

Intraoperative Cheat Codes –Top 10 Gadgets for Efficient THA



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UCSF Arthroplasty Meeting
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Disclosures

- Consultant
 - DePuy Synthes
 - Zimmer Biomet

Top 10 Gadgets in the OR

- Not much of a gadget guy
- Top 10 tips/Moves for Efficient THA
- Will include some gadgets
- No Conflicts



Efficiency in the operating room

- Don't repeat steps
- Complete Steps
- No wasted motions



Value

- Efficiency in OR leads to Value
- Surgeons
- Patients
- ASC



Efficiency in the OR: Consistent teams

- #1 factor in efficiency
- Know your steps
- 5-10 secs x 100 = 15 mins
- Only so much faster *you* can get



10 Gadgets/Moves for Efficient THA

1 -Templating

2-Table tips for femoral exposure

3-Offset reamers/impactors

4- Automated Cup impaction

5- Canal Finder with fluoro

6- High Speed Burr on the field

7- Automated Broaching

8- Gripper Retractor System

9- Grid – Leg length/offset

10- Dressing/Wound management

1- Digital Templating

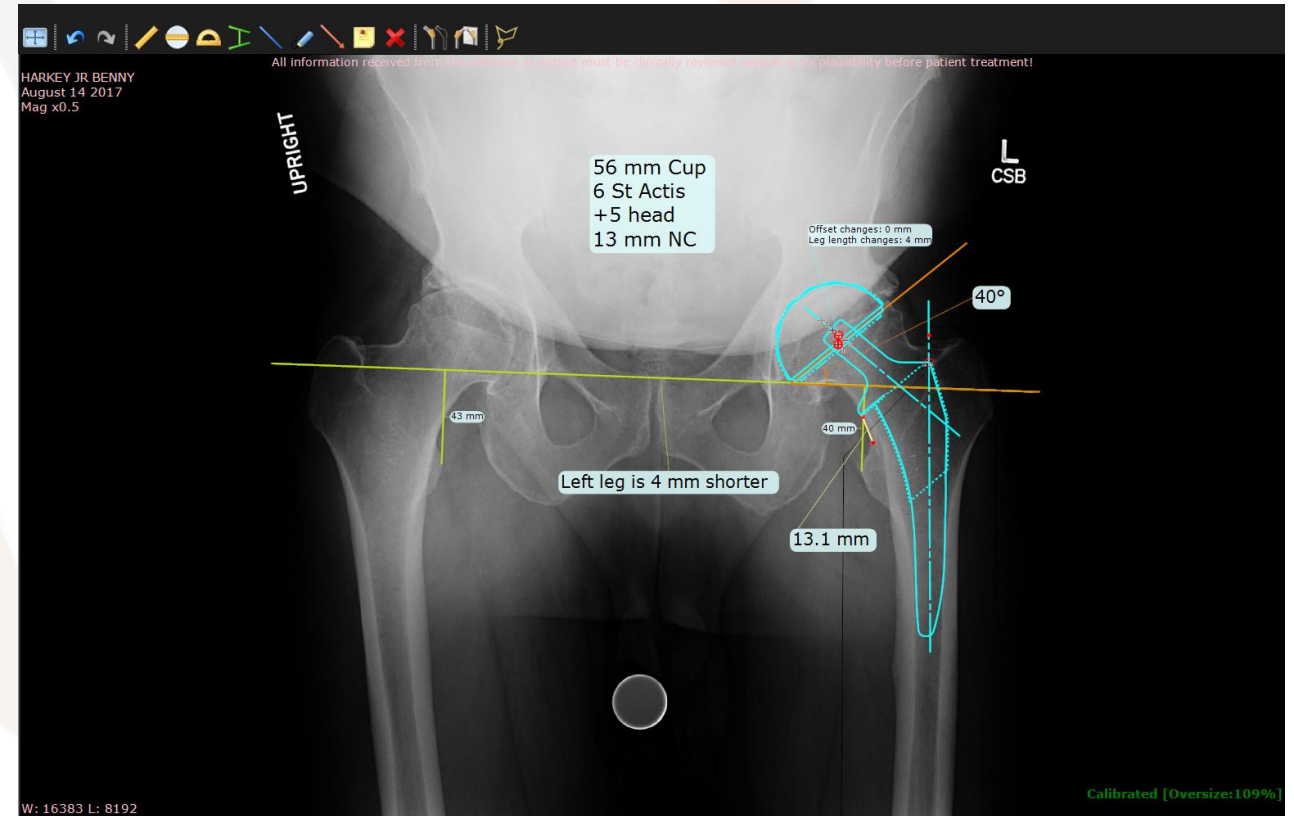
- Do It Yourself!
 - Anticipating challenges
- Assess the position of the Pelvis
 - Posterior tilt (outlet)
 - Anterior tilt (inlet)
 - Dysplasia
 - Lumbar spine
 - Pelvic obliquity
 - Iliac wing

Match the standing AP Pelvis



Templating

- Cup choice/position
- Stem choice/Position
 - Accurate neck cut
- Size of implants
- Leg Length
- Offset



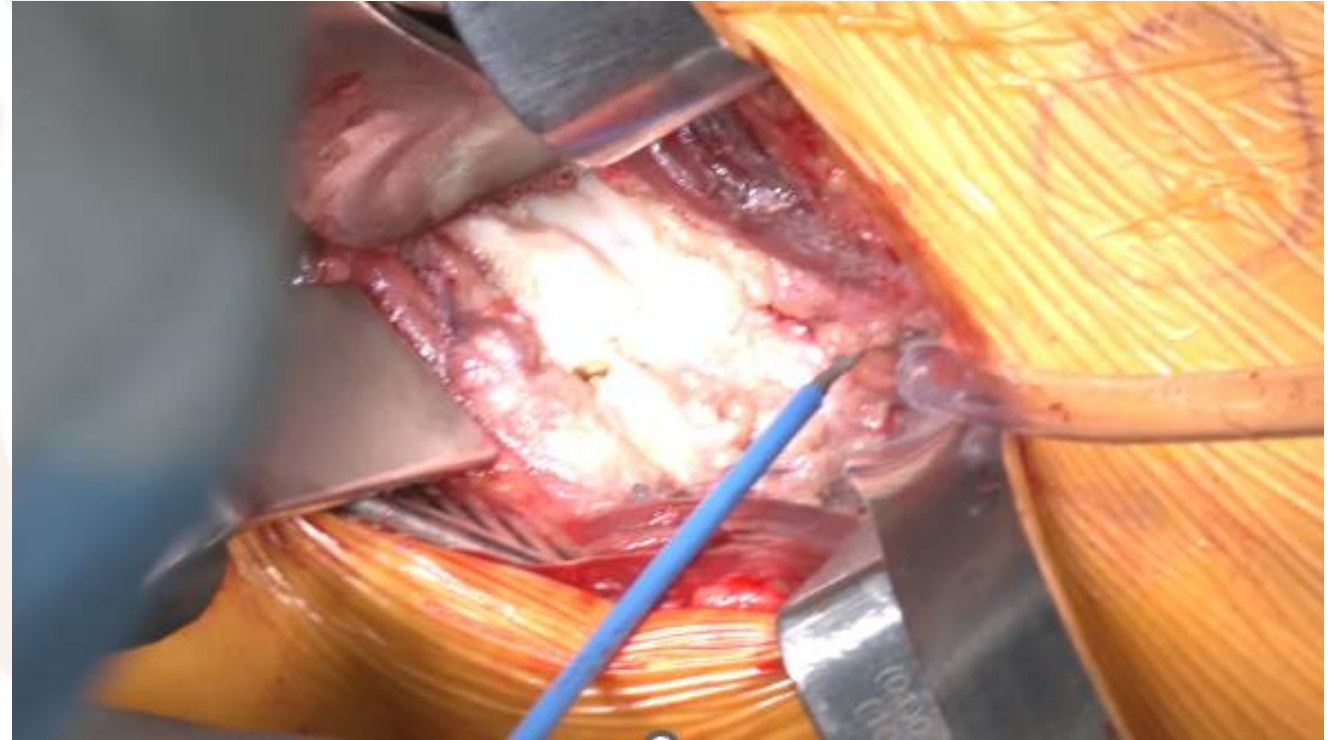
Approach

- Direct Anterior Approach
- Reproducible
- Stepwise and efficient



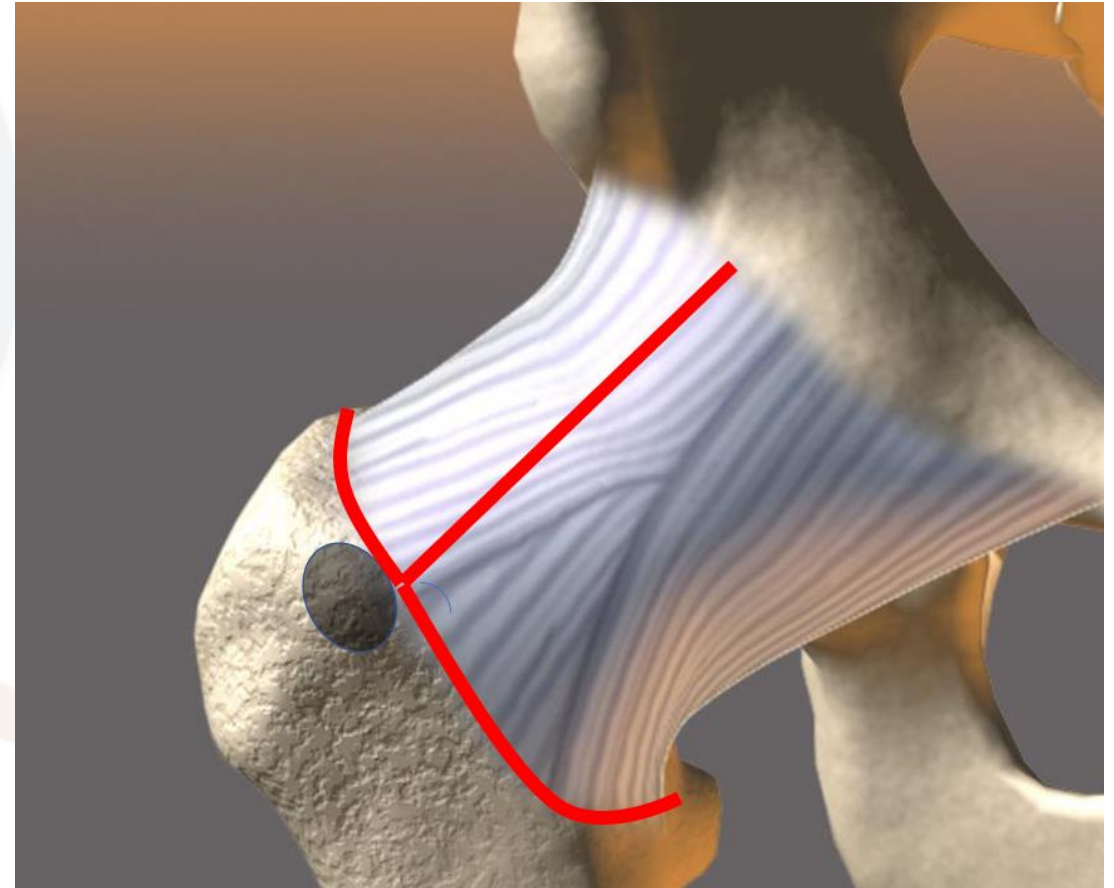
Approach

- Sets you up for success
- Efficiency in THA
- All about Exposure
 - Acetabular
 - Femoral



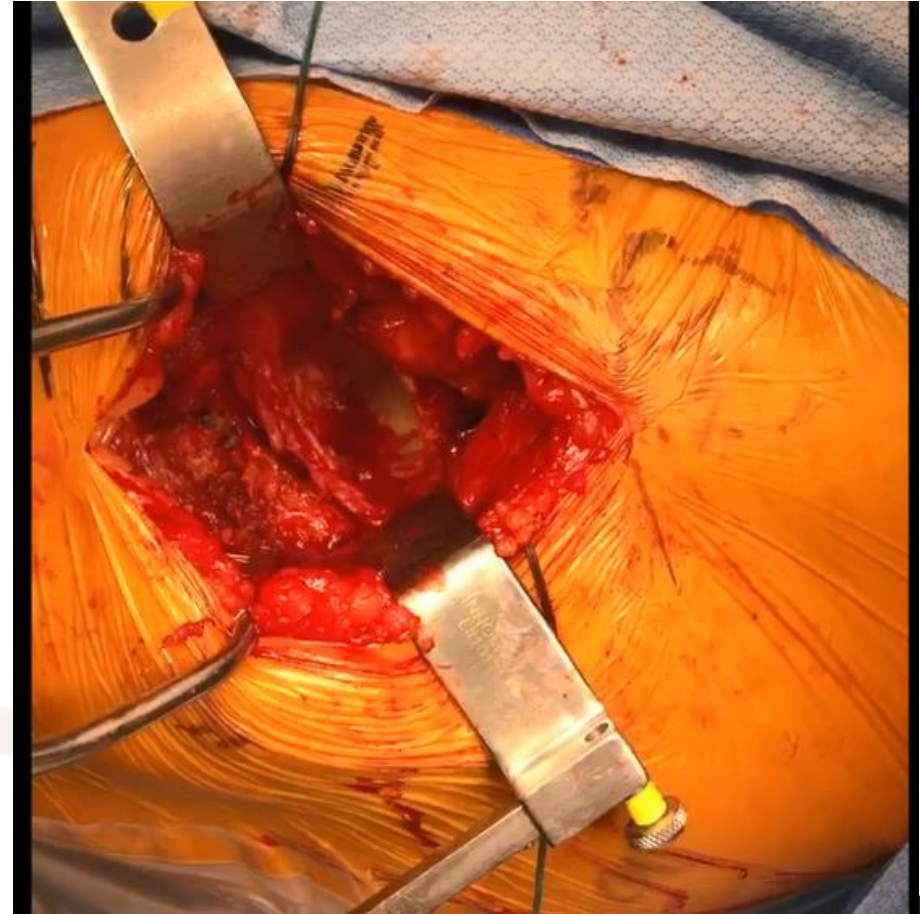
Capsulotomy

- Vastus tubercle
- Split the femoral neck
- Equal Flaps
- Down the intertrochanteric line



Exposure

- Key to DA THA
- Makes putting parts in easy



2-Table Management

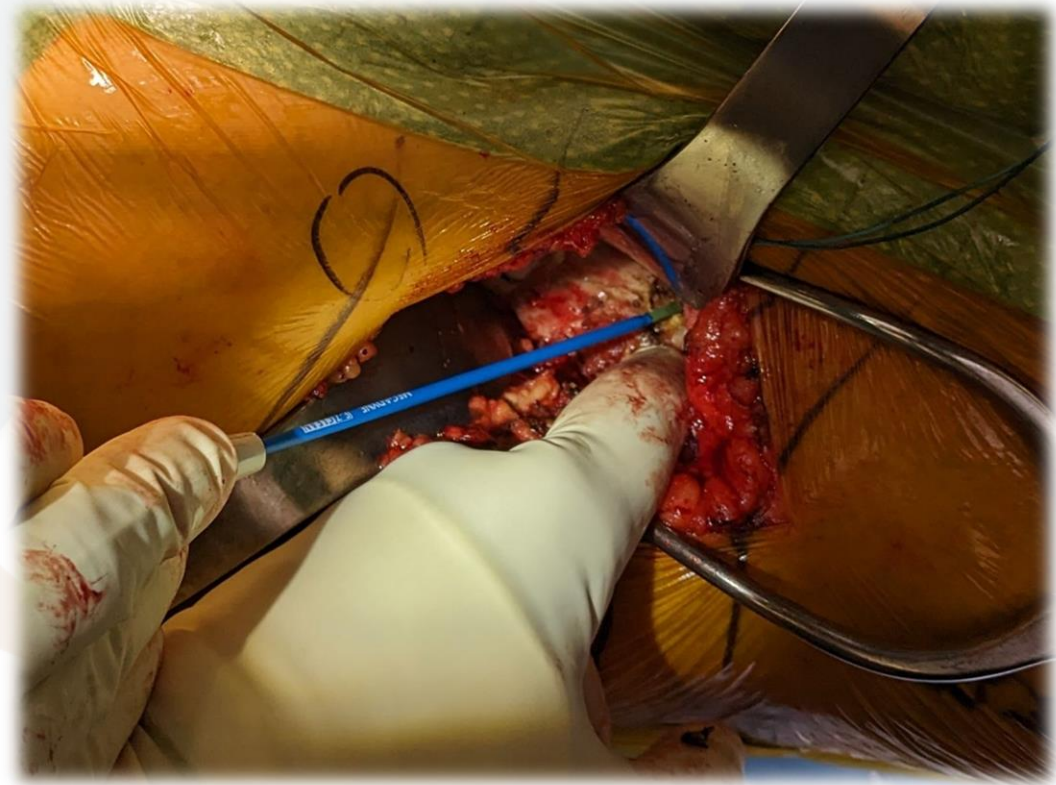
- Very useful in DAA
- Release at the beginning
- Helps you later bringing the femur up



90-100 degrees of ER

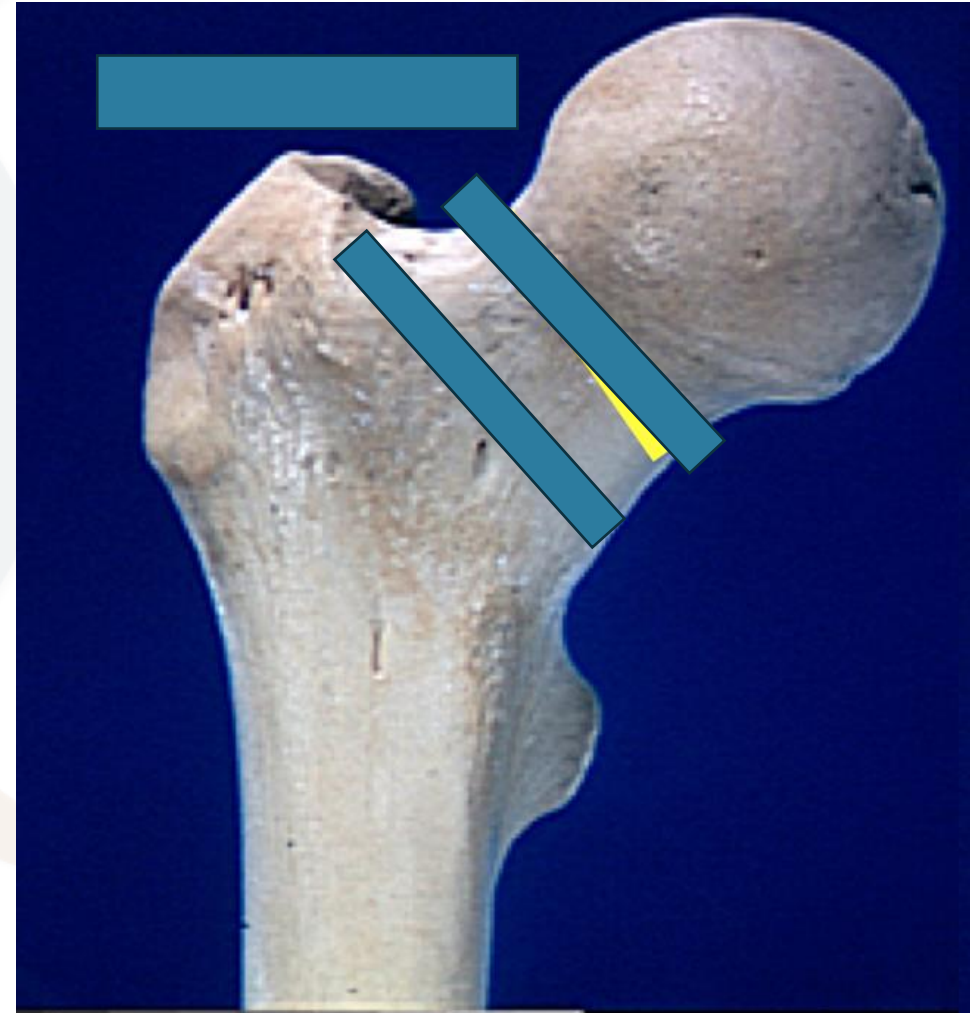
Femoral Release/Exposure

- Stay on Bone
- Feel the Lesser Trochanter
- Estimate neck cut



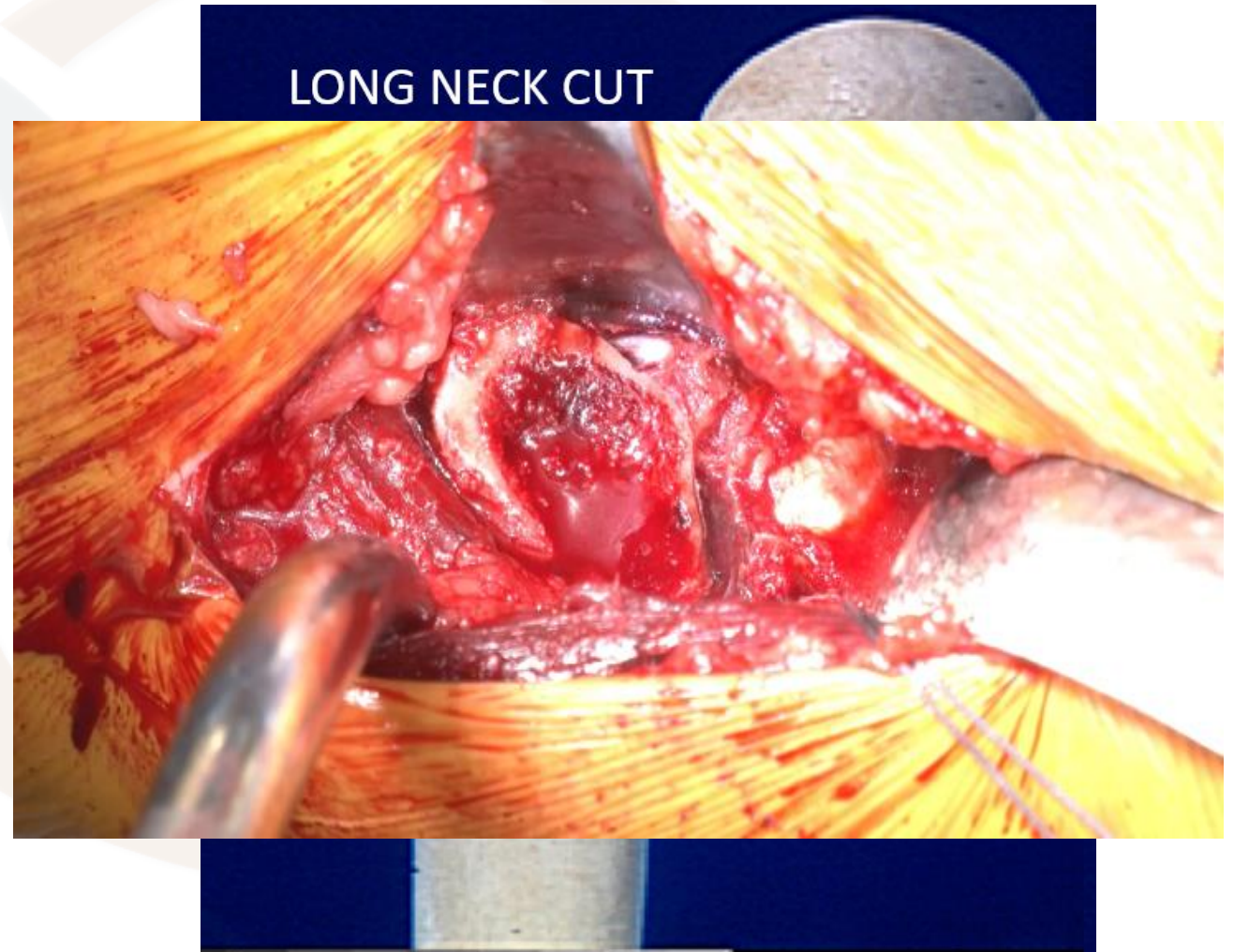
Femoral Neck cut

- Seems basic
- Always a napkin ring
- Estimate from the shoulder and go. Focus on angle
- If incorrect: Can lead to multitude of problems



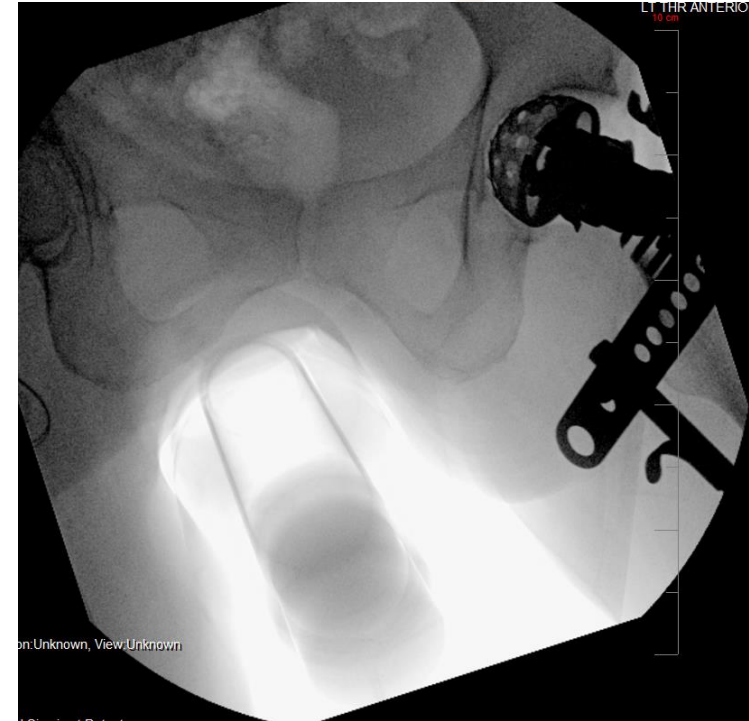
“Long Neck Cut”

- Head removal difficult
- Struggle with acetabular exposure/reaming
- Femoral Anatomy distorted
 - Lead to perforations



Acetabular exposure/reaming

- Ream under fluoro: optimize cup position
 - Re-create AP pelvis
 - Pelvic tilt?
 - Medialize first
 - Then grow the reamers
- Usually ream line to line



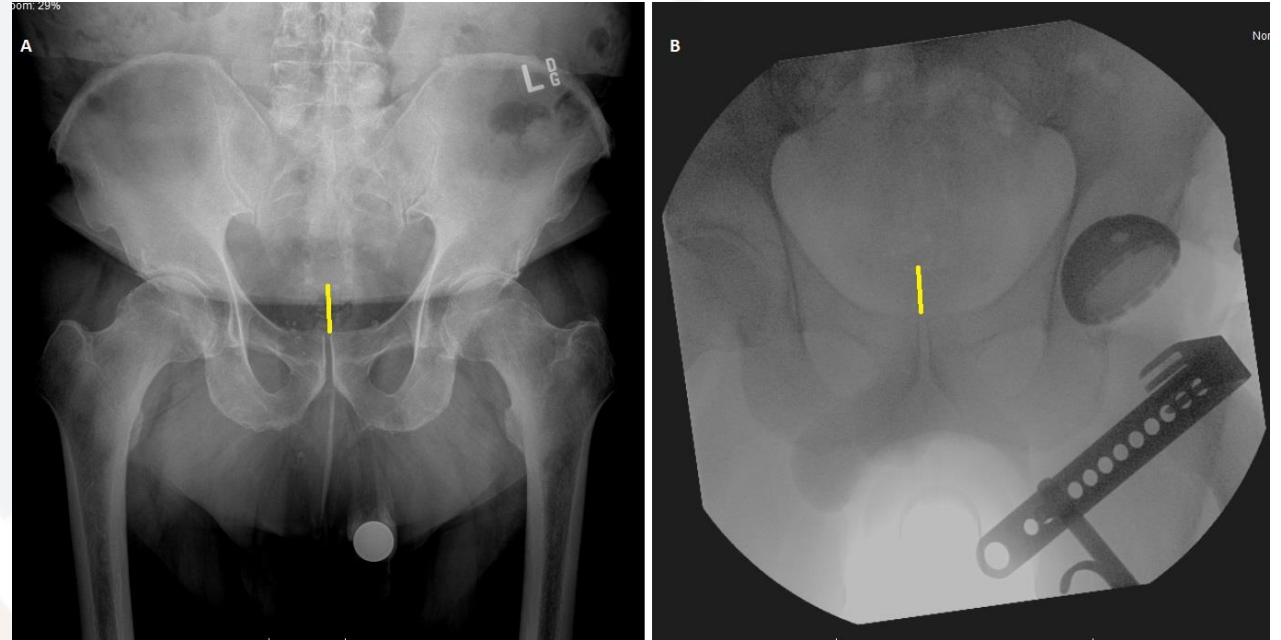
3-Offset reamer handle and cup inserter



- Reduces distal incision
- Reduces pubofemoral release
- Avoids cup abduction

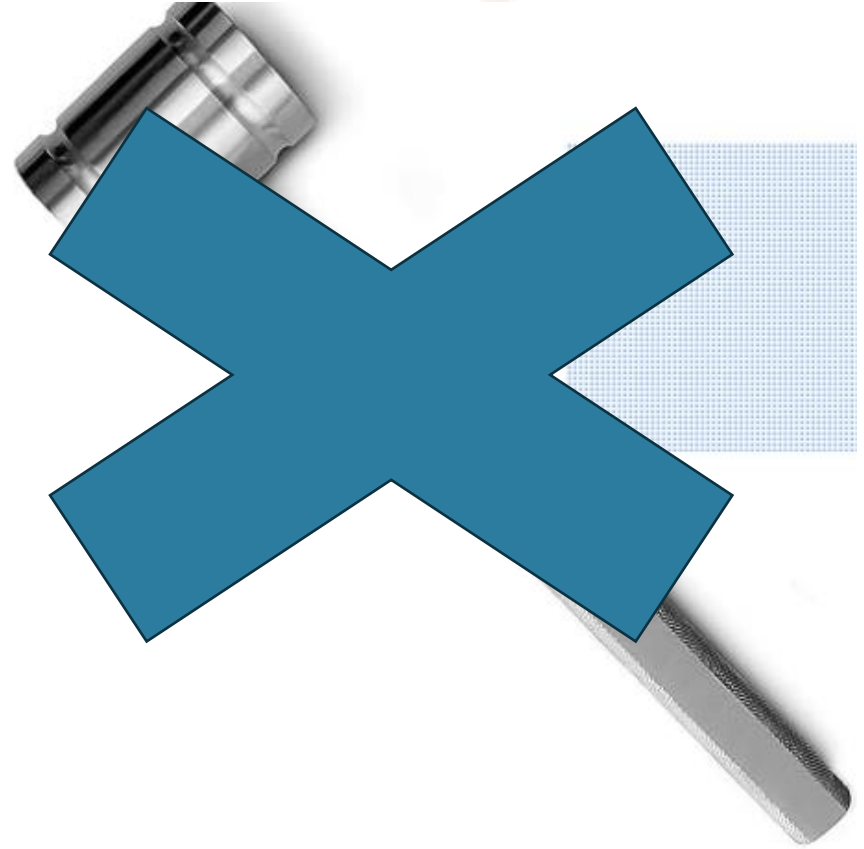
Acetabular component placement

- Technology helps tremendously!
 - Fluoro +/- computer navigation software
 - Match AP Pelvis standing
 - Grid



4-Automated Cup impaction

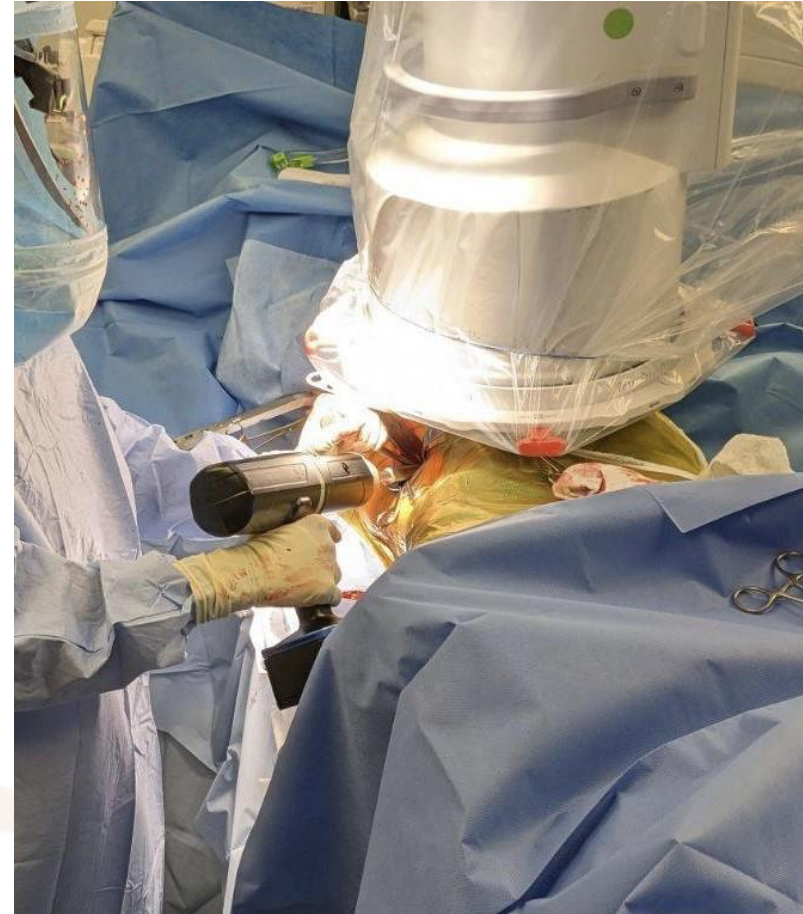
- Easy
- Less shoulder fatigue
- No Mallets
- More Fun



Acetabular component Placement

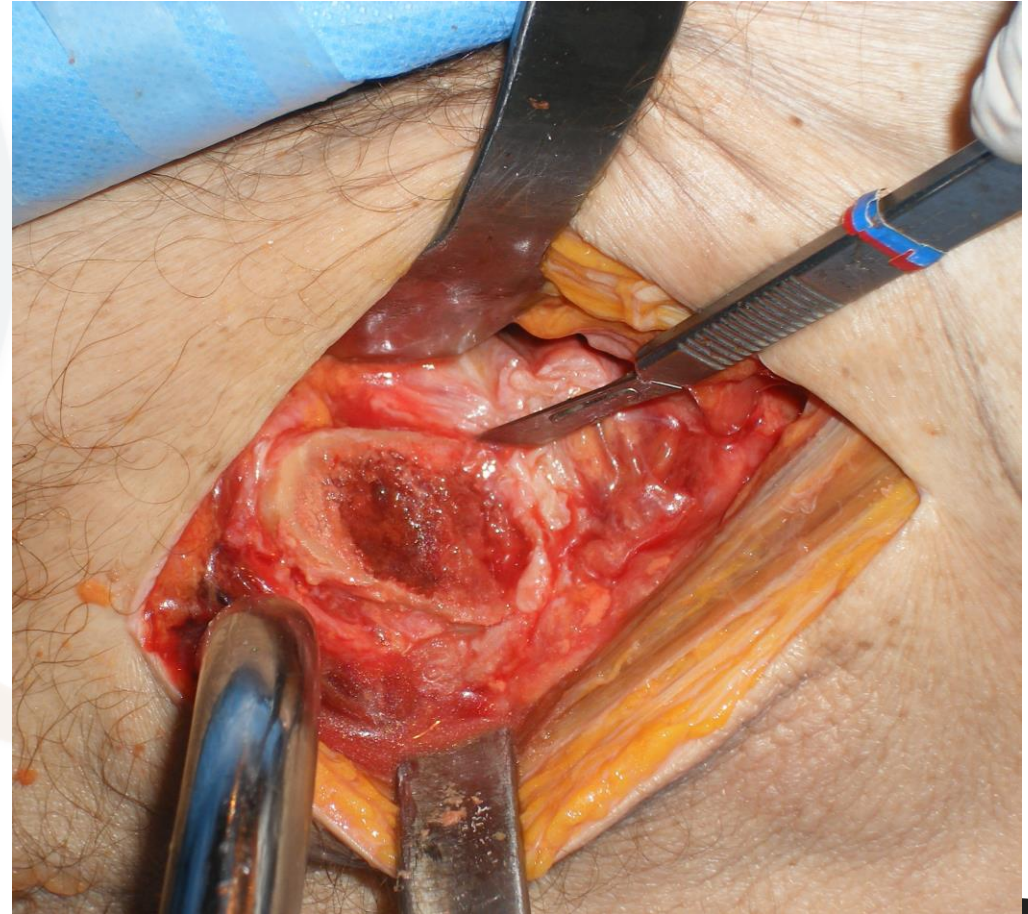
- If you use fluoroscopy:
 - Reproduce the standing AP pelvis!
 - Obturator foramen
 - Must account for pelvic tilt
 - Remember parallax effect

Automated Impaction



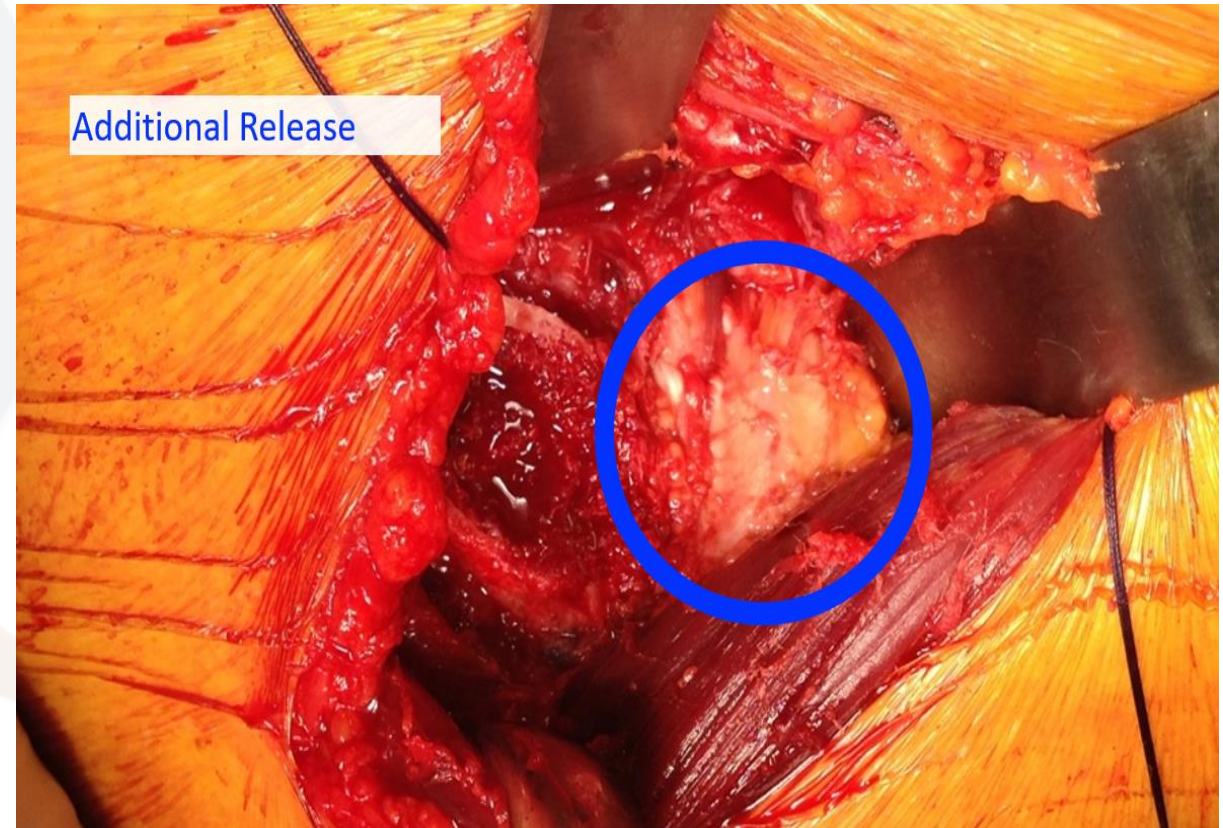
Femoral Exposure

- If done correctly, broaching is easy
- Don't start broaching until adequate



Find the Piriformis Fossa

- Release out of the fossa
- Anything inside the trochanter
- Do not get too posterior
 - Rotators



Release out of the Fossa

- Release towards Trochanter
- Lift femur up utilizing table
- More ER as necessary

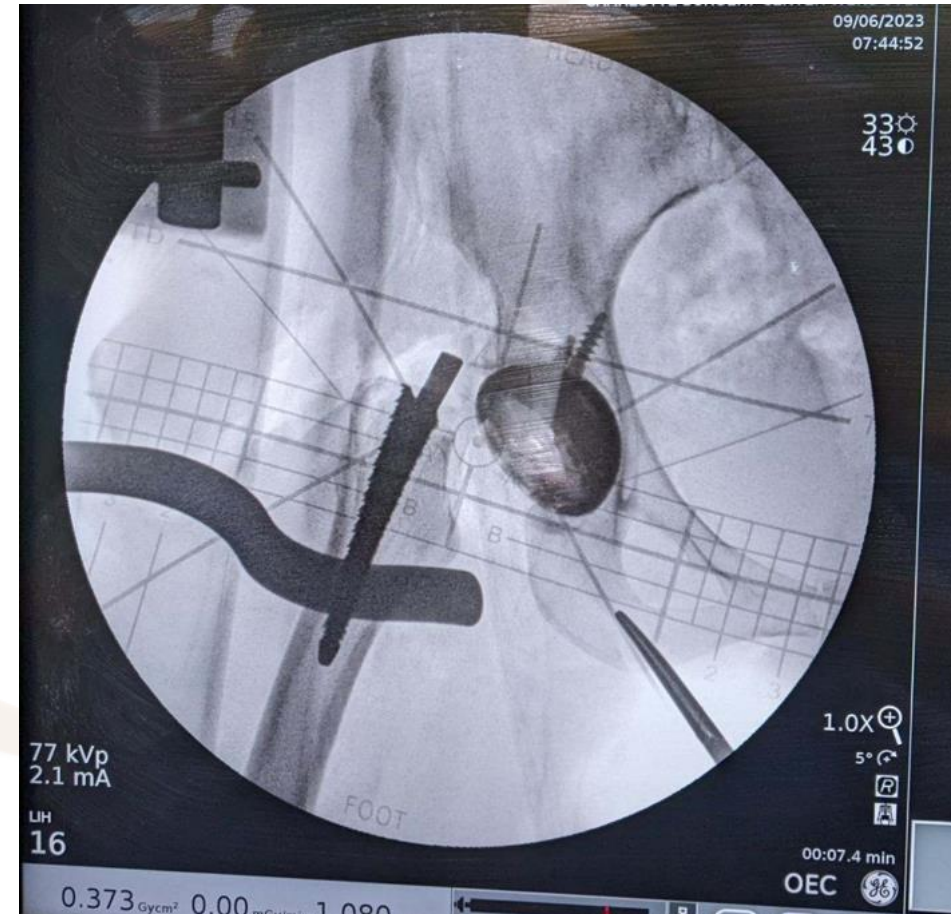
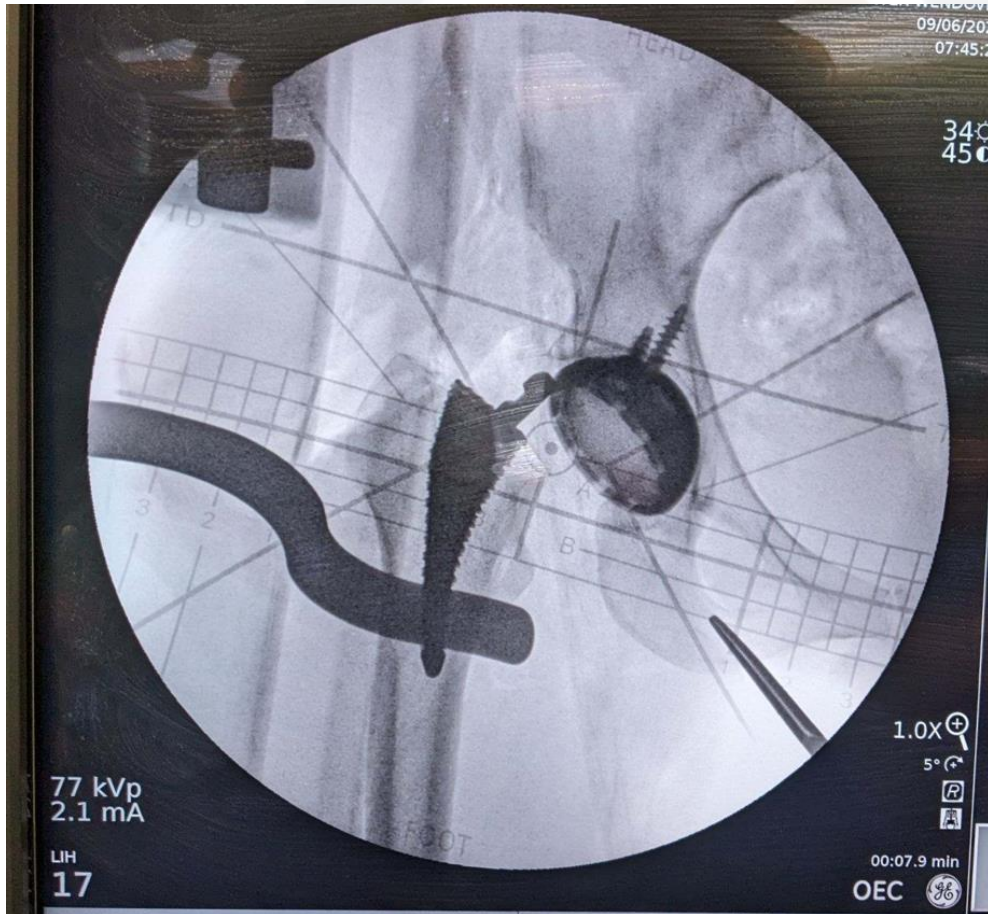


Table Tips for additional femoral exposure



- Trendelenburg table
 - Additional adduction force
 - Peroneal post
 - Elevate contralateral leg
-
- * take the leg back over and up and then back down again

5 - Canal finder with starter broach/fluoro



6- High Speed Burr

- No Calcar Planer
- Shorter time than wiring back the femur
- Burr at first and last broach
- Burr Osteophytes/screw heads



7-Automated Broaching

- Effective
- Less physically demanding
- Better broach envelope

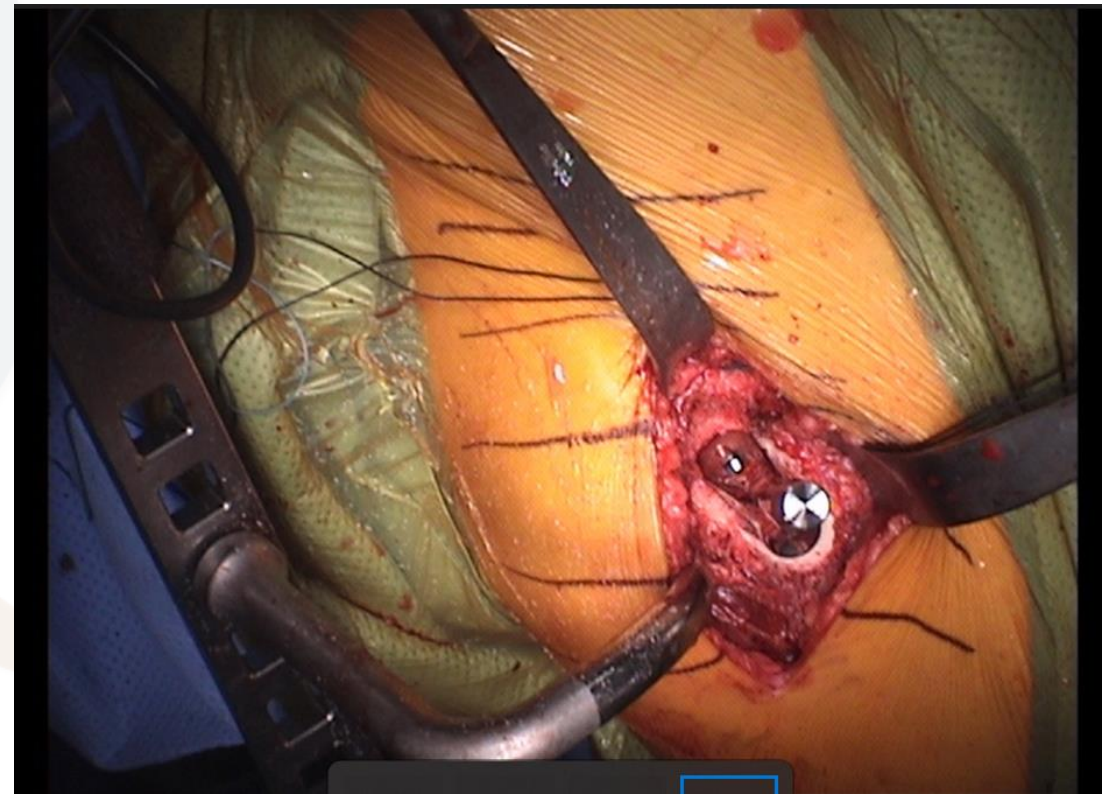
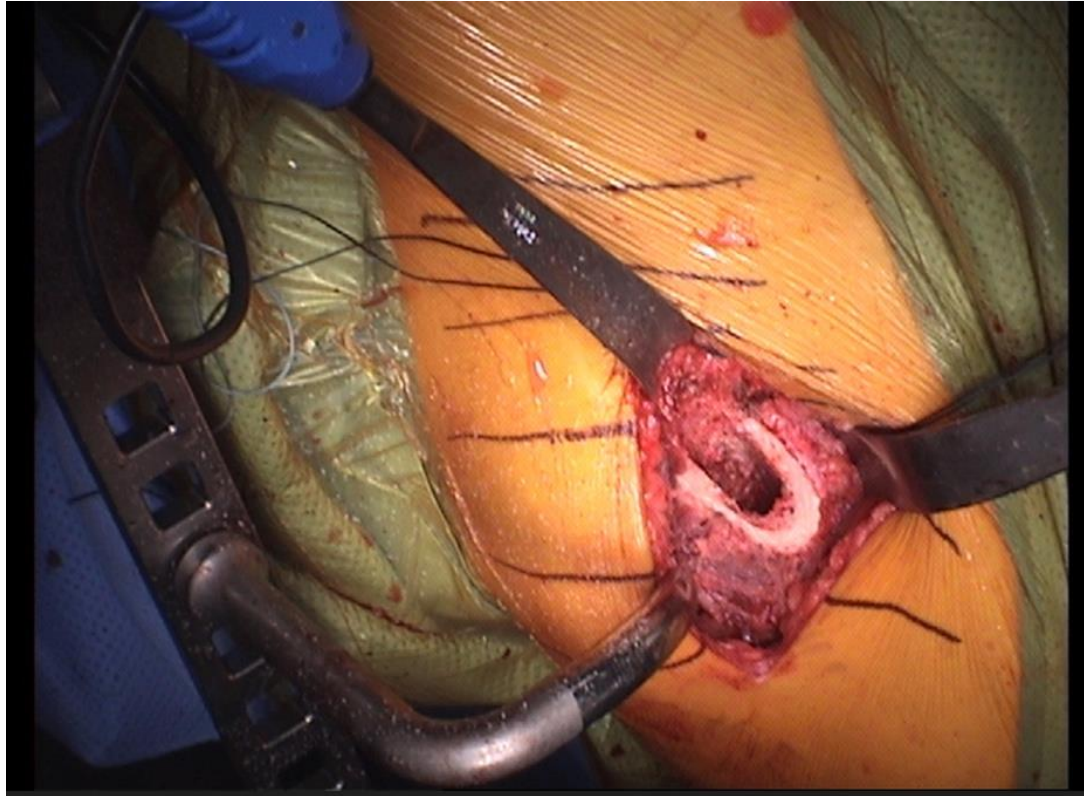


Automated Broaching

- Allows for larger size femoral component
- Consistent mallet blows
- Game Changer



Femoral prep



Less physically demanding



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Rate of Intraoperative Proximal Femoral Fractures with Automated Broaching

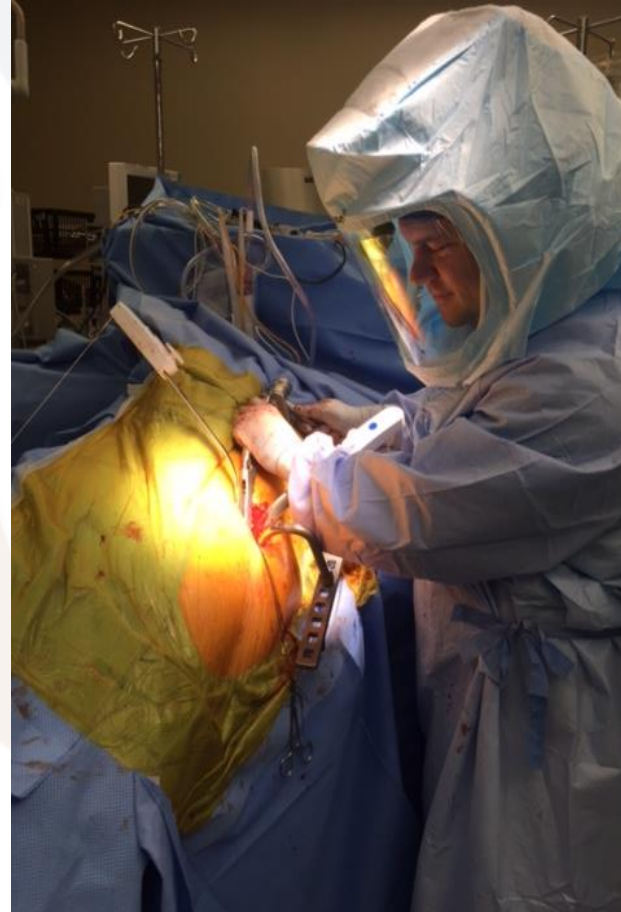
Tyler Radack, BS, Hope Skibicki, DO, Julian Zangrilli, DO, Ruchir Nanavati, BA, Cole Kleinman, BS, Michael Harrer, MD

Rothman Orthopaedic Institute; Philadelphia, PA
Rowan University School of Osteopathic Medicine; Stratford, NJ

- Compared THA with standard vs Automated broaching
- Reduction of Intraoperative PPFx by 50%
 - 5.29% Standard Broaching
 - 2.6% automated broaching
- More recent article from Anderson Clinic
 - < 1%

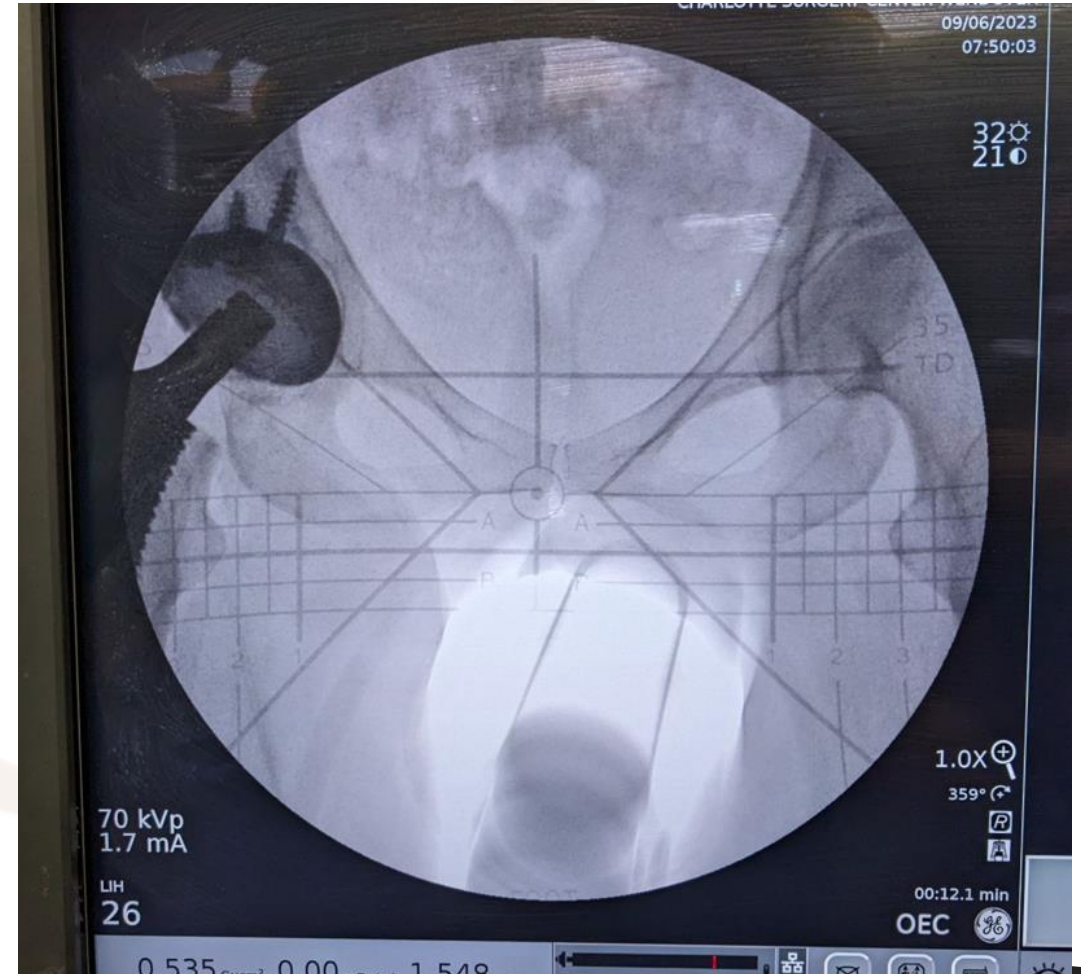
8- Gripper Retractors

- Assistant Free THA
- Doesn't move
- Doesn't get tired



9- Grid : Leg Length/Offset restoration

- Fluoro
- Grid
- Accurate Component position
- Can use computerized device
 - Chase perfection



A Fluoroscopic Grid in Supine Total Hip Arthroplasty

Improving Cup Position, Limb Length, and Hip Offset

THE JOURNAL OF
ARTHROPLASTY

Jeremy M. Gililland, MD, Lucas A. Anderson, MD, Shannon L. Boffeli, APRN,
Christopher E. Pelt, MD, Christopher L. Peters, MD, and Erik N. Kubiak, MD

- Study comparing THA (39 w/grid vs 60 without)
- Surgical time was decreased
- Improved acetabular component positioning
- Improved restoration of leg length and offset

Stability Testing in THA

- ER to 90
- Drop down into extension
- Place parts in appropriate position



10-Dressing/wound management

- Large BMI
- Large Pannus
- Immunocompromised
- High Risk



Randomized Controlled Trial of Incisional Negative Pressure Following High-Risk Direct Anterior Total Hip Arthroplasty

H. John Cooper, MD ^{a,*}, Walkania M. Santos, BS ^a, Alexander L. Neuwirth, MD ^a, Jeffrey A. Geller, MD ^a, Jose A. Rodriguez, MD ^b, Sebastian Rodriguez-Elizalde, MD ^c, Roshan P. Shah, MD, JD ^a



- Randomized control trial
 - 60 standard dressing - Aquacell
 - 60 Closed Negative Pressure therapy - Prevena
- Results
 - 9 (15%) control vs. 2 (3%) Prevena group met criteria for SSI
 - Most resolved with wound care
 - Lower SSI and trend towards lower overall SSC

Ready for Efficient THA!

- 
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 - 2- Table tips for femoral exposure
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Direct Anterior THA

- Safe
- Efficient
- High Patient Satisfaction
- Excellent Outcomes



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Thank You

We are what we repeatedly do,
Excellence then, is not a single act, but a habit
-Aristotle

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