

# **Breakout Session**

## **Revision Total Hip and Knee Arthroplasty Case Presentations**

# **2021 AAHKS Spring Meeting**

# Topics to be Covered

## Revision TKA

- Failed UKA
- Bone Loss
- Post op Infection
- A case I need help with !

## Revision THA

- Acetabular Failure
- Instability
- Peri-Implant Fracture
- Pelvic Discontinuity

# Case # 1

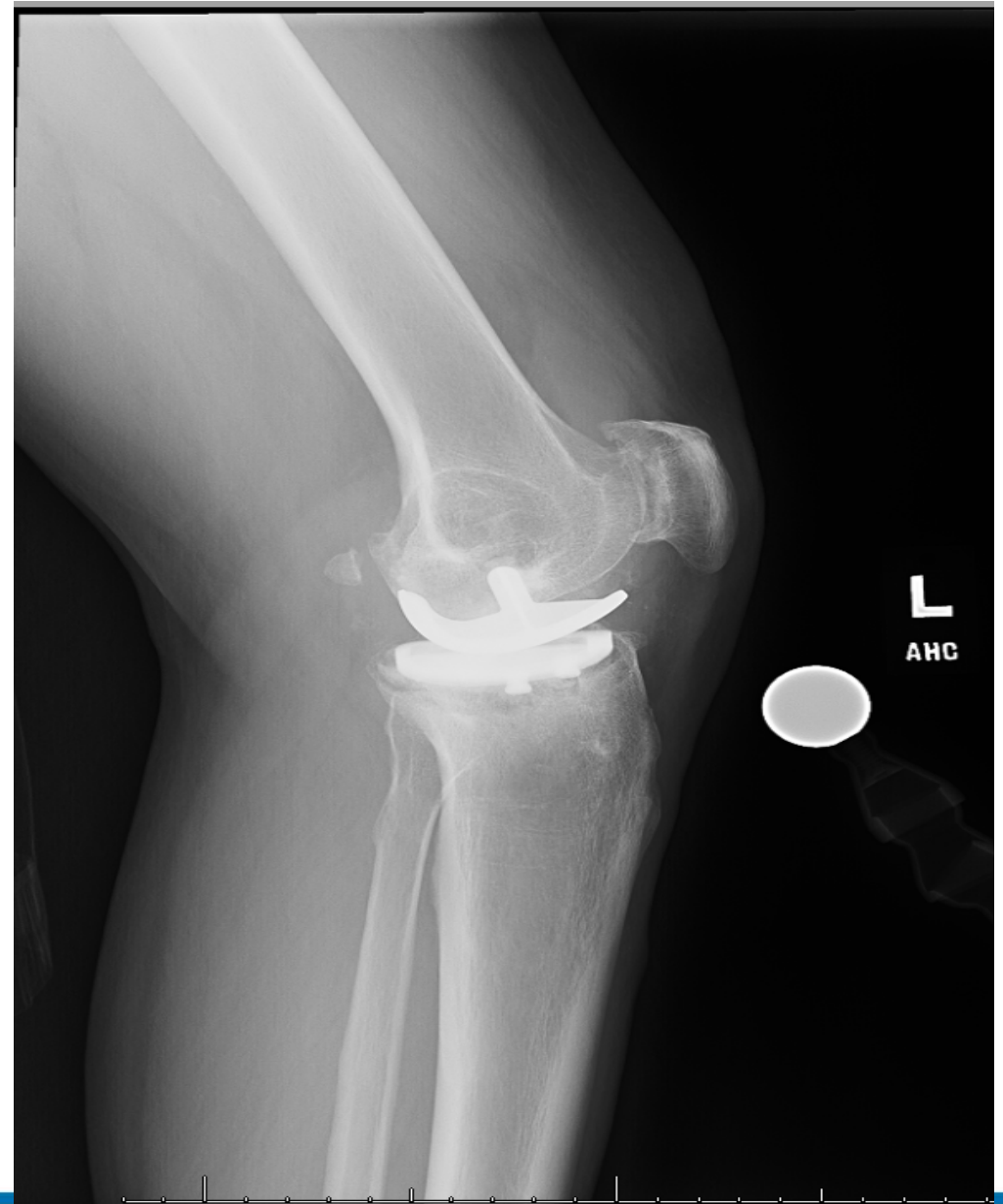
## History

- 63 year old Mail Carrier
- 20 yrs s/p L UKA
- Minimal pain, still works
- Healthy, no medications

# Physical Exam

- Walks with Varus thrust
- ROM 0- 115 degrees
- Normal Strength
- Well healed incision
- Work up for infection negative

# Radiographs



# Failed UKA

## Issues to Discuss

- Radiographic Findings
- Additional Imaging
- Technical steps in conversion to TKA
- Components needed

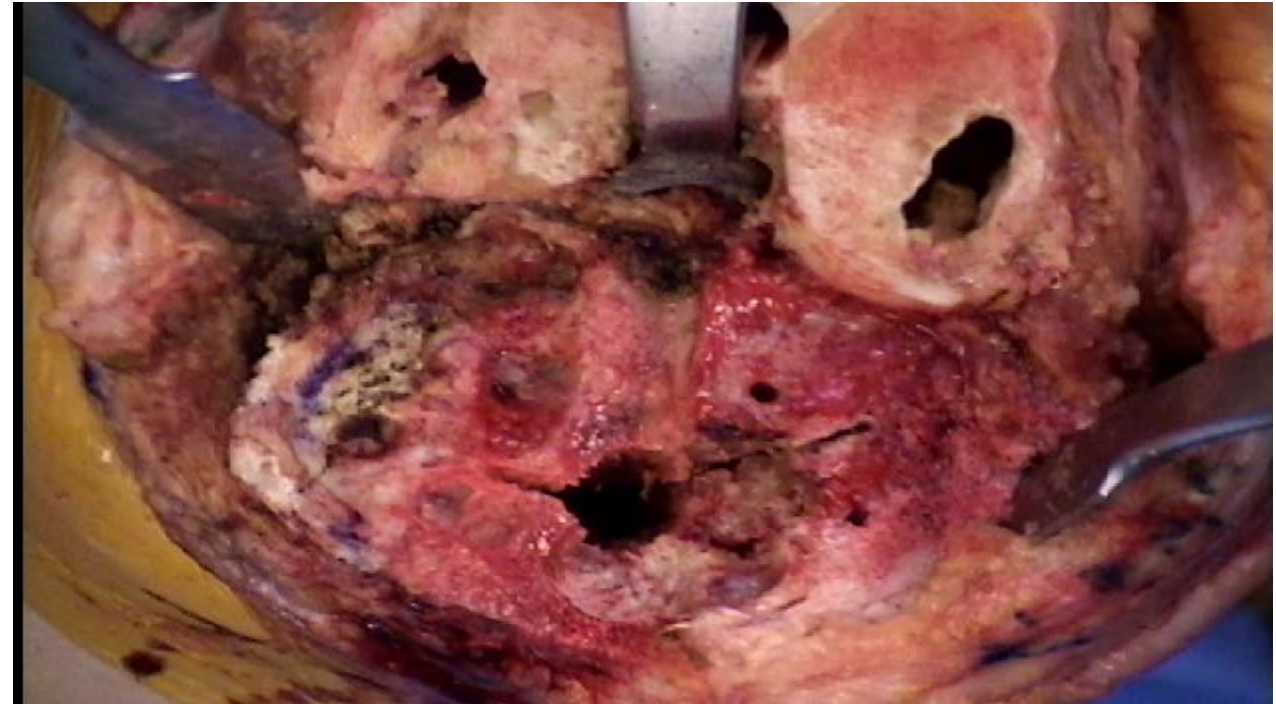
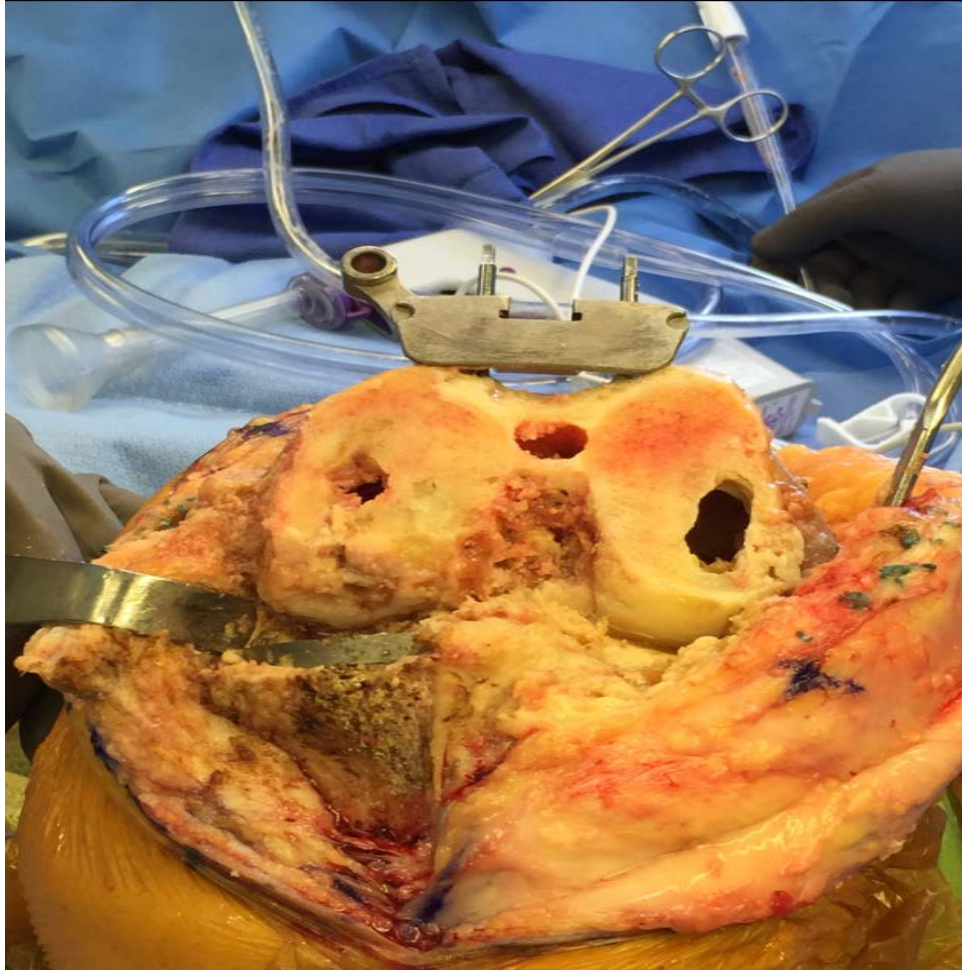


# Radiographs

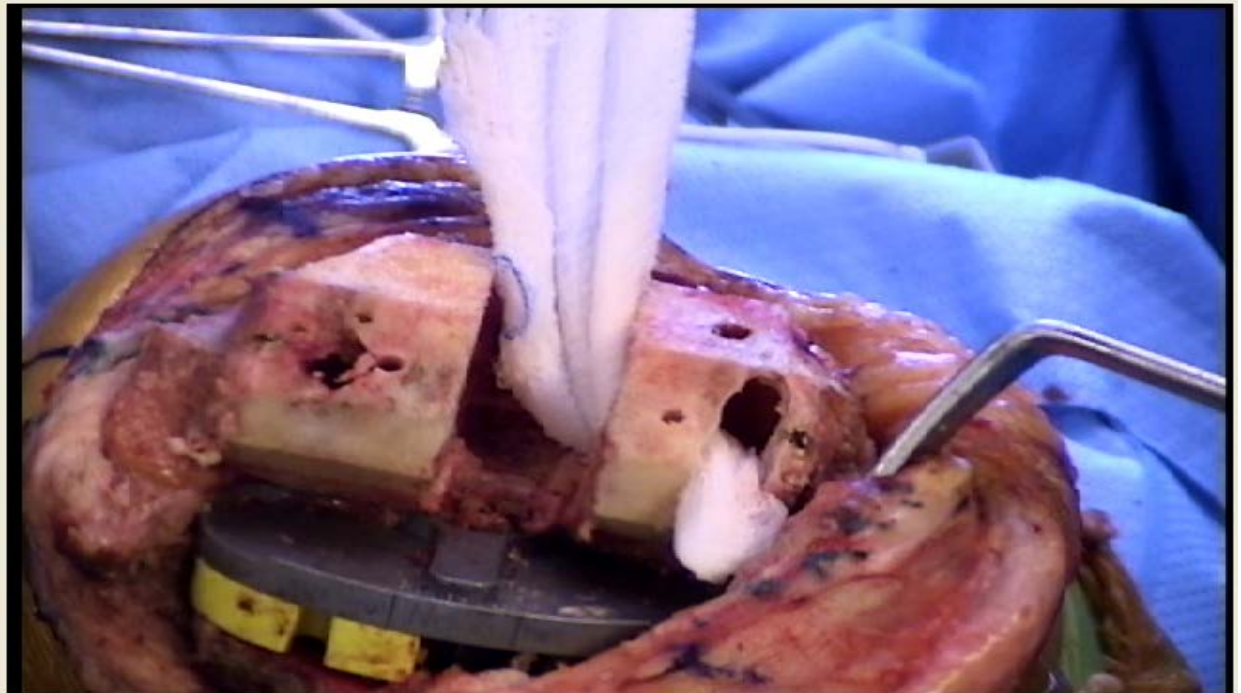
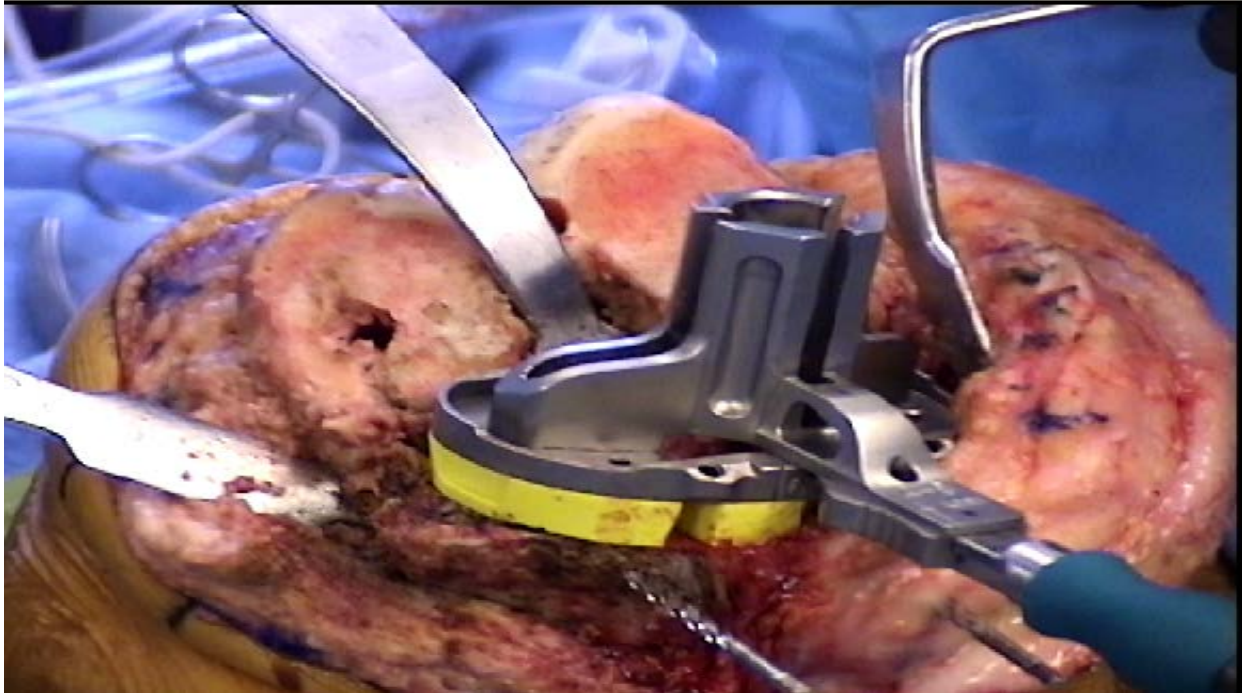




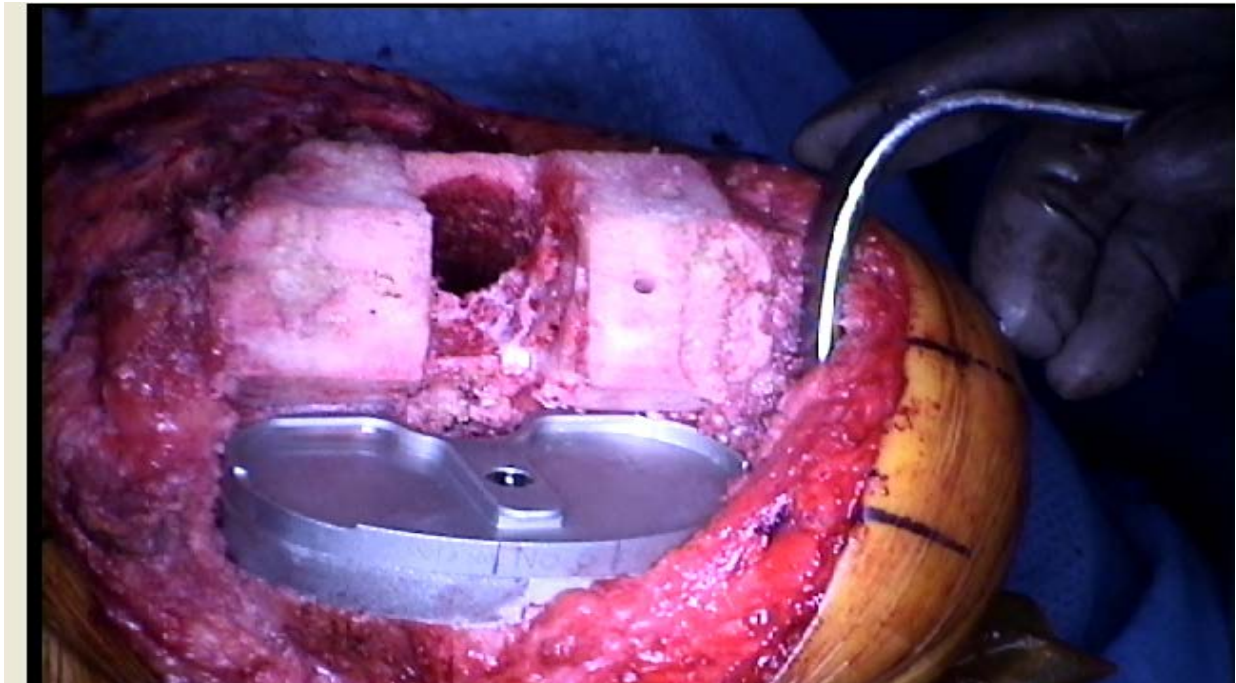
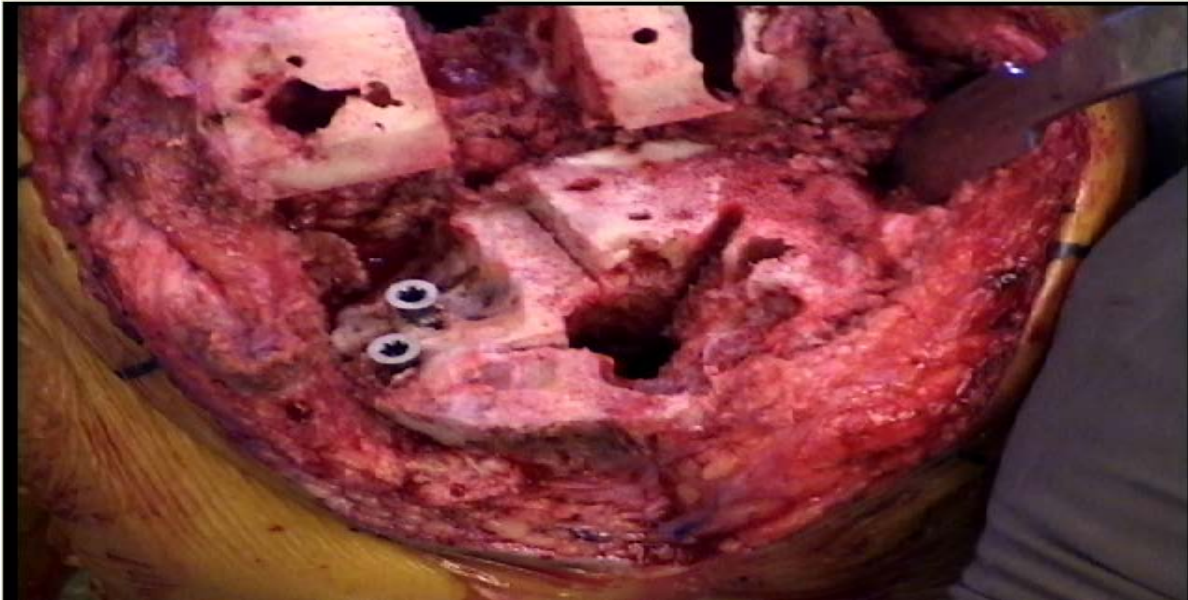
# Intra-Op



# Intra-Op



# Intra-op: Defect packed with allograft



# Post-Op



# Is it a Primary or a Revision ?

## What's needed

Revision of Unicompartmental Arthroplasty to Total Knee Arthroplasty: Not Always a Slam Dunk!

Rafael J. Sierra, MD <sup>a</sup>, Cale A. Kassel, MD <sup>a</sup>, Nathan G. Wetters, MD <sup>b</sup>, Keith R. Berend, MD <sup>c</sup>,  
 Craig J. Della Valle, MD <sup>b</sup>, Adolph V. Lombardi, MD <sup>c</sup>

**Table 4**

Type of Implants Used at Type of Revision UKA to TKA.

Implants	No. of Knees	Percentage
CR	81	46
PS	88	50
Constrained	6	2
Augments	53	30
Stems	67	38



# 69 yo Female R THA 2016

## Exam:

Ht: 5'7"

Wt: 152 lbs

BMI: 24 kg/m<sup>2</sup>

**GEN:** healthy, comfortable

**MSK:** *R hip* -

- Well-healed posterior incisions w/o signs of infection
- pROM hip is smooth and w/o pain
- No palpable abductor defect

## Labs:

CRP: <0.5 mg/dL

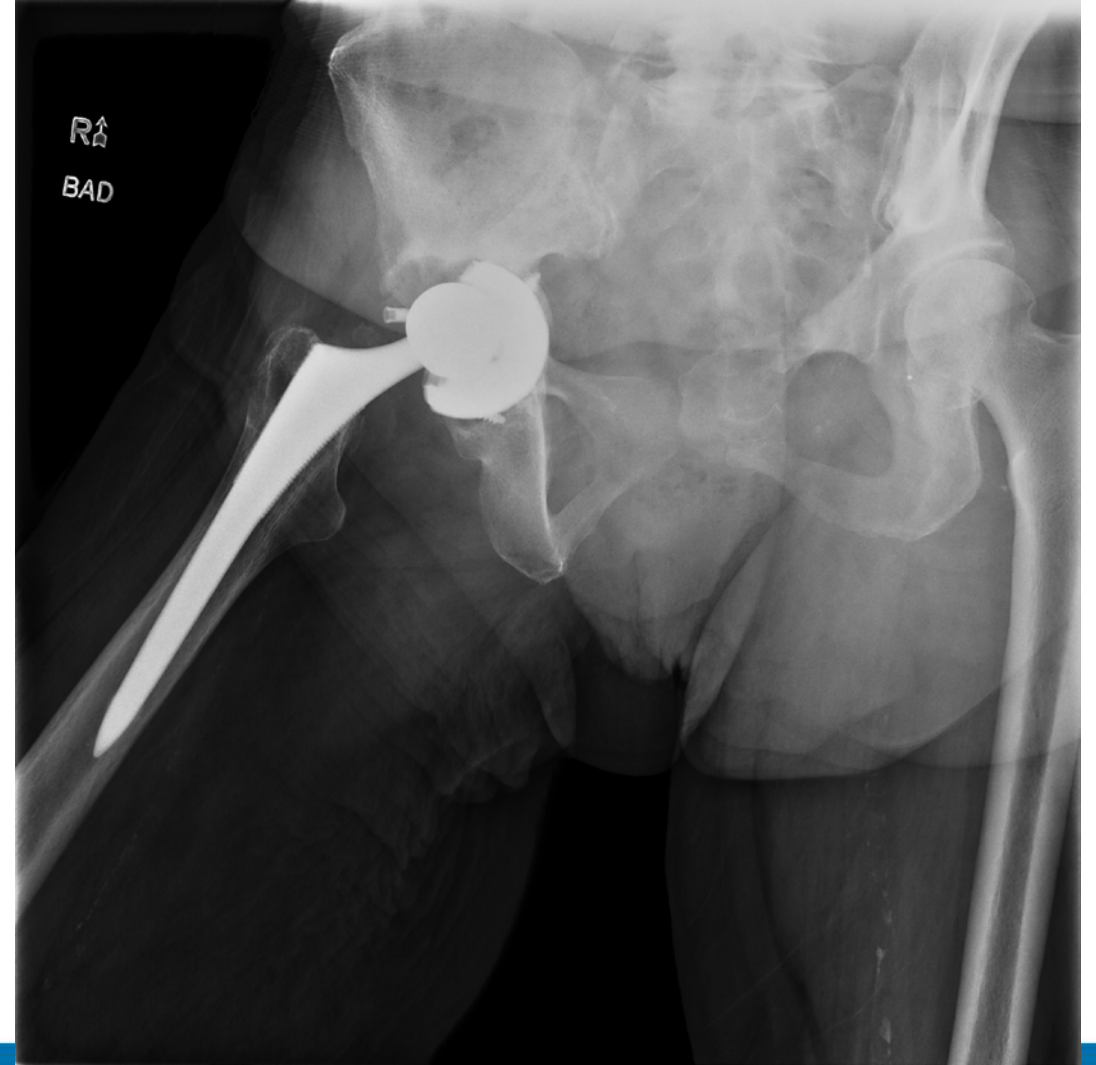
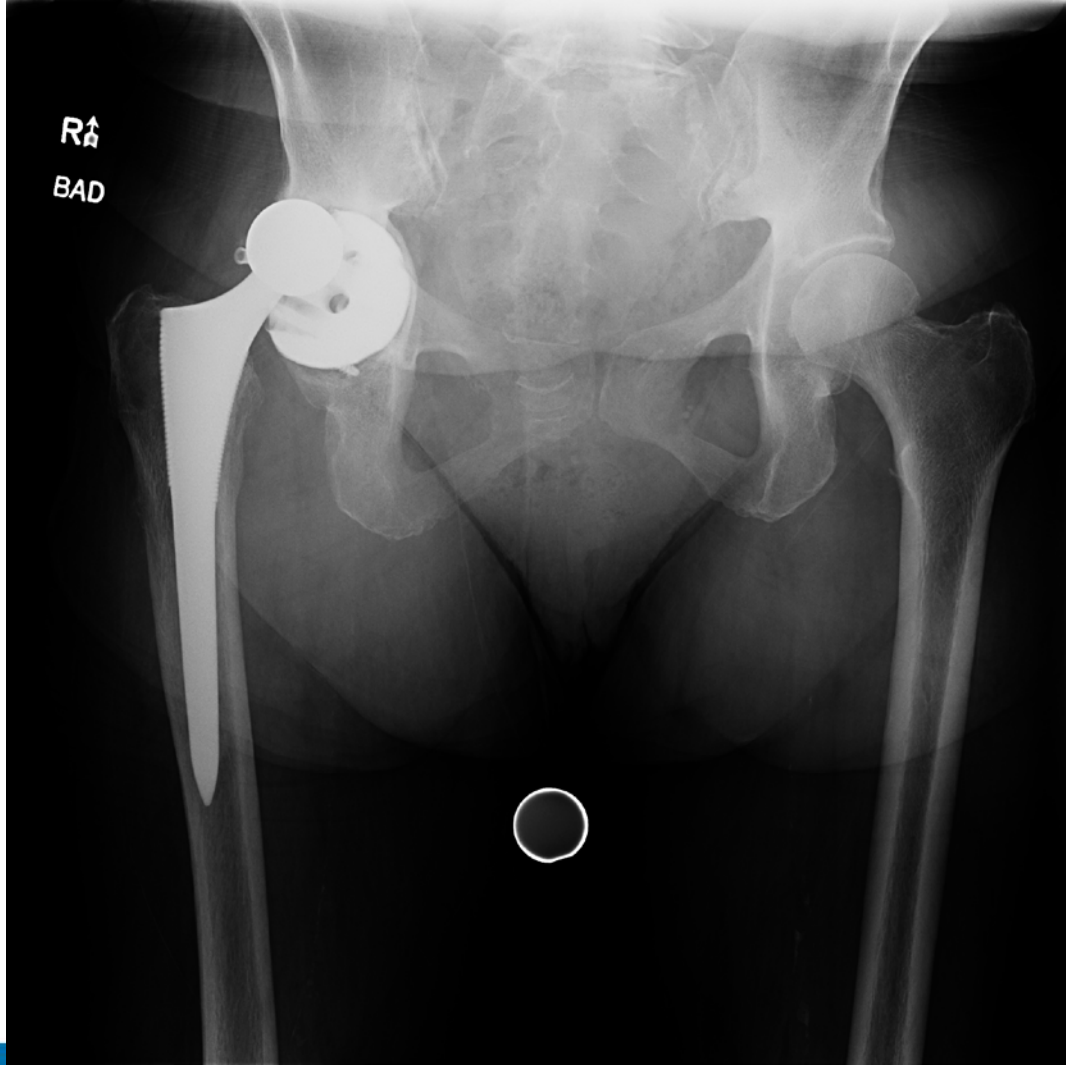
ESR: 28mm/hr

Asp: 183 Cells/11% segs

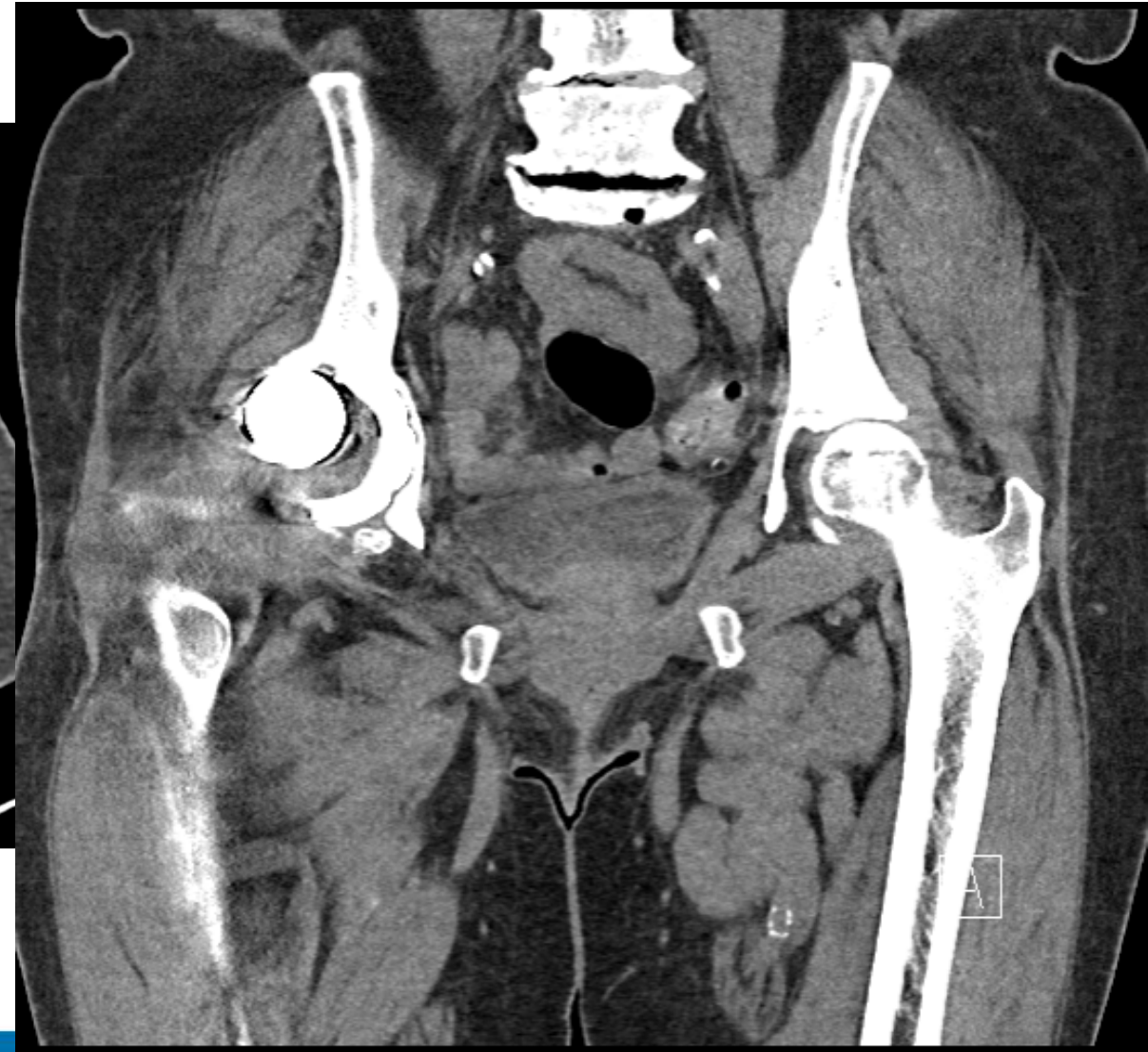
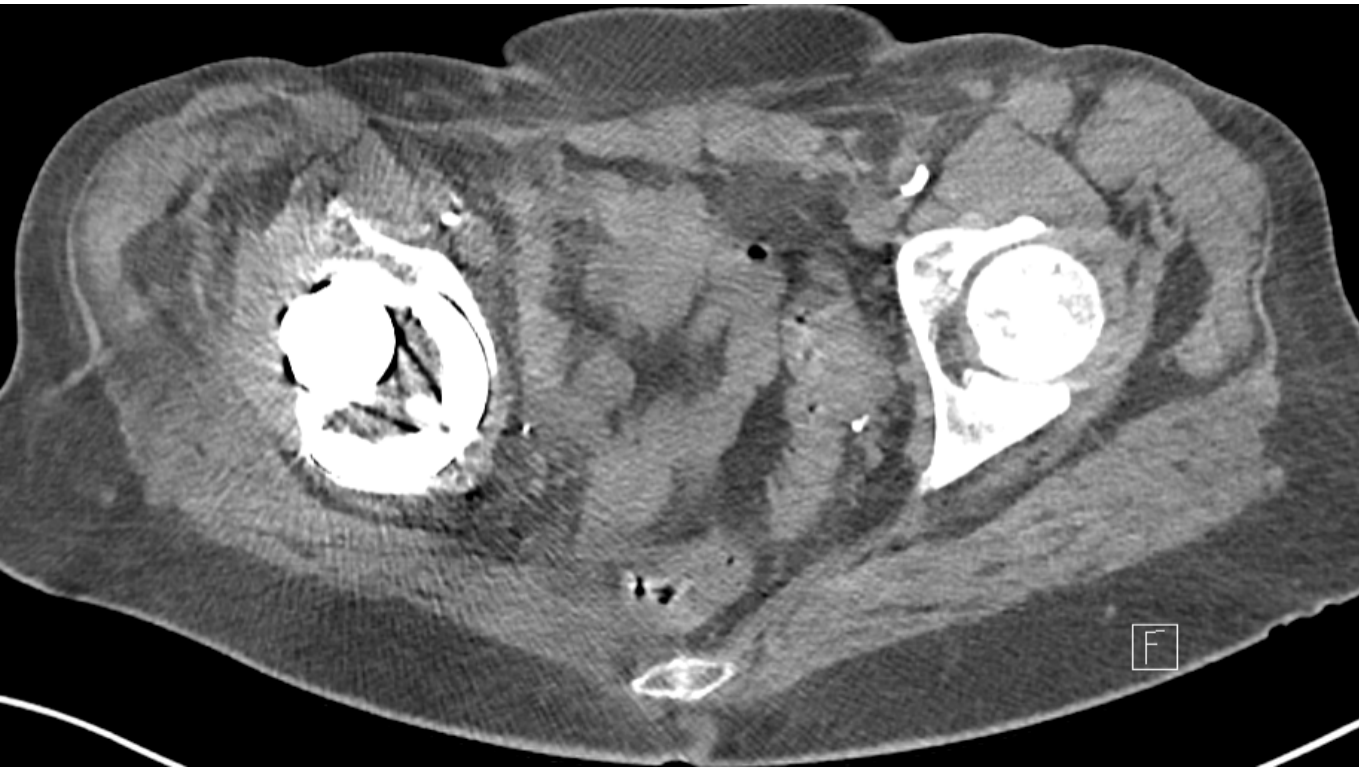
- **PMH:** DM, CAD, HLD, HTN

- **PSH:** per HPI, CABG, Hysterectomy, Tubal ligation

- **Social Hx:** single, unemployed, denies tob/etoh/illicit abuse



12/2020







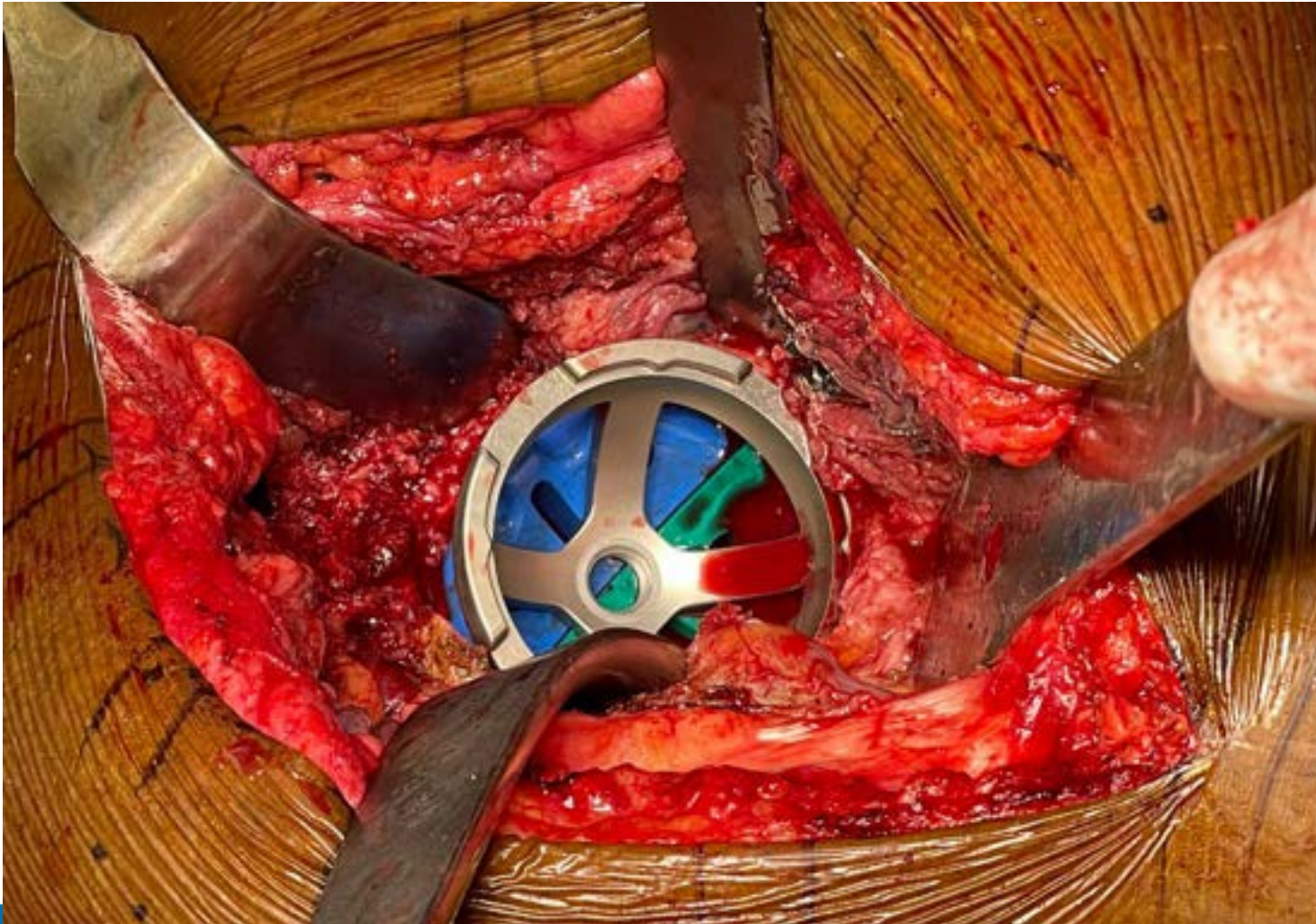
**STOP**

# Failed Acetabulum Issues to Discuss

- Radiographic Findings
- Additional Imaging
- Exposure and Component removal
  - Femur ?
- Technical Pearls for Acetabular Augments. When and How ?

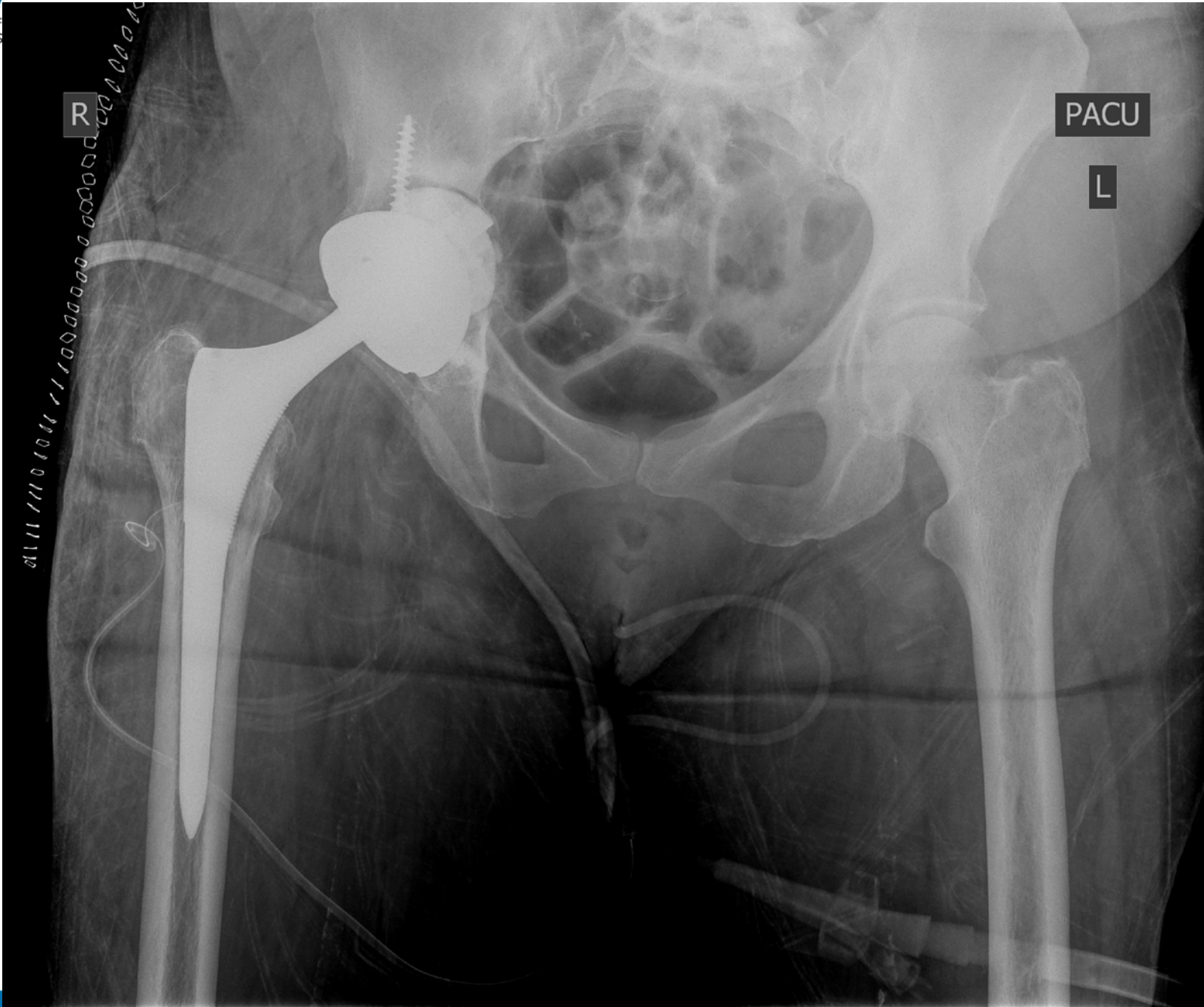


# 2/2021



# 2/2021





# The Utilization of Metal Augments Allows Better Biomechanical Reconstruction of the Hip in Revision Total Hip Arthroplasty With Severe Acetabular Defects: A Comparative Study

Baochun Zhou<sup>1</sup>, Yixin Zhou<sup>1</sup>, Dejin Yang<sup>1</sup>, Hao Tang<sup>1</sup>, Hongyi Shao<sup>1</sup>, Yong Huang<sup>1</sup>

- Retrospective Review
- 74 THAs w/ metal augments vs 77 THAs w/ a jumbo cup
- Minimum 2-year follow-up
- Biomechanical parameters, radiographic, Harris Hip Scores
- Metal Augment Group:
  - (COR) closer to anatomic COR 6.5mm (P <0.001)
  - Smaller cup size (P < 0.001)
  - Less head-cup difference 5.7mm (P < 0.001)
  - Radiographically stable
  - Higher mean post-op Harris Hip Score

# 74 yo Female 25 yrs s/p L TKA

- **CC:** Increasing pain and deformity L TKA
- **PMH:** Fibromyalgia, HTN, HLD, GERD, gout
- **PSH:** per HPI, parathyroid surgery, R hip surgery
- **Social Hx:** retired, divorced, denies tob/etoh/illicit use
- **All:** Bactrim, Latex
- **Meds:** HCTz, Norco 5, Morphine 30mg, Simvastatin, Omeprazole, colchicine
- **Family Hx:** Negative



**Exam:**

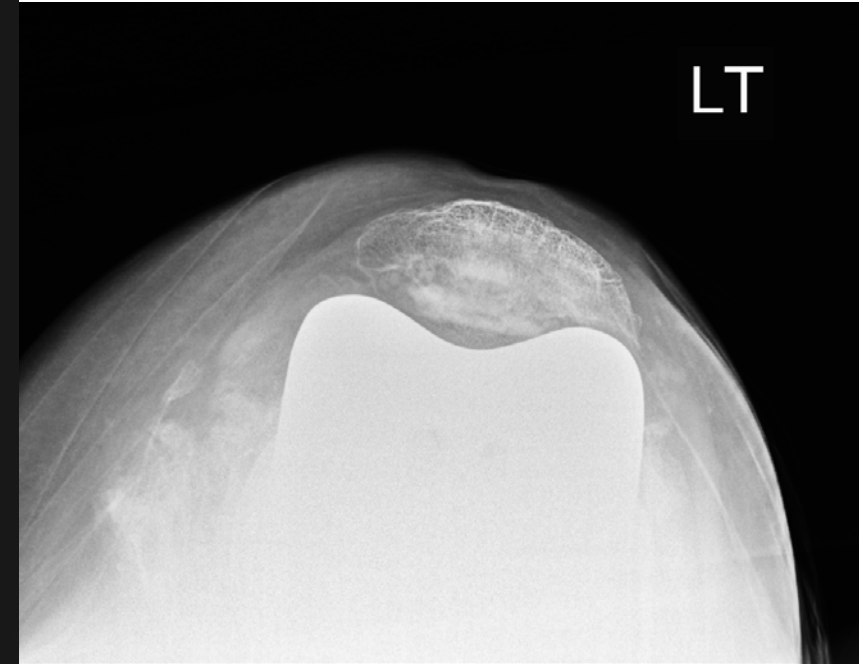
Ht: 5'8"

Wt: 235 lbs

BMI: 36 kg/m<sup>2</sup>

- Well-healed midline knee incision
- Varus alignment
- aROM knee 0-90
- Attenuated but intact MCL
- NVID

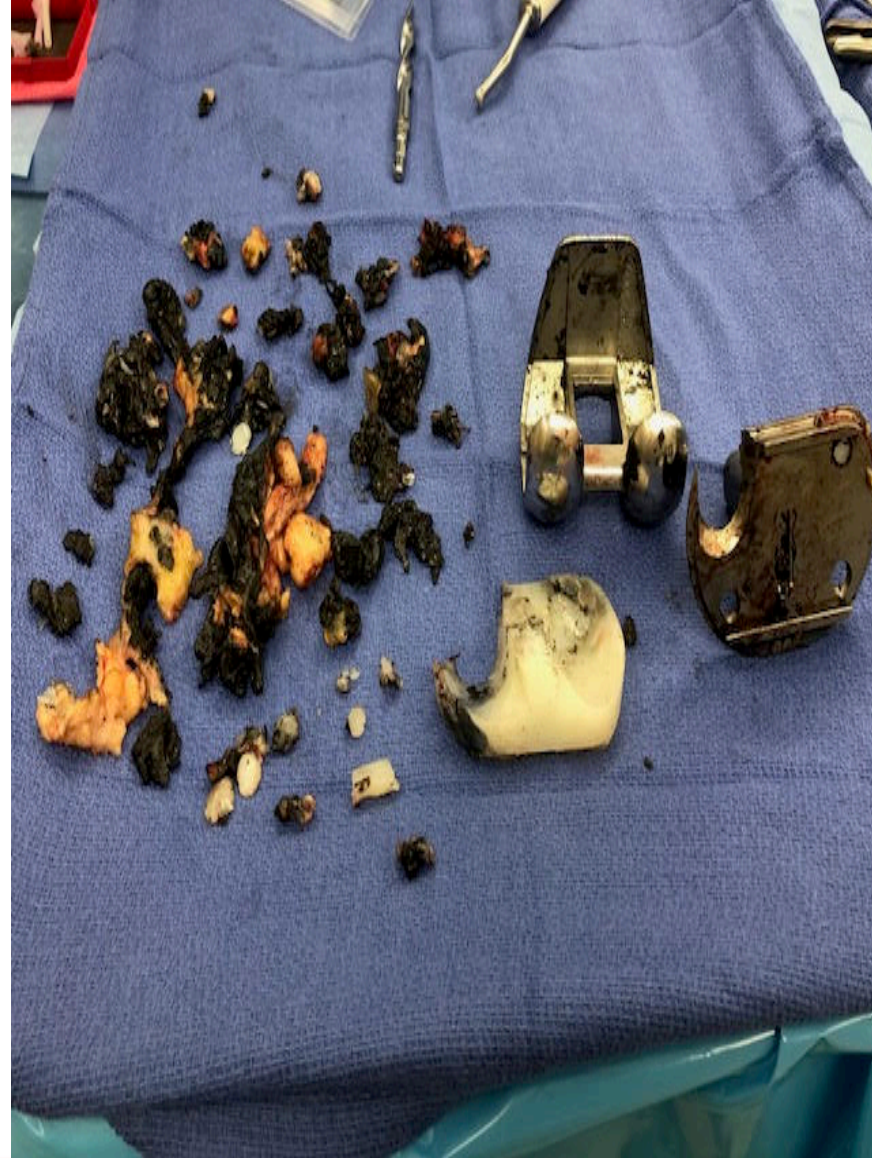
ING



LT



# Bone Loss



# Failed TKA

## Issues to Discuss

- Radiographic Findings
- Additional Imaging
- Standard work up
- Managing bone loss
- Deciding on level on constraint ?



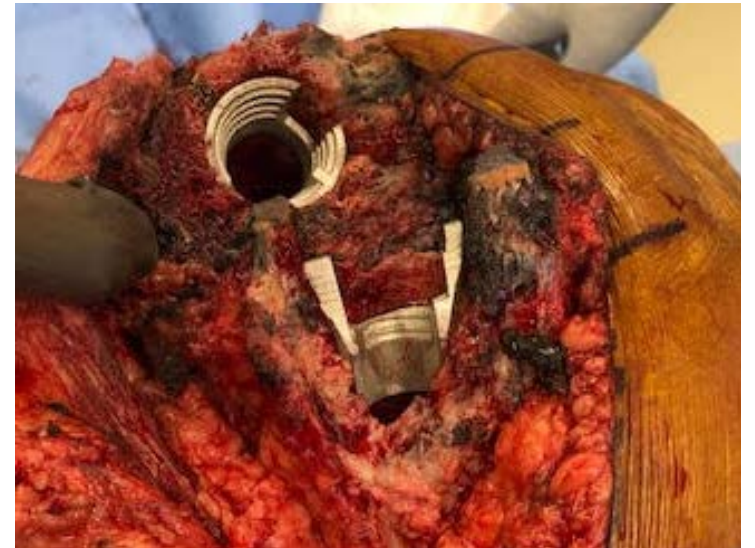
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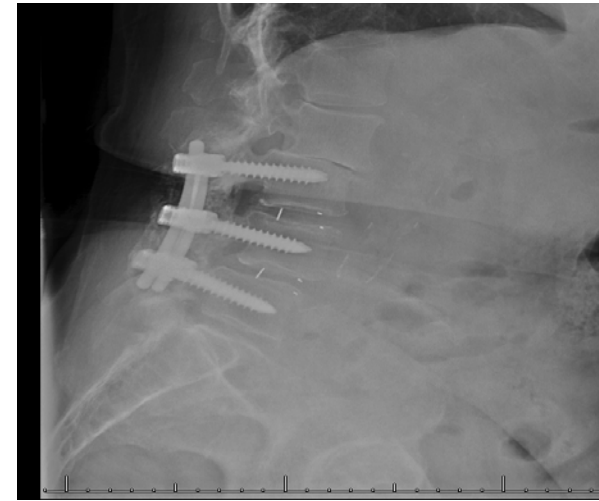
PORT SUPINE  
POST OP



POST OP  
PORT X-TABLE



# 72 yo Female s/p L THA 2016

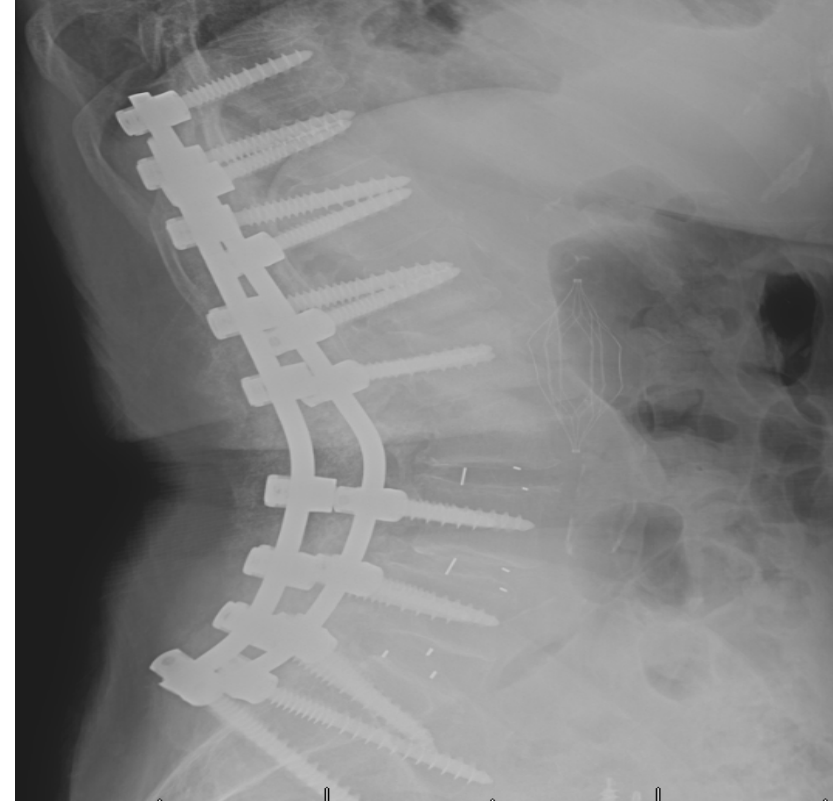


DePuy 48mm, S-ROM® 11x16 +6, 32+6 ceramic head

Normal post-op course and f/u visits

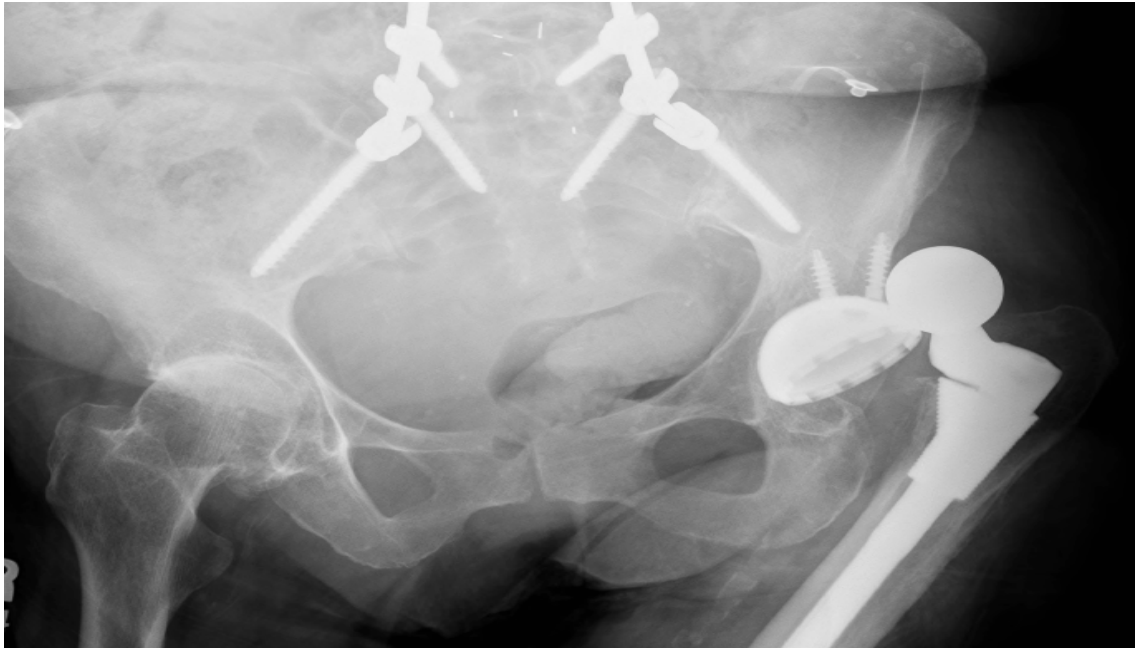


# February 2018

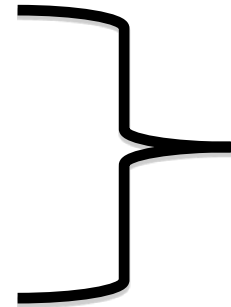


Worsening LBP. Junctional kyphosis. Extension of previous L3-L5 fusion to T12 and Ilium

# Posterior Dislocation x 5



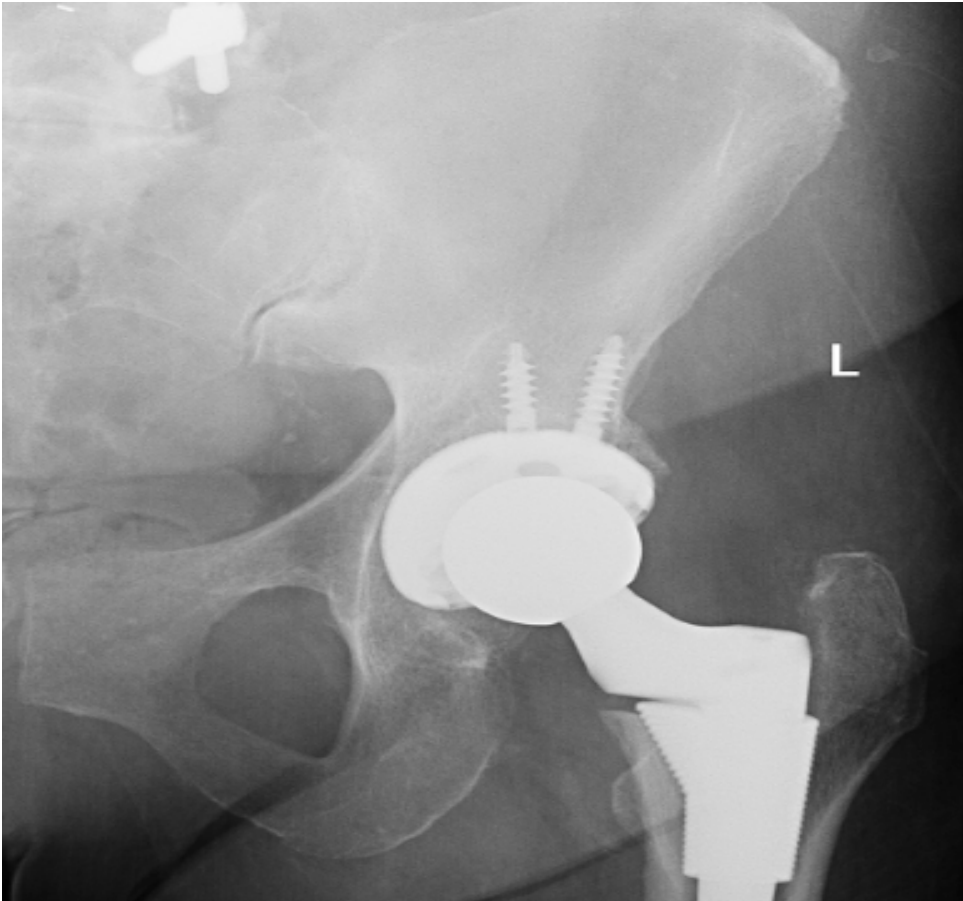
1. 5/23/18\* - squatting
2. 6/6/18 – bending forward
3. 7/29/18 – getting into bed
4. 8/1/18 – bending forward
5. 8/10/18 – bending forward



Closed reduced under anesthesia 5 times

\*3 months post-op from revision spinal fusion

# Standing AP Films Pre & Post Revision Spinal Fusion



2016



2018

# Recurrent Instability s/p LS Fusion

## Issues to Discuss

- Anything different at initial operation in 2021
- Acetabular Options:
  - Head and Liner Exchange
  - Conversion to Constrained Liner
  - Conversion to Dual Mobility (at time, no DM option available for this cup)
  - Revise stem ?



**STOP**

# Increased Lumbar Lordosis from fusion Retroversion of Socket Loss of Pelvic Spino-Pelvic Accommodation



# Post Op

- Revision of the Acetabulum
  - Adding anteversion
- Conversion to DM



# Dual Mobility in Revision THA

## 0-3.7% Dislocation Rate

### **Use of a Dual Mobility Socket to Manage Total Hip Arthroplasty Instability**

**Olivier Guyen MD, PhD, Vincent Pibarot MD,  
Gualter Vaz MD, Christophe Chevillotte MD,  
Jacques Béjui-Hugues MD**

**Prevention of dislocation in total hip revision surgery  
using a dual mobility design**

**Treatment of recurrent THR dislocation using of a  
cementless dual-mobility cup: A 59 cases series  
with a mean 8 years' follow-up**

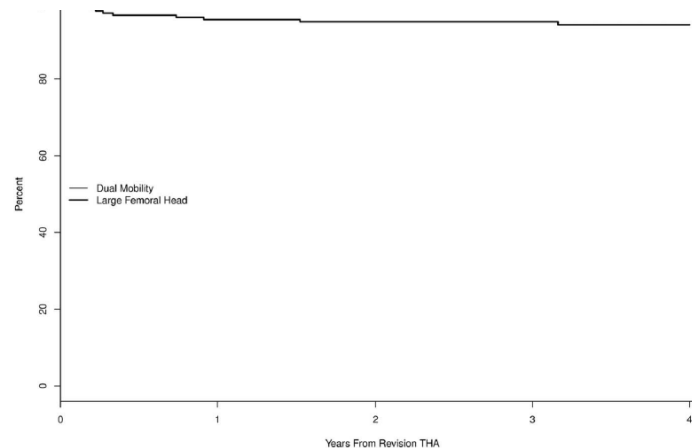
**F. Leiber-Wackenheim<sup>a,b,\*</sup>, B. Brunschweiler<sup>a</sup>, M. Ehlinger<sup>b</sup>,  
A. Gabrion<sup>a</sup>, P. Mertl<sup>a</sup>**



# Otto Aufranc Award: Dual-mobility Constructs in Revision THA Reduced Dislocation, Rerevision, and Reoperation Compared With Large Femoral Heads

Table 6. All-cause reoperation

Reoperation	Dual-mobility group (N = 8/126 [6%])	Large femoral head group (N = 27/176 [15%])	p value
Revision for recurrent dislocation	1 (0.8%)	10 (5.7%)	0.03
Periprosthetic joint infection	3 (2.4%)	9 (5.1%)	0.23
Aseptic loosening	2 (1.6%)	6 (3.4%)	0.33
Periprosthetic fracture	1 (0.8%)	1 (0.6%)	0.81
Hematoma requiring evacuation	1 (0.8%)	1 (0.6%)	0.81



# 72 yo male 4 weeks s/p TKA

- Did well, no periop complications
- Was sitting outside and felt sudden onset of Fever, Chills and sudden onset of pain and swelling in L TKA
- Was seen next day in the office with Fever, Pain Swelling
  - Aspiration: 32K WBC's and 92% segs
  - Purulent looking
  - Elevated CRP @ 90mg/L

# Underwent DAIR

- I and D with Poly Exchange
- Double Set up
- IO Vanco
- 6 weeks IV then Chronic Orals



# 72 yo Male s/p DAIR ?

- Presents now 2 months after TKA/DAIR.
- Completed 6 weeks IV Abx: MSSA
- Now with increasing pain and swelling in knee since stopping IV Abx.
- Elevated CRP
- Aspirate → MSSA



# PJI with Failed DAIR

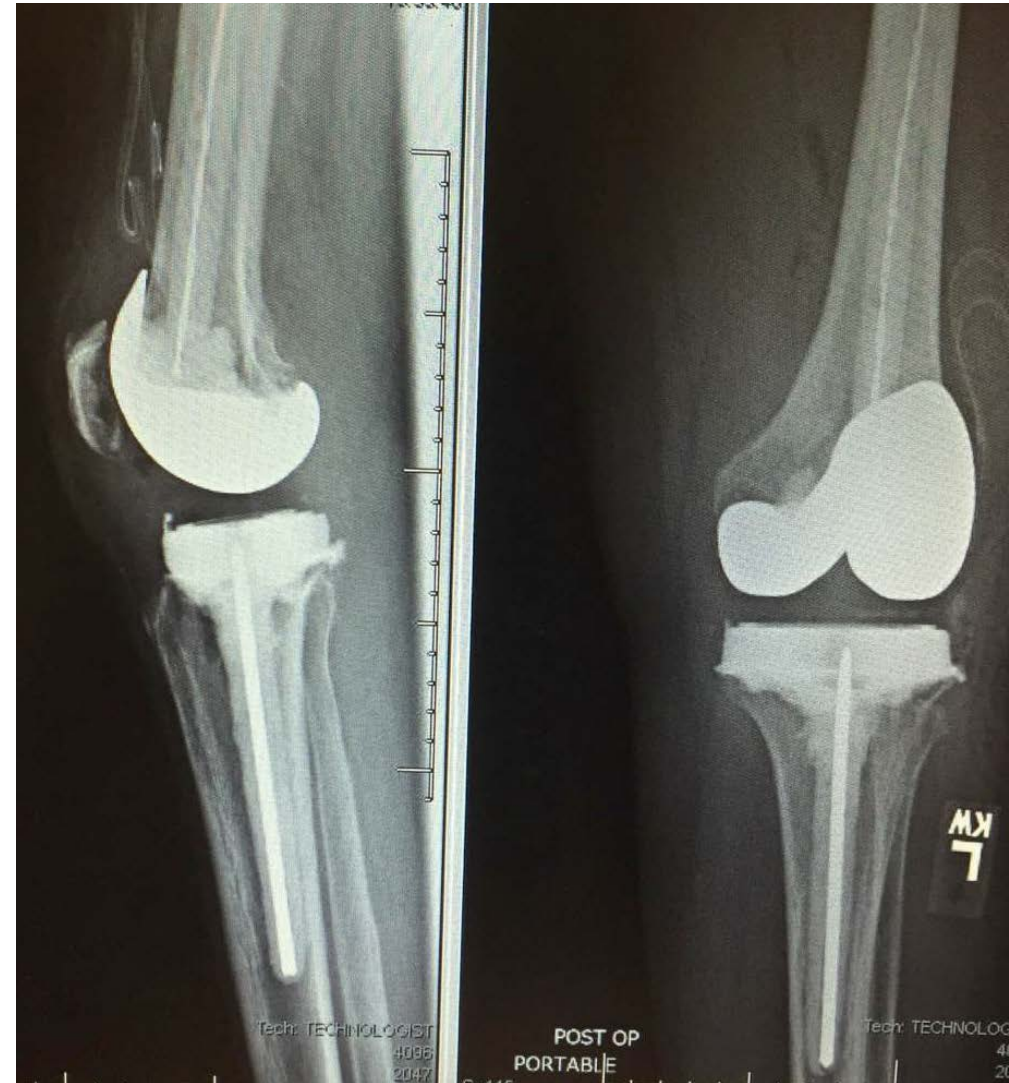
## Issues to Discuss

- Was initial treatment correct ?
  - Resection at initial presentation ?
- Repeat DAIR?
- Single Stage ?
  - Indications
- Two-stage exchange ?
  - Pearls



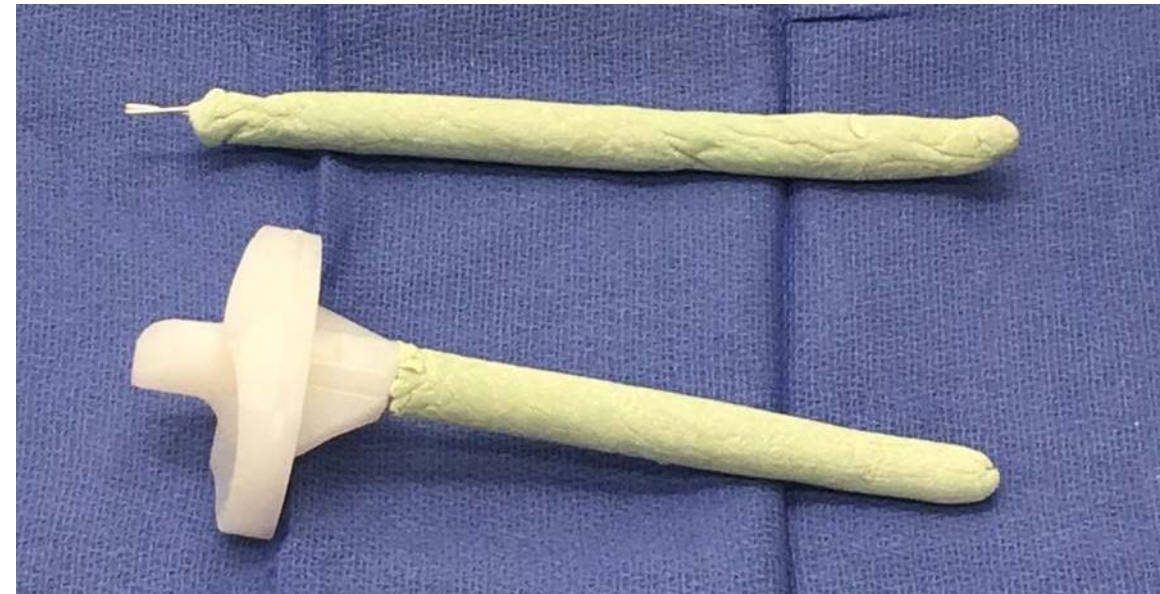
# Articulating Spacer

- 2 g Vanco
- 2g Tobra per 40g pack cement
- Real femoral component
- All poly tibia
- Dowels



# 2-Stage Exchange

- 6 weeks IV Abx
- 6 week holiday
- Reimplant if markers normalizing
- ? Chronic Suppression



# 64 yo Female s/p R THA 2009

- R Hip pain
- Fall onto leg, unable to bear weight.
- Previously no pain.
- HTN, Controlled DM

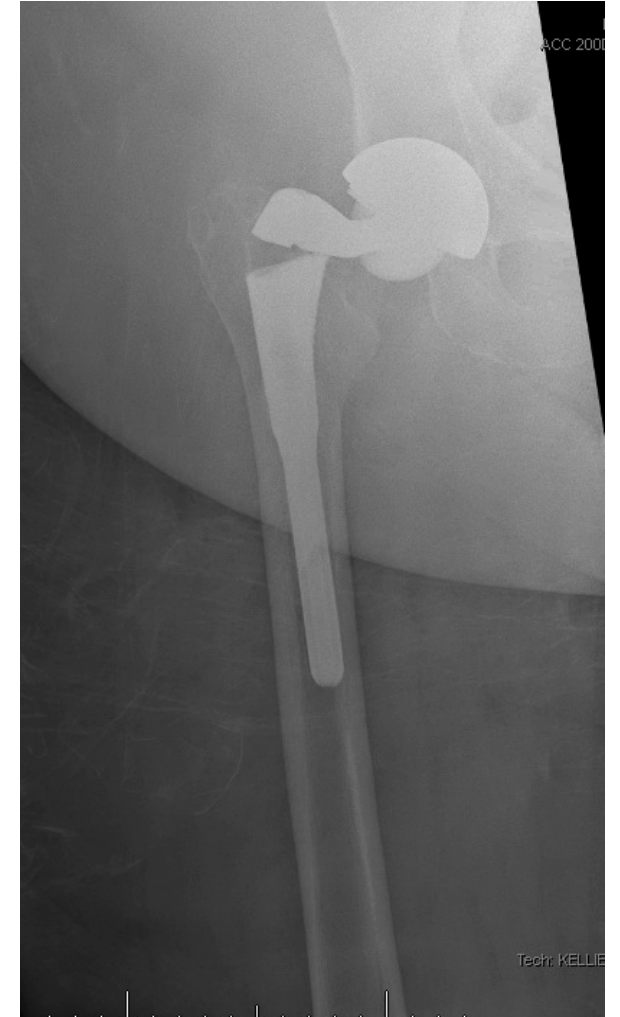


64F s/p R THA in 2009, now s/p fall.



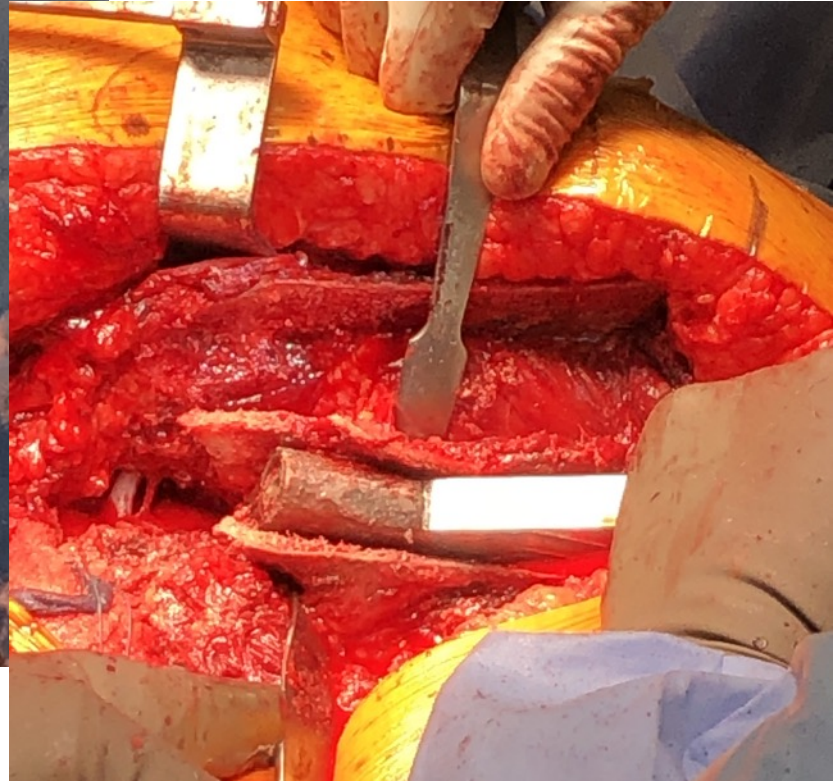
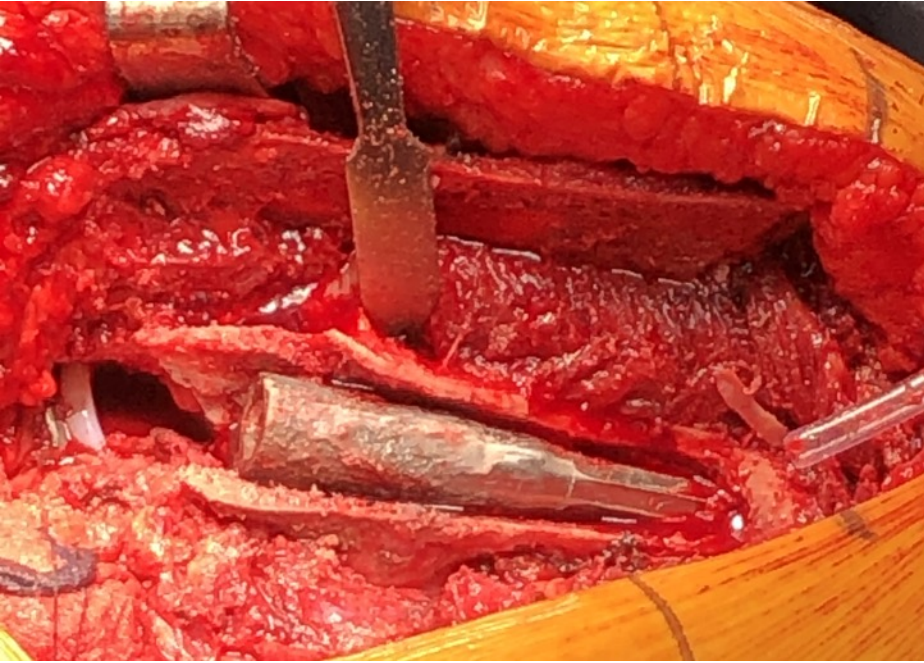
# PeriImplant Fracture Issues to Discuss

- Exposure
- Additional Imaging
- Stem removal
- Implant choice.

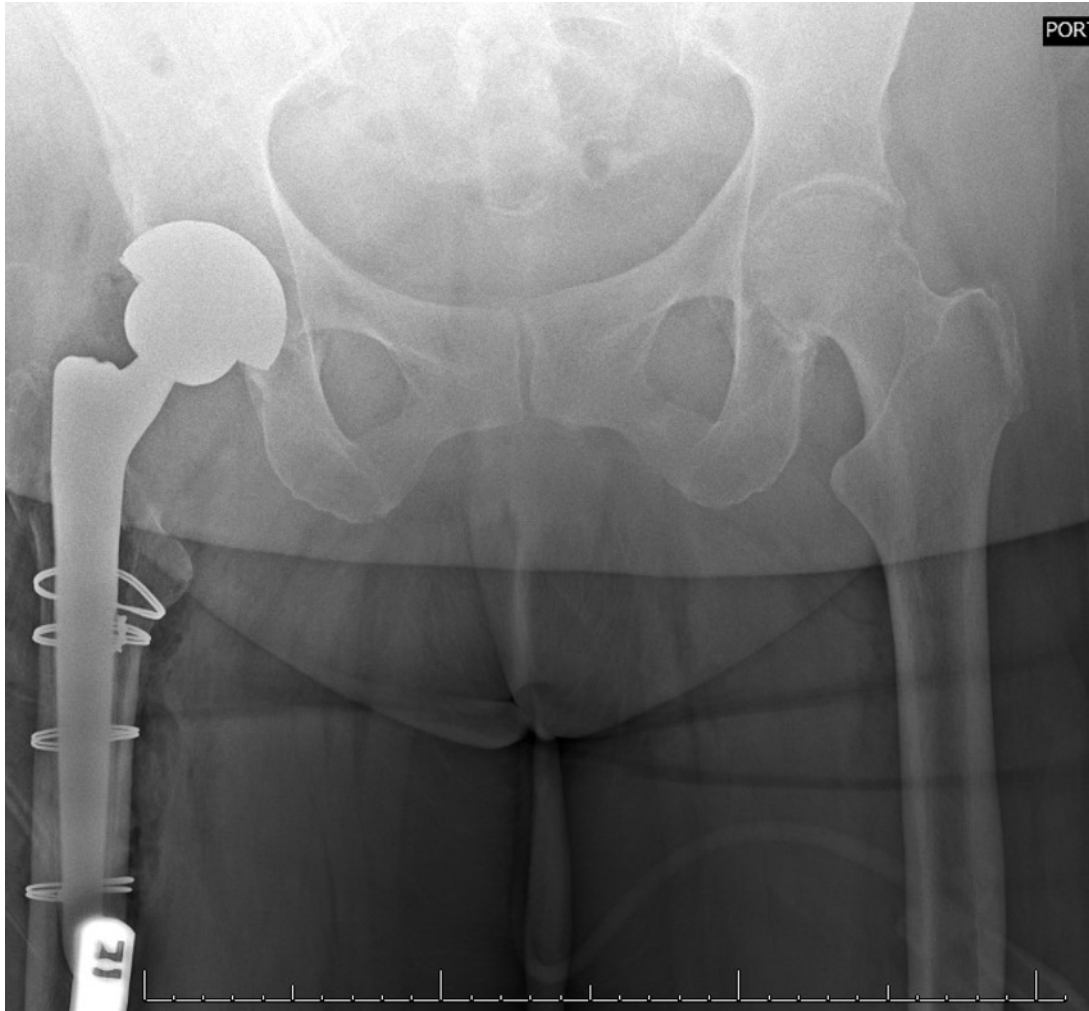




**STOP**



# Postop



# 75 yo male multiple cup revisions

- History:
  - 75M s/p L THA s/p multiple cup revisions (last in 2010)
  - Few months of progressively worsening left hip pain with any ambulation
  - Also s/p R THA several years ago, no pain in R hip.
- PMH:
  - CAD s/p stents, DM, HTN
- PSH:
  - B/I THA s/p L revision THA
  - Cholecystectomy
- Rx:
  - Metformin, Telmisartan
- Social Hx: Barber, Non-smoker, rare ETOH.
- Allergies:
  - Morphine
  - Latex

**Exam:**                      Ht: 5'9"              Wt: 146lbs              BMI: 21.6 kg/m<sup>2</sup>

Trendelenburg gait

Incision: Well healed posterolateral hip incision

Pain with any left hip ROM

Vasc: palpable DP/PT

Difficulty with hip abduction

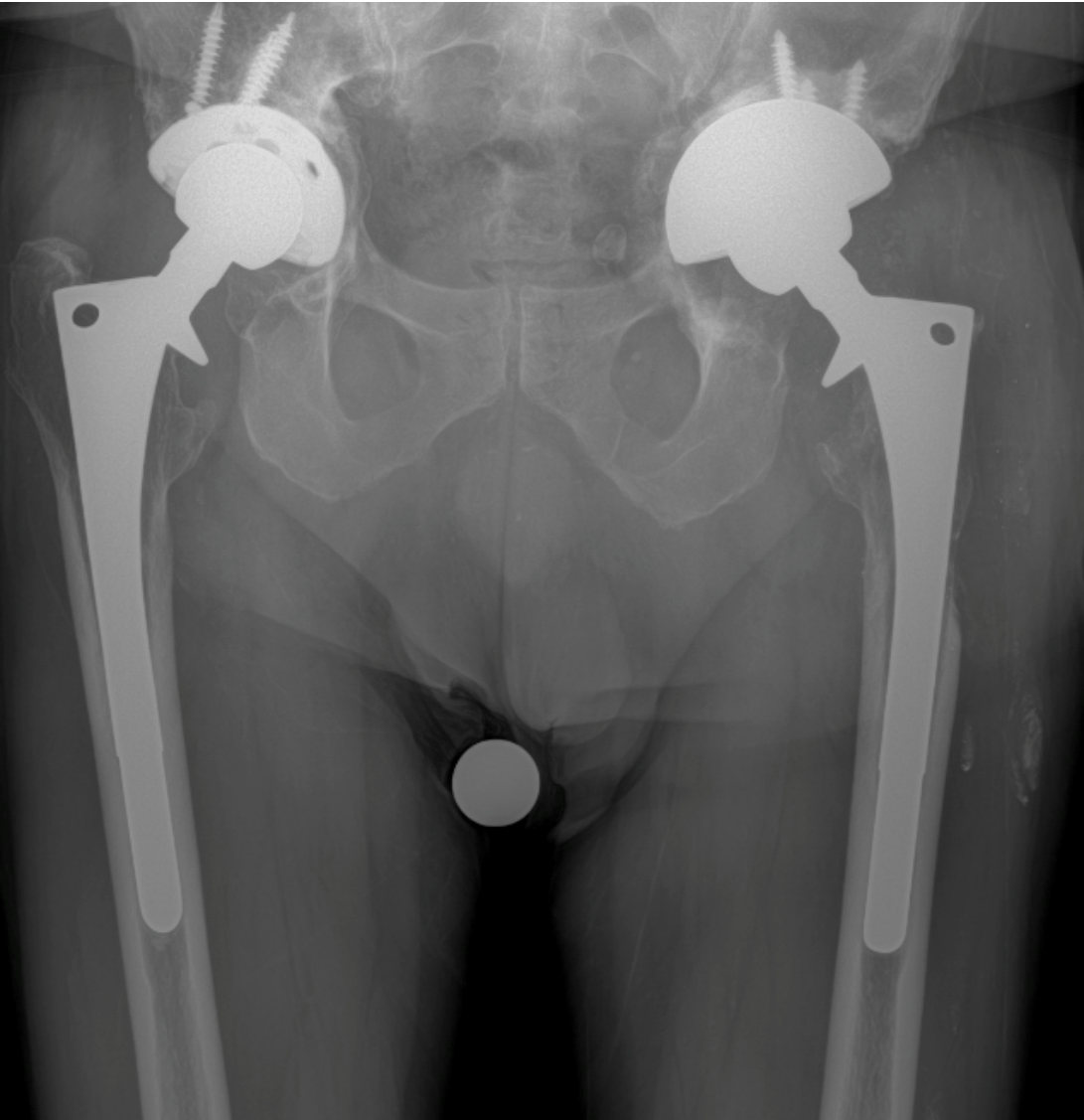
Motor: 5/5 Quad/hamstring

Sens: Intact distally

ESR 2 (7/2020)

CRP <0.5 (7/2020)

2/2019

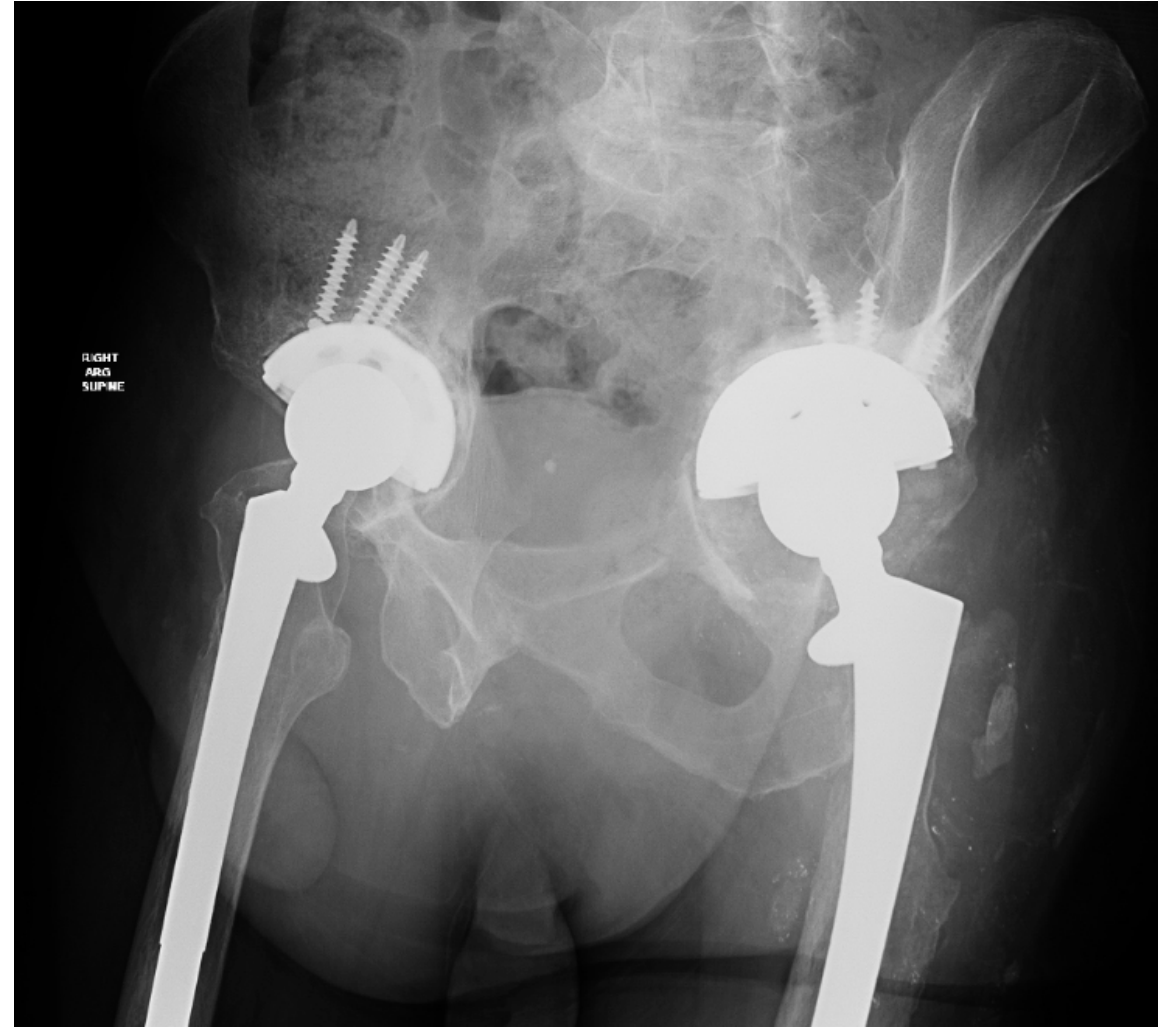




7/2020



7/2020



9/2020



9/2020



# Pelvic Discontinuity

## Issues to Discuss

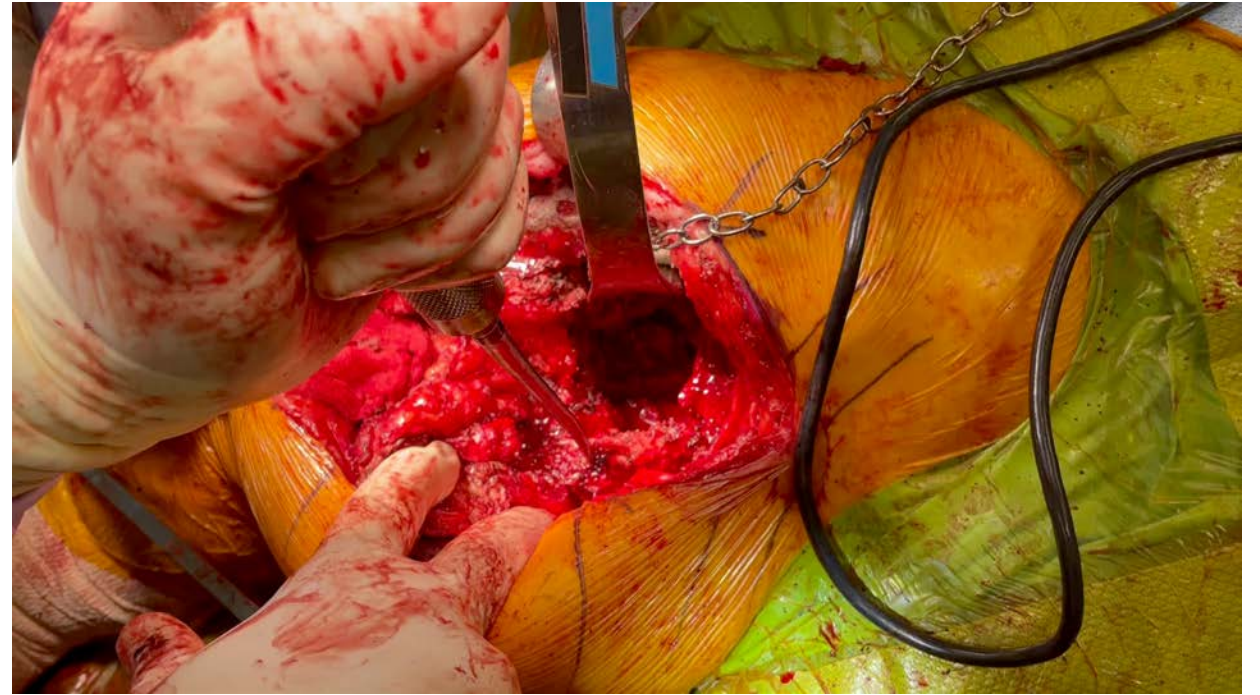
- Exposure
- Femur ?
- Options to Manage Discontinuity
- Level of Constraint



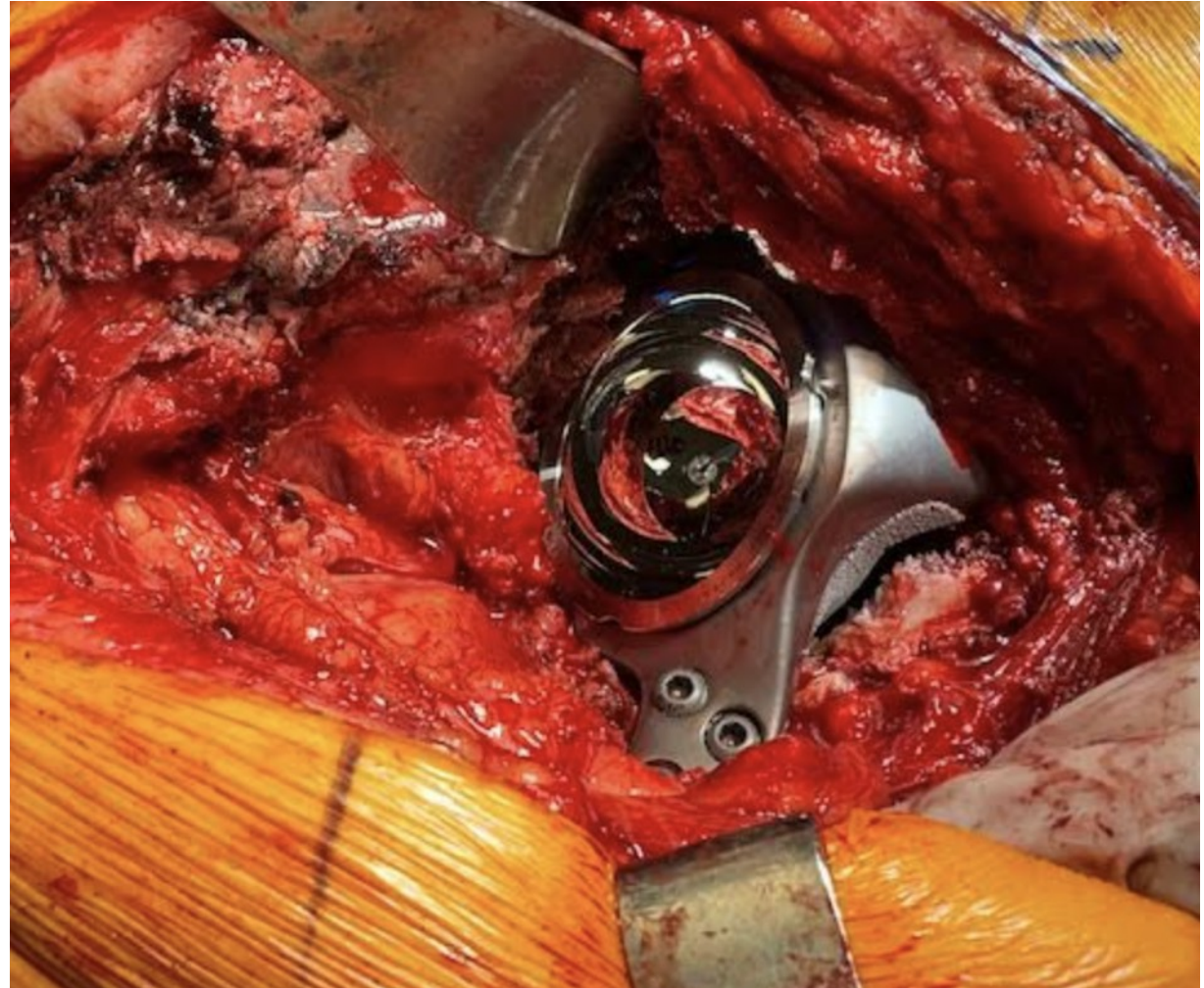
# Intraop



# Intraop

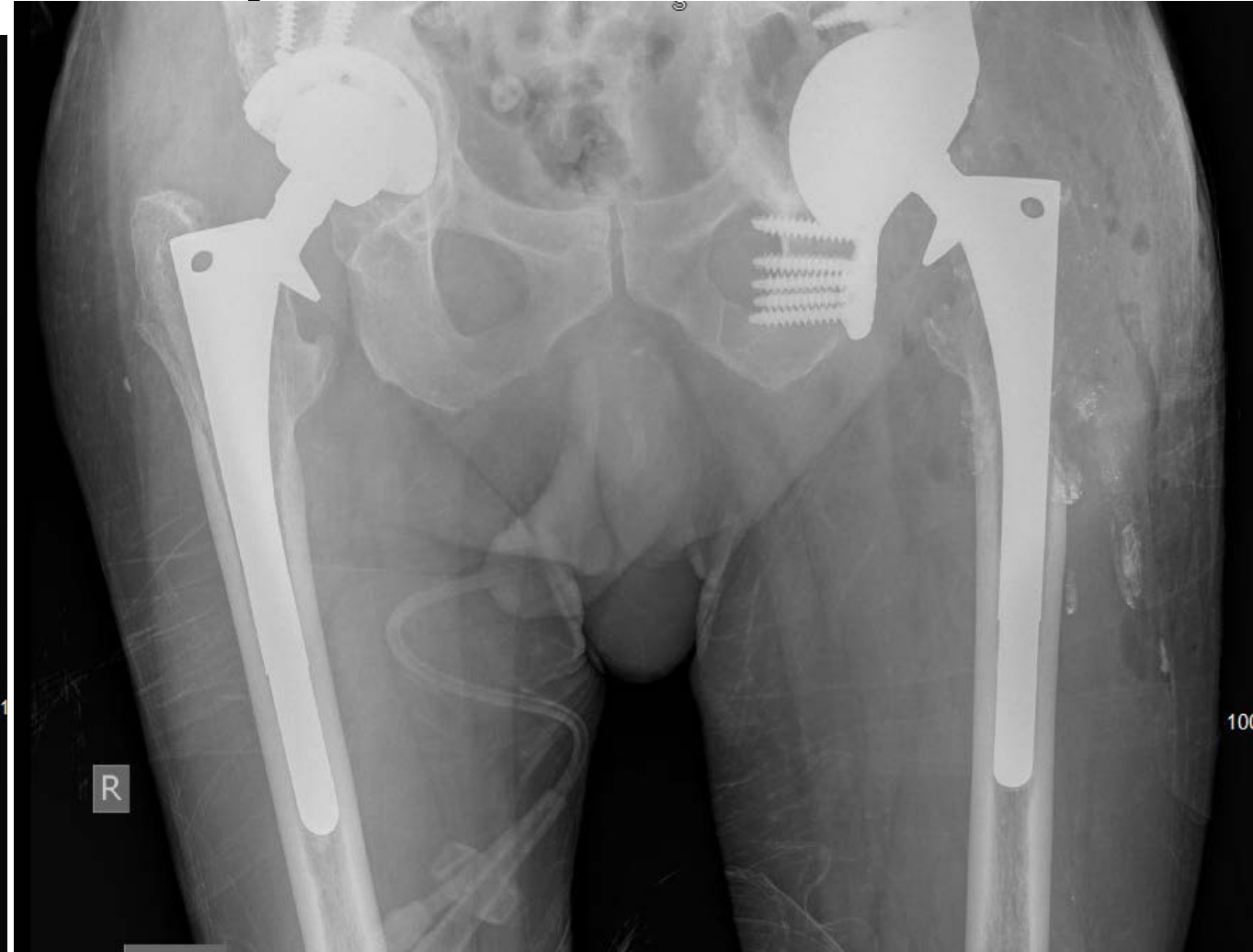


# Intraop





# Post-Op



# Pelvic discontinuity treated with custom triflange component: a reliable option

Michael J Taunton<sup>1</sup>, Thomas K Fehring, Paul Edwards, Thomas Bernasek, Ginger E Holt, Michael J Christie

- Retrospective Review 57 patients – all pelvic discontinuity revised with custom triflange
- Min f/u 2 yrs (Range 2 –18 yrs). Looked @ survivorship, discontinuity healing, HHS, cost
- 98% free of revision for aseptic loosening, 65% free of revision for any reason
- 81% stable triflange component, healed discontinuity
- Mean HHS 74.8
- Avg cost ~\$11,250. Similar to TM cup cage construct (\$12,500)

## Midterm Survivorship After Revision Total Hip Arthroplasty With a Custom Triflange Acetabular Component

Brian P Gladnick<sup>1</sup>, Keith A Fehring<sup>2</sup>, Susan M Odum<sup>2</sup>, Michael J Christie<sup>3</sup>, David K DeBoer<sup>3</sup>,  
Thomas K Fehring<sup>2</sup>

- Retrospective Review 73 patients – all revised with custom triflange
- Min f/u 5 yrs (Range 5-12 yrs).
- 15 patients (20%) revised (6 instability, 8 infection)
- Only 1 triflange determined to be radiographically loose

# A Case I need help with 76 year old Female...

- CC: Painful L TKA
- History:
  - 76 yo female w/ hx of R TKA in 2015
  - No peri-op complications
  - Mild Pain
  - Some swelling
  - No F/C/NS
- PMH: DM, HTN, lumbar stenosis, RA
- PSH: R TKA, C-section
- Rx: Lisinopril
- Allergies:
  - NKDA

**Exam:**

Ht: 5'4"

Wt: 160

BMI: 27.6

- Sensation is intact to light touch L4 through S1 dermatomes
- Incision is well-healed. Alignment clinically is neutral. Palpable DP & PT pulses. Hip moves through pain-free range of motion.
- Knee range of motion is painless 0-120. She does have a modest effusion, no warmth no erythema. Her knee is completely painless with exam and has good stability

7/10/2015  
(post-op)



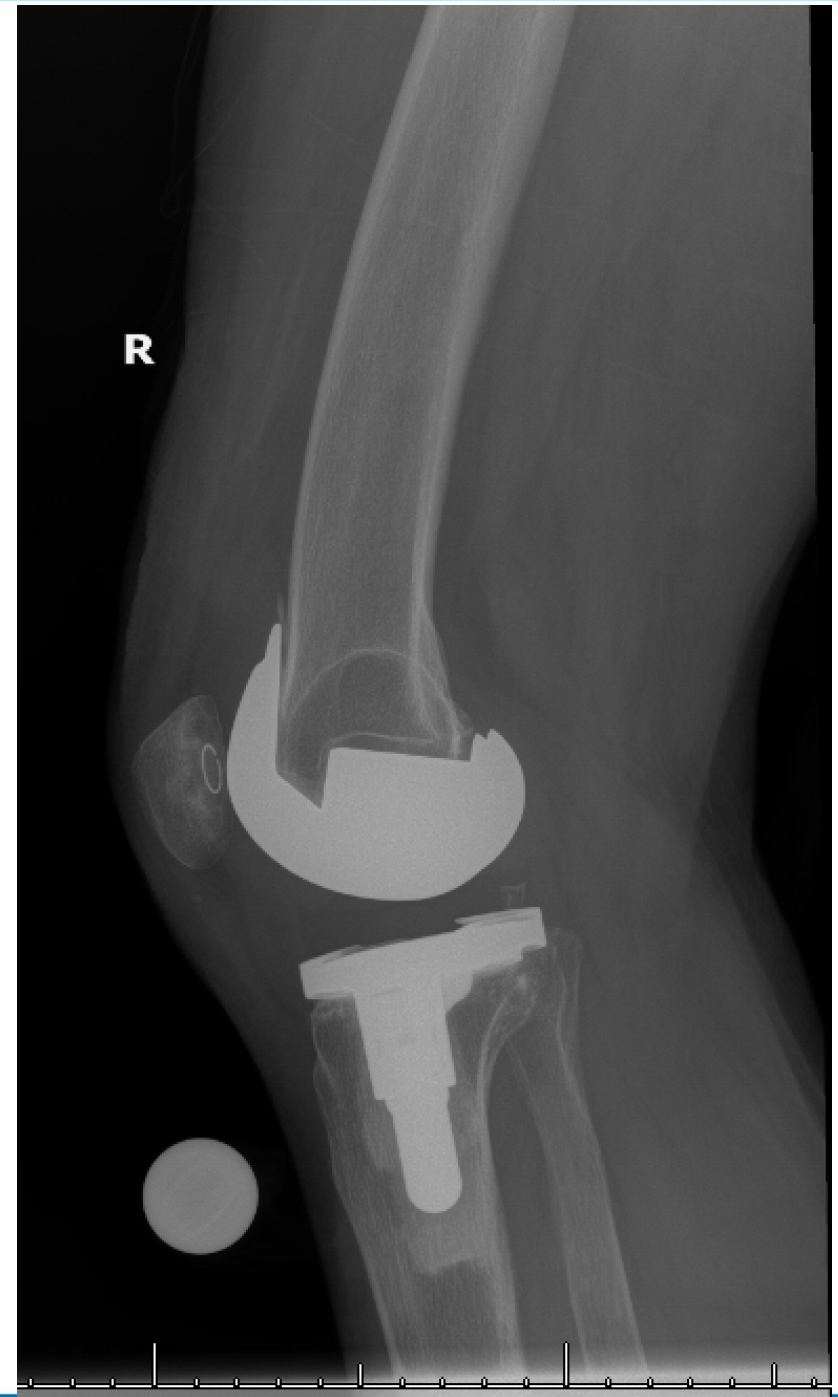
DMB  
R

2 year post-op  
Asymptomatic



R  
DMB

5 year post-op:  
Differential Dx ?





# Lab Evaluation

**Labs:**

CRP: <0.5mg/dL ESR:11 (NL 0-30)

Aspirate: 400 nucleated cells, 30% PMN's

Culture: Paenibacillus species

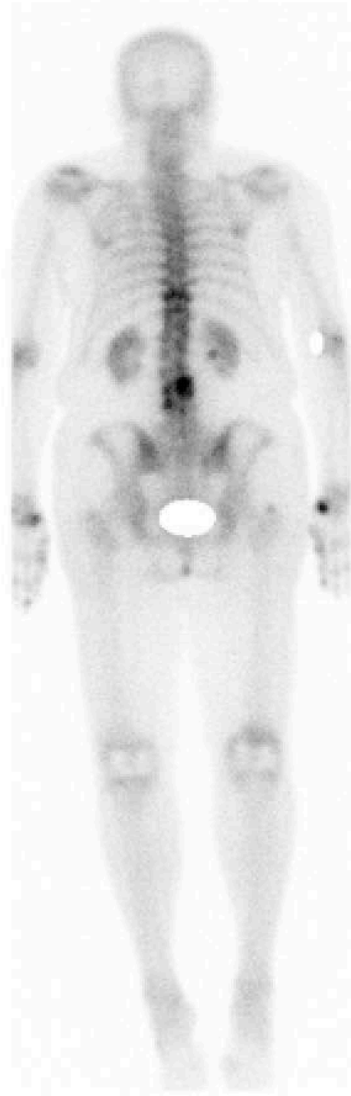
Aspiration Repeated:

Aspiration #2: **CX NGTD**

## Bone Scan



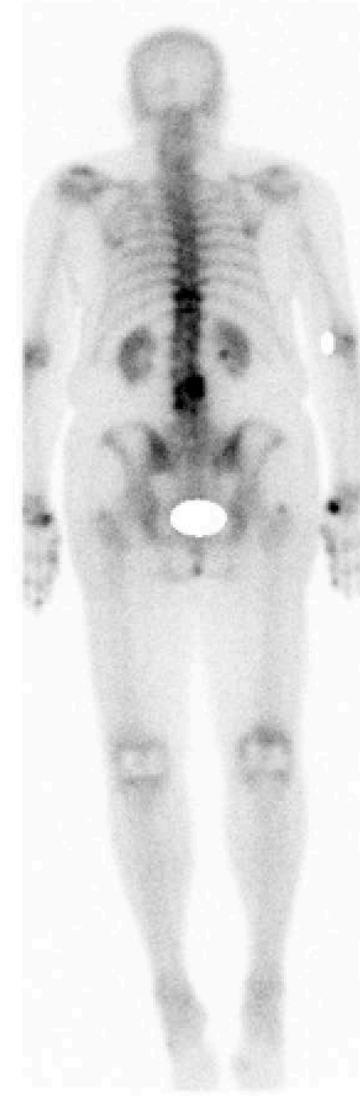
RT ANTERIOR LT



LT POSTERIOR RT



RT ANTERIOR LT



LT POSTERIOR RT

CT  
scan



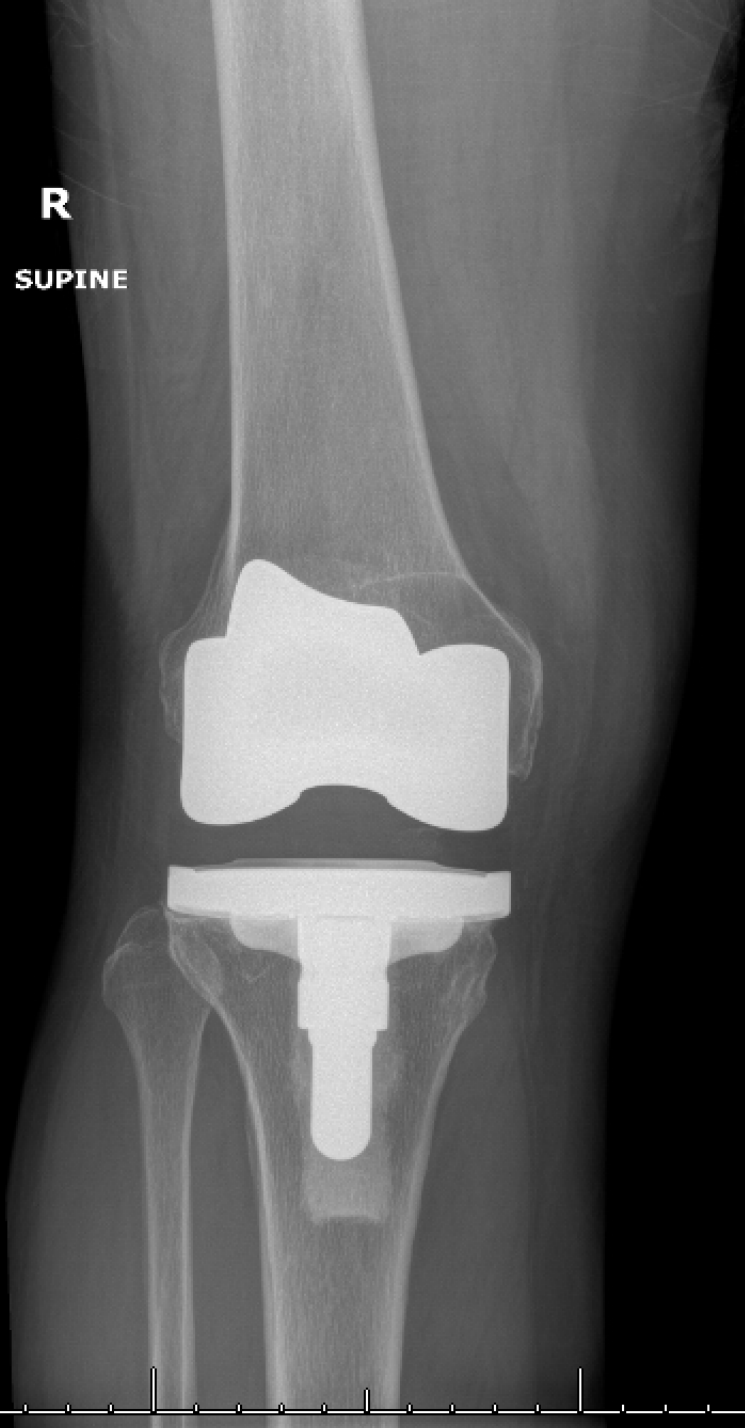
Plan?

Other Tests ?

Open Bx

Revision  
Liner +/- Graft  
Femur?  
Everything ?

R  
SUPINE



R

