

# **HIRISC Technique (Hip Reconstruction In-Situ with Screws and Cement): Using Hardware and Cement to Fill the Defect**

**Carlos A. Higuera, MD**

**Department Chairman, Levitz Department  
of Orthopaedic Surgery**

**Amy and David Krohn Family Distinguished  
Chair in Orthopaedic Outcomes**

**Cleveland Clinic Florida**

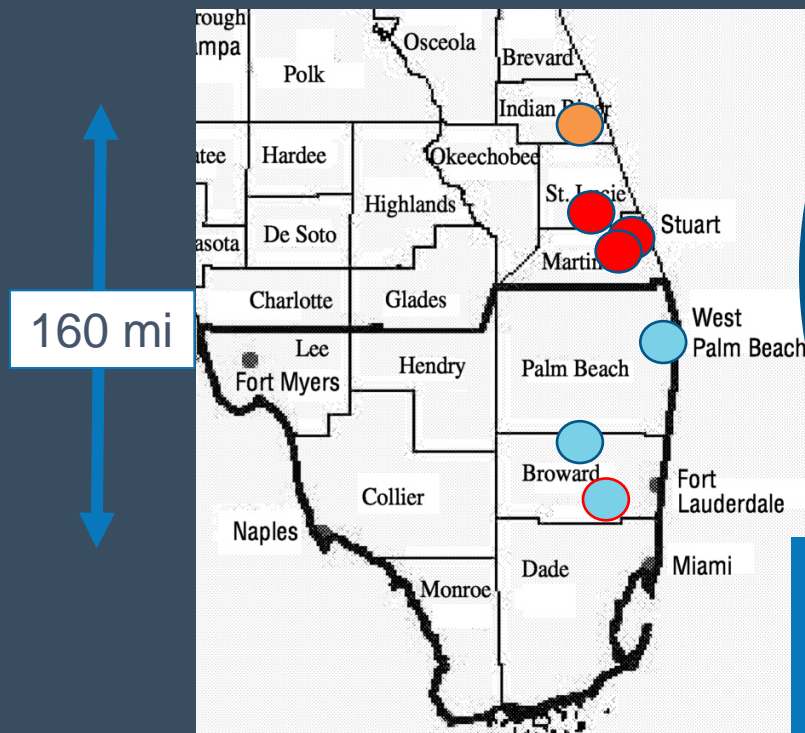


# Disclosures

**Consulting** – Solventum (3M Company), Stryker, BD

**Research Support** – Stryker, Zimmer Biomet, Solventum, Microgen Dx, Osteal Therapeutics, OREF

# Cleveland Clinic Florida



- CC Indian River
- CC Martin Health
- CC Weston

5 HOSPITALS +  
SATELLITES  
1,100 HOSPITAL BEDS  
6,500 qx / year  
2,800 arthroplasty / year  
5% medical market

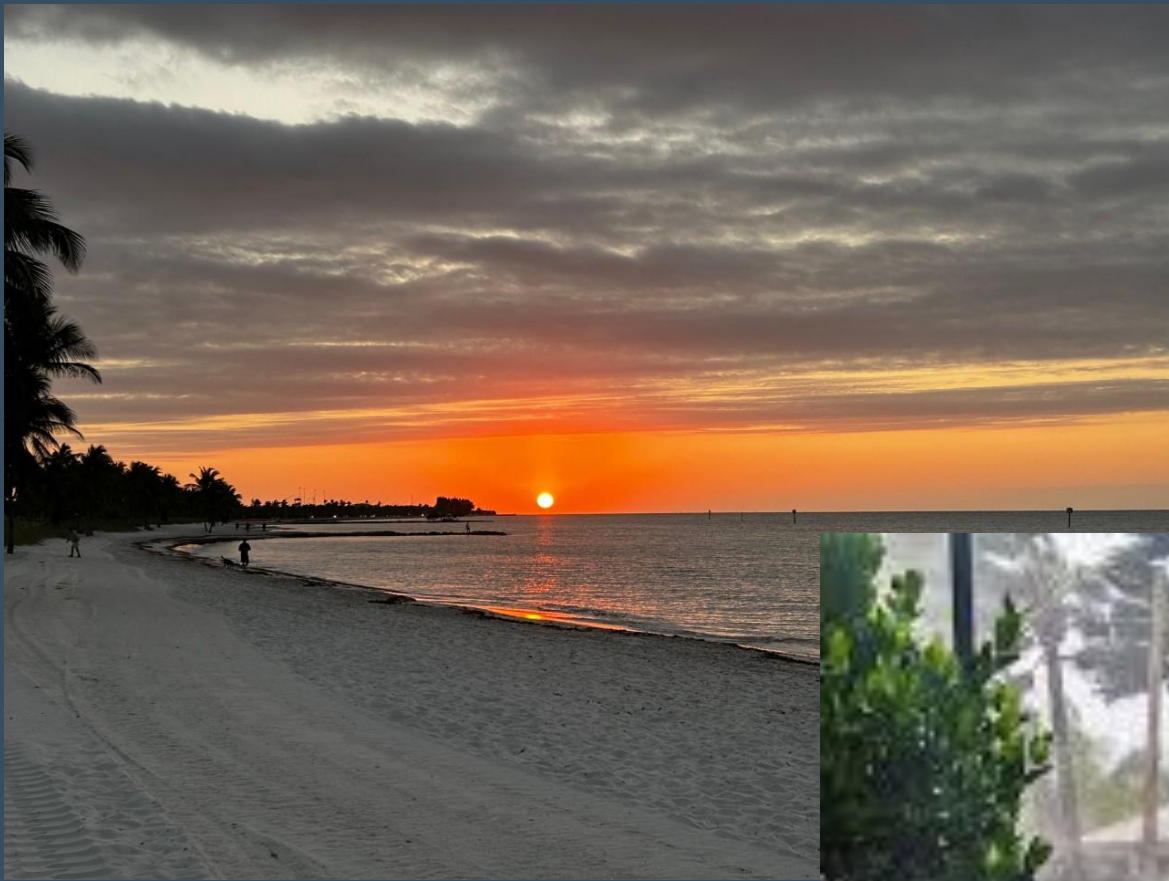
# CC Weston

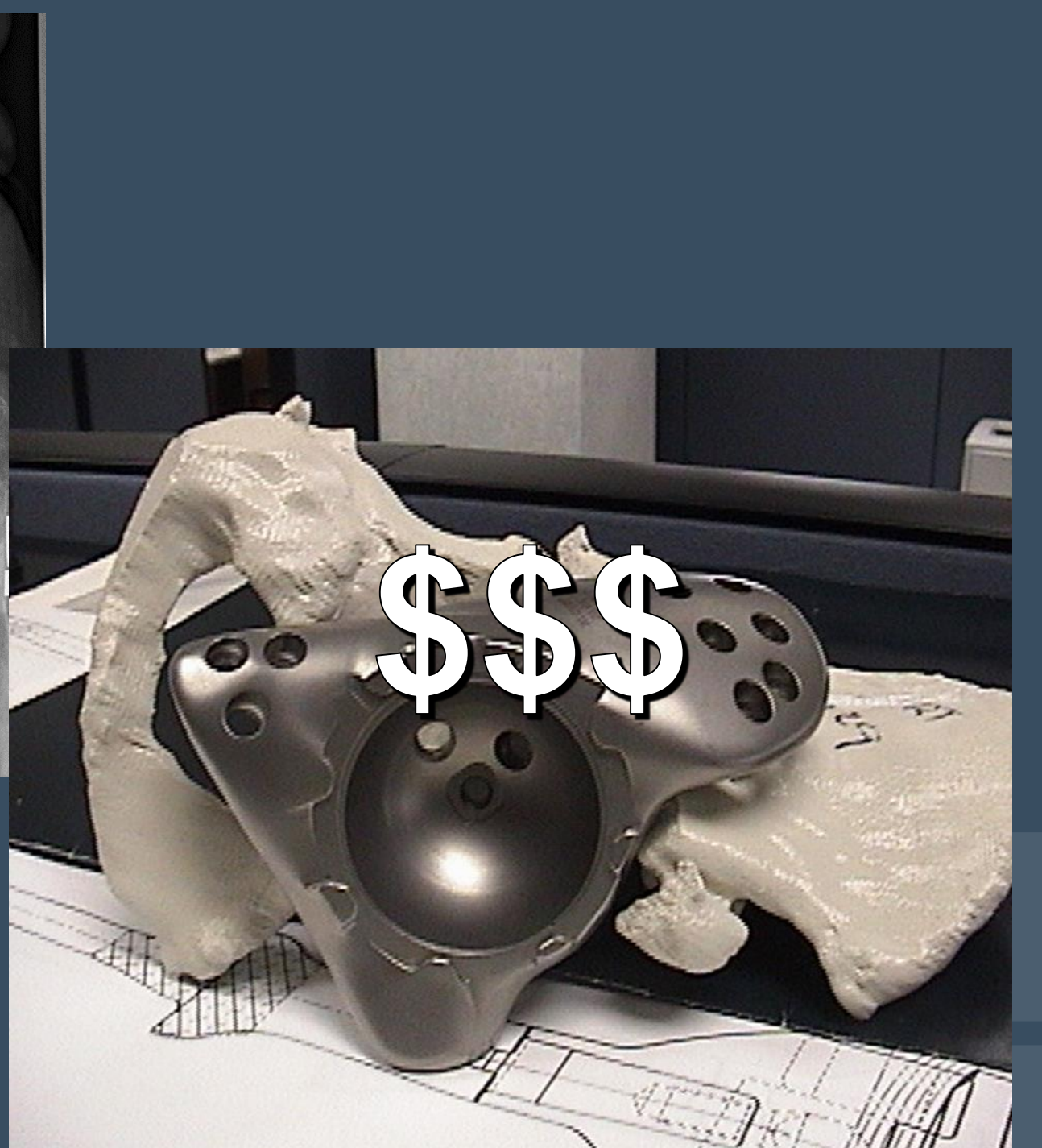
#1 In Miami-Fort Lauderdale

A Top Florida Hospital



- 230 beds
- 1 ED, 1 ASC, satellites
- 14 surgeons
- 4 nonop sports, 2 podiatrist
- 4 rheumatologists
- 52 physical therapists
- 2022-2023 > 100 peer review publications





**Background**

# **Harrington Acetabular Reconstruction**



**Harrington reconstruction otherwise used for  
periacetabular metastases is rarely chosen in failed  
THA**

**Need of a reliable stability and early weight bearing  
in the frail and elderly or high-risk patients (PJI)**

**Cemented acetabular component with augmented  
pins or screws to recreate the anterior and posterior,  
and when needed superior walls**



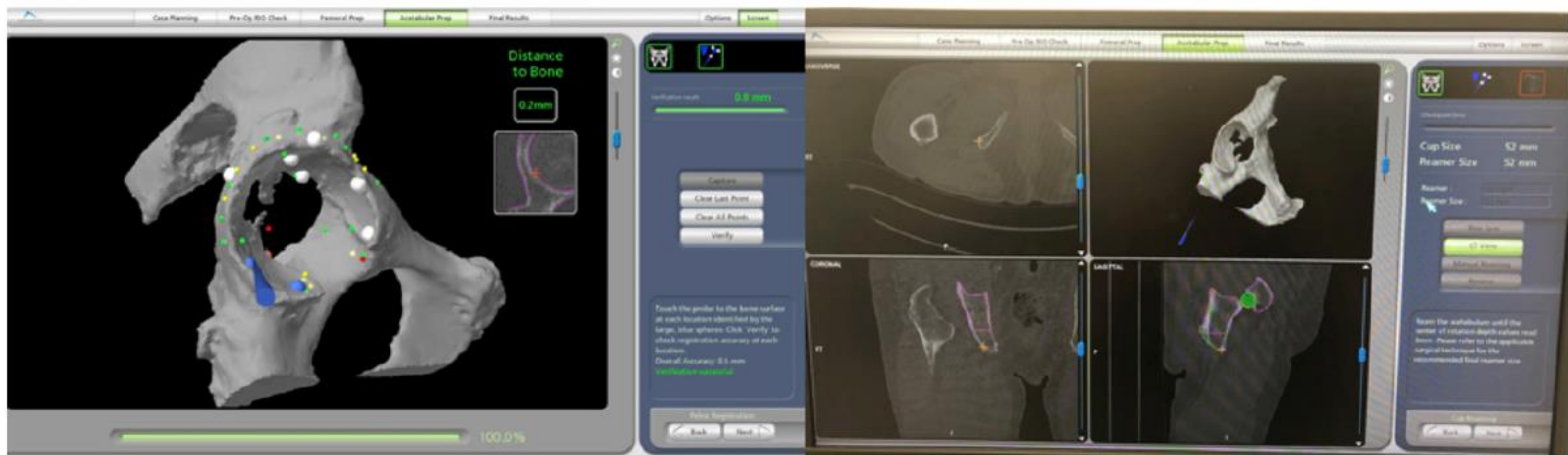


Fig. 6-B



# Case

**86 y.o. female**

**Left hip pain (8/10)**

**constant, aching relieved with ambulatory device  
(Wheelchair), rest and pain meds**

**Left THA failure after 7 surgeries, intraoperative  
pelvic fracture**

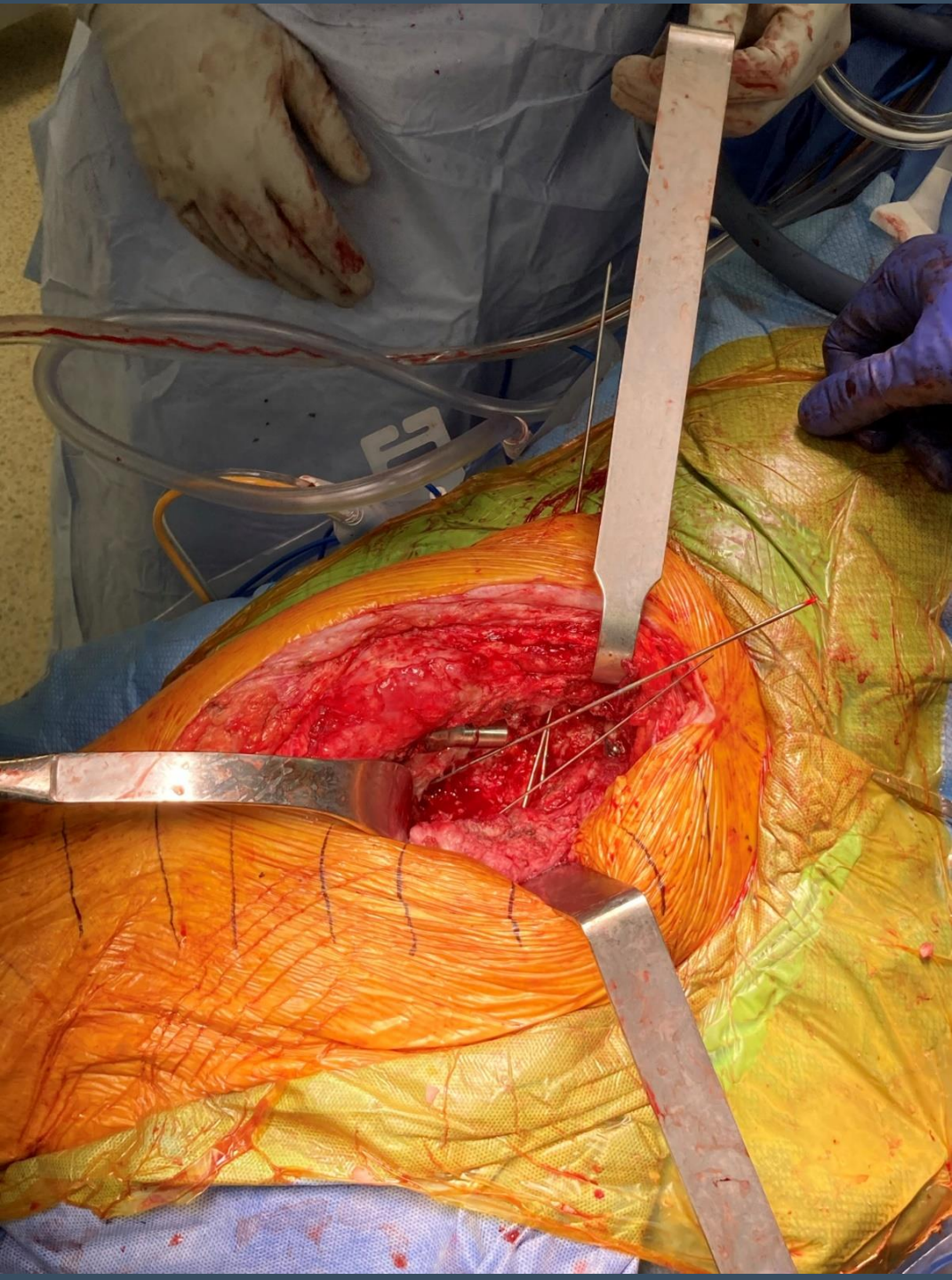
# X-Rays

**Acetabular component loosening**

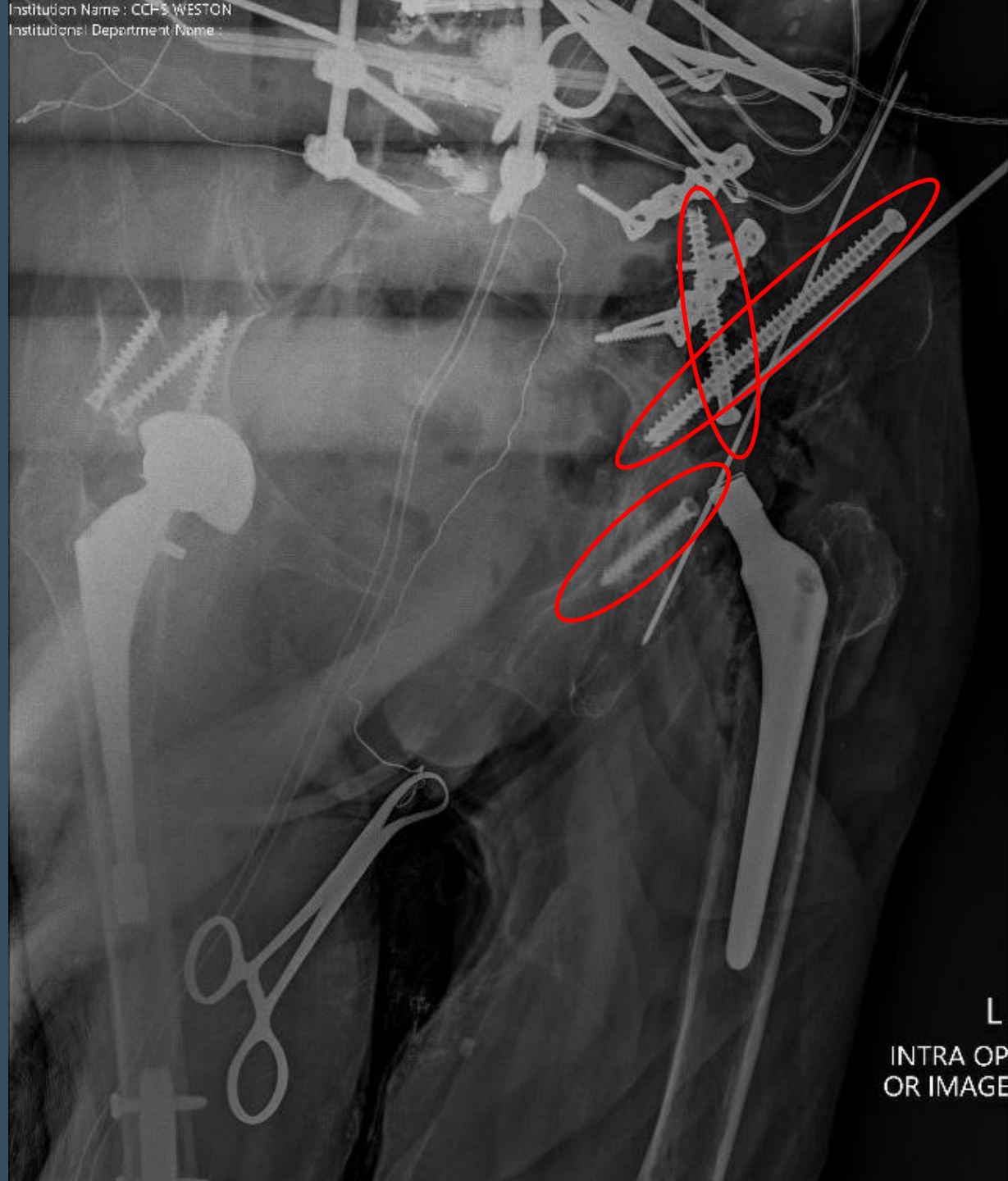
**Pelvic discontinuity**

**Poor bone stock,  
osteopenia**



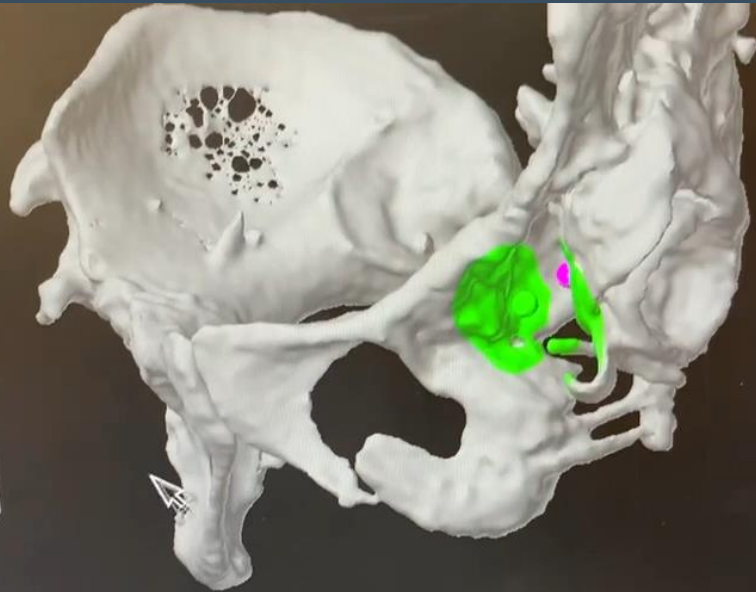
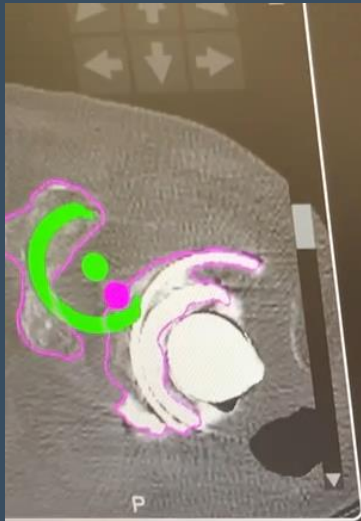


L  
OR IMAGE  
INTRA OP



L  
INTRA OP  
OR IMAGE

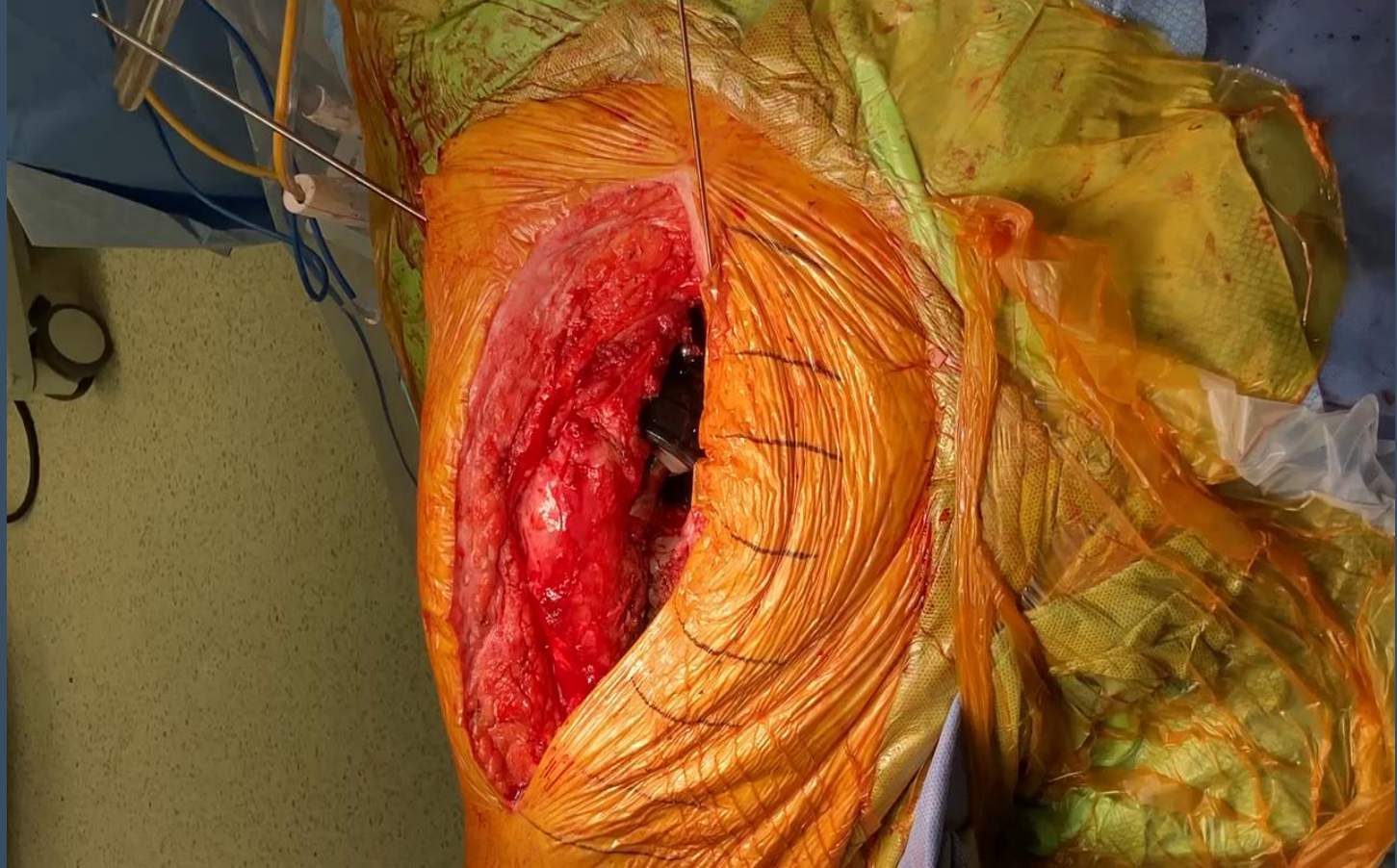


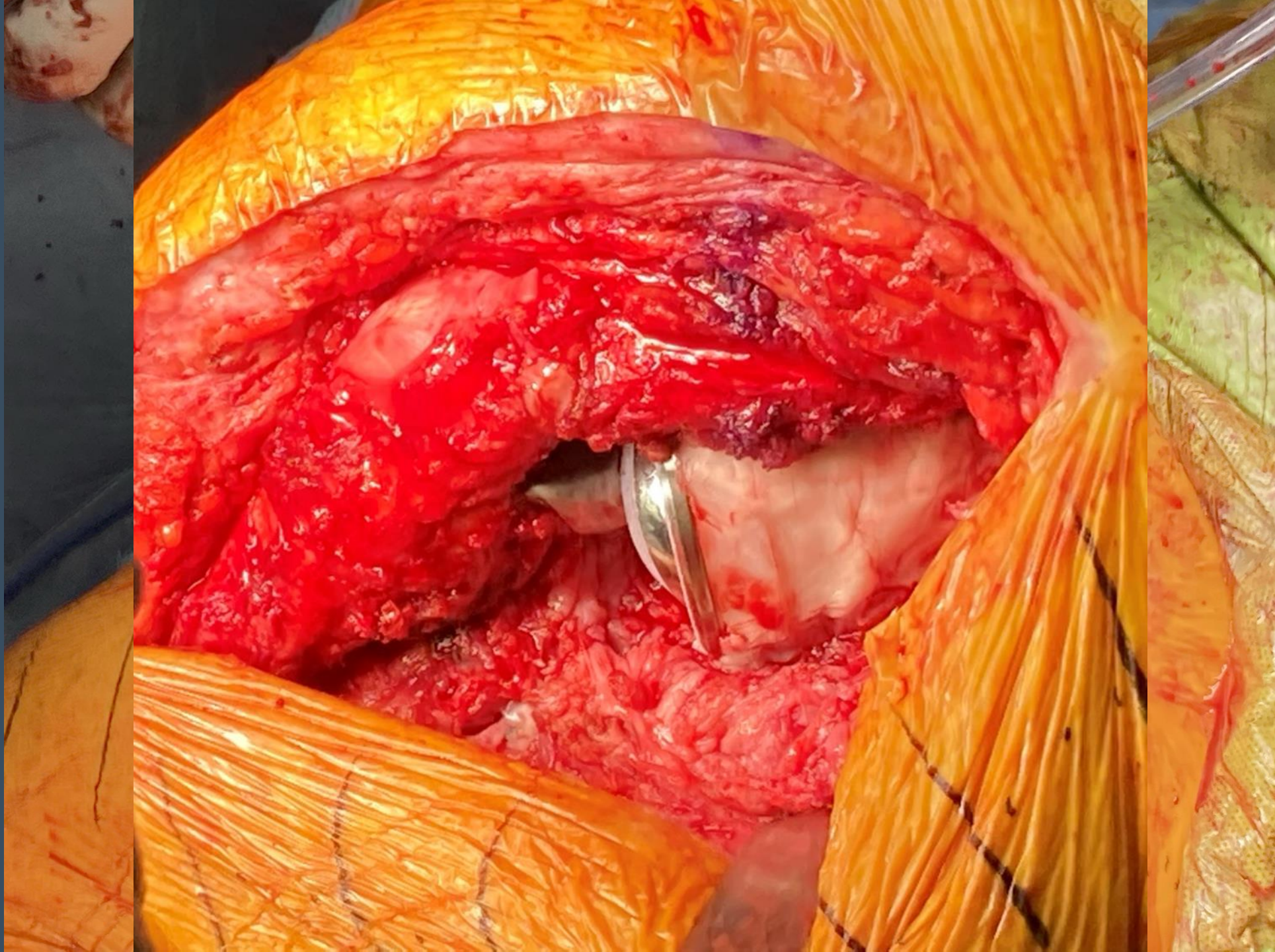


Supine Cup Inclination **42°**  
Supine Cup Version **15°**  
Inferior (mm) **12**  
Medial (mm) **6**  
Anterior (mm) **9**

Stem Version **2°**

	Supine (Planned)	Stand	Sit
Change in Tilt	N/A	--	--
Cup	42°		









L  
P  
N  
M  
SUPINE  
POST OP

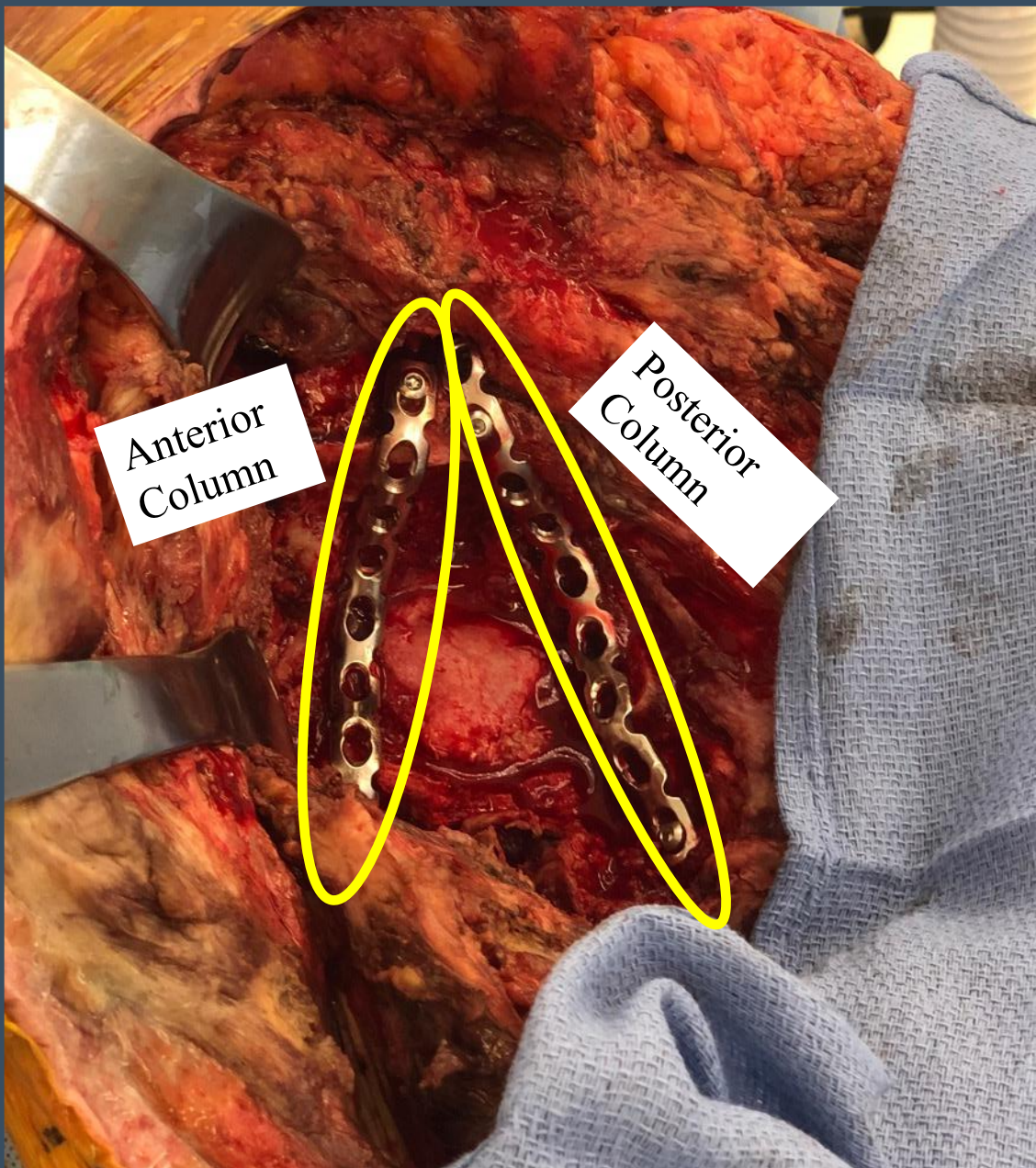




3 years f/u

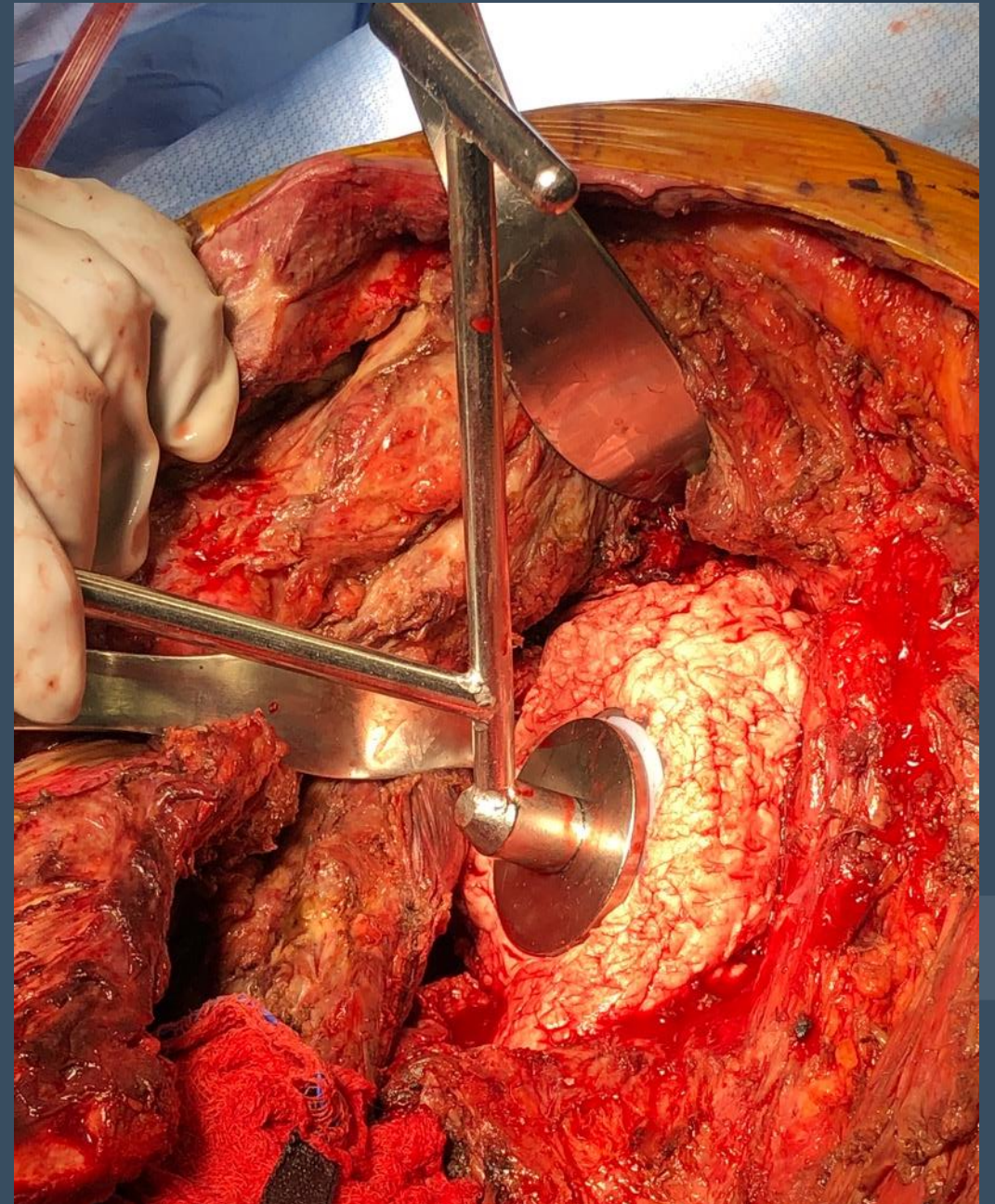
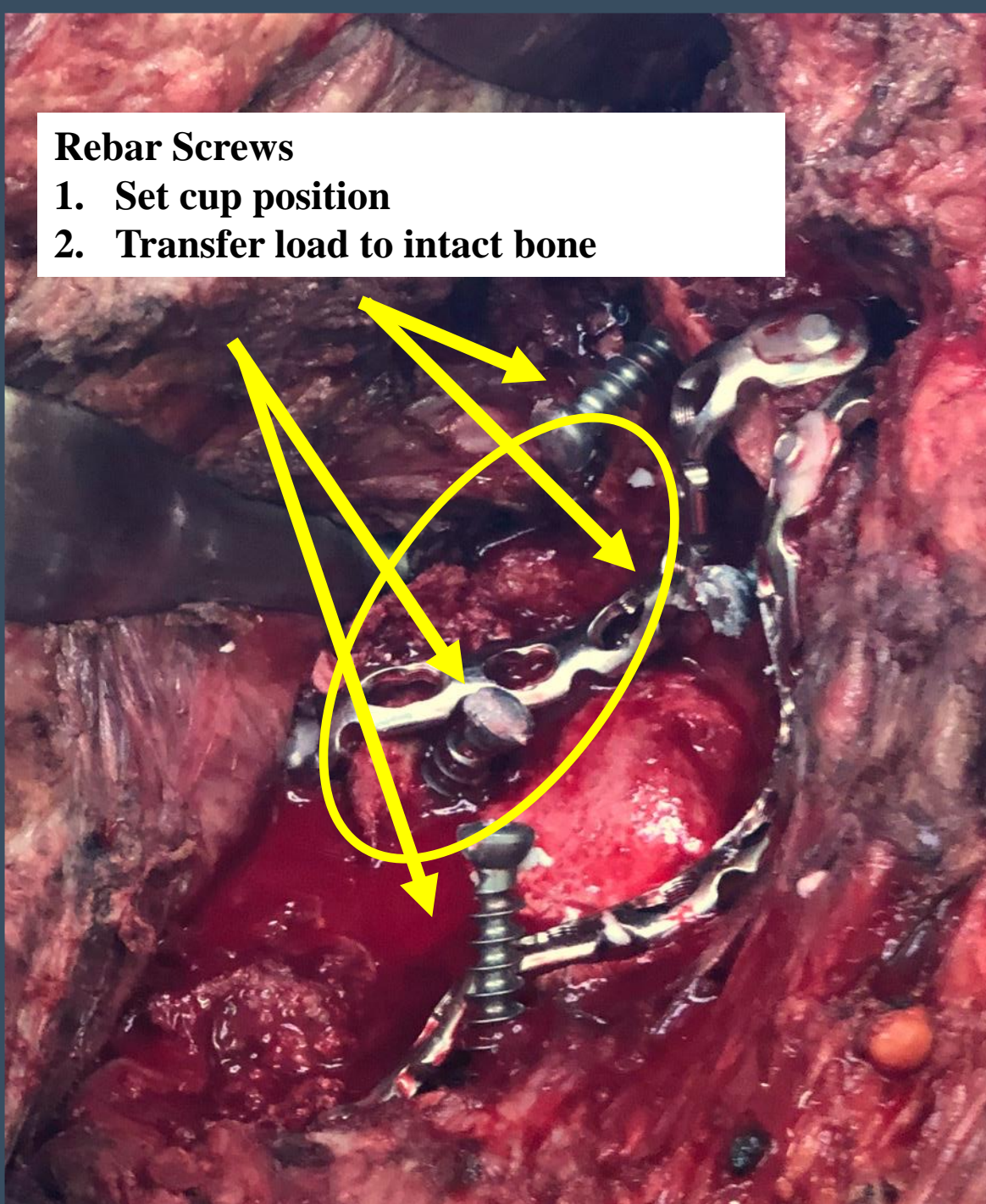
- 66 M, BMI 33
  - End stage RF, Dialysis
  - CHF
  - Neglected PJI
  - + Sinus tract
  - Cultures (+) MRSA





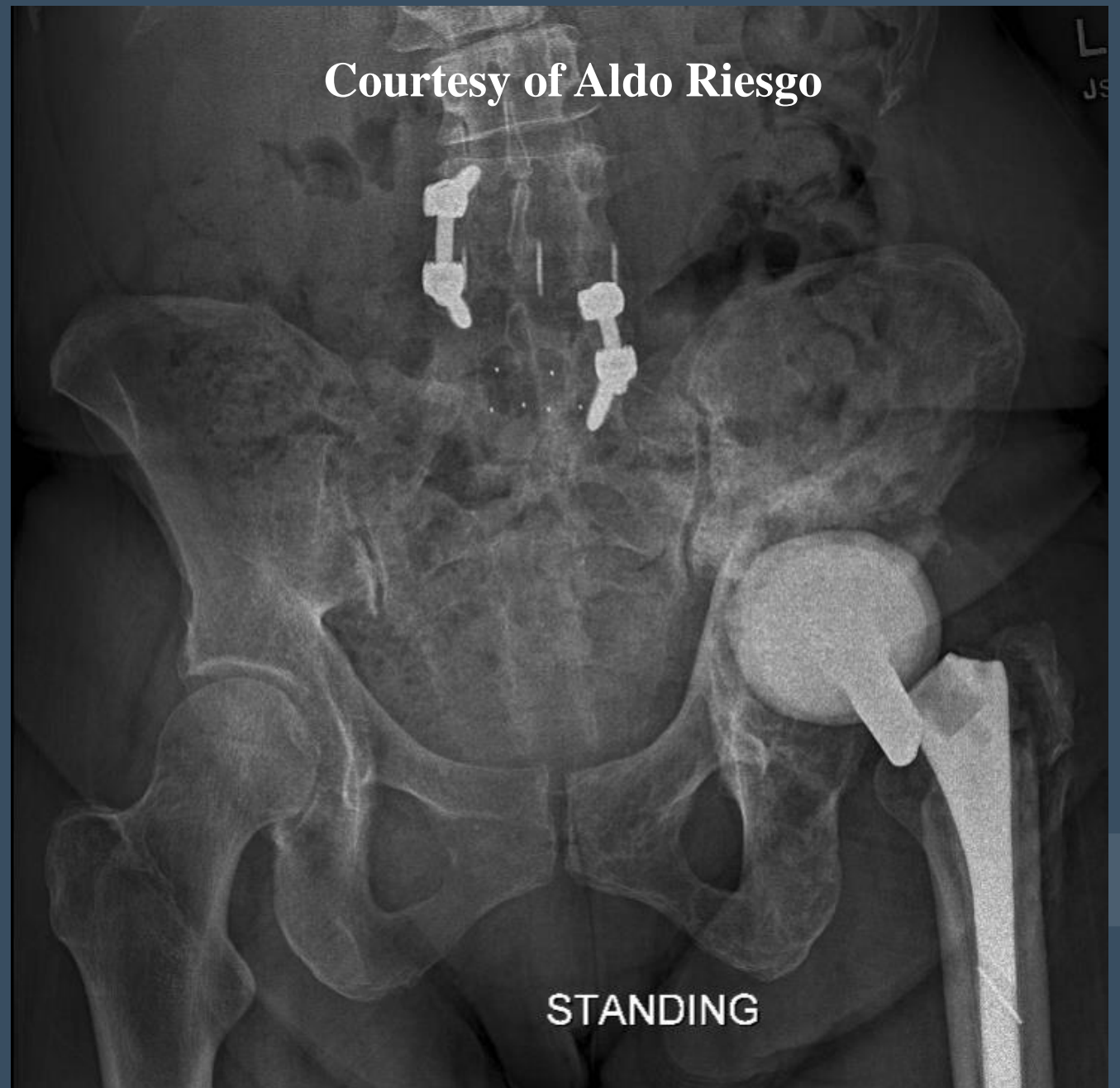
## Rebar Screws

1. Set cup position
2. Transfer load to intact bone

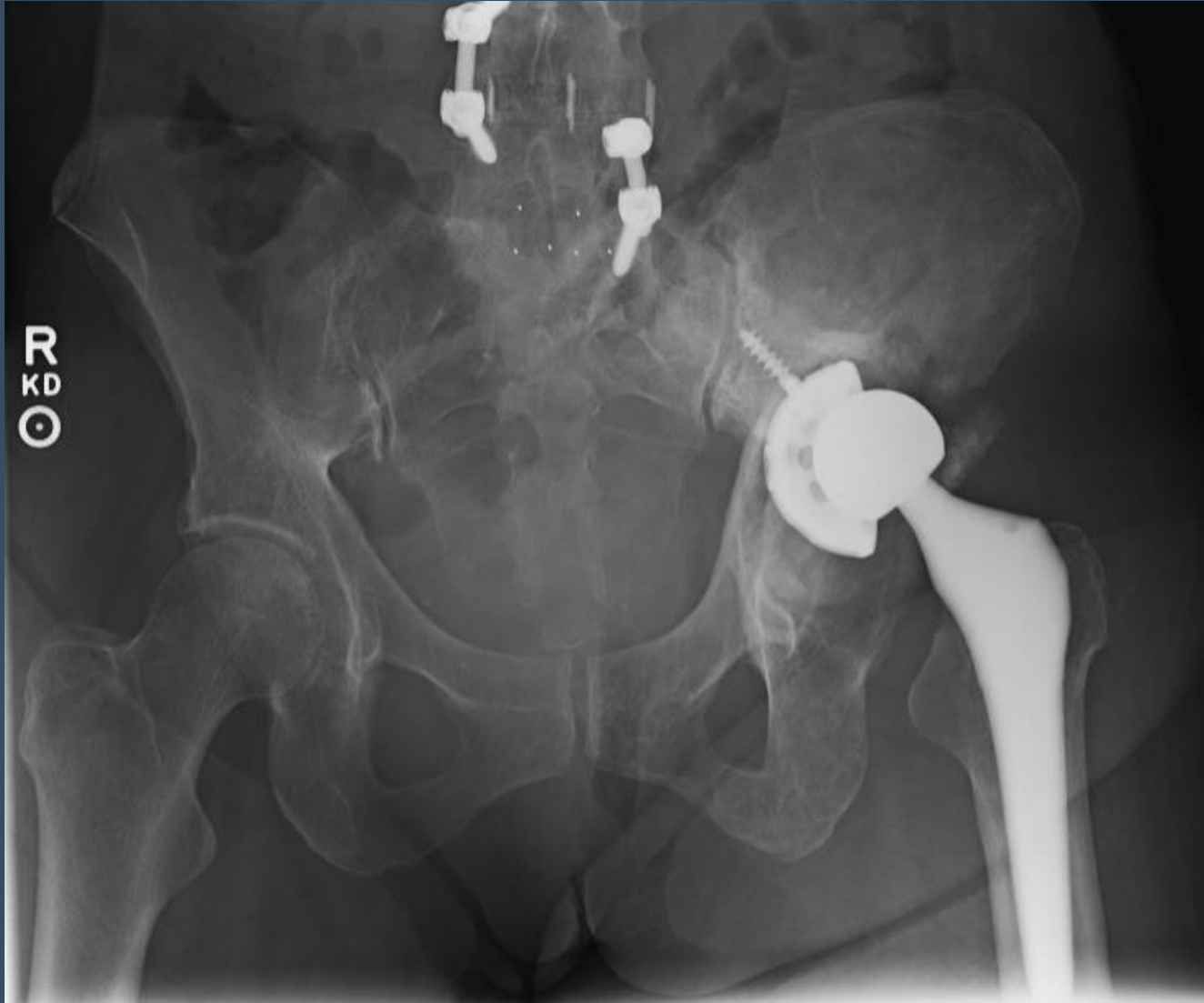




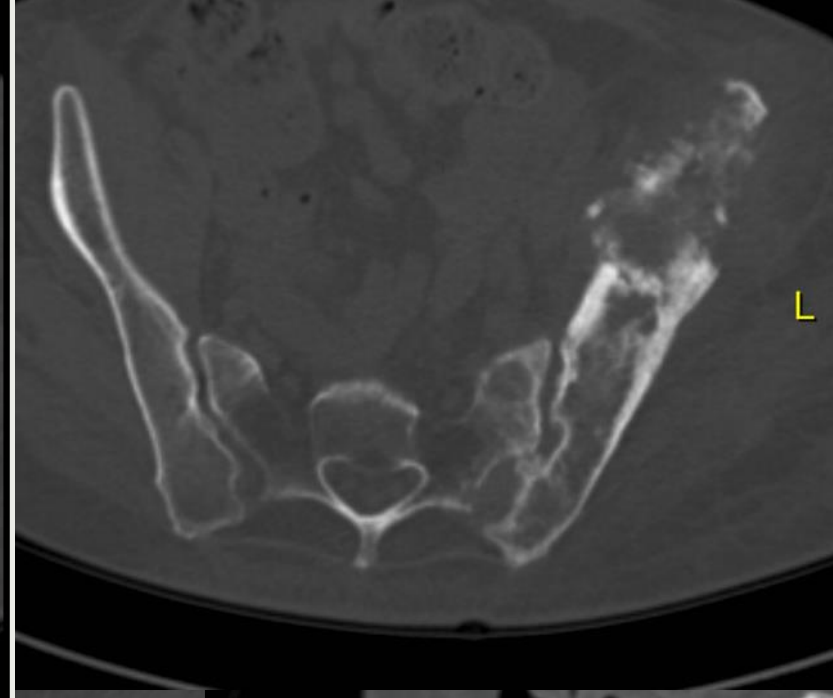
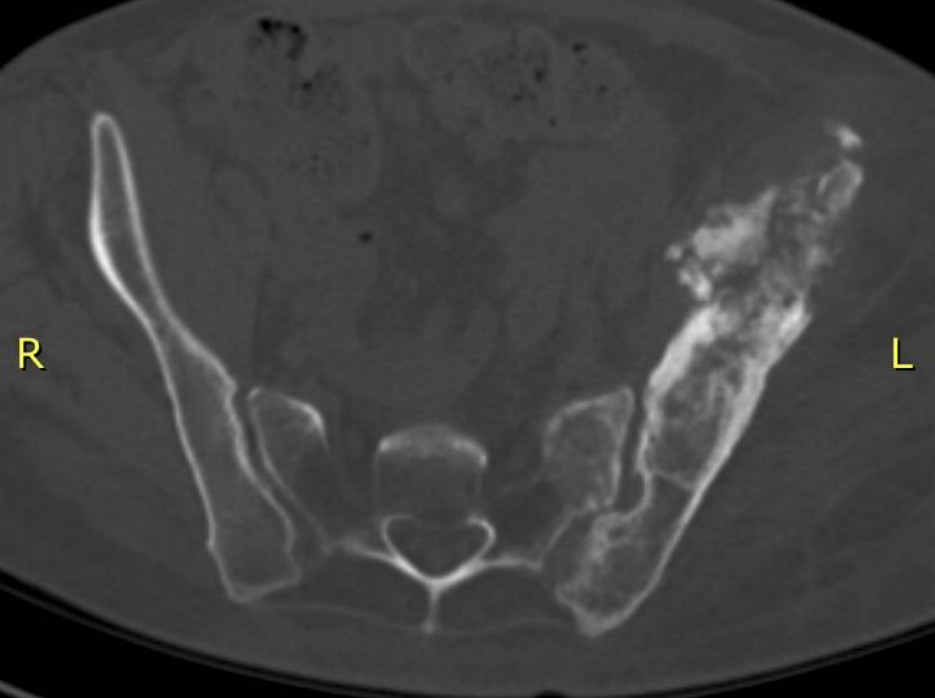
- 58F, BMI 18
- Hx of Lung CA
  - In remission
  - Former smoker
- Metastatic breast CA to bone
  - S/p chemo & radiation to pelvis
  - MS Contin 60mg q12,  
Oxycodone 10mg q4
- CRP 56.1, ESR 29, DD: 1.22
- Draining Sinus
- Cultures (-)



# Initial XRs – prior to outside resection & spacer







# Pre-Operative Rationale

- Metastatic Disease
- Avascular, compromised bone
- Multiple fractures, unsupportive pelvis
- Needs to ambulate
- Limited life expectancy
- Radical debridement
- Empiric antibiotic & antifungal coverage
- SINGLE definitive operation



# Scientific Evidence

**Evidence is either from oncology literature  
or is just limited to small case series**

**96% implant survival in the setting of  
periacetabular metastases at 5 years (n=89)**

**Only 1 acetabular revision**

Case Reports

> J Arthroplasty. 2011 Dec;26(8):1570.e21-4. doi: 10.1016/j.arth.2010.12.002.

Epub 2011 Feb 5.

## **A 17-year follow-up of modified "Harrington" reconstruction after acetabular resection**

Suhel Y Kotwal<sup>1</sup>, Henry A Finn

**Even at 17 yrs, there is no mechanical failure after Harrington recon for a patient with plasmacytoma of the ilium and acetabulum**

# Materials and Methods

- Retrospective chart review
- 59 consecutive acetabular HiRISC reconstructions
- 4 surgeons at single institution (10/2018-1/2023)
- X-rays were reviewed and acetabular defect classified using Paprosky classification
- Paprosky type 1 and 2A cases were excluded (n=26)
- Paprosky 2B to 3B were included for analysis (n=33)

# Results

- Mean follow-up: 487 days – 1.3 years
- Paprosky 2B – 3B (6% oncologic – metastatic disease, 66% septic)
- 7 (21% were performed in native acetabula, 3 septic and 4 aseptic)
- 2 deaths
- 5 Revisions (**15%**) (4 recurrent PJI, 1 instability)
- 1 non-revised construct showed increased radiolucencies, asymptomatic

# Results

- Those who underwent revision (n=5):
  - Significantly younger (60.6 years vs. 73.8,  $p=0.040$ )
  - Higher body mass index (31.0 Kg/m<sup>2</sup> vs. 24.1,  $p=0.045$ )
- Sex, race, ethnicity, ASA classification, infection diagnosis status (septic/aseptic), and mean follow-up (449.3 vs. 695.6 days,  $p=0.189$ ) were not significantly different between both groups (Table 1)



# Table 1

Variable	Level	Patients who had construct revision Total (N=5)	Patients without construct revision Total (N=28)	P value
<b>Age,</b> Mean in years (range)		60.6 (51 – 71)	73.8 (38 – 93)	0.04
<b>Sex,</b> N (%)	Male	2 (40%)	13 (46.4%)	1.0
	Female	3 (60%)	15 (53.6%)	
<b>Race,</b> N (%)	Black	0 (0%)	2 (7.1%)	0.7
	White	5 (100%)	25 (89.3%)	
	Other	0 (0%)	1 (3.6%)	
<b>Hispanic Ethnicity,</b> N (%)	No	5 (100%)	27 (96.4%)	1.0
	Yes	0 (0%)	1 (3.6%)	
<b>ASA,</b> N (%)	1	0 (0%)	2 (7.1%)	0.8
	2	1 (20%)	4 (14.3%)	
	3	4 (80%)	21 (75%)	
	4	0 (0%)	1 (3.6%)	
<b>BMI, Mean in Kg/m<sup>2</sup></b> (range)		31.0 (18.9 – 49.6)	24.1 (15.9 – 39)	0.04
<b>Type of surgery (septic),</b> N (%)	No	0 (0%)	11 (39.3%)	0.1
	Yes	5 (100%)	17 (60.7%)	
<b>Length of follow-up</b> Mean in days (range)		696 (328 – 964)	449 (20 – 1539)	0.1

BMI: Body mass index. ASA: American Society of Anesthesiologists physical status classification system.

# Limitations

- Retrospective
- Small cohort with selection bias
- Short follow up
- However, only series we are aware off



# Discussion

- Overall survivorship was 85% at 1.9 years
- Longer follow up is needed to evaluate the true value of this surgical technique
- Careful interpretation – Sometimes less is more...



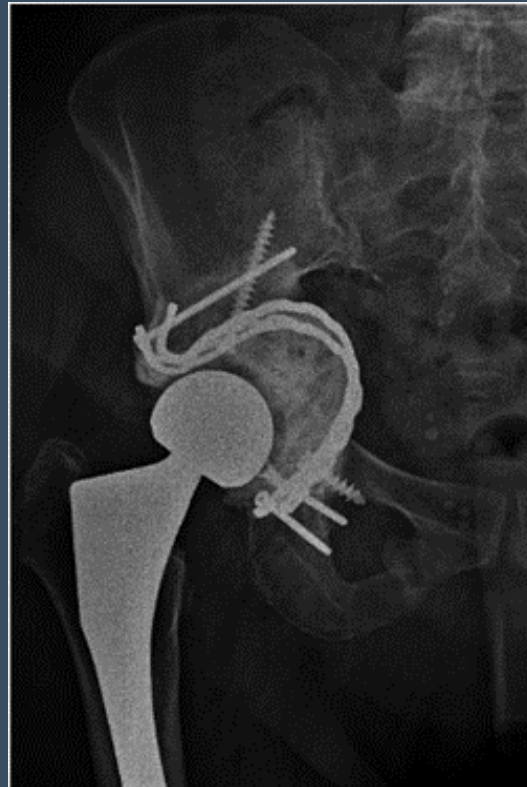
■ THE INTERNATIONAL HIP SOCIETY

## Hip Reconstruction In Situ with Screws and Cement (HiRISC) construct to treat large acetabular bone defects

A CASE SERIES



Cite this article: *Bone Joint J* 2024;106-B(5 Supple B):82-88.





**Every life deserves world class care.**



- Owned and presented by **The Hip Society** and **The Knee Society**.
- Two and a half days of didactic presentations, surgery demonstrations, debates, cases, discussions – and more!
- Learn from world-renowned key opinion leaders in the field.
- Special programming for residents and fellows.
- REGISTER TODAY AT [WWW.CCJR.COM/REGISTRATION](http://WWW.CCJR.COM/REGISTRATION)

**JOIN US AT CCJR® DECEMBER 11-14, 2024**  
**HYATT REGENCY GRAND CYPRESS || ORLANDO, FL**

