

# COMPLEX KNEE AND HIP ARTHROPLASTY

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OUHSC & VAMC

# Disclosures

- ▣ I am a consultant for Aesculap implants Inc.

# Case 1- Oliver

## Patient findings

- ▣ 54 yr old single male
- ▣ No h/o RA , Charcot, CPPD
- ▣ Previous ambulator
- ▣ Progressive worsening of bil knee pain with deformities
- ▣ Knee gives out can hardly walk
- ▣ Wheelchair bound
- ▣ Right knee
  - 30 varus, 10 -90 flexion
- ▣ Left knee
  - 40 valgus, correctable partially
  - 0-90 flexion

# Pre-op standing films





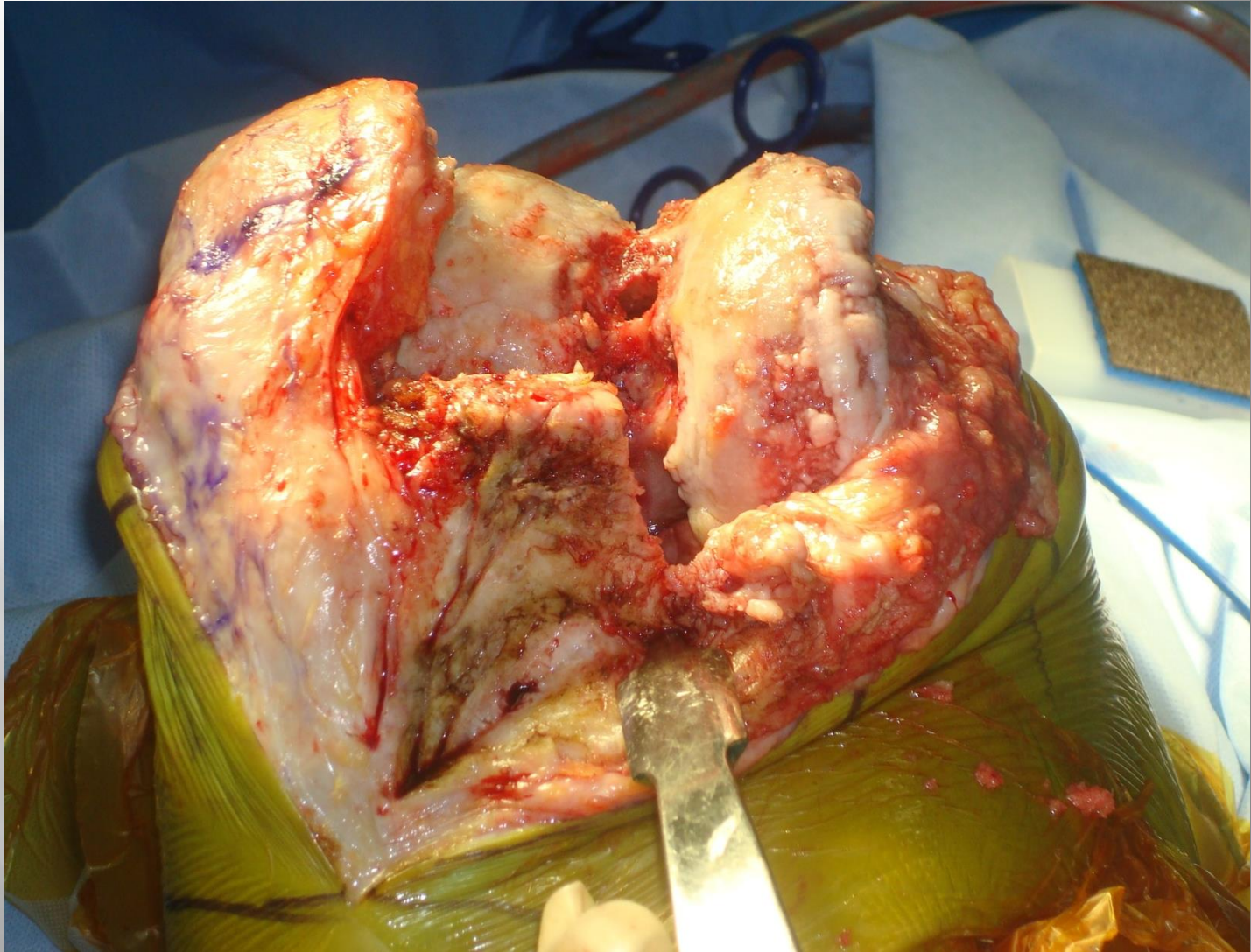
# Pre-op



# Pre-op pictures

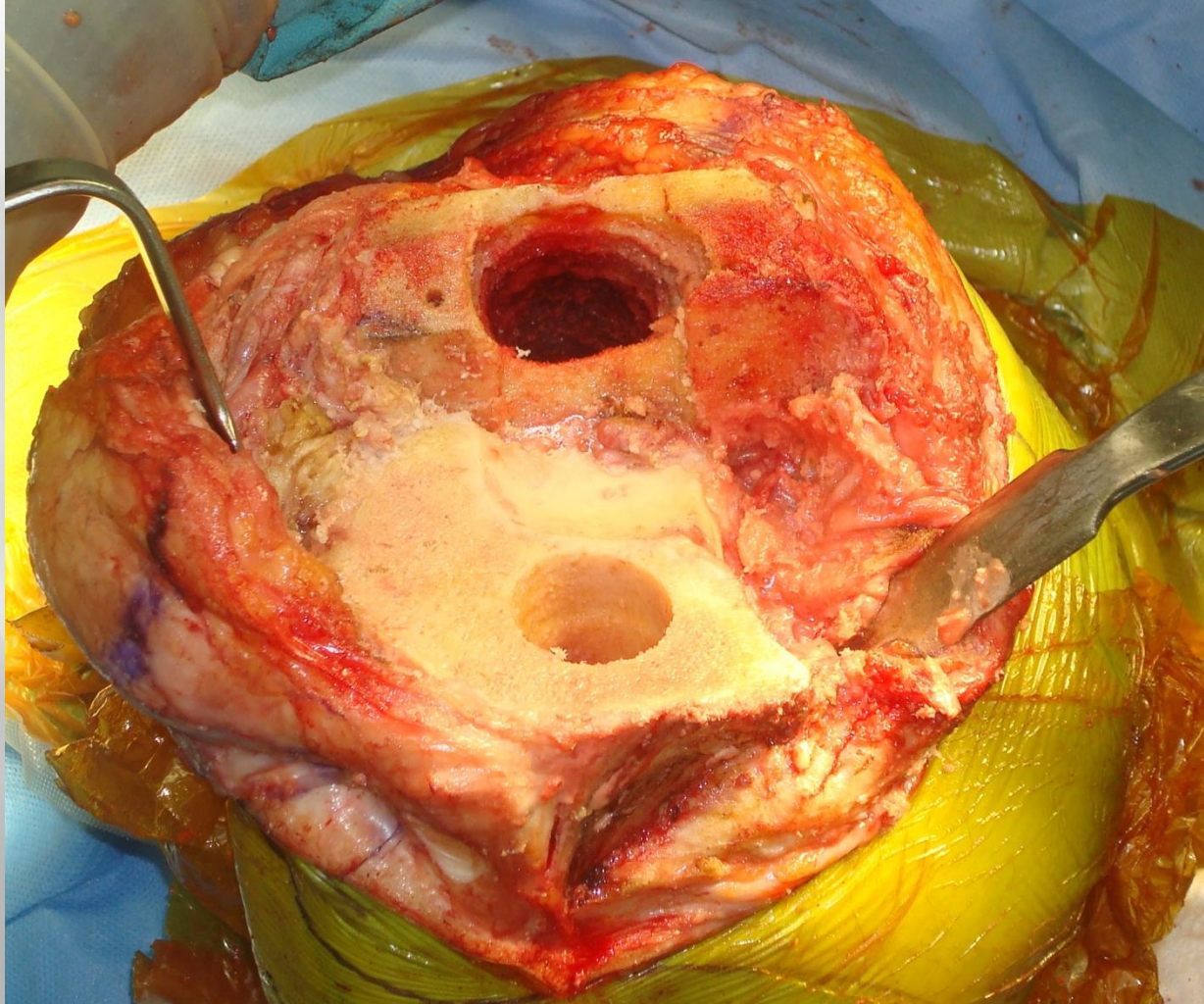


# Intra-op pictures



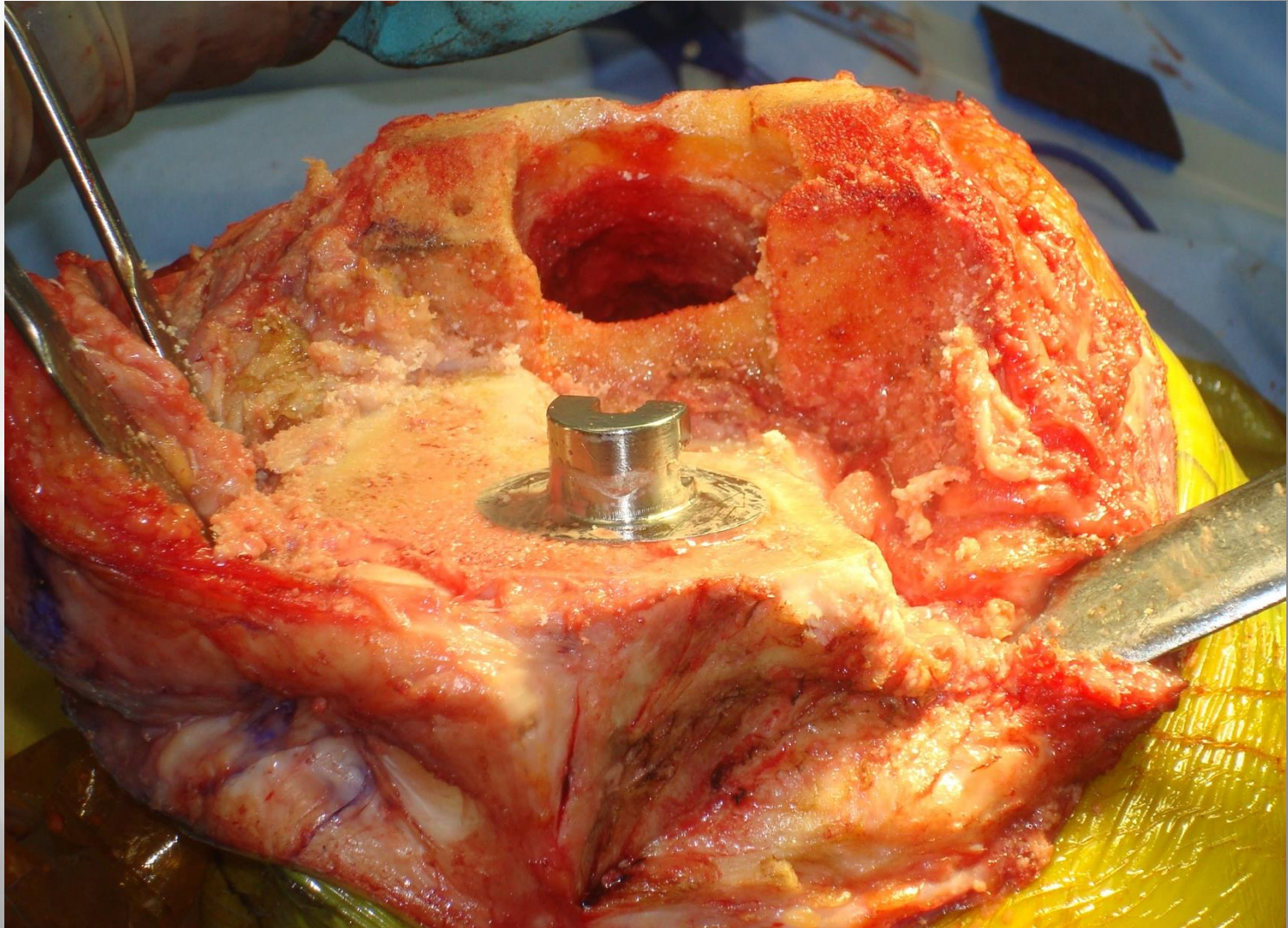


# Medial + posterior Tibial bone defect



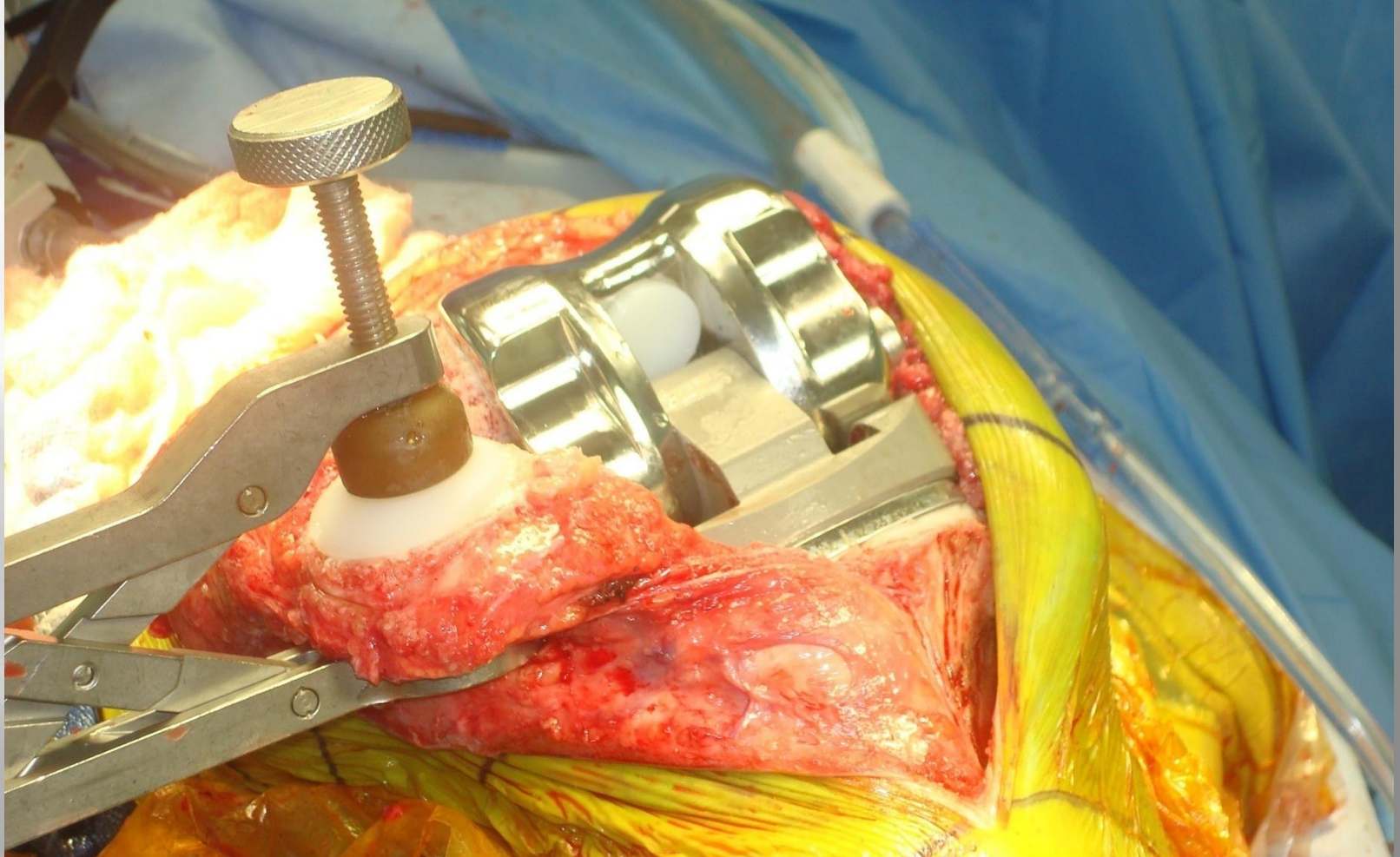


# Tibial porous sleeve to support the tray





# Finished product- rotating modular hinge with porous sleeve



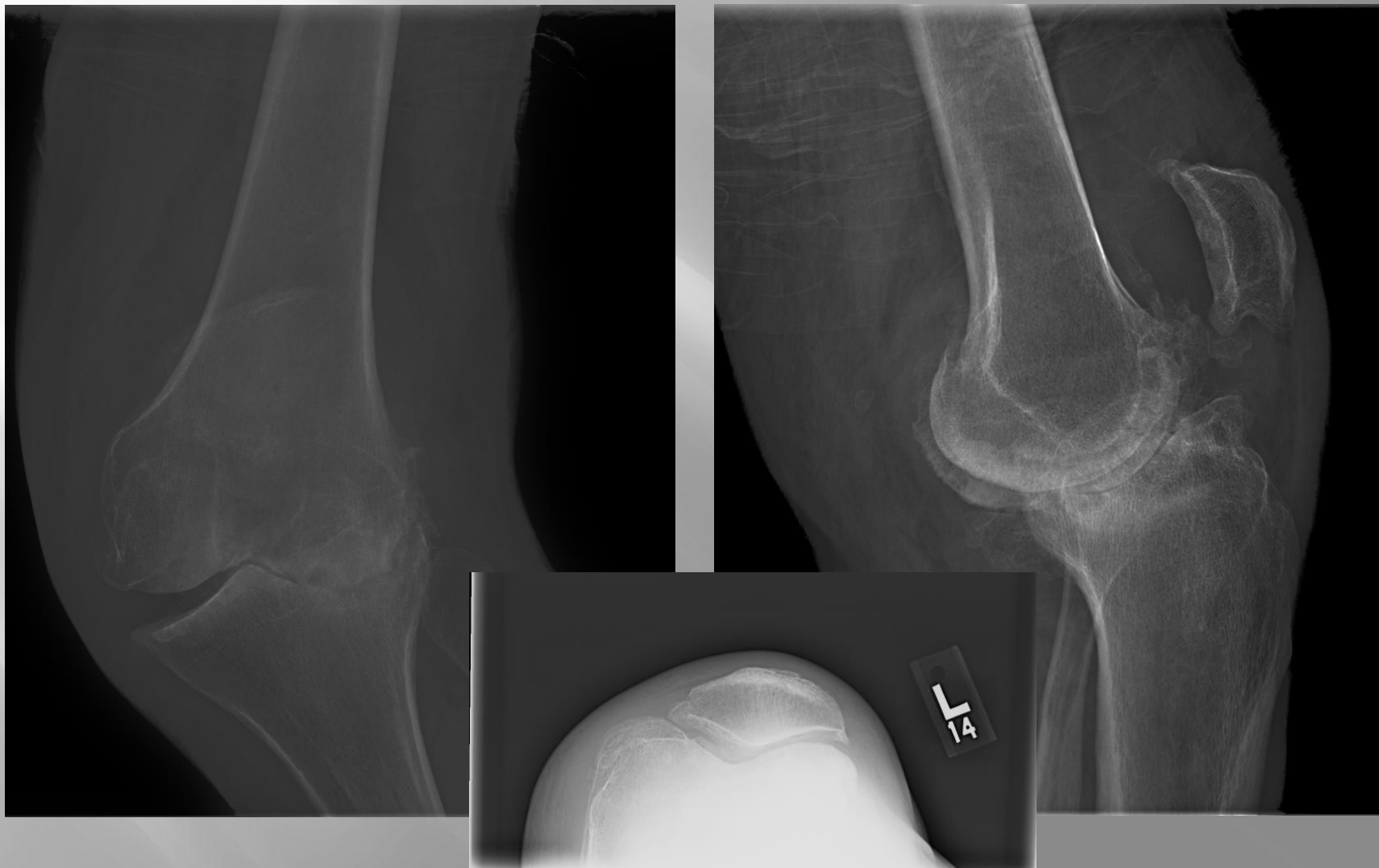


# Post-op films

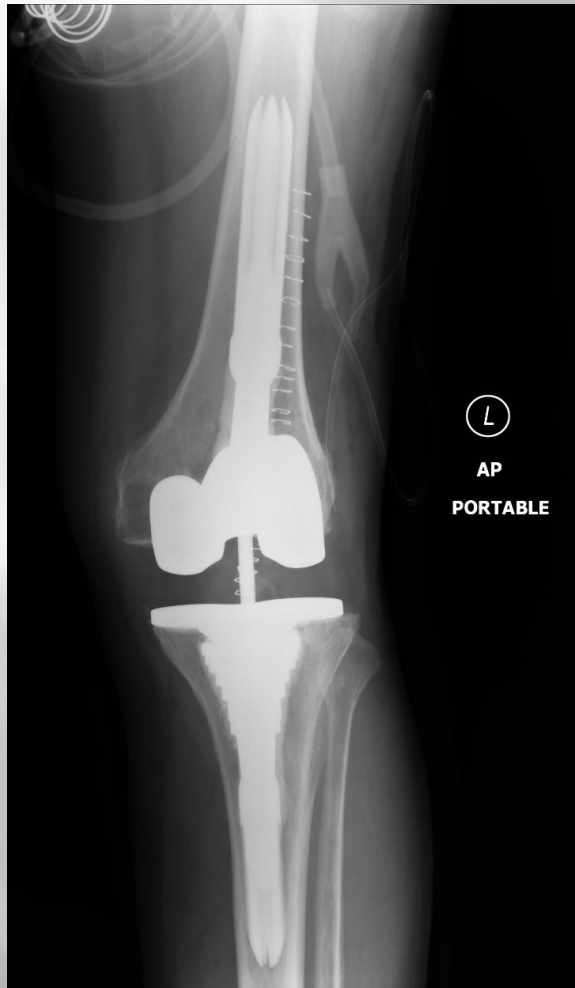


▣ Has a matching left knee  
too.....

# Left side- standing



# Post-op films



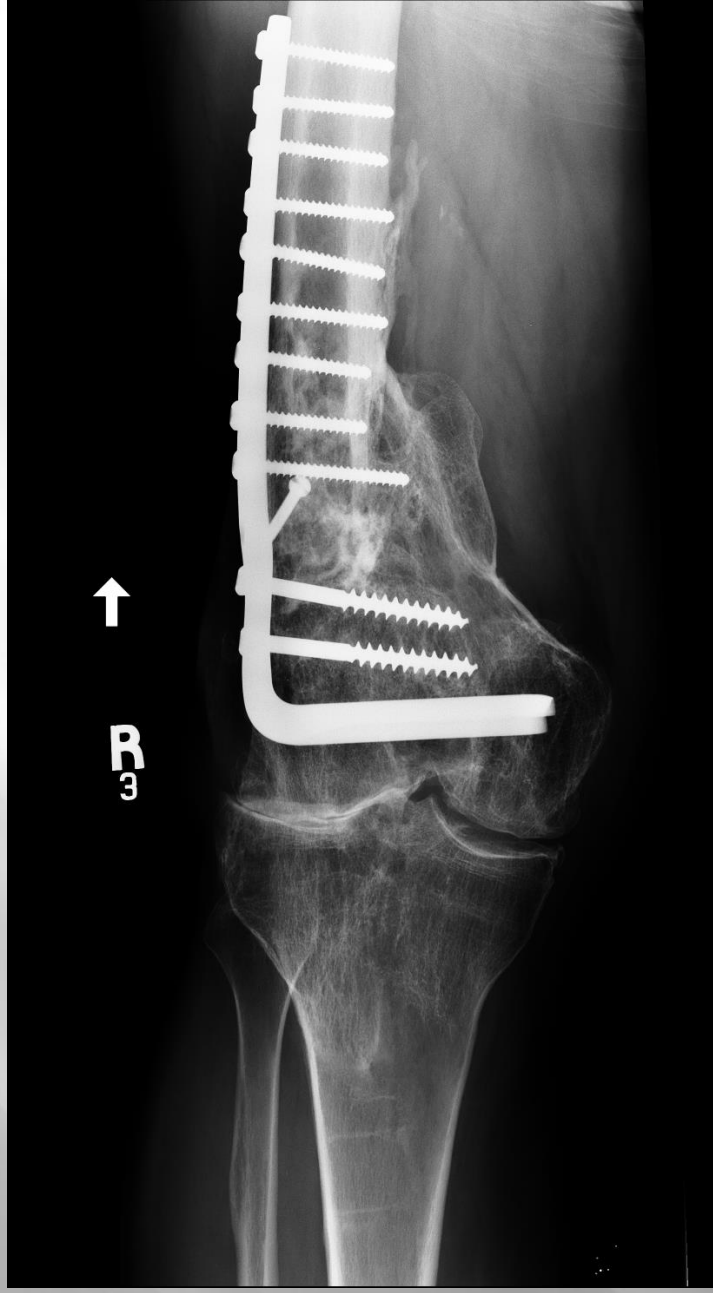
## Case 2- Williams

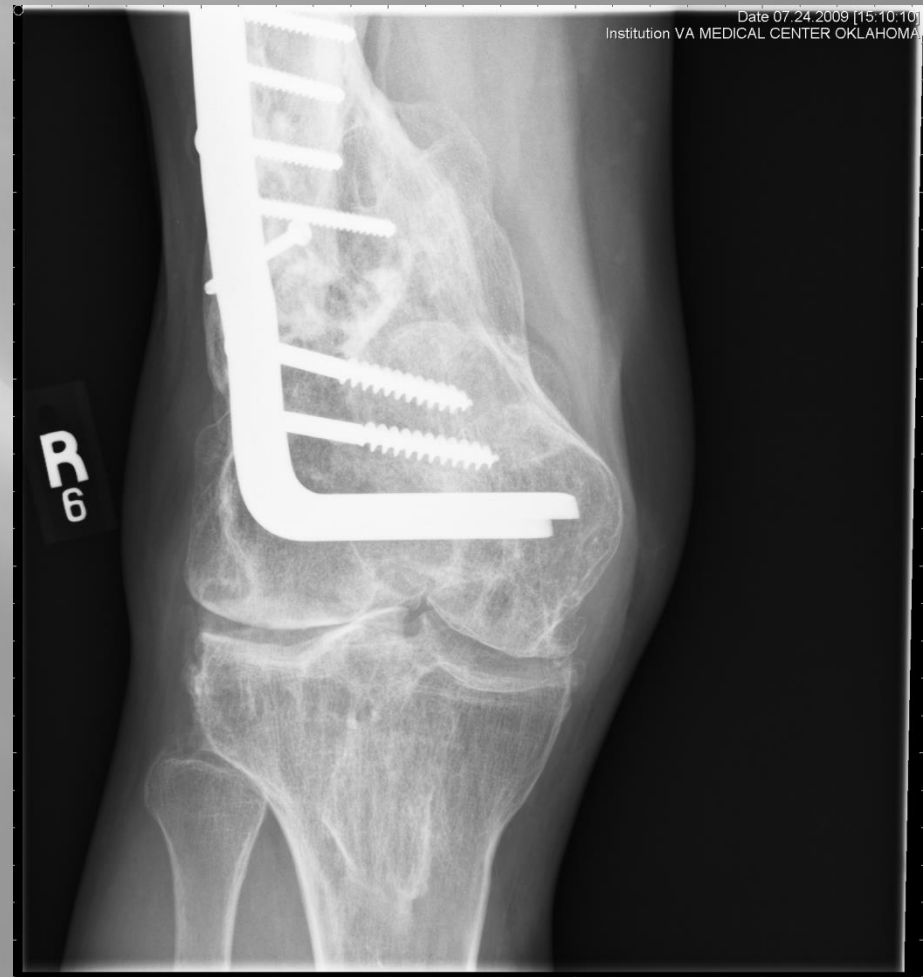
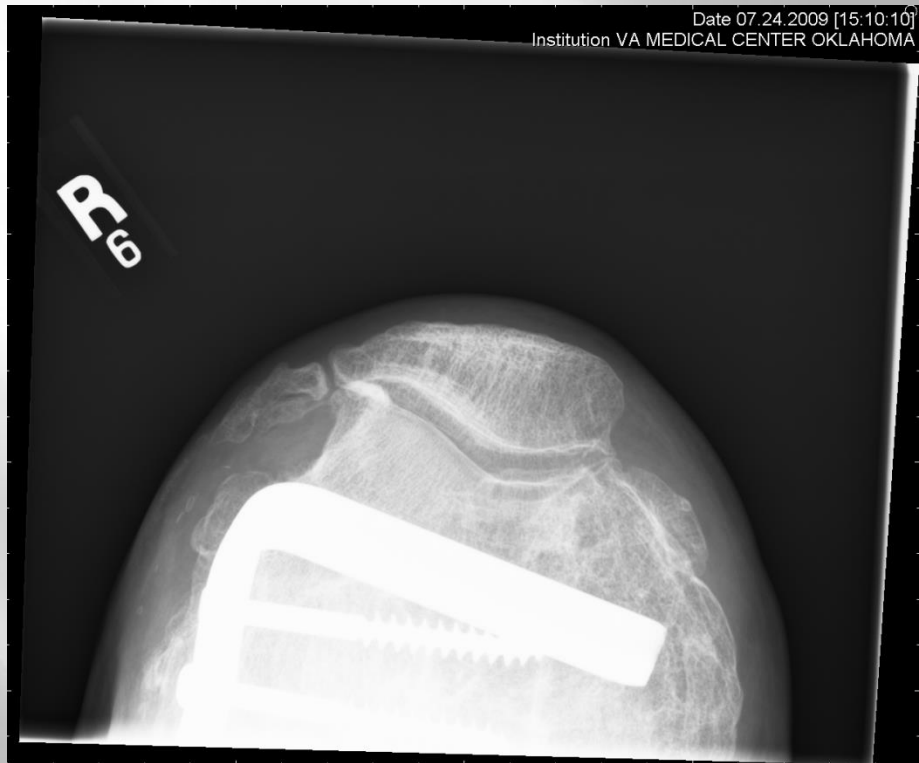
- 52 yr male, MVA in 1978, distal femur fracture T/t with IM nail.
- It broke in 1979 and was fixed with a blade plate.
- Has a large U shaped incision with tubercle osteotomy for fixation
- He was told that his knee was fixed in a rotated position.
- He developed foot drop after surgery in 1979
- He denies any symptoms of infection
- Re-broke his femur in 1982 and t/t in a cast
- Presents now with severe knee pain

# Physical examination:

- Antalgic gait with foot drop
- U shaped incision over the knee which extends laterally about 20 cms and medially 5 cms above the patella- suggestive of tubercle osteotomy with quad flip for exposure. There is 10 cm skin bridge between the 2 limbs of the incision
- 15-20 degrees of internal rotation deformity of the knee with lax/stretched lateral ligaments.







# Computer Assisted

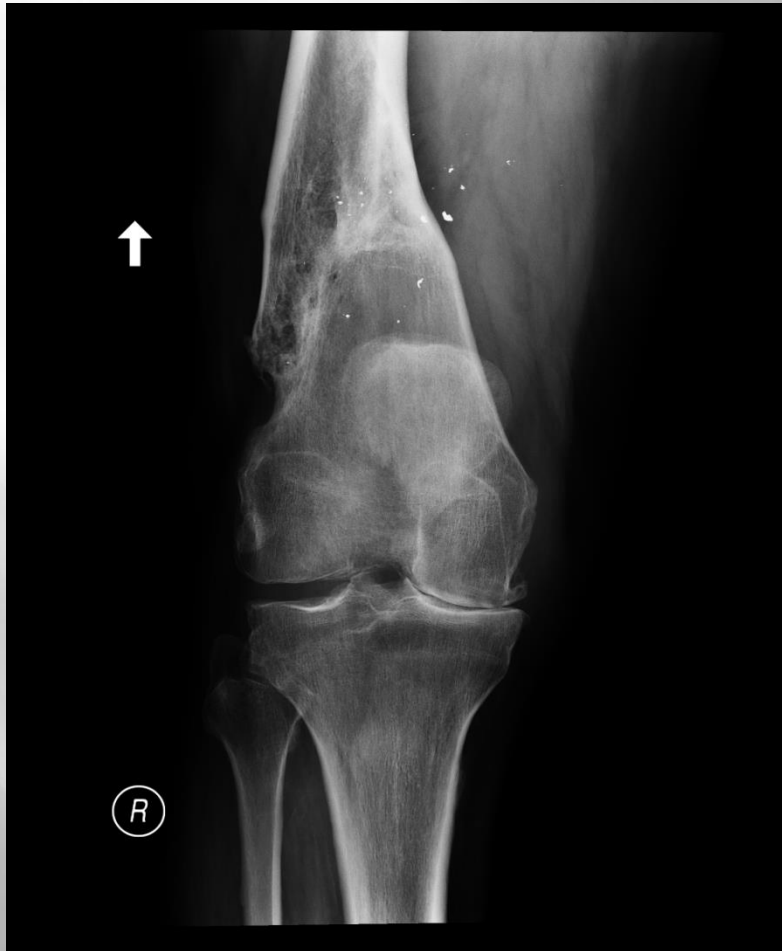
Tibia- few degrees of varus- the bone was too soft. TC III as the LCL was too lax/damaged from multiple surgeries



# 3 month FU



# Case 3- Burchardt- 62 yr male femur malunion



# Computer assisted TKA- Post-op





# Case 4- Reece

- ▣ 65 yr male
- ▣ MVA 07
- ▣ Bil femur and tibia #'s
- ▣ Non-union left distal femur
- ▣ Sept 08- iliac crest BG and BMP sponge
- ▣ Dec 09, felt a pop with prominence on the lateral side
- ▣ Knee ROM 0-95 flexion
- ▣ Good distal circulation
- ▣ No neuro deficit

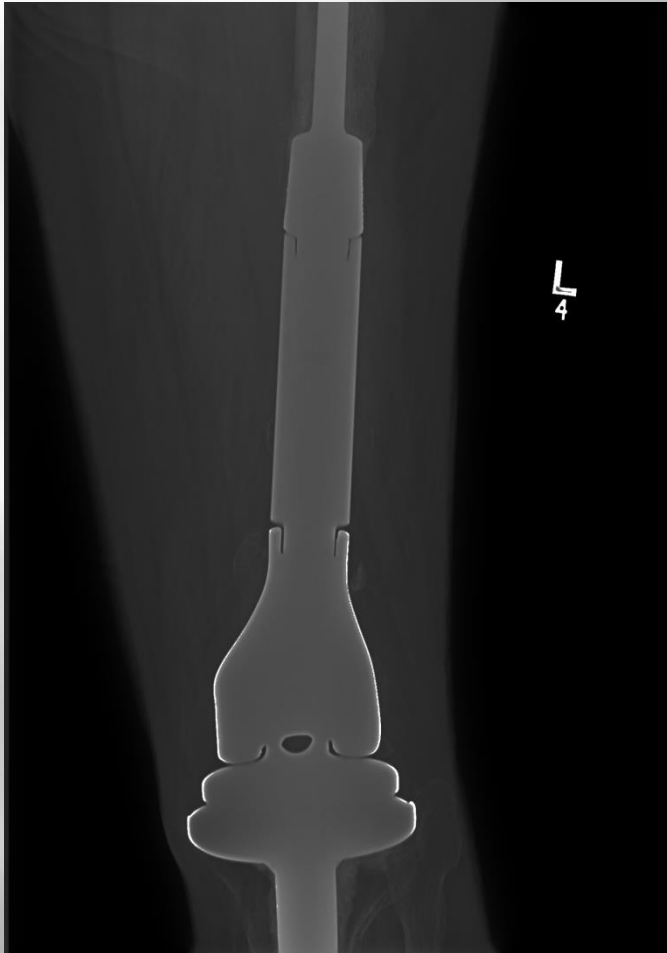
# Left leg

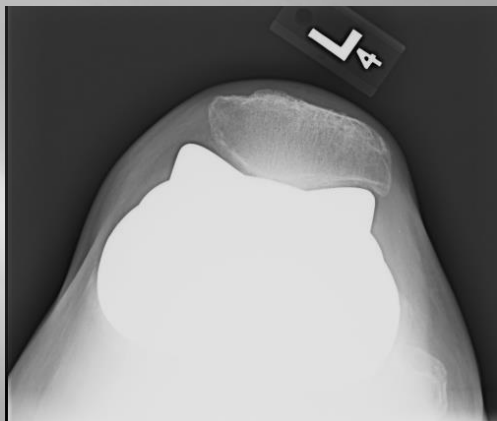


# Left leg



# Post-op films





# Case 5-Brown

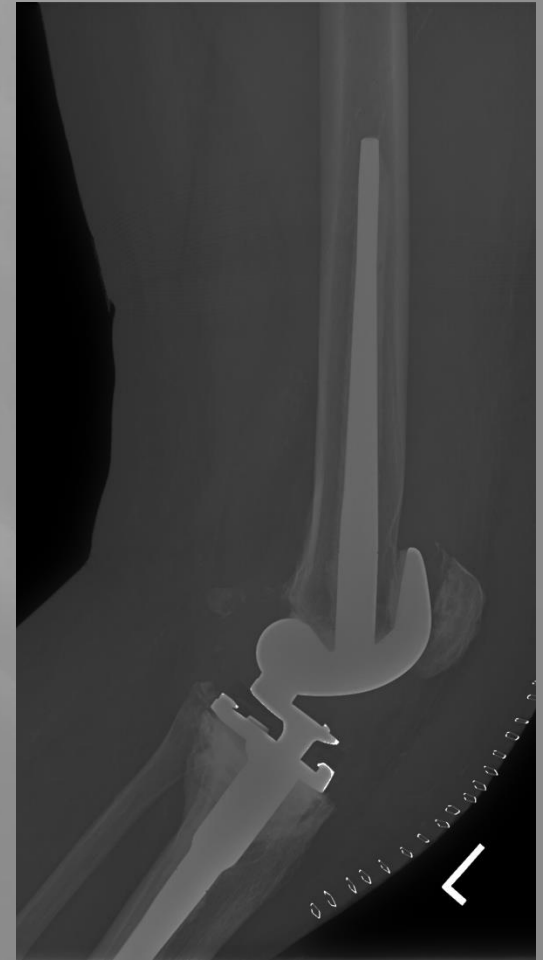
- ▣ 75 yr male underwent left TKA in 03
- ▣ Over last 2 yrs has noticed increased pain with deformity
- ▣ 30 varus deformity-partially correctable
- ▣ 15 to 90 flexion
- ▣ Lab markers wnl



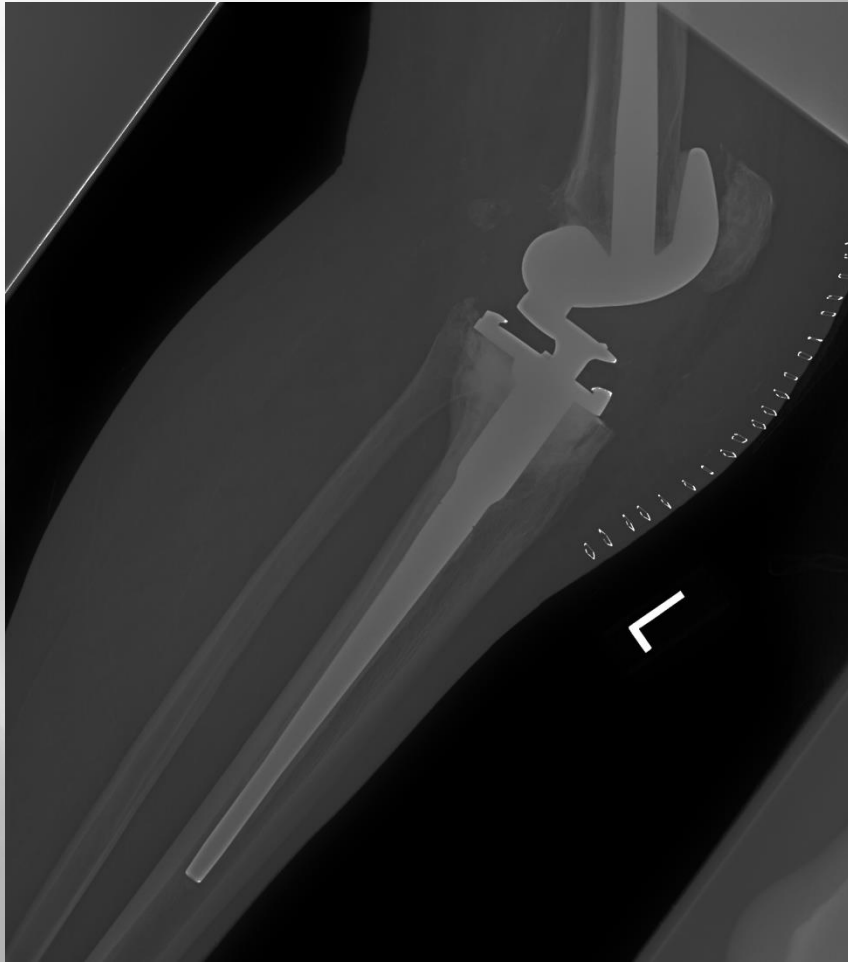
# Case 5 contd.



# Post-op films- case 5



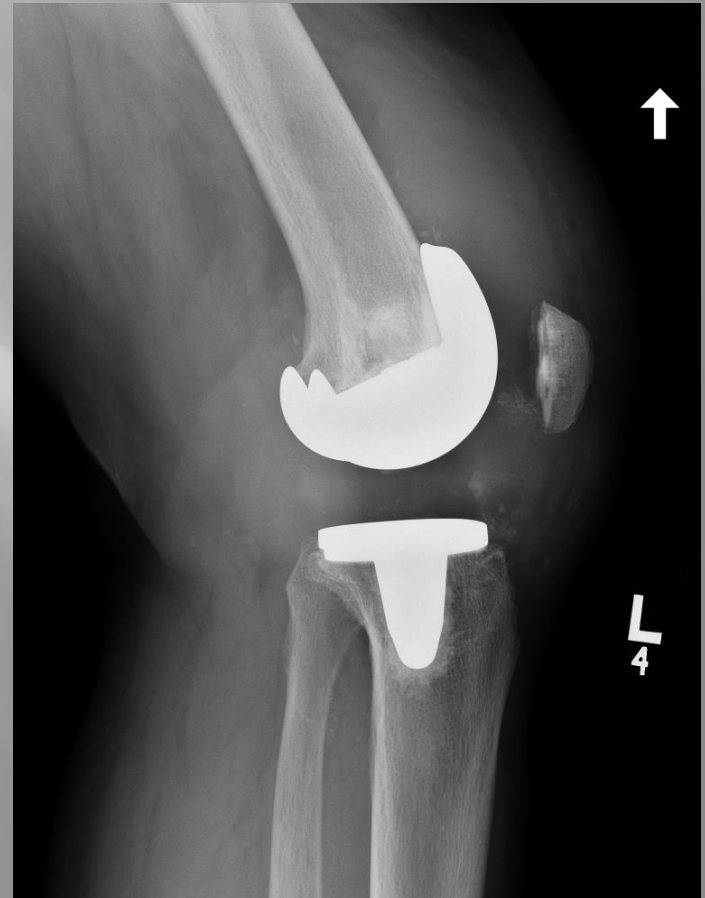
# Post-op films case 5



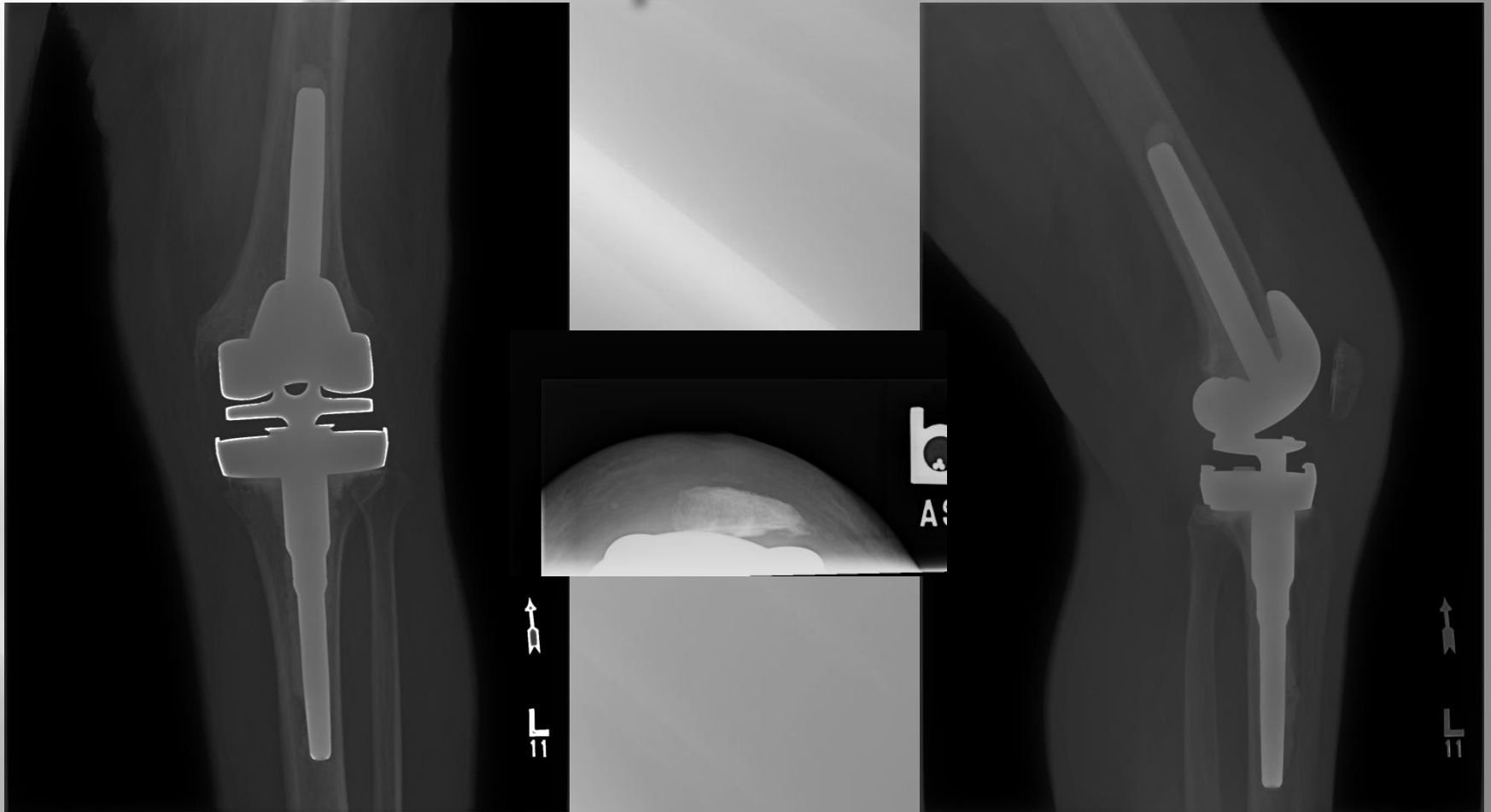
# Case 6- Ortiz

- ▣ 62 yr male underwent L TKA in 03
- ▣ Unstable, underwent Revision in 04.
- ▣ Complicated by Infection
- ▣ Poly-exchange and iv antibiotics
- ▣ Knee unstable since
- ▣ PE: Global Instability
- ▣ BMI 48.4
- ▣ Lab markers wnl

# Pre-op films case 6



# V Constrained not enough- jumping his post... Hinge Component – case 6



# Cox- Failed Revision - case 7

- ▣ 60 yr male underwent right TKA in 04
- ▣ Developed infection few months later and underwent 2 stage revision
- ▣ Did well but now has severe radiating shin and thigh pains
- ▣ Has rest pain which worsens with activities
- ▣ Denies constitutional symptoms



# Case 7 contd.

- ▣ Midline scar
- ▣ No effusion
- ▣ Collateral ligaments well balanced
- ▣ ROM 0 TO 100
- ▣ Quad strength good
- ▣ Distal neuro-vasculature intact
- ▣ Labs- ESR- 22 CRP 17.4
- ▣ ESR 22
- ▣ CRP 17.4
- ▣ Knee aspirate- no growth
- ▣ Tan cloudy Knee aspirate- WBC count 60
- ▣ 3 phase Bone scan- more loosening than infection
- ▣ Had pneumonia and has had antibiotics



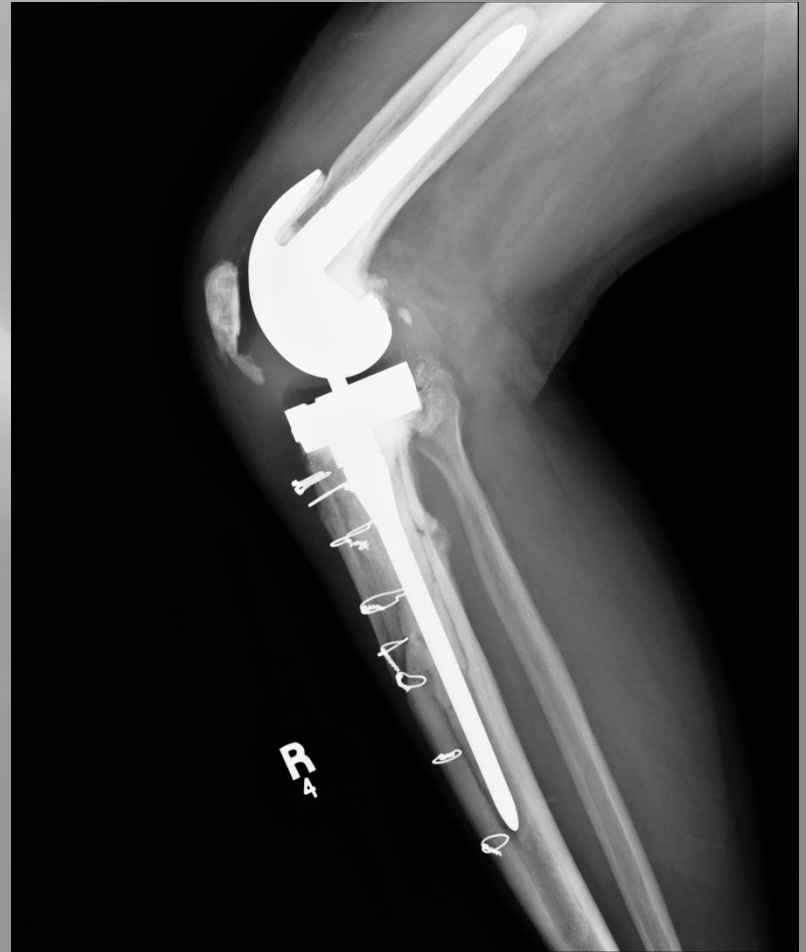
# Extended tubercle osteotomy



# Post-op case 7

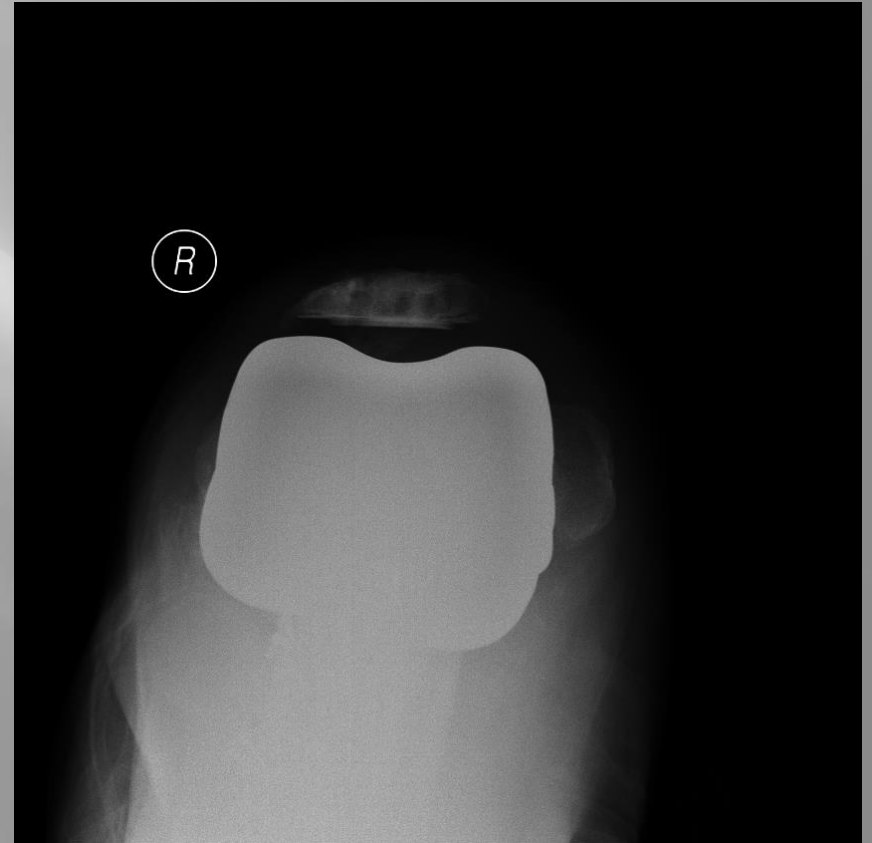
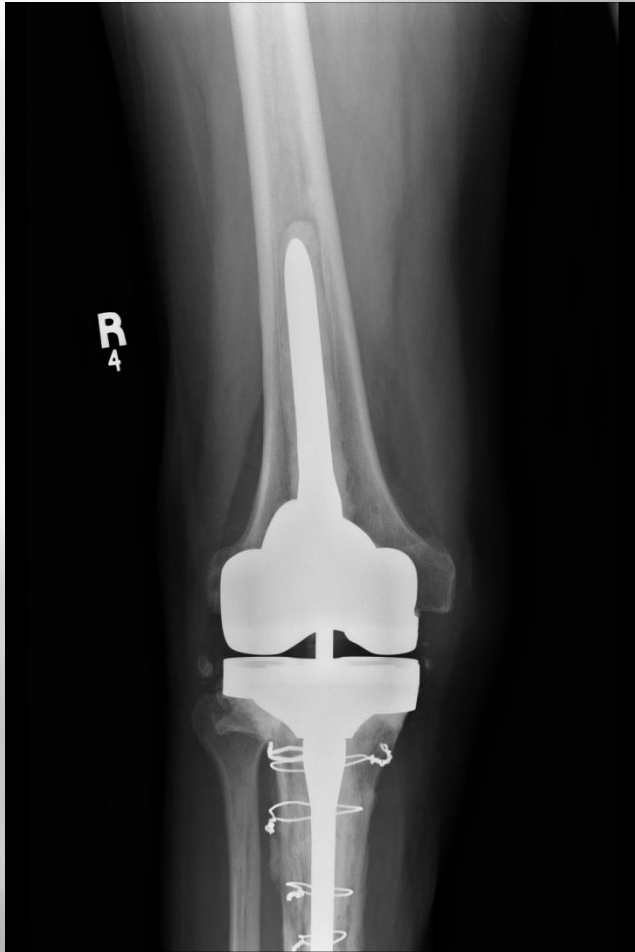


3 mnths fu





3 mnths fu



## 3 mnth fu

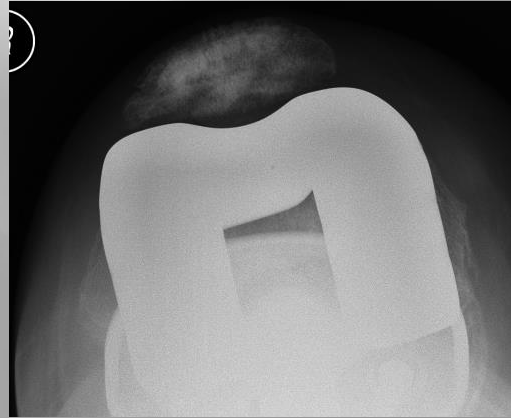
- ▣ Pain improved.
- ▣ Rom 0 to 110
- ▣ Started 25% wt.  
bearing in hinged  
knee brace
- ▣ Foot drop at 6 weeks  
post-op- probable  
hinged knee brace



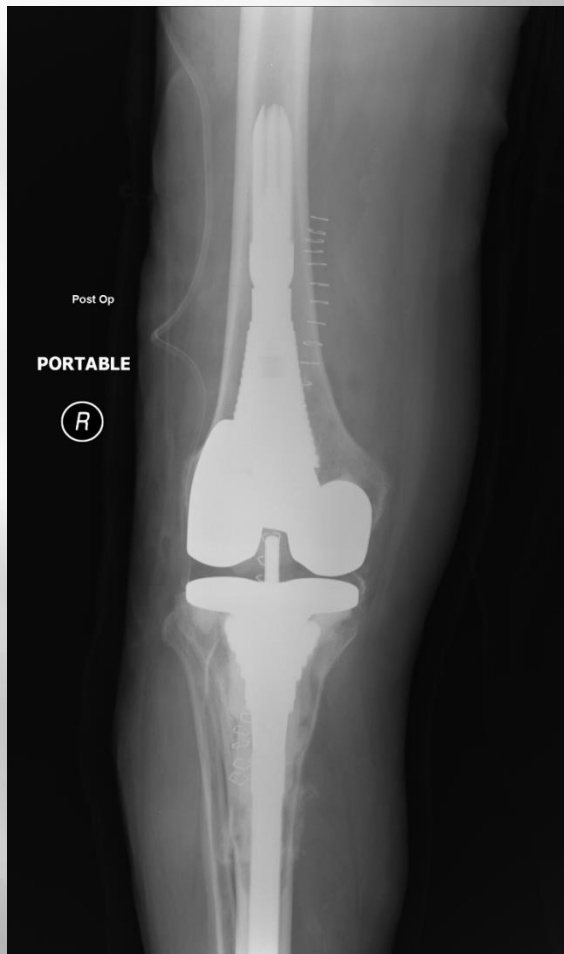
# Knee- Morrison Case 9

- ▣ 82 yr male
- ▣ Community ambulator
- ▣ Noticed shin and knee pains for 6-7 months
- ▣ Undergone right TKA about 15-16 yrs ago ??
- ▣ Distal neuro vascular function intact
- ▣ Doppler- audible pulses
- ▣ Lab markers wnl

# Pre-op case 8



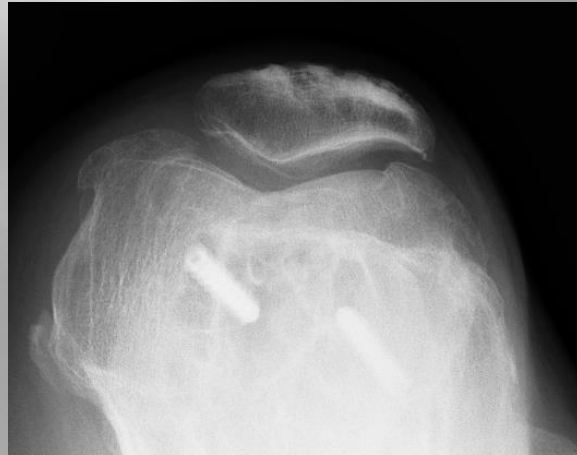
# Post-op Case 8



# Knee case 9-kinsey

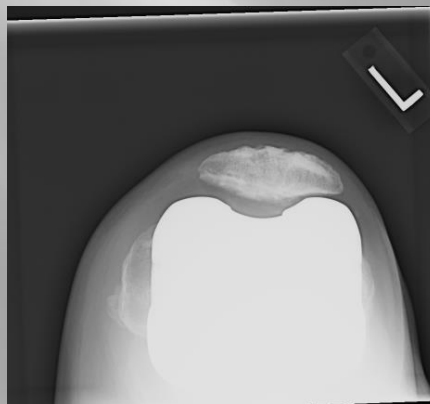
- ▣ 55 yr male
- ▣ Right knee pain
- ▣ Underwent ACL reconstructions X2 ('89 and '94)
- ▣ Stiff knee with flexion from 25- 110
- ▣ Autograft reconstruction
- ▣ Markers wnl

# Pre-op case 9



# Post-op case 9

## 2 yr FU



# Knee case-9

- ▣ Pseudomas putida
- ▣ Staph epidermidis
- ▣ 6 weeks of cefipime and vancomycin
- ▣ At 2 yrs-
- ▣ 3 to 120 knee motion
- ▣ No pain
- ▣ CRP= 3.7 (0-3)
- ▣ ESR=18(0-15)



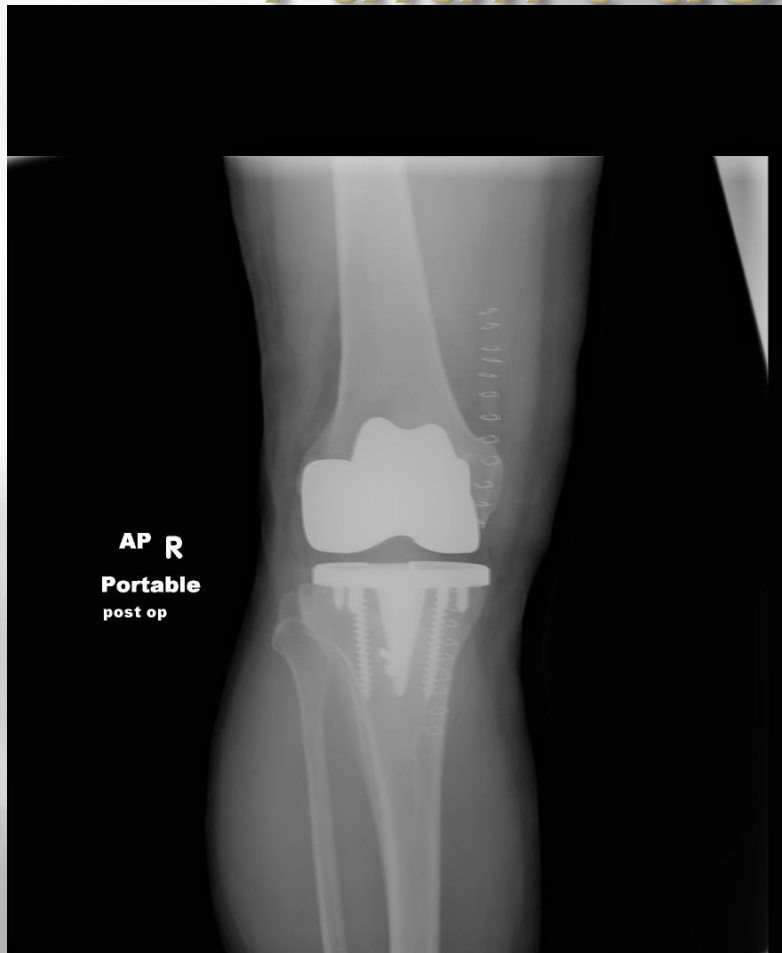
# Knee case 10-Buckner

- ▣ 55 yr male
- ▣ College Professor
- ▣ Worsening right knee pain for over a yr.
- ▣ h/o of Fulkerson's osteotomy and subsequent patellectomy in the early 80's for recurrent dislocation of patella
- ▣ Failed conservative therapy including steroid injections
- ▣ Offered a primary knee replacement

2007 pre-op



6/15/2009  
11mm CR poly  
I didn't do this surgery



10/6/2009 1<sup>st</sup> Revision  
loose tibia, both revised with  
16mm poly CR -done by my  
partner



# 5/20/2010 2<sup>nd</sup> Revision 22mm PS type poly- again done by my partner

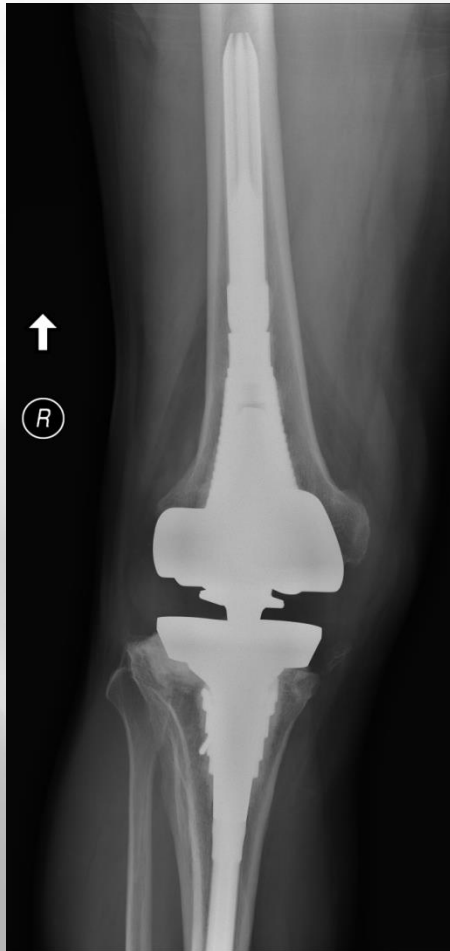




# Jumps the post!!



# 7/21/2010- 3<sup>rd</sup> Revision I revised it to a Hinged prosthesis

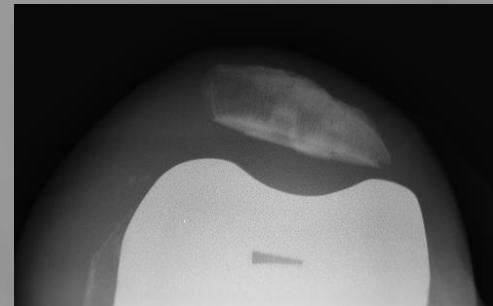


# 9 month fu

- ▣ Has no pain
- ▣ 3 to 130 motion
- ▣ Ambulates with a cane

# Knee case 11- Castro

# 2009- Outside provider





# I & D- Aug 2009

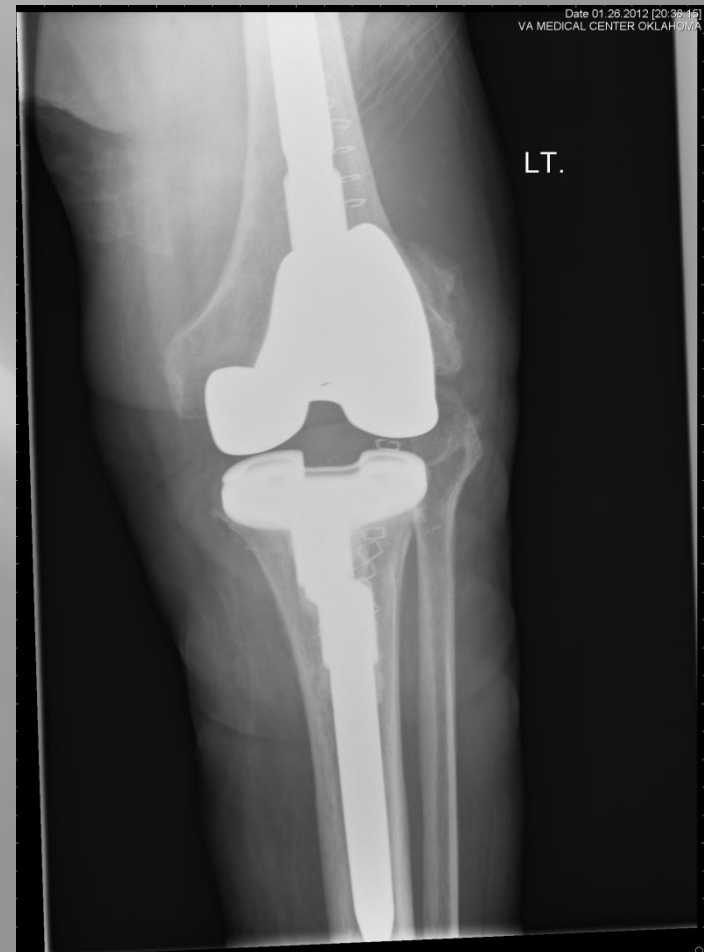
## Ab cement spacer- Sept 2010



# 1<sup>st</sup> Revision- Jan 2012



# 2 weeks post-op - dislocated



# 2<sup>nd</sup> Revision 5/2/12 - Hinge



# Knee case 12

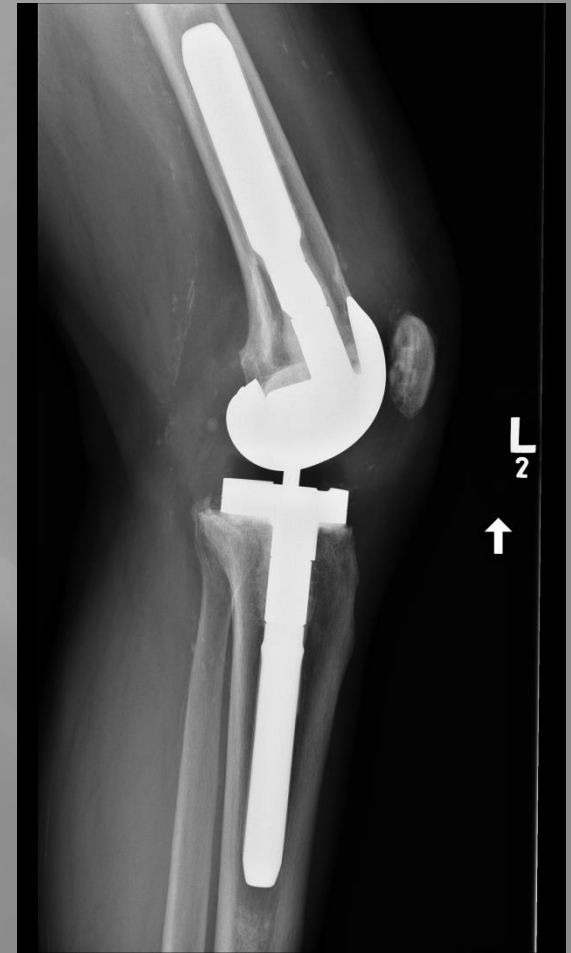
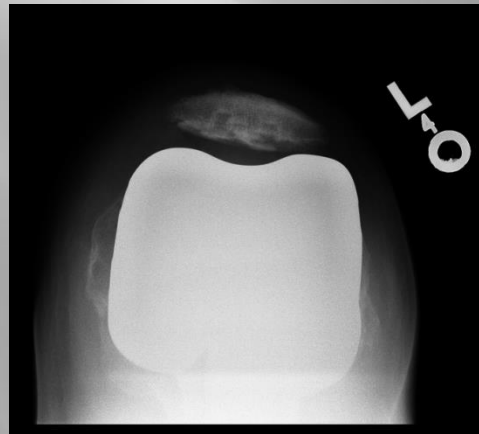
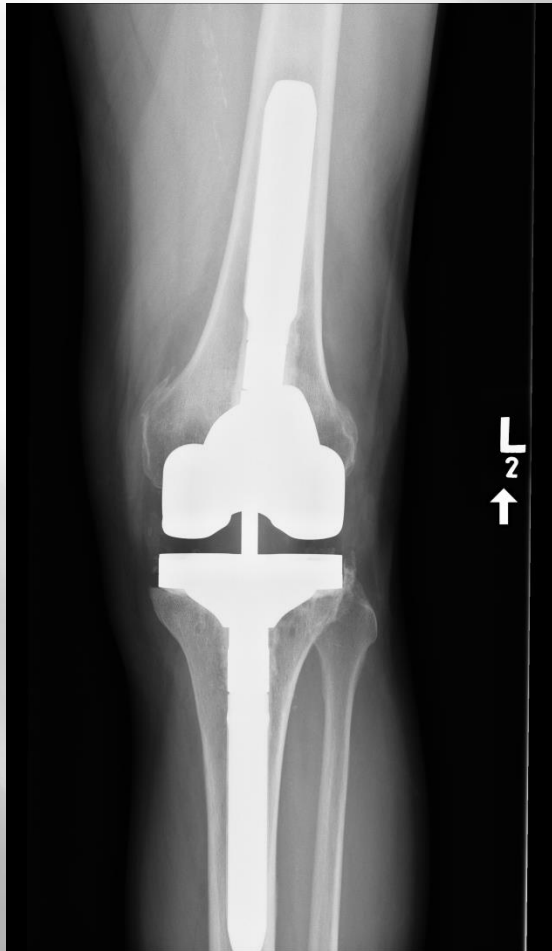
- ▣ Primary TKA in 2009
- ▣ Noticed early instability with recurrent falls
- ▣ 20 degrees of active recurvatum
- ▣ Instability in 90 flexion



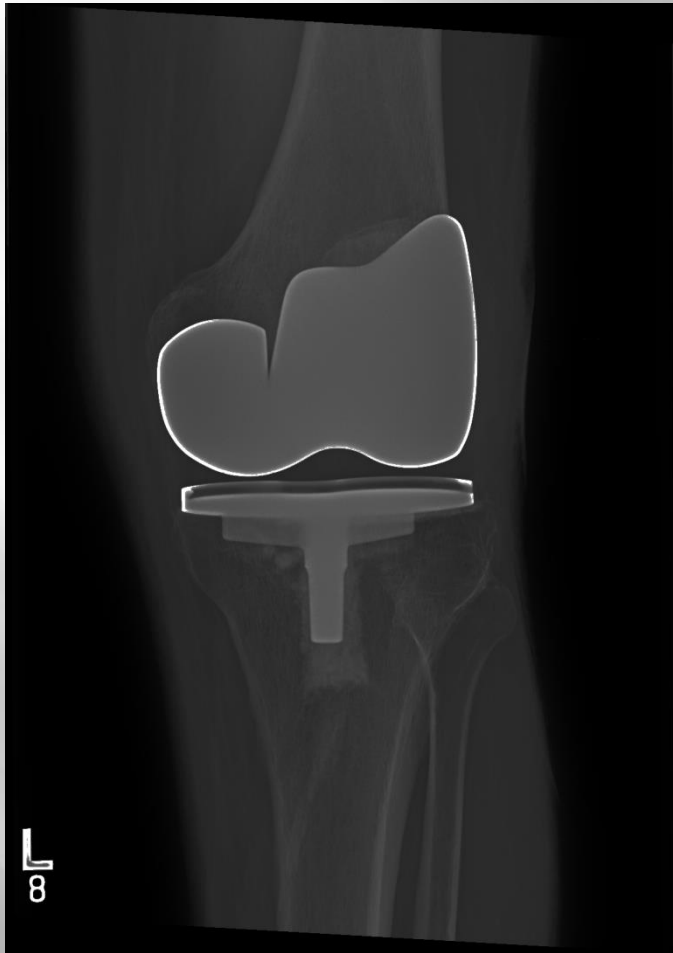
# Knee case 12



# Constrained implant with aguments



# Knee instability s/p primary TKA -18 Yrs ago



# Revised to a Constrained prosthesis



# Primary TKA in 2000- knee now grossly unstable





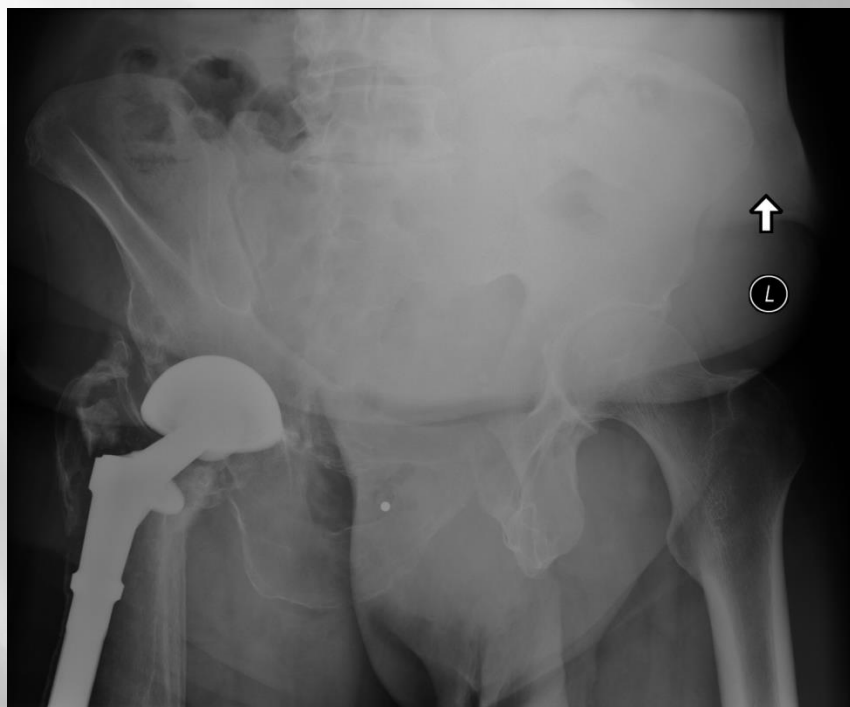
# Revised to a constrained implant



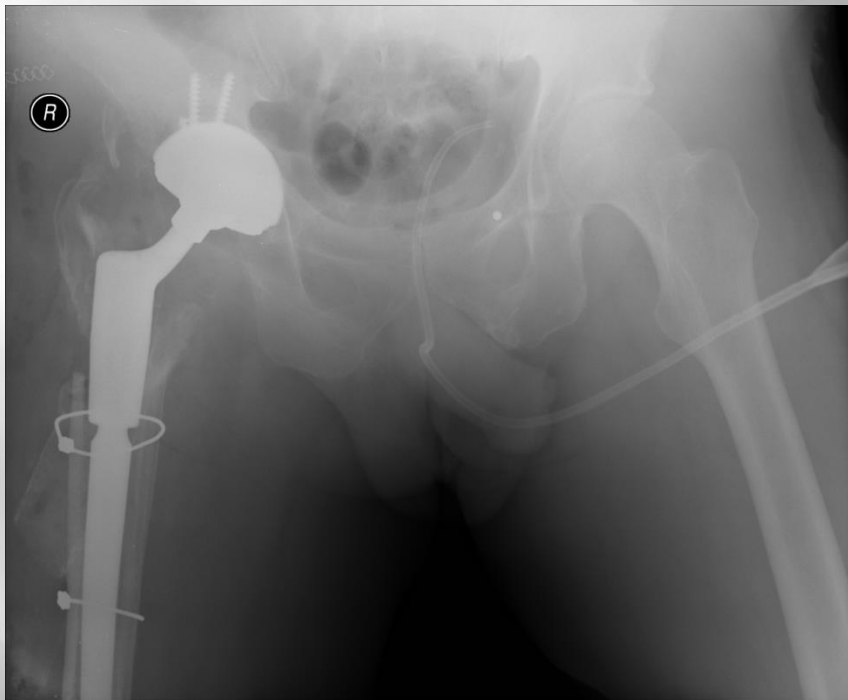
# Hip Case 1- Harmon

- ▣ 54 yr old homeless Veteran
- ▣ Underwent Right THA in 1997, Dallas Tx
- ▣ Alcoholic and his hip dislocated multiple times in the first month
- ▣ Last 3 yrs, noticed worsening pain, with progressive shortening , prominence along the lateral thigh
- ▣ Sciatic nerve intact
- ▣ 7cms shortening
- ▣ Postero-lateral incision

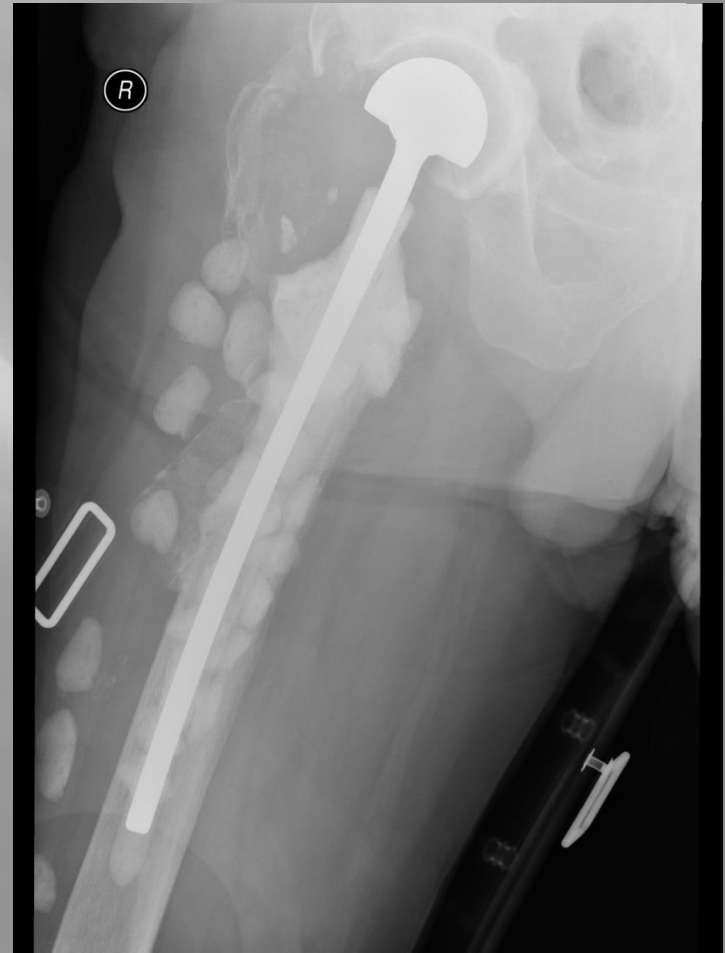
# Pre-op films



# Post-op

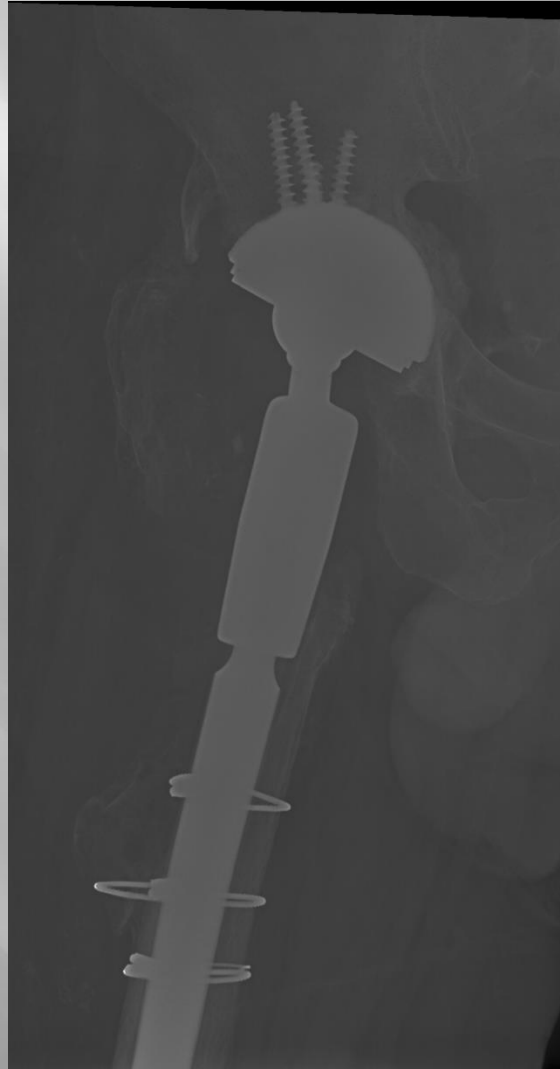
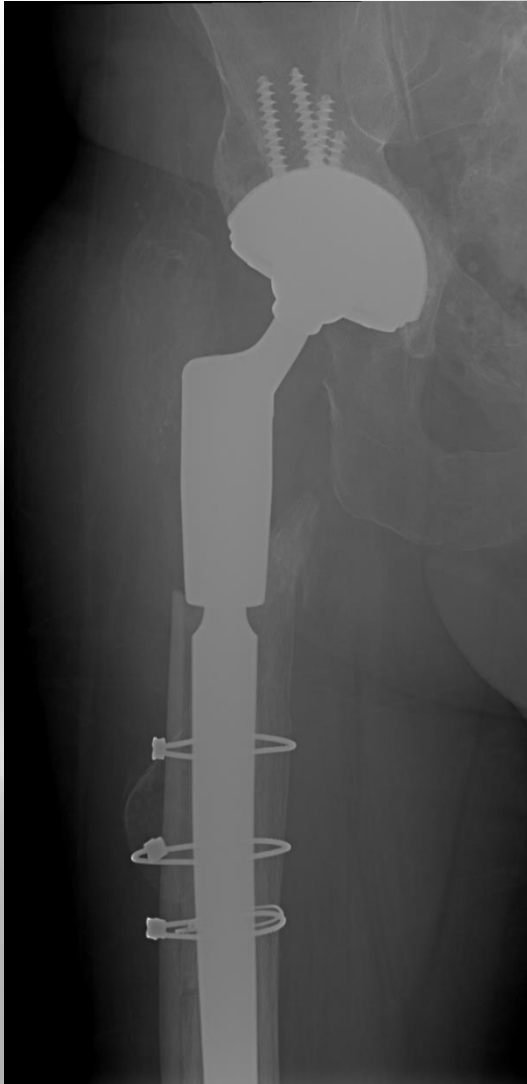


# Infection... 2 Stage Revision





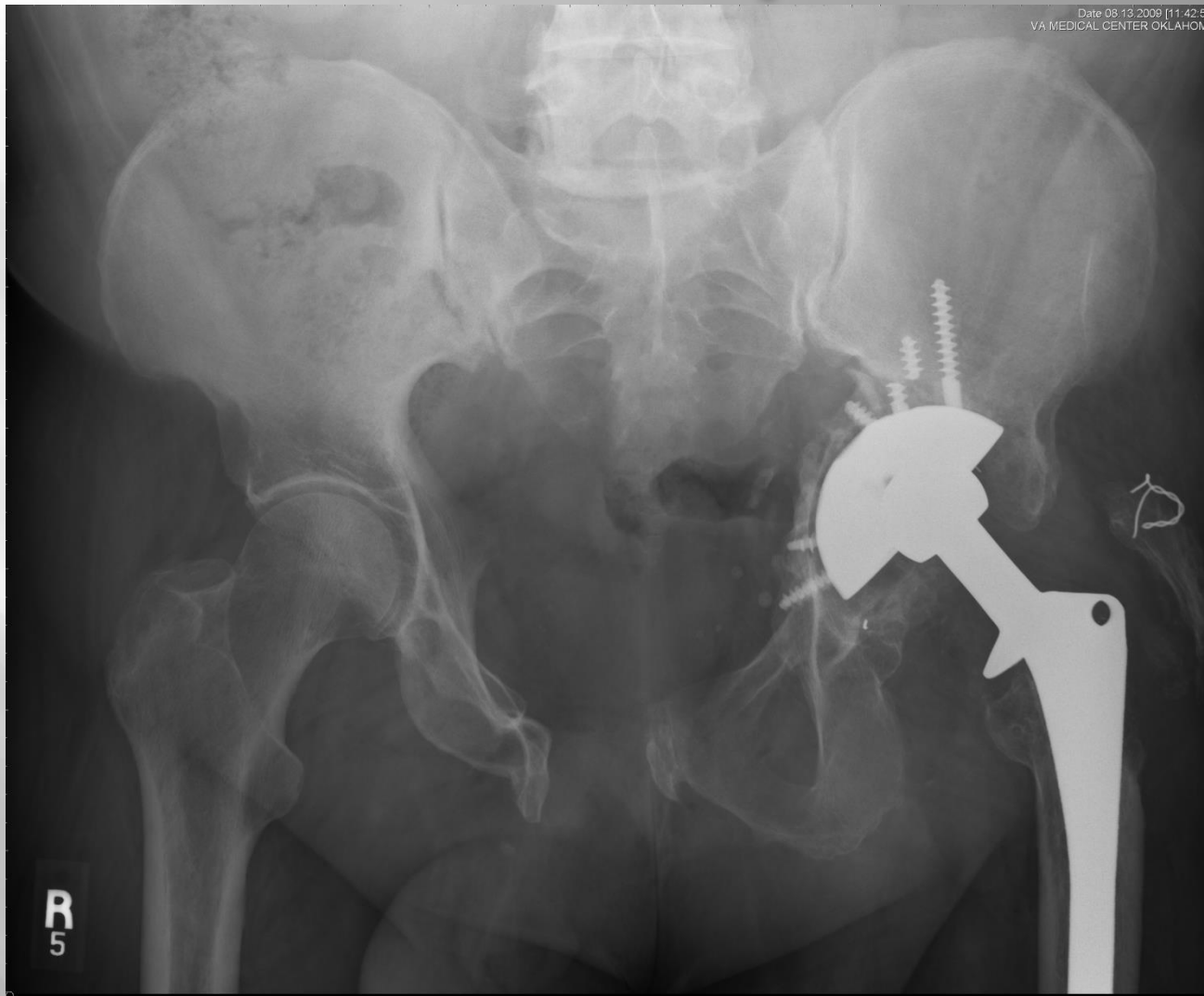
# 2<sup>nd</sup> Revision Nov. 2011- 6 Mn FU

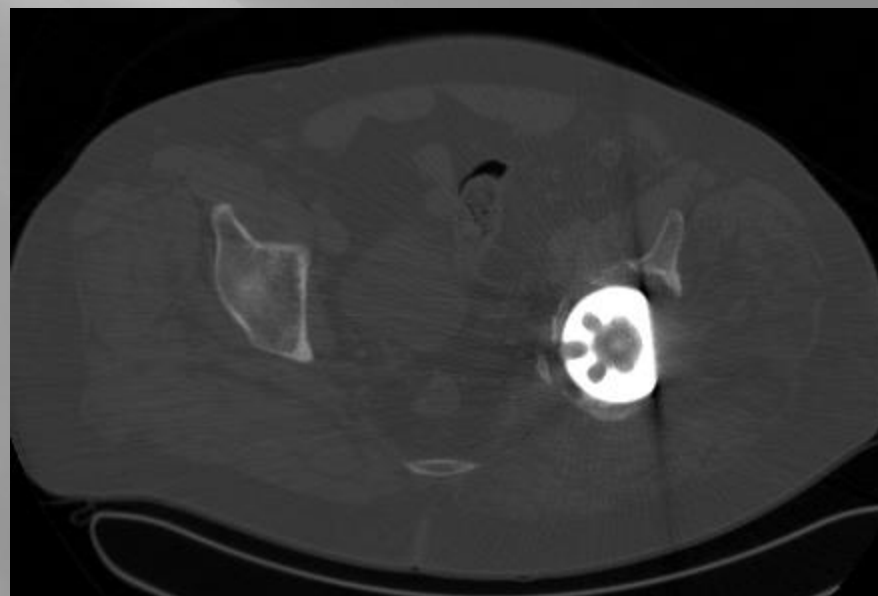
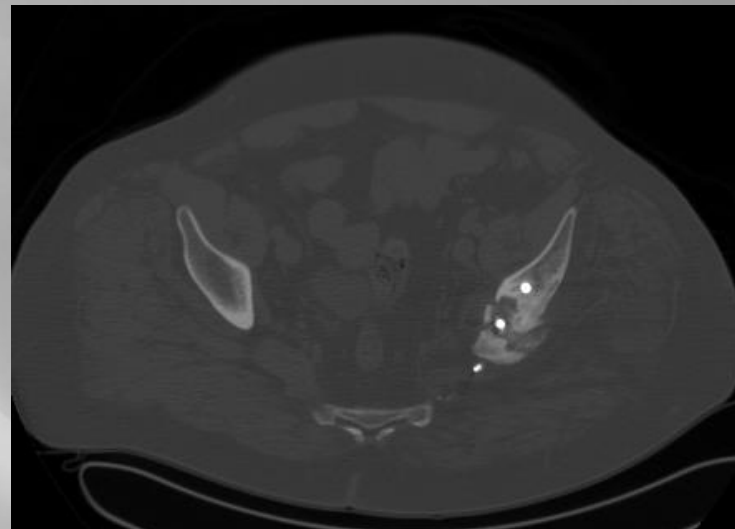
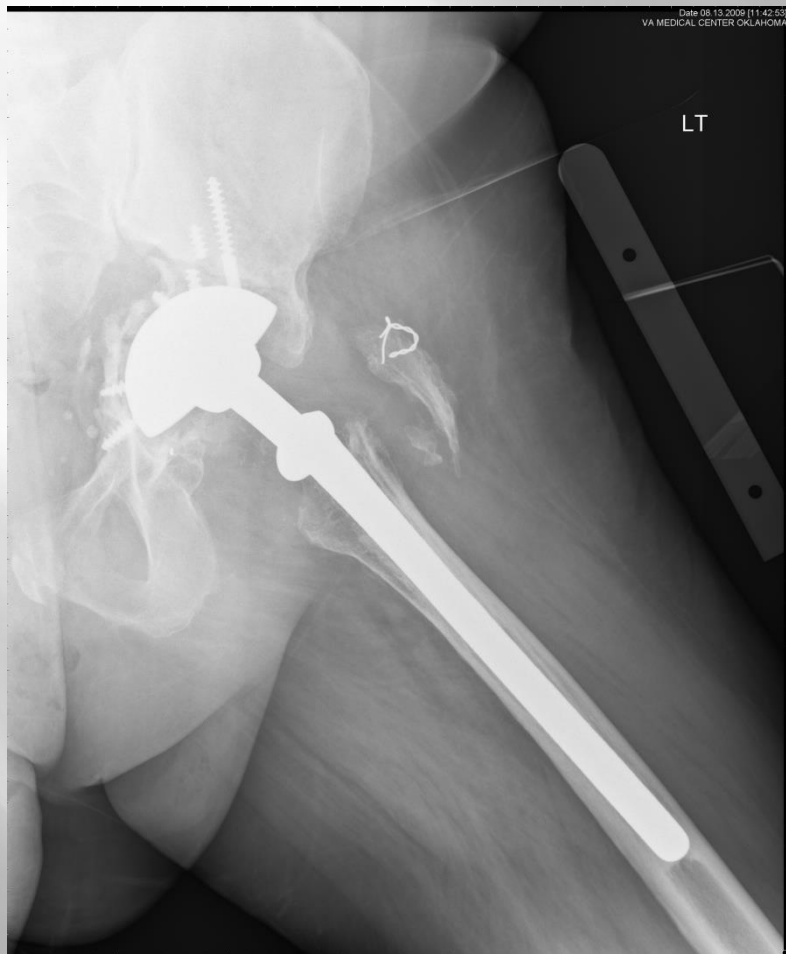


# Hip Case-2 Trainer

- ▣ 65 yr male, BMI 37
- ▣ Pedestrian vs Auto MVA in 1967
- ▣ Pelvic ring injury , Acetabular fracture
- ▣ Elected for THA in 1981
- ▣ Revision THA in 1991
- ▣ Left hip pain in groin and buttock for 6 months
- ▣ Currently very painful
- ▣ Hip stable, painful
- ▣ Lab markers are wnl

# Pre-op



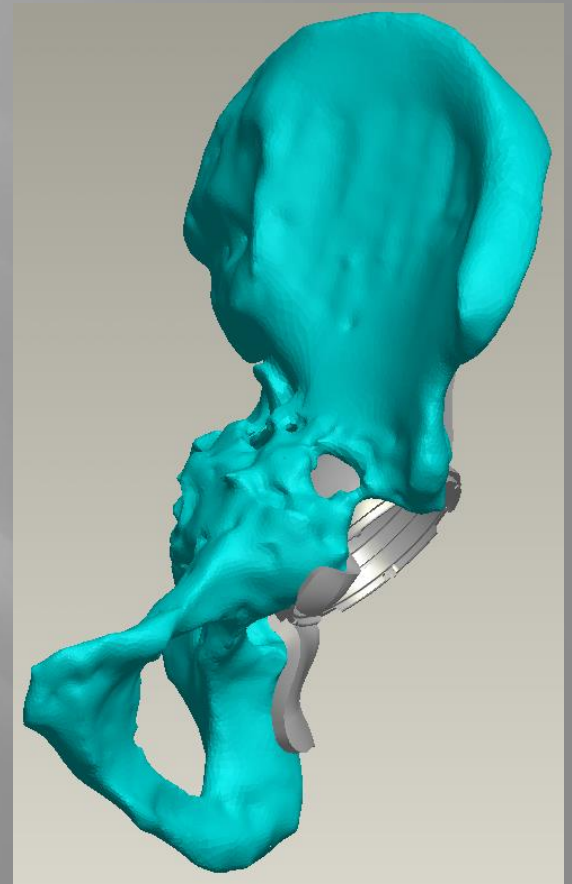
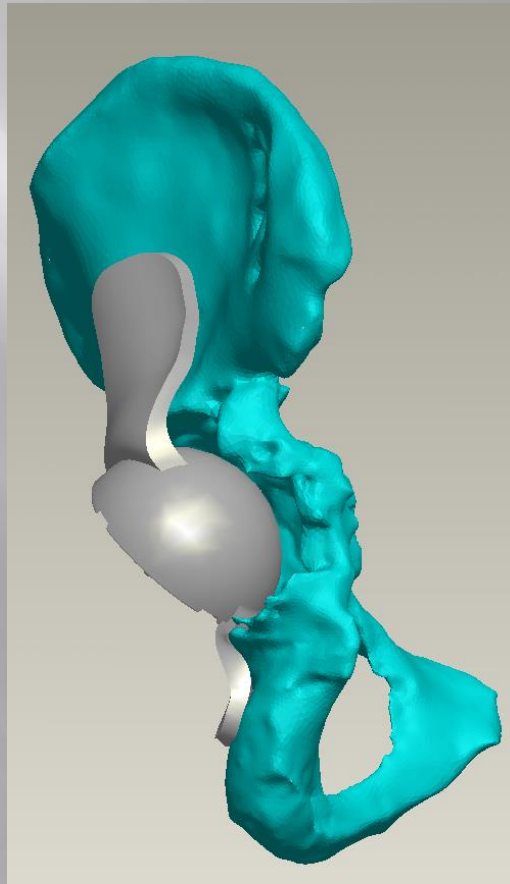
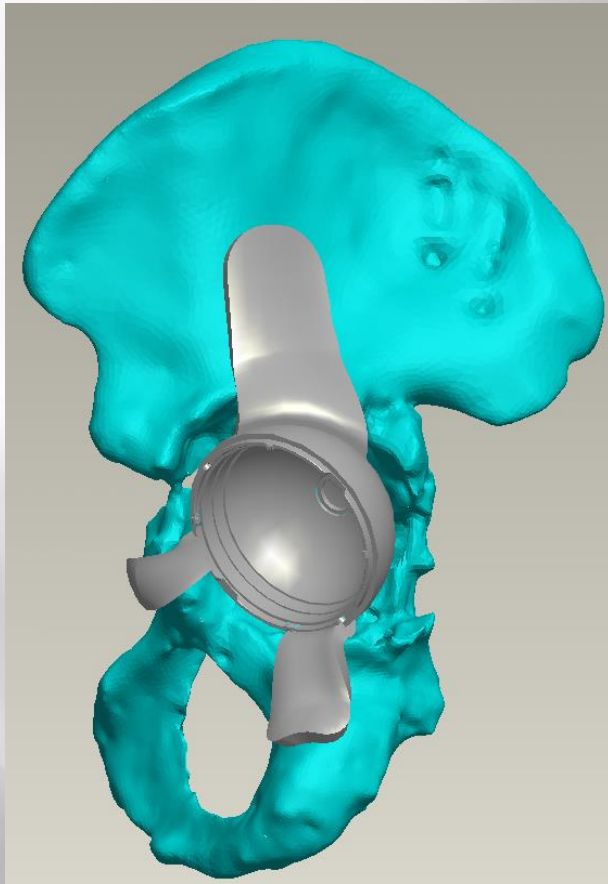


# Pelvic discontinuity





# Custom Tri-flanged cup





# Post-op



# Post-op



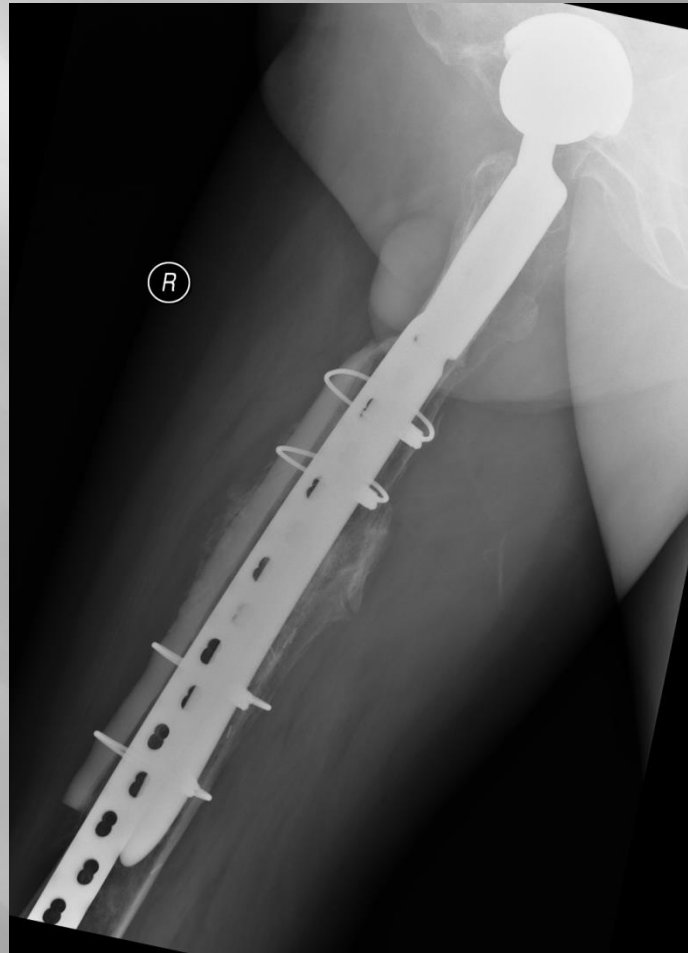
# Hip case 3- Ramsey

- ▣ 64 yr male
- ▣ MVA in 80's
- ▣ Undergone 6 exchange nailings
- ▣ Persistent sub-troch# non-union
- ▣ Fell in 08 and had a displaced femoral neck #
- ▣ Underwent a Recon. Nail with femur plating in Tulsa.

# Pre-op

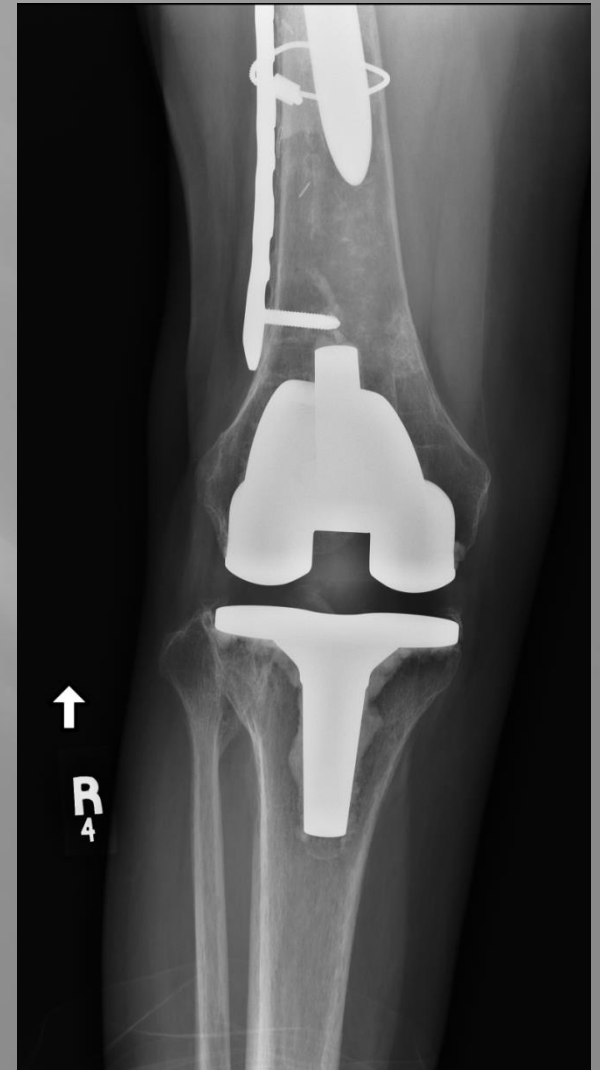
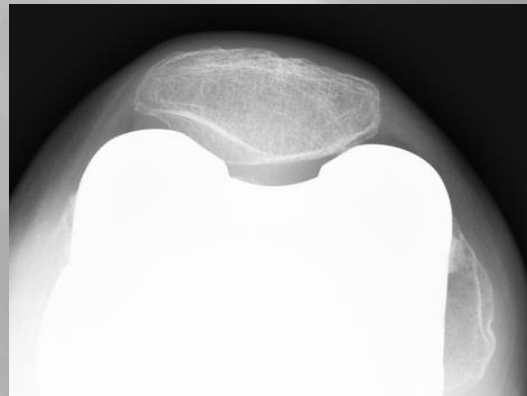


2 yr FU



# Computer assisted TKA

## Severe osteopenia- Hence stems





# Hip case 4

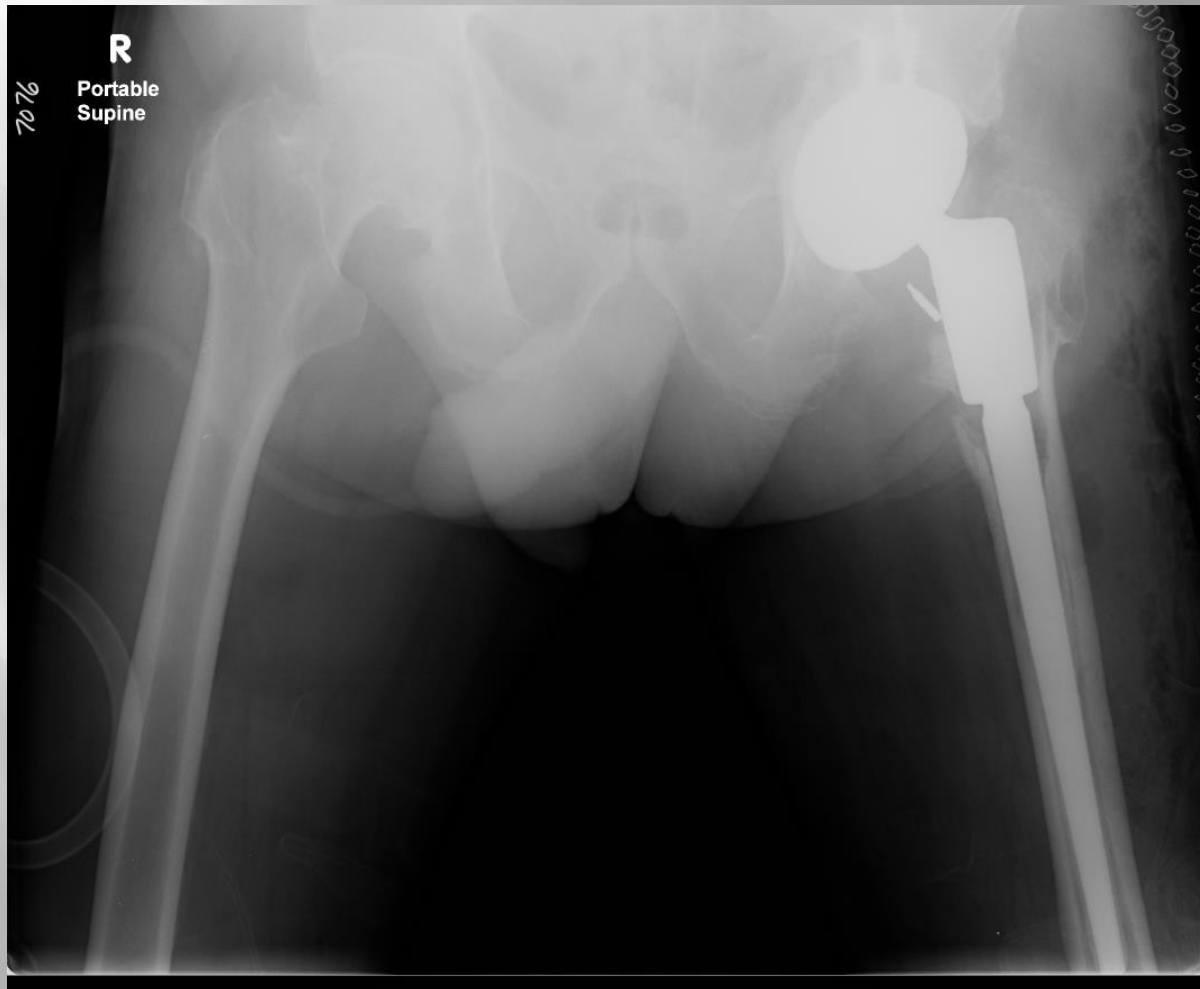
## THA in 1969



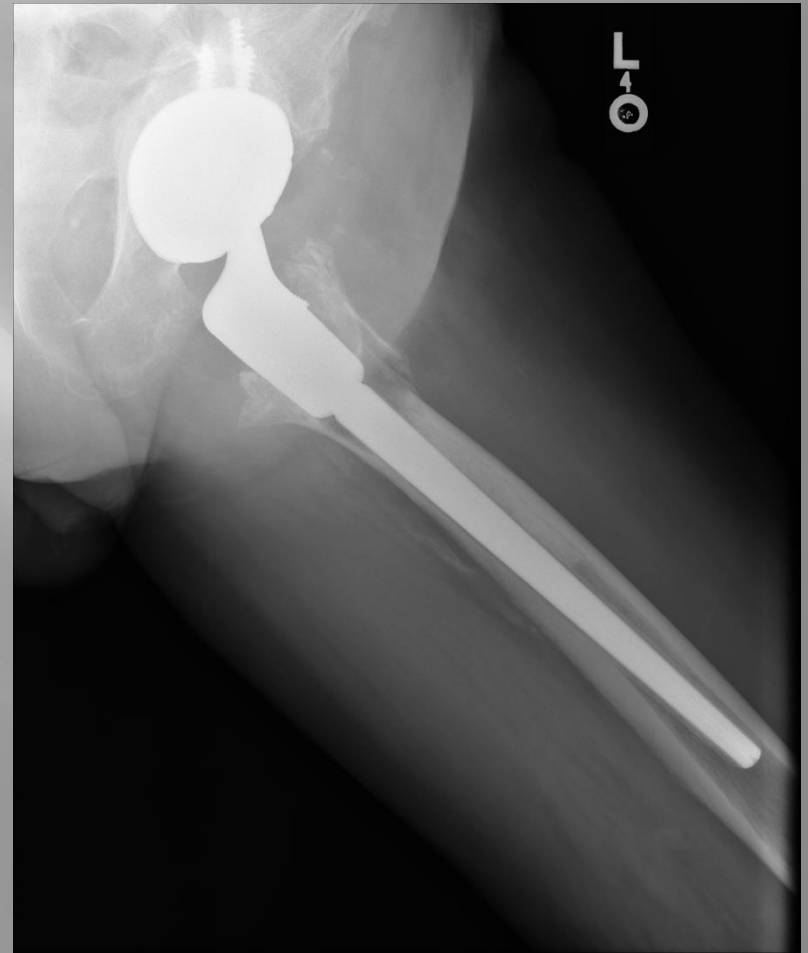
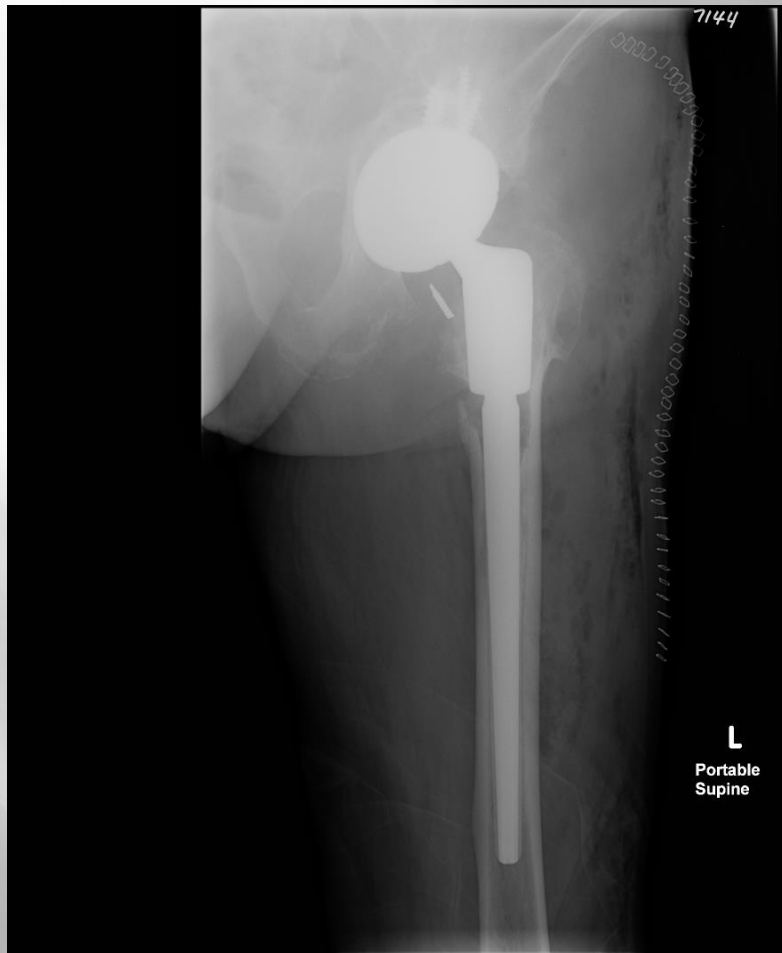
# Case 4



# Restoration modular with MDM – tri-polar cup

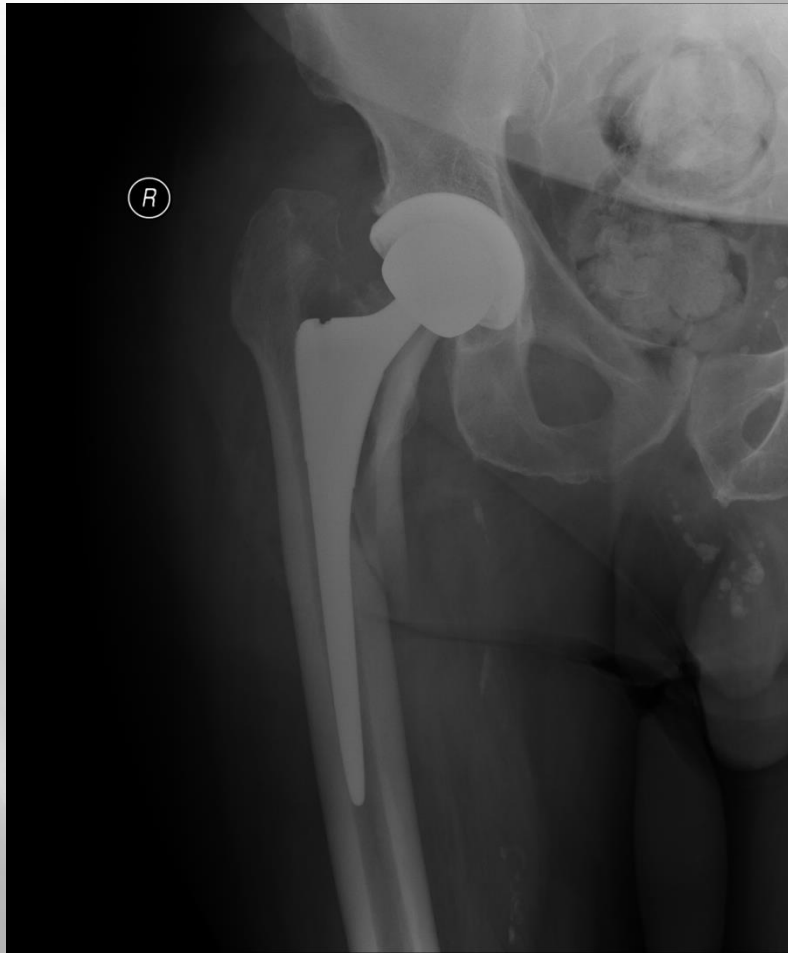


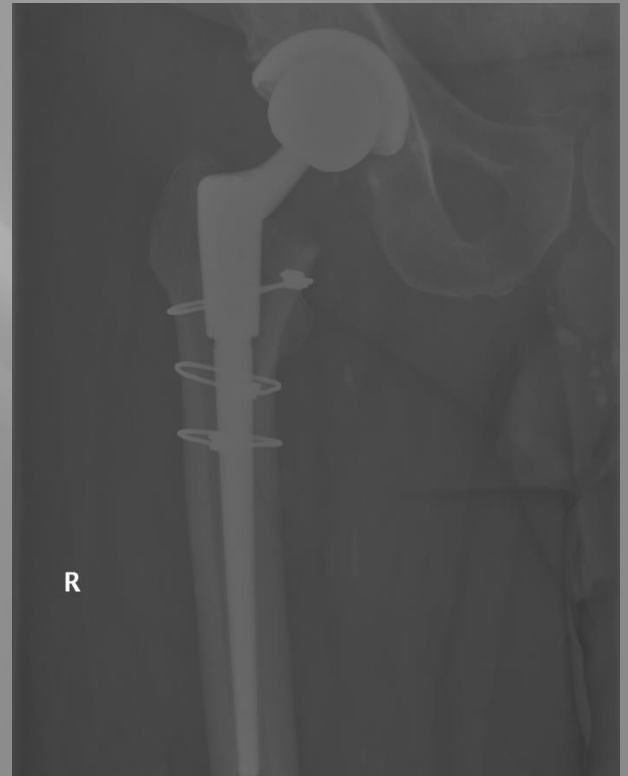
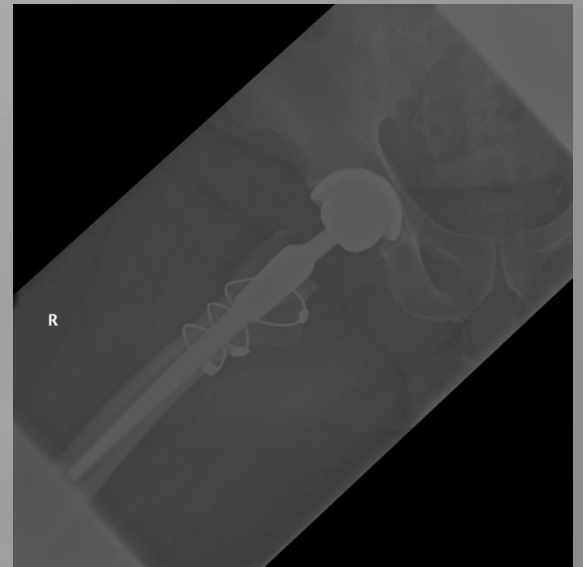
# Restoration modular with MDM – tri-polar cup



# Hip case 5

## Peri-prosthetic #- undersized stem !



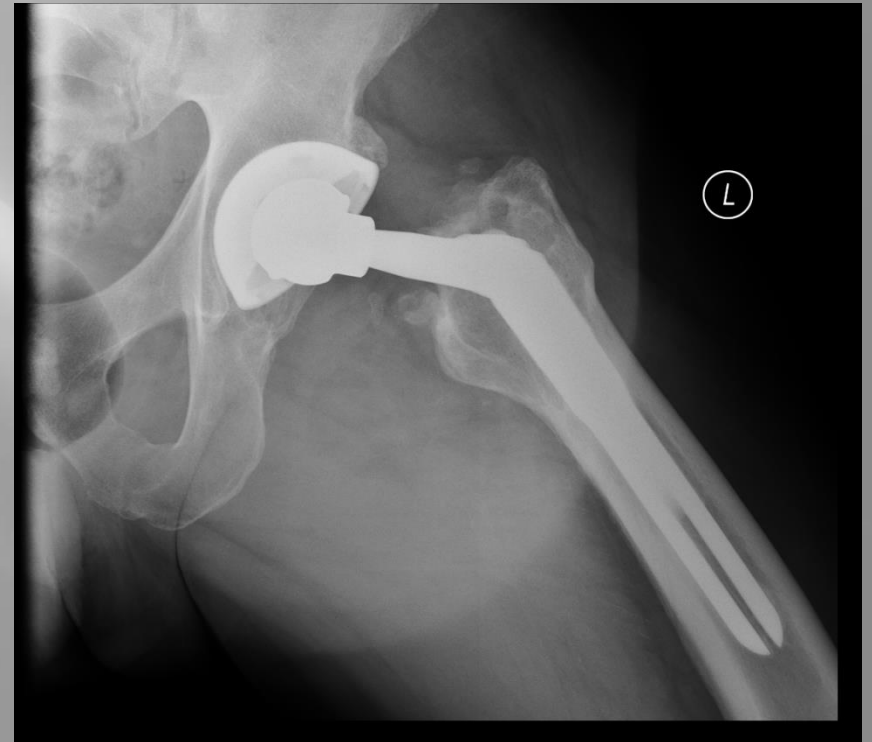


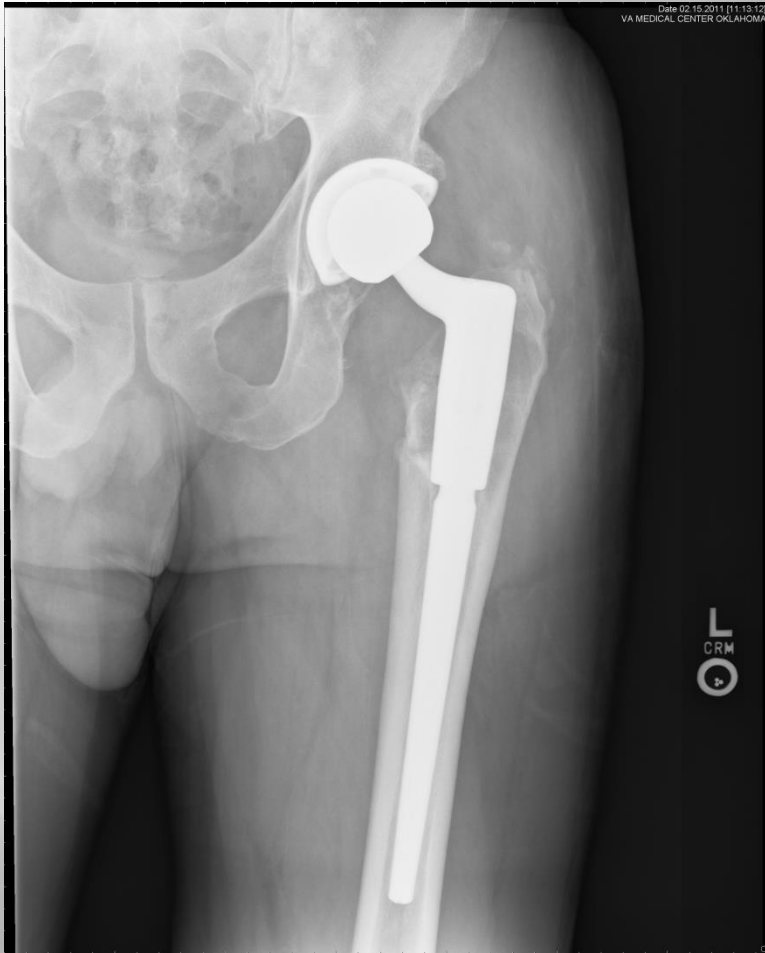


# Hip Case 6- Herbert

- ▣ 64 yr male underwent left THA in 01
- ▣ Clicks with left hip pain for 6 months
- ▣ Lab markers wnl

# Pre-op





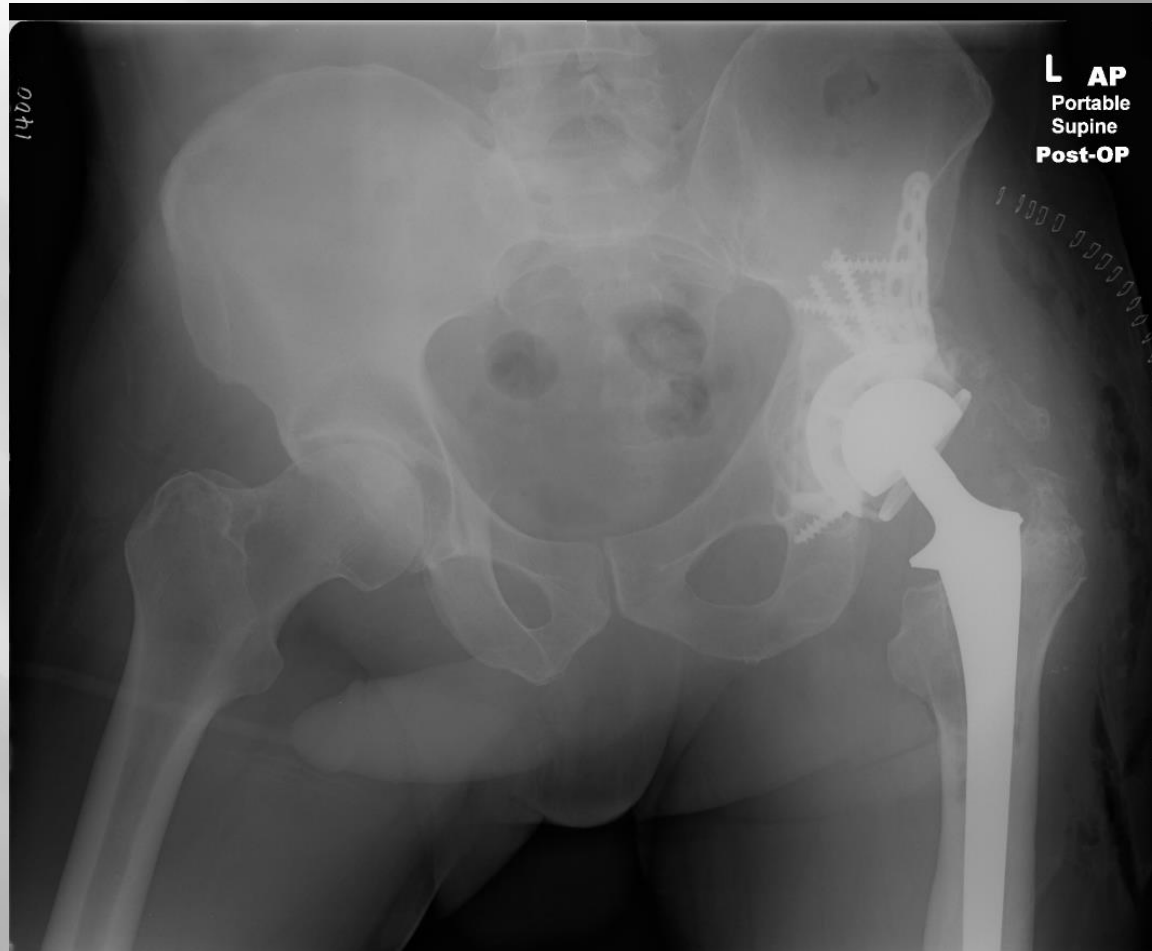
# Case 7- Barajhas

- 59 yr male Veteran
- Undergone left THA in 80s
- Had dislocations once in 3 months
- Revised in 94 but again kept dislocating
- 2<sup>nd</sup> Revision in 04; did well for 2 yrs but again kept dislocating afterwards
- Currently he is able to reduce it in himself
- ESR 22 and CRP 3.1

# Hip case 7- recurrent dislocation Barajas

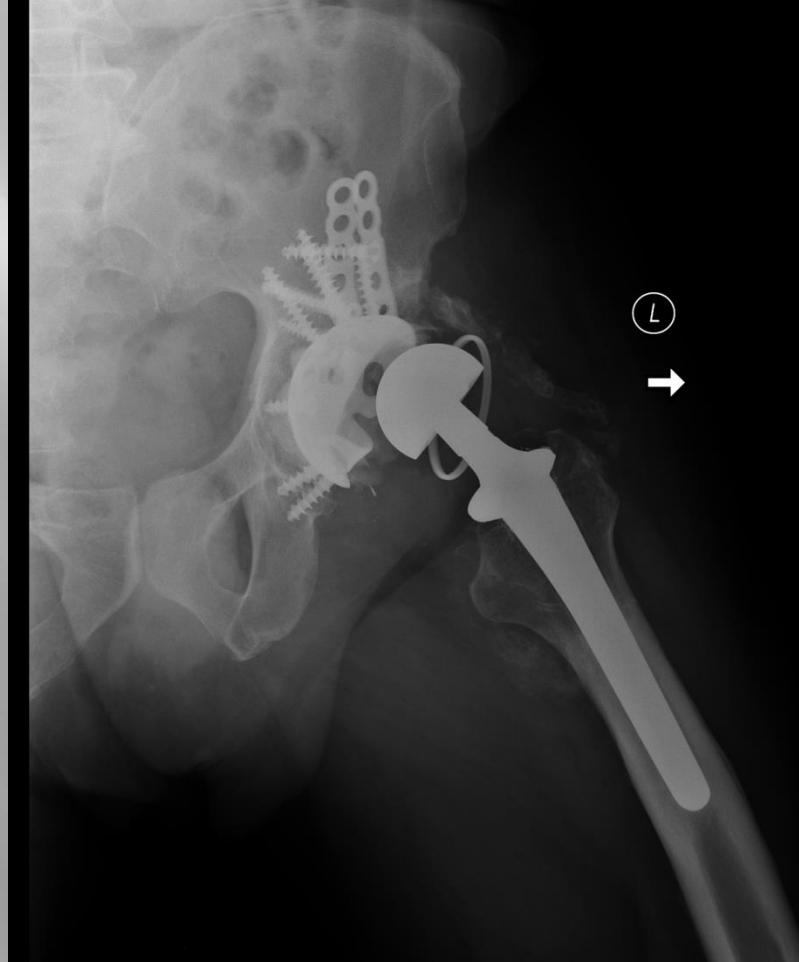


Revision for recurrent dislocation 7/12/10  
deficient superior and posterior wall + extensive  
osteolysis- Cage reconstruction with allograft+  
constrained liner



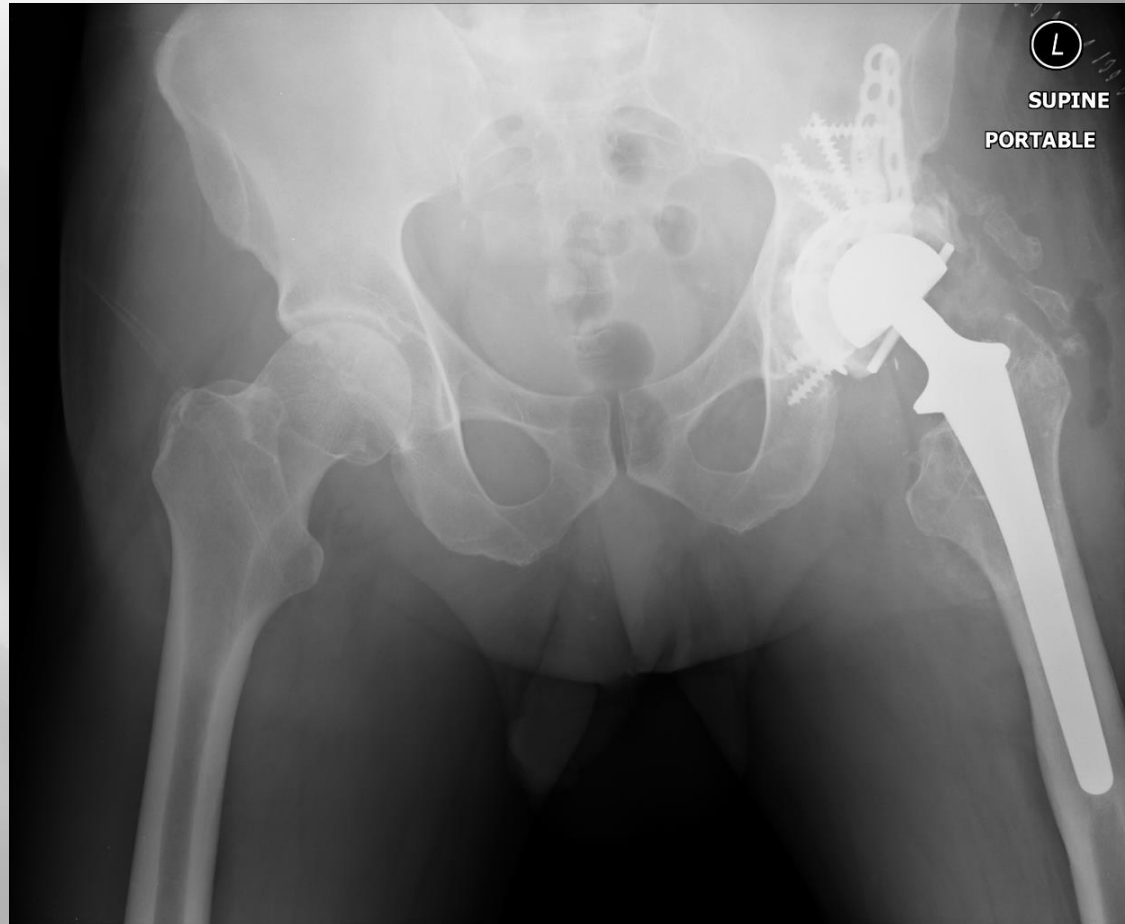


Dislocated his constrained liner as he  
dived forwards to catch his wife-  
9/10/10



9/10/10

Liner again cemented ; cage well fixed

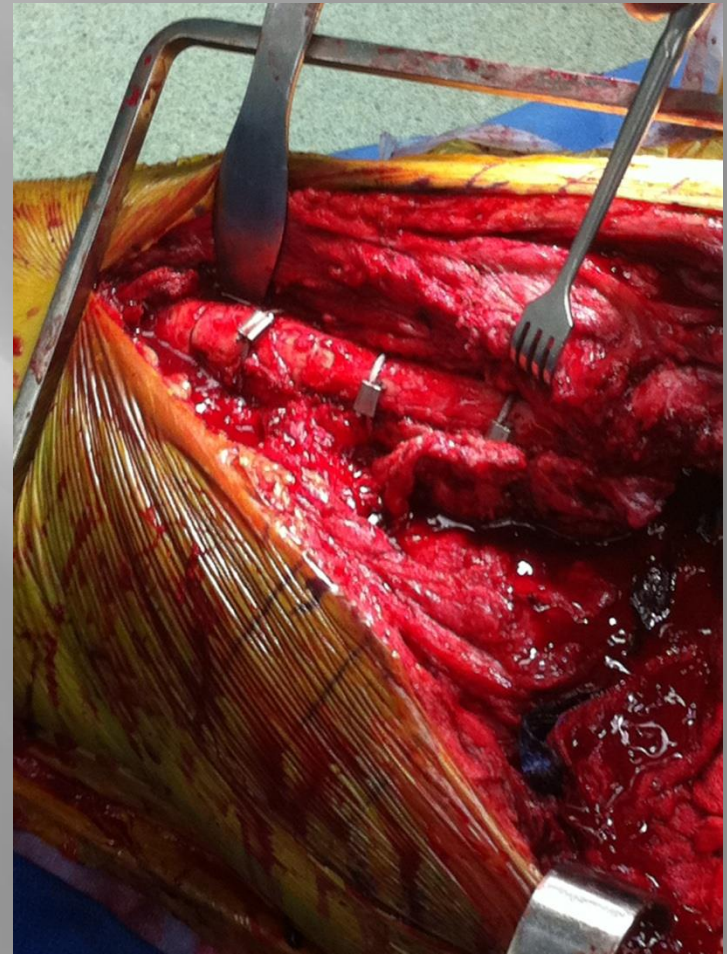


# Post-op course

- Discharged on 9/15/10
- 9/20/10-call received about discharge
- 9/22/10- I & D
- He refused explant and subsequently underwent 3 more I & Ds.
- Each time he grew MRSA and had been on several 6 week courses of iv Vancomycin
- After 4 such procedures he agreed to proceed with explant – 5/27/11

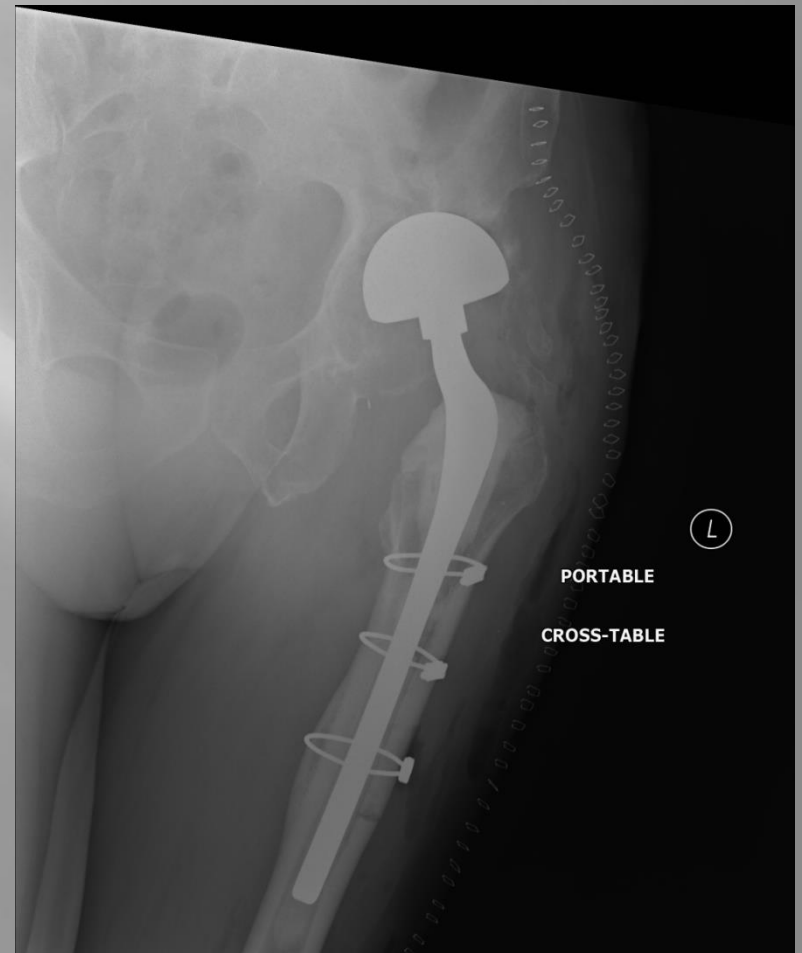


# 5/27/11 Extended Trochanteric Osteotomy



5/27/11

- Cage was removed
- Deficient superior + entire post wall
- Stem well fixed-  
Extended trochanteric osteotomy
- Femur reconstructed for  
Prostalac cement spacer  
and bipolar head
- Tried twice to cement a  
liner in but no fixation  
possible

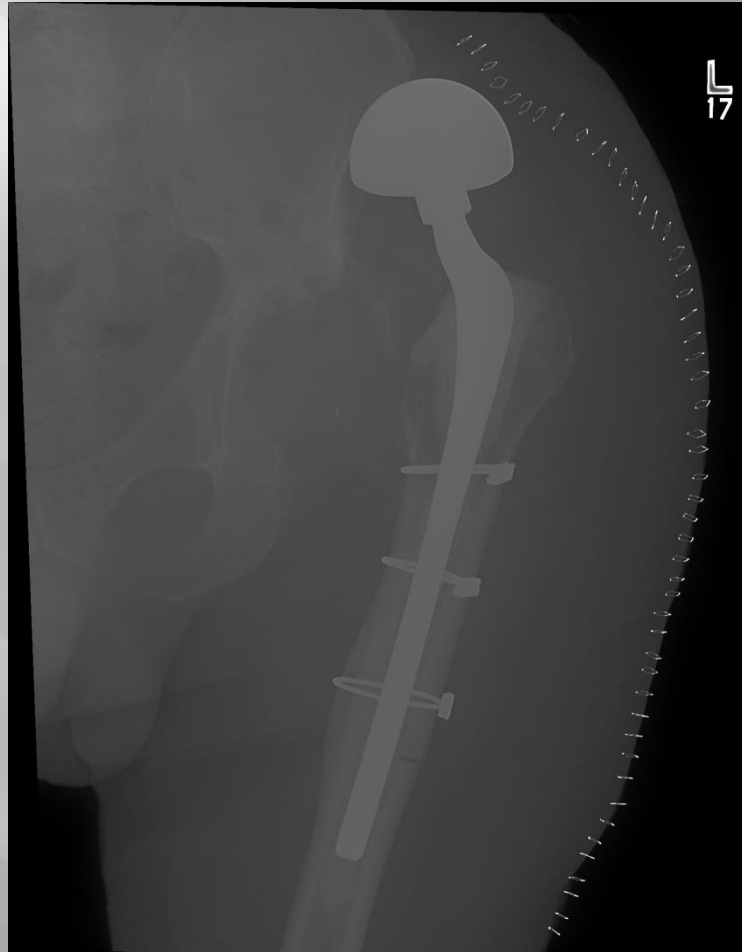


# Post-op course

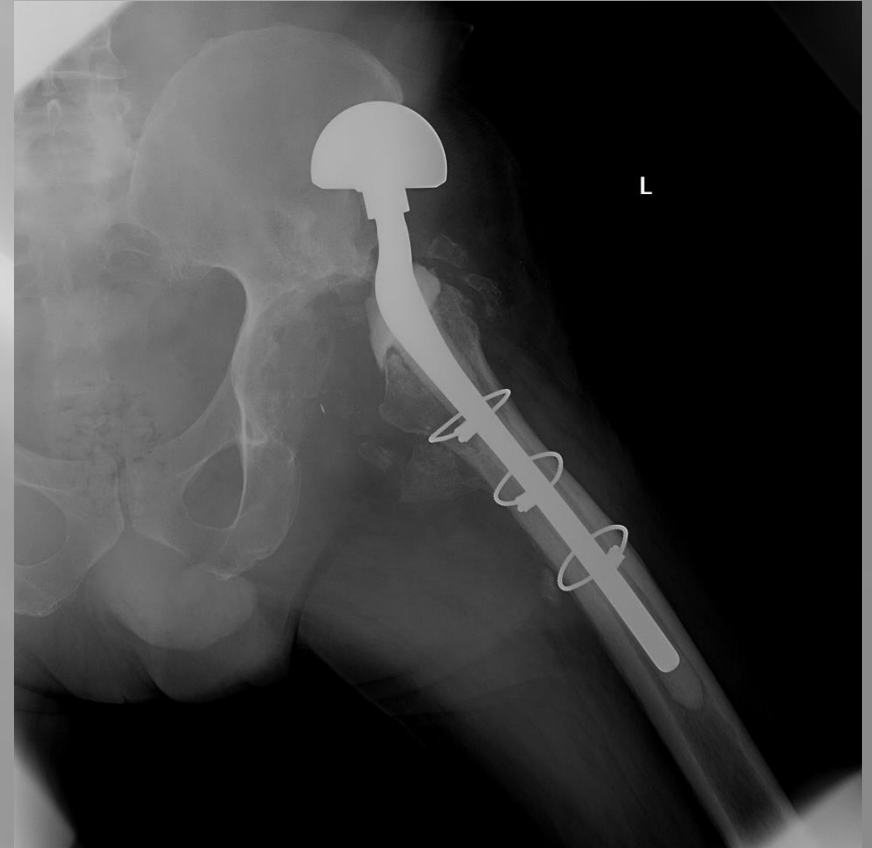
- ▣ Hip was not very stable – decision was made to maintain soft tissue length with a spacer vs excision arthroplasty
- ▣ Abduction orthosis put immediate post-op
- ▣ Cultures grew MRSA
- ▣ Discharged with 8 weeks of iv Vanc + Rfp
- ▣ Comes to clinic at 13 days post-op with a shortened leg



# Dislocated again!!



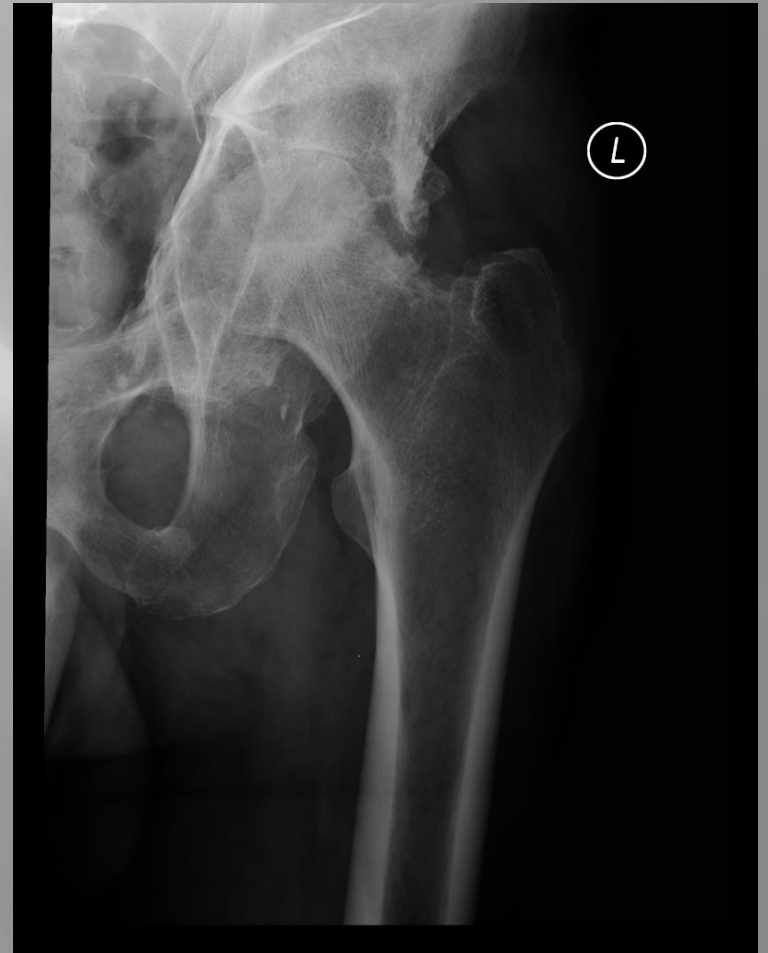
One year out- requesting for  
another chance!



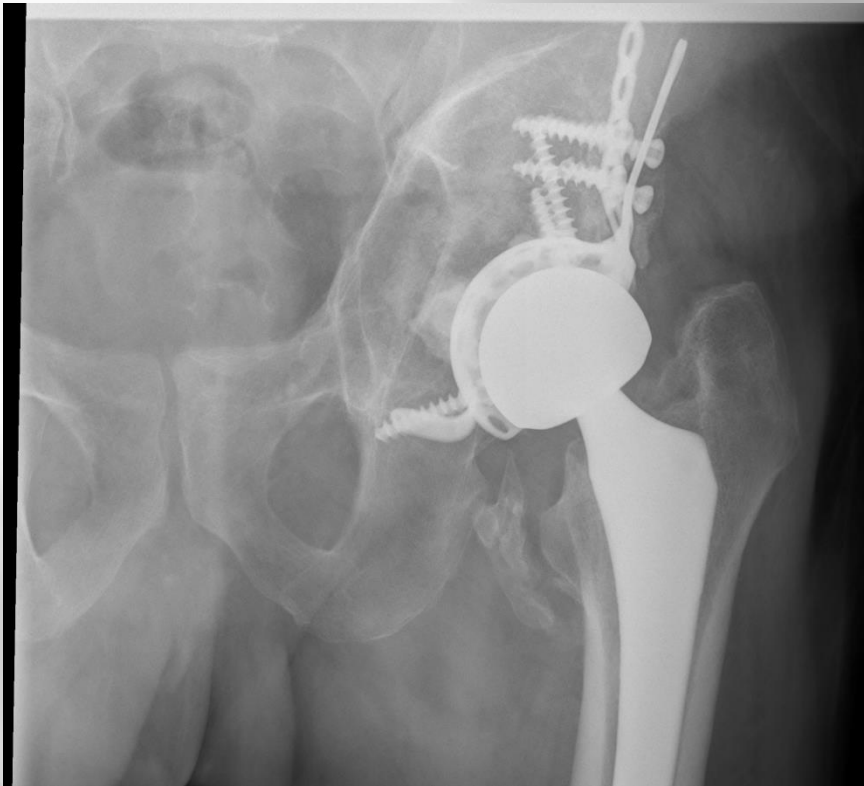
# Hip case 8 - Howk



- ▣ 62 yr male fell off his porch
- ▣ Showed up at 4 weeks and was conserved
- ▣ Malunited ant. wall# + protusio
- ▣ Uses cane and wheelchair

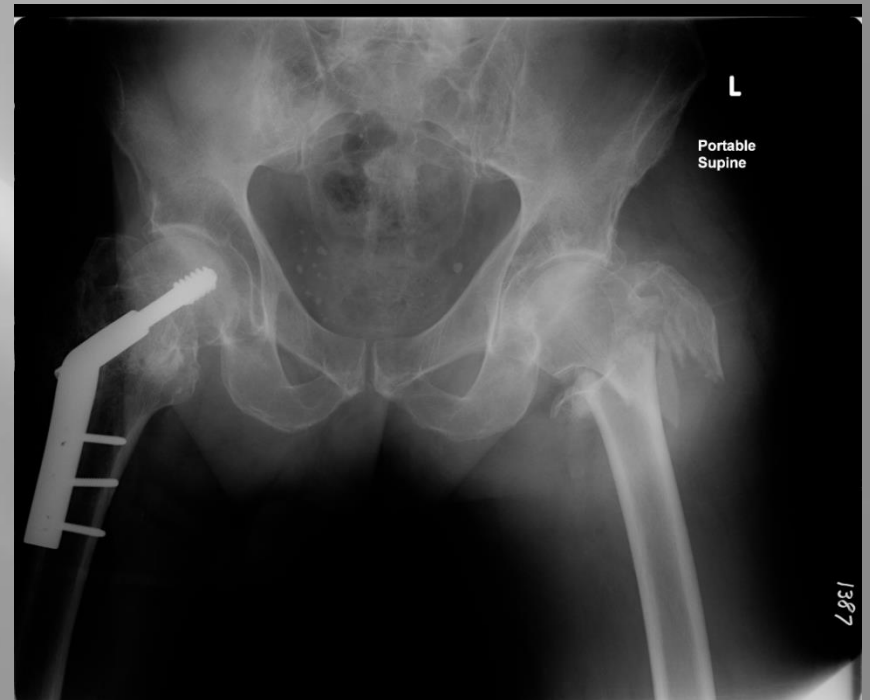


# Post-op films



# Hip case 9

- ▣ 91 yr old male
- ▣ Fell in a nursing home
- ▣ c/o of left hip pain and deformity
- ▣ Unable to bear any wt.





- ▣ Cemented calcar replacing bipolar prosthesis



# Hip case 10

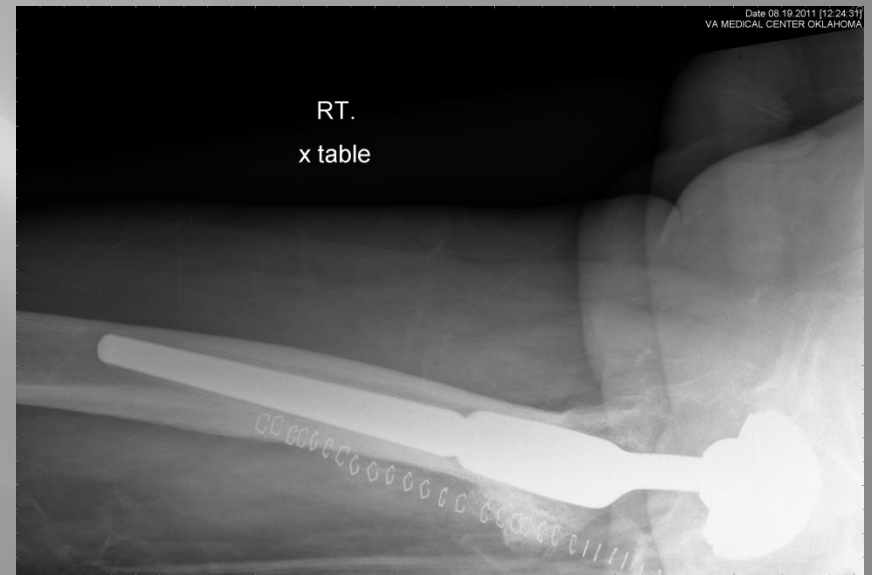
- ▣ 75 yr male
- ▣ Right bipolar prosthesis in Jan 09- outside hospital
- ▣ Presented with shortening , pain and reduced hip motion



# 5 cm shortening , HO, Trochanteric overgrowth



# Restoration modular prosthesis



3 months post-op



# Hip Case 11

## Severe Hip dysplasia



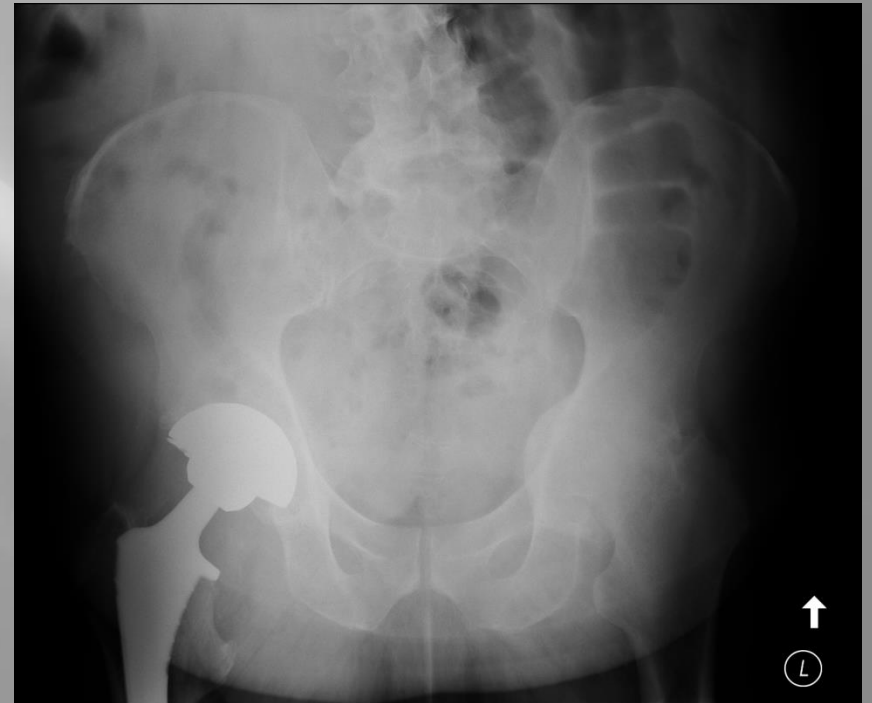
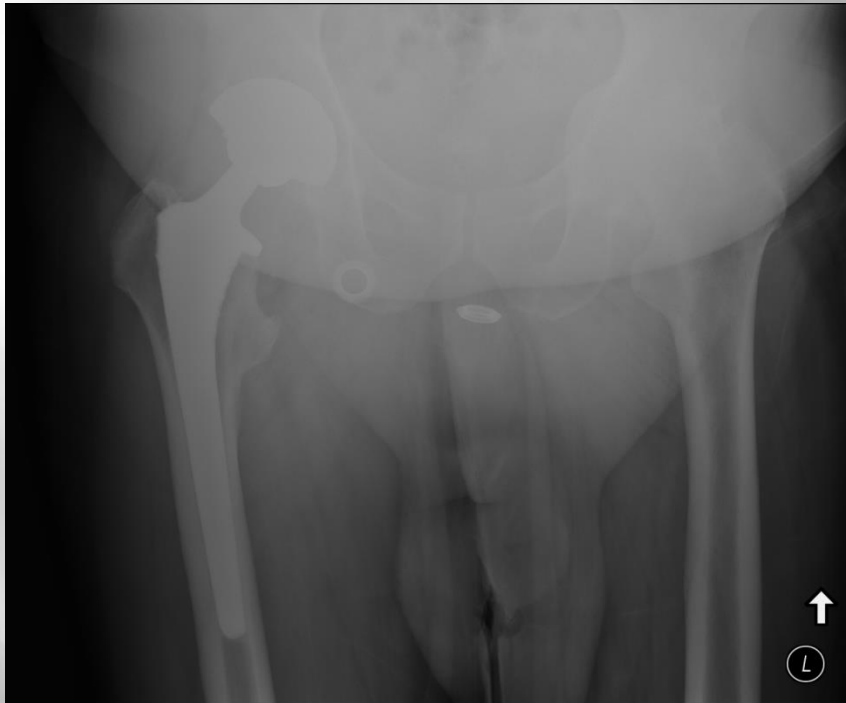


# Jumbo cup



# Hip case 12

## 66 male- Ankylosis + Protrusio grade 3



# Restore the hip center 120 cc of cancellous chips

