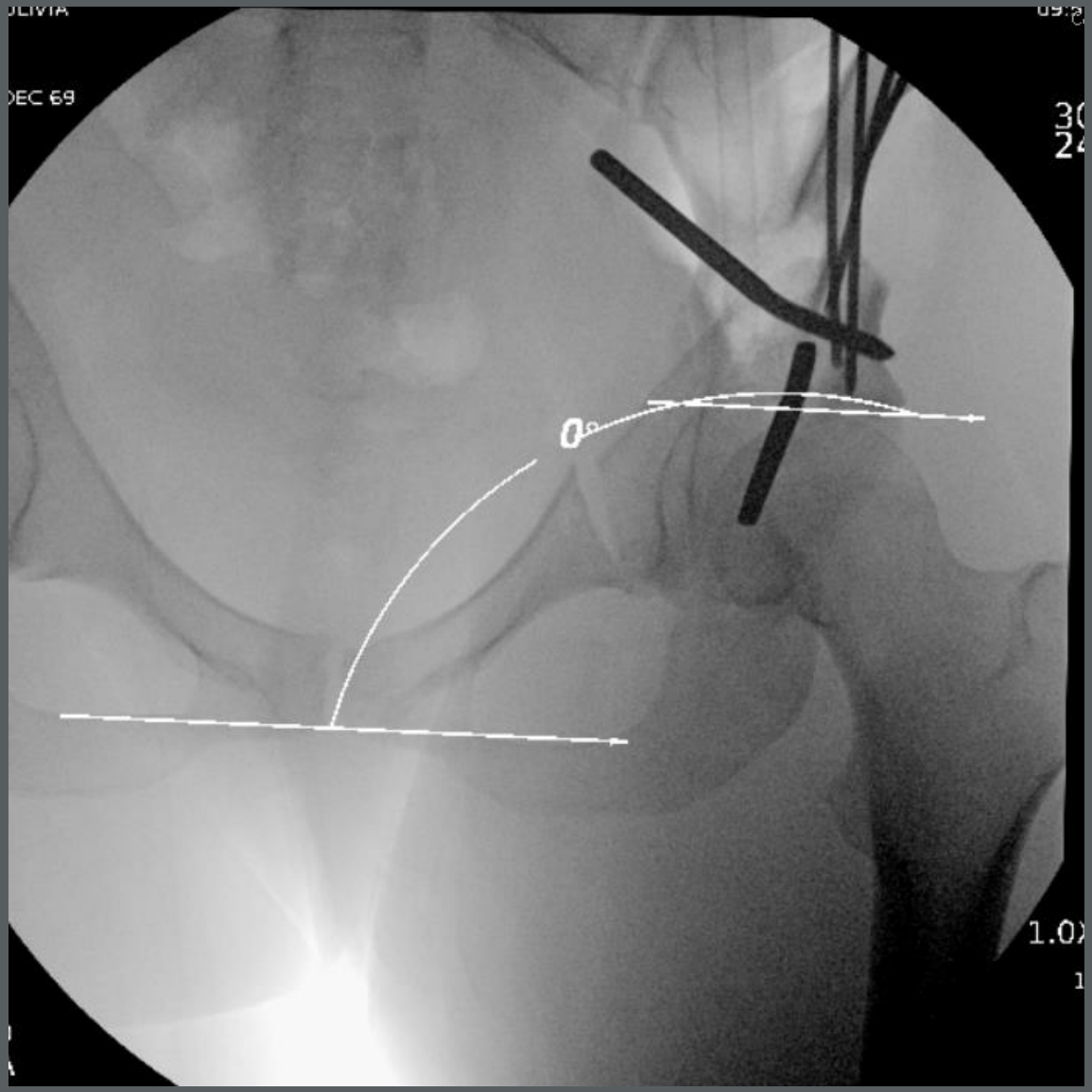
OHSU

Case #1 18 yo f left hip pain

- College Track Athlete
- Failed extensive non-operative management
- Surgical Options?

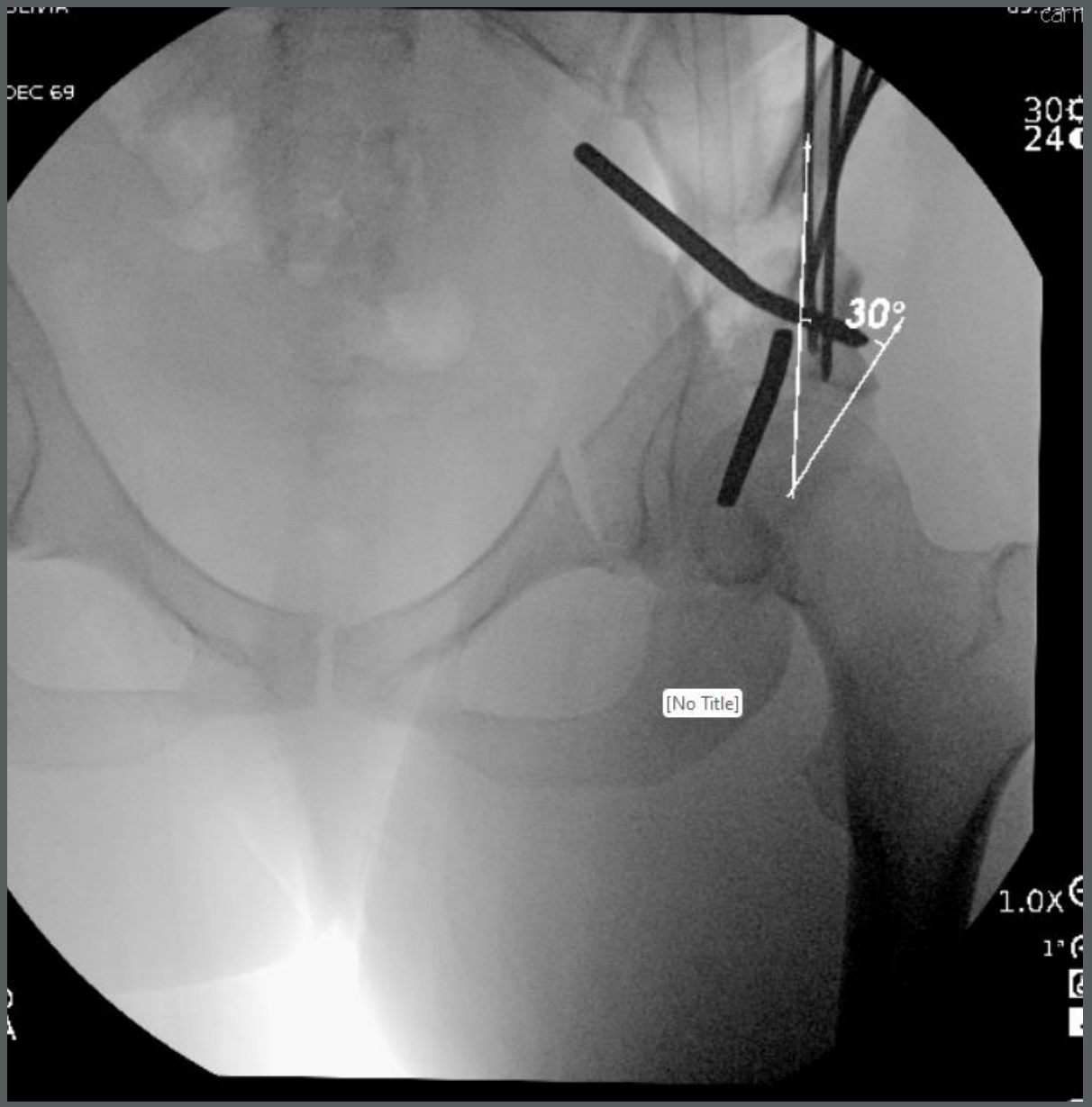
OHSU

Case #1 PAO

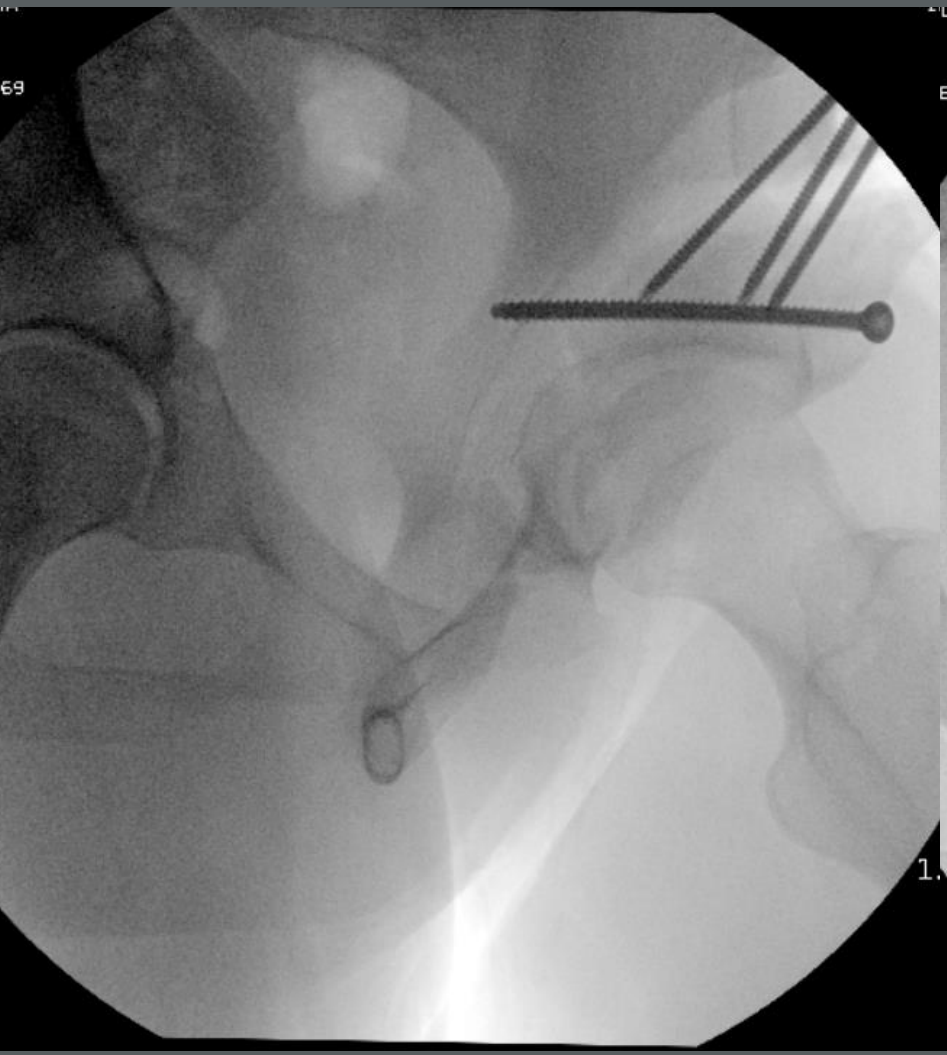


OHSU

Case #1 PAO



OHSU



OHSU

3 months post op

OHSU

Post-PAO Recovery

- First 6 weeks
  - Touchdown weight bearing (TDWB)
  - Limit active hip flexion
  - Use of two crutches at all times
- 6 weeks to 12 weeks
  - Advance to weight bearing as tolerated
  - Wean off crutches
  - Muscle activation, gait training key limited resistance
- 3-6 months
  - Gradually increase strengthening
  - Start to incorporate higher level activities
  - Personalized for goals
- 6-12 months
  - Return to sport
  - Personalized for goals

OHSU

Future Directions

OHSU

Case #2 32 yo f

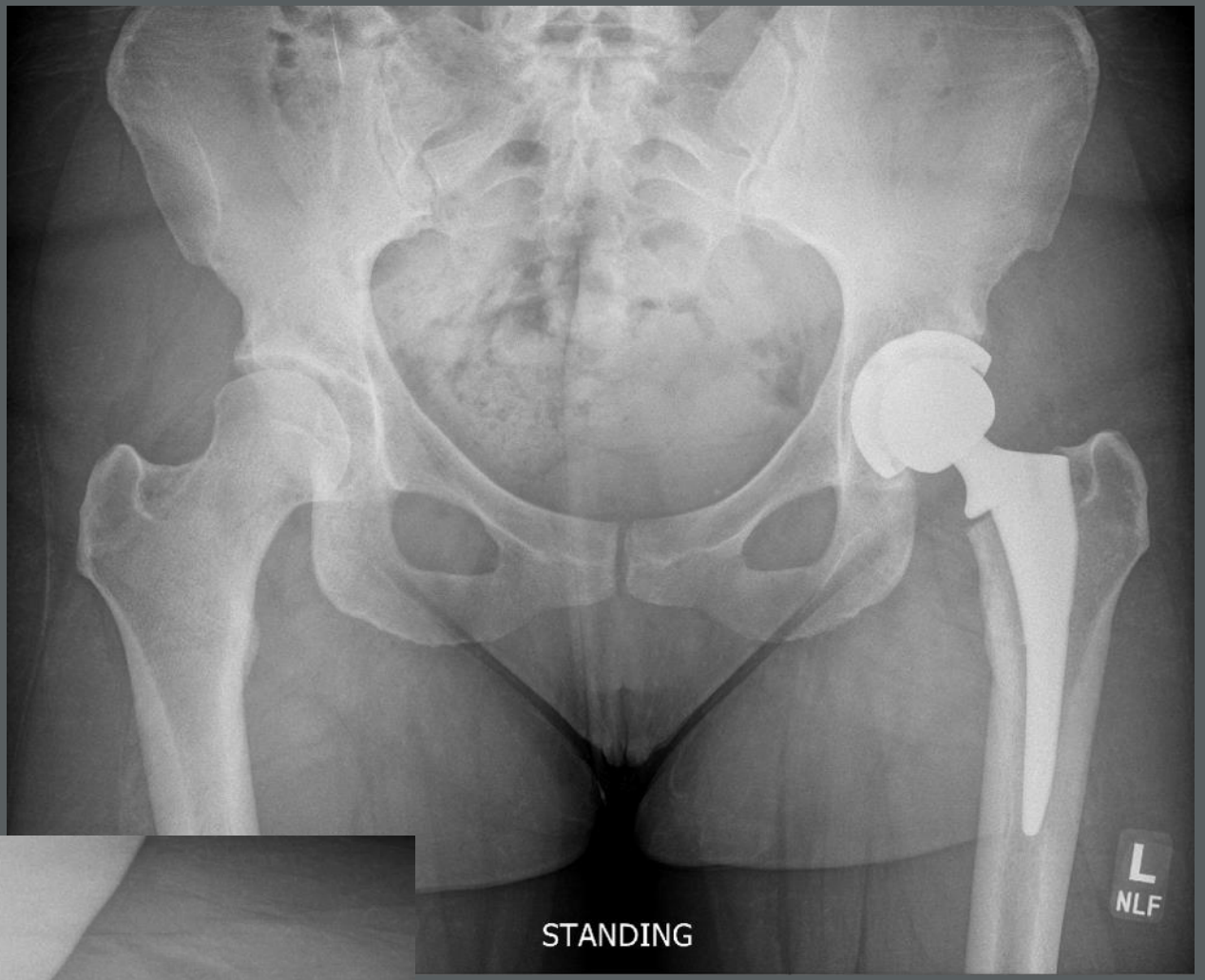
- Working mother of 3 year old
- Failed extensive non-operative management
- Surgical Options?

OHSU

Imaging Adult DDH

- MRI
  - Coronal T1

OHSU



OHSU


Thank You!
OHSU