Kyle F. Dickson, M.D. M.B.A.

Professor Baylor College of Medicine Southwest Orthopaedic Group, Houston, Texas kyledickson99@gmail.com cell 713-208-4168

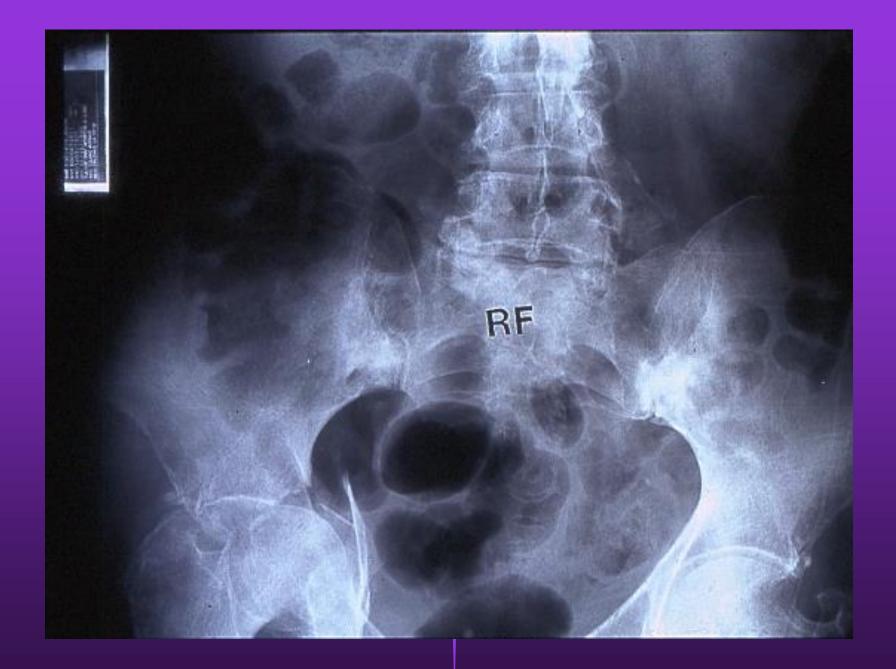
Fractures of the Femoral Head: When to Fix versus Replace



Kyle Dickson MD, MBA Professor of Orthopaedics Baylor College of Medicine

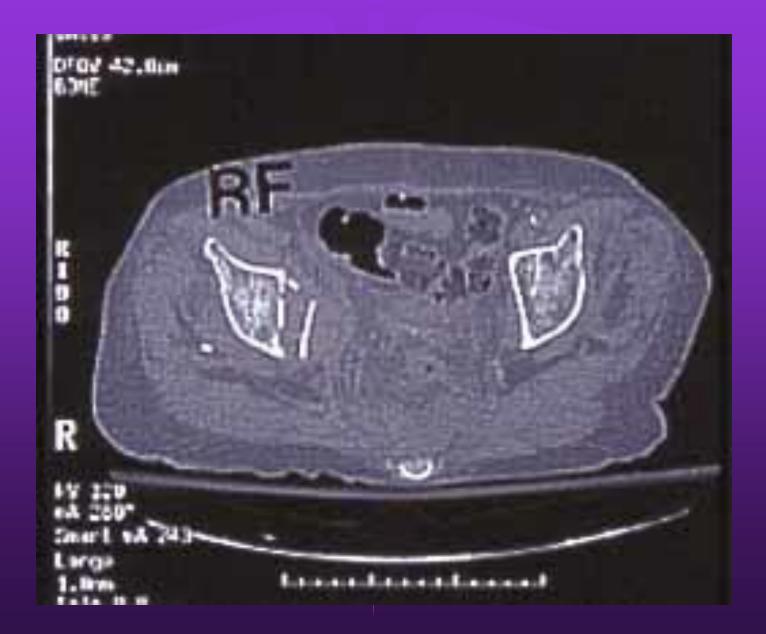
Total Hip Arthroplasty

- Never in isolated femoral head fracture
- Associated with femoral neck fracture or lateral dome impaction (never seen one with medial dome impaction)



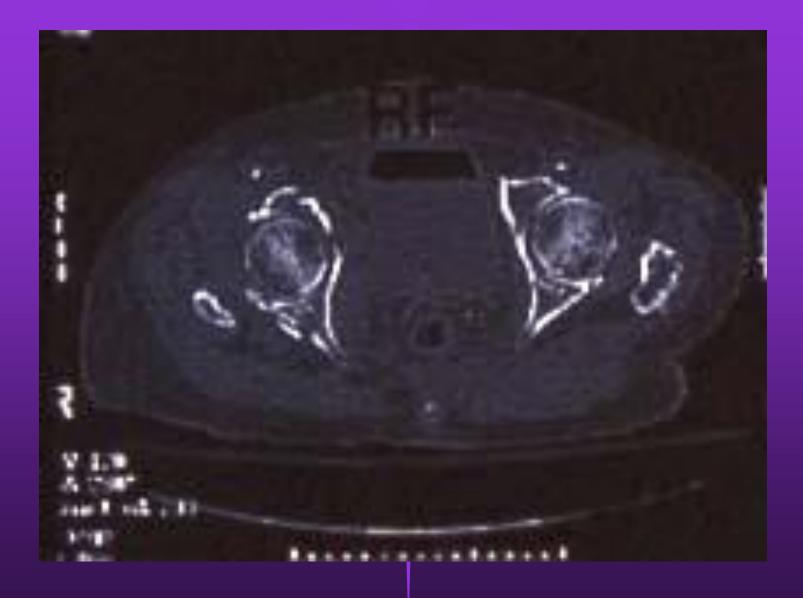












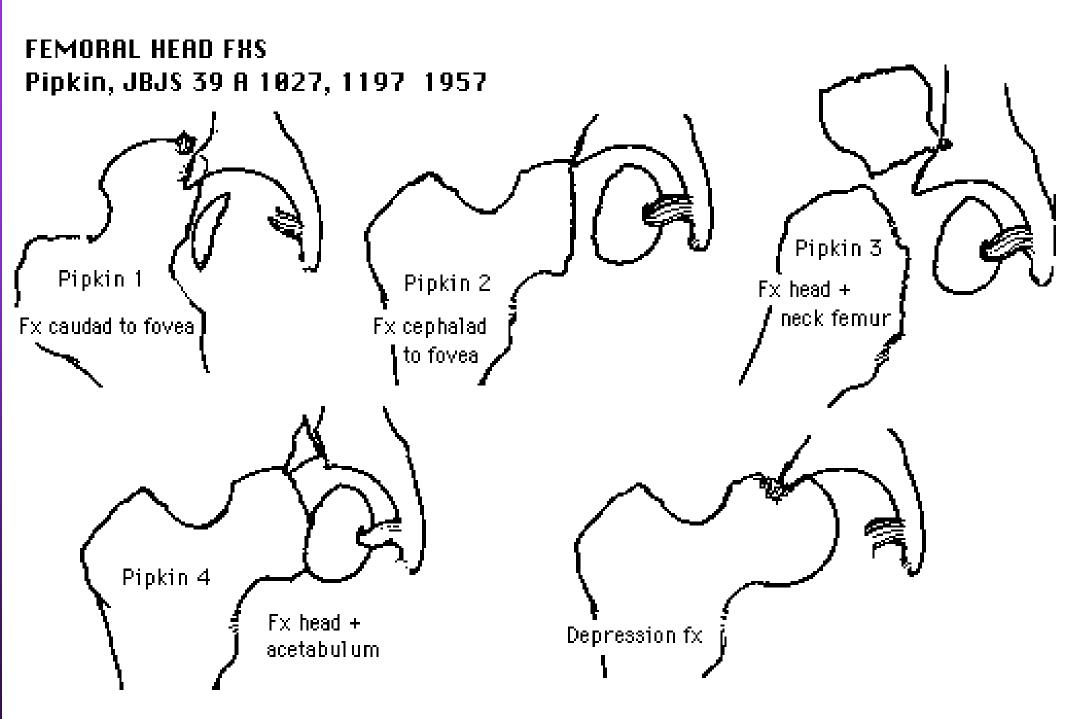
Anterior or Posterior Approach? -Dependent on the type of fracture and what approach gives the easiest fixation (direction of the head migration) -II and or IF – quadrilateral surface comminution

-KL – posterior wall

Posterior Approach KL for both fixation of acetabular fracture and THA (Femoral and dome impaction, OA) (Boraiah 2009) May do II to fix acetabular fracture but always KL for THA (?osteoporosis) (Herscovici 2010)









29 yo healthy male s/p MVC with posterior hip dislocation
Pipkin 1-2 fracture

MC Injury Films



Treatment

- Pipkin 1- conservative (<2mm displaced after closed reduction posterior dislocation) vs excision (open vs scope Lansford 2012) vs orif
- Pipkin 2- conservative (<1mm) vs orif usually anterior
 - Always check femoral neck before reducing posterior hip dislocation

Treatment cont.

- Pipkin 3- conservative (<1mm) vs orif of femoral neck and head through anterior approach
- Pipkin 4- orif of acetabular fracture and femoral head with KL, trochanteric slide, and surgical dislocation (Solberg 2009 left OI intact)

Giannoudis Injury 2009

- 11.7% of posterior hip dislocations with femoral head fractures
- 84% due to MVA
- Timing of reduction <6hr (88% vs 42% G&E Hougaard 1986)

MC Post-reduction (note incongruent joint)



Pipkin 1 Studies
Chakraborti 1975 – conservative Rx

 Epstein 1985 – open reduction internal fixation treatment of dislocation and femoral head

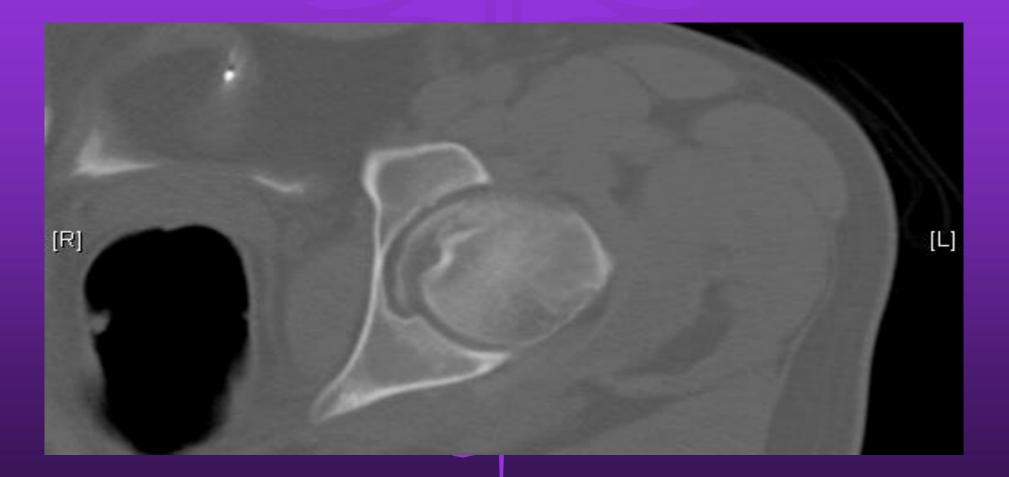
 Holms 2000- excise <1/3 nwb femoral head without clinical implication (cadavers) Chen et al Int Orthop 2011
16 patients Pipkin 1 conservative vs excision (1E, 3G, 2F, 2P vs 5E, 2G, 1F)

- 2 AVN, 1 HO in cons.
- 4 HO in Tx
- <12 h for reduction (↑ in reduction for conservative rx)
- Skeletal distraction 6 weeks, not randomized

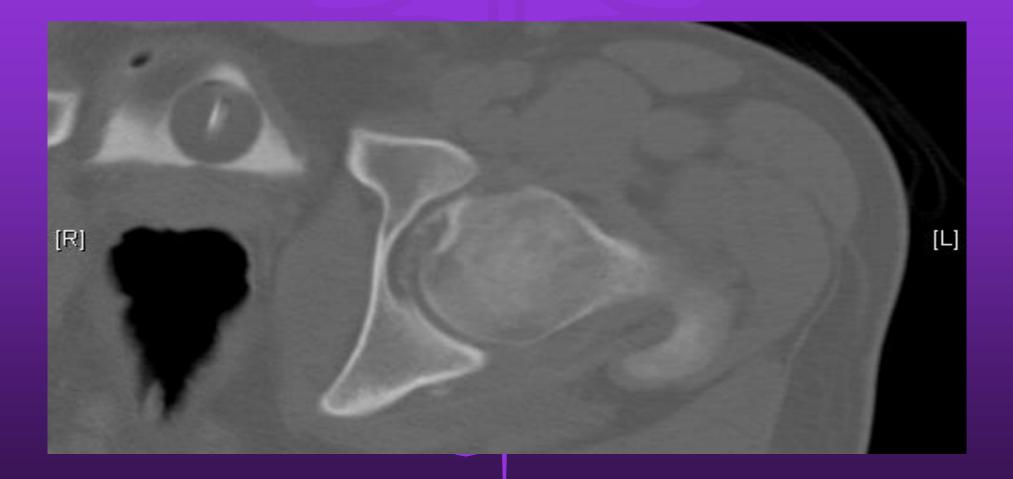
Anterior vs Posterior

- Fracture is usually anterior
- Check CT
 - Swiontkowski 1992

MC CT



MC CT



MC OR

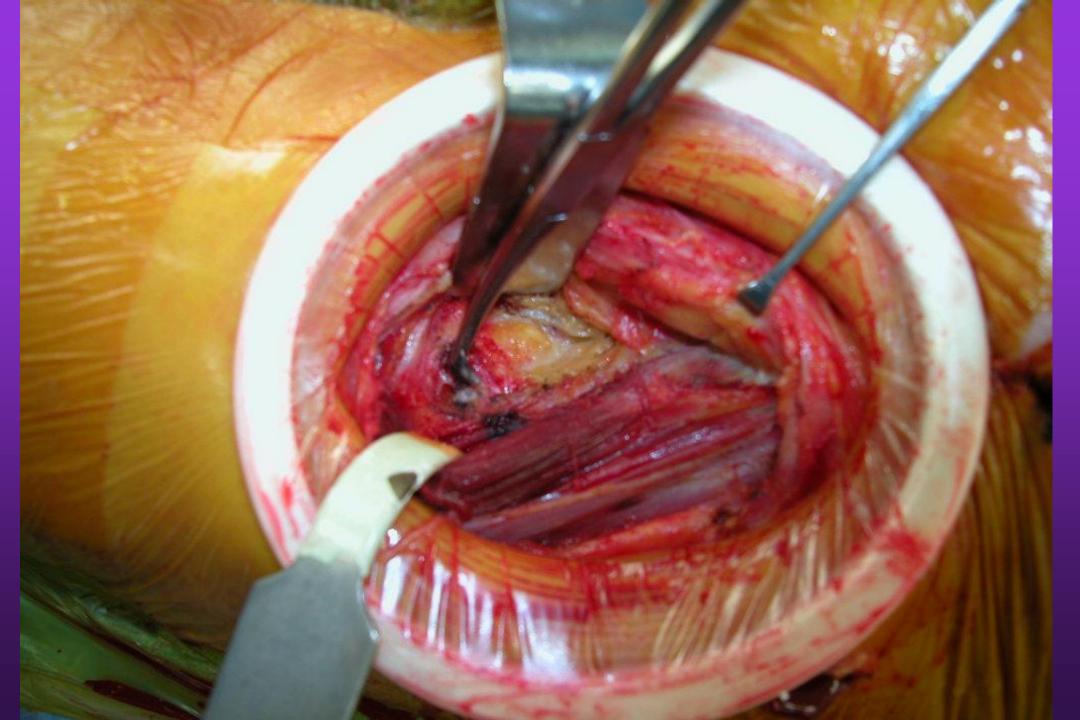
 ORIF through Smith-Peterson approach and surgical dislocation (initially done by a trauma fellowshipped trained surgeon and was unable to dislocate the hip) Fixation with 3.0 cannulated screws

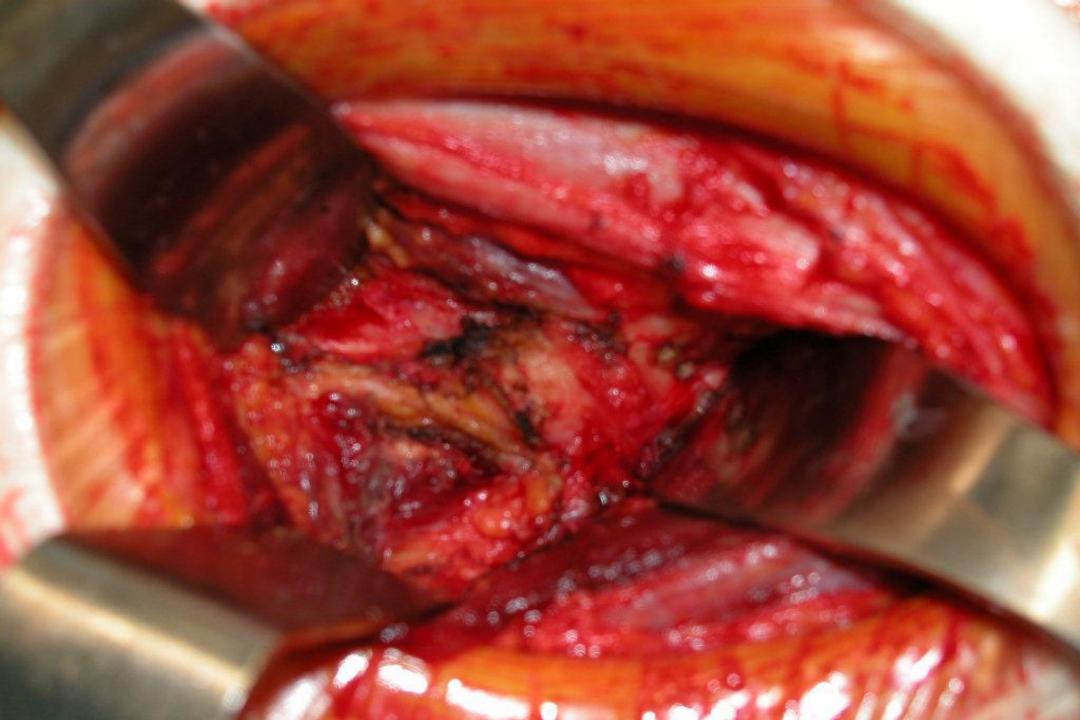


Line of 10 cm skin incision.

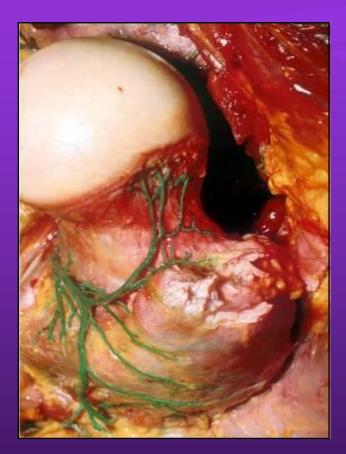








Terminal subsynovial (retinacular) vessels







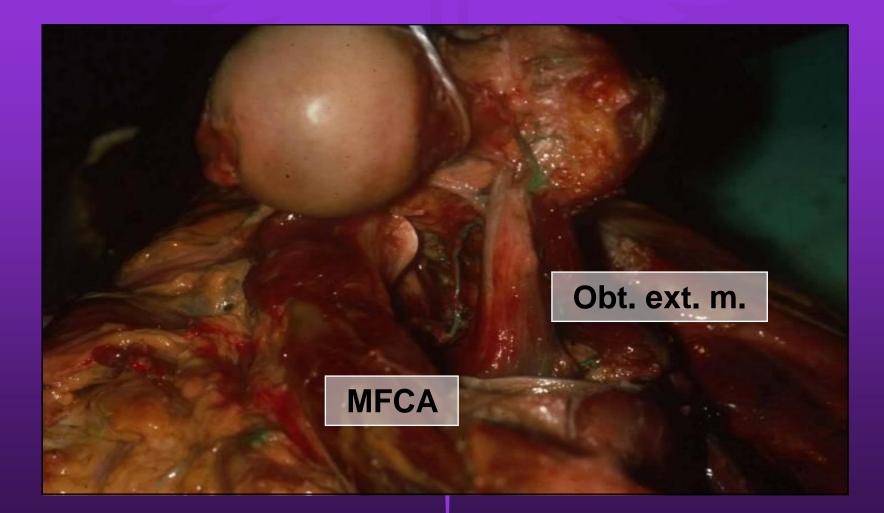
Superior

type

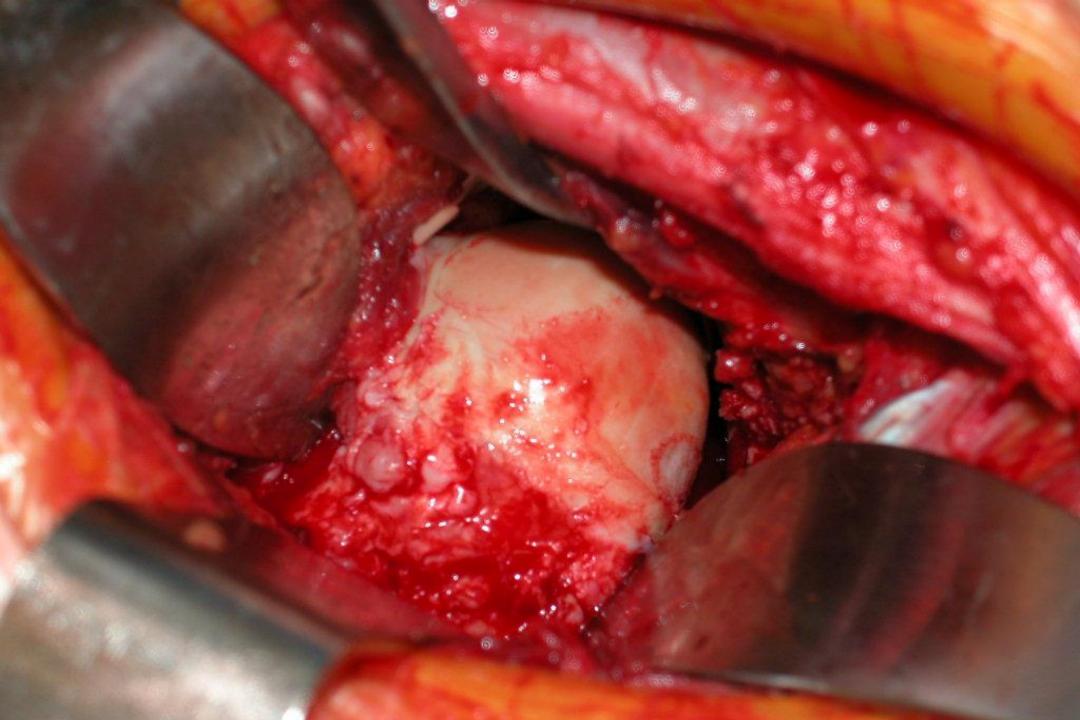
Mixed

Post. neck free of vessels

Obt. ext. m. protects MFCA



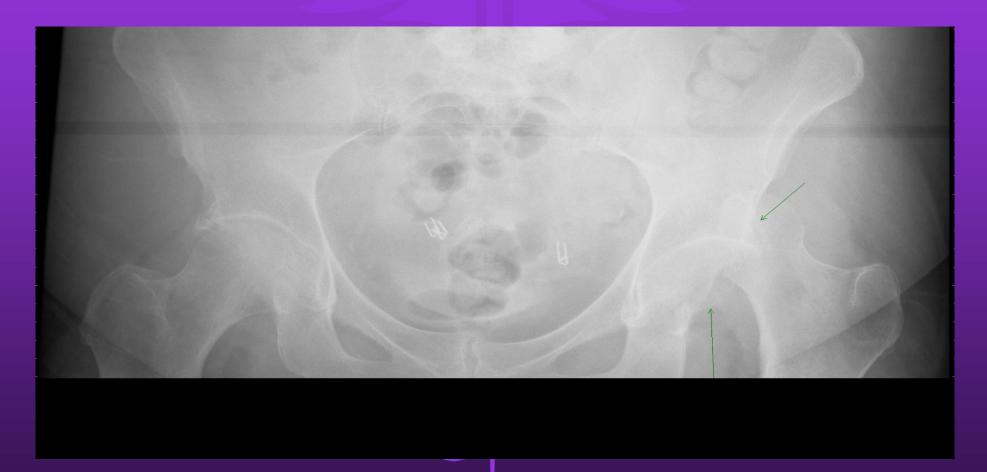
Gautier et al., *JBJS*, 82-B:679, 2000.

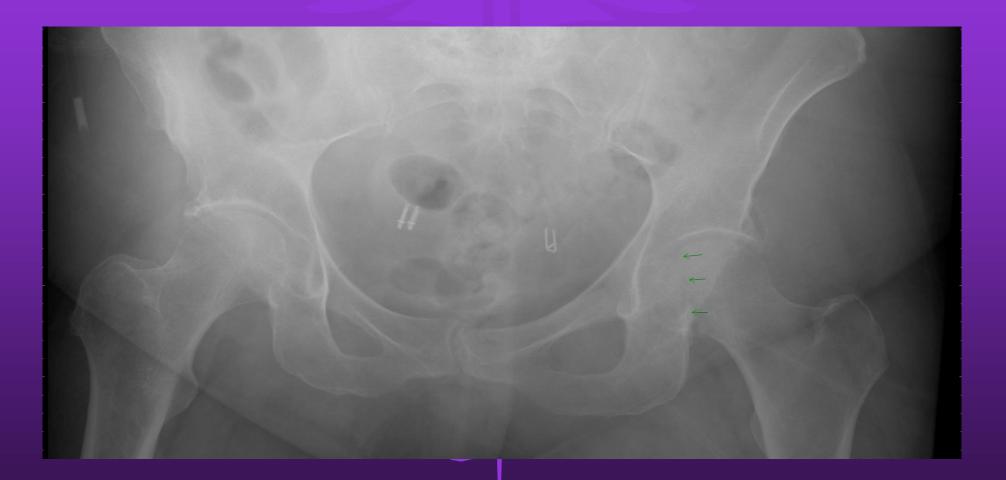




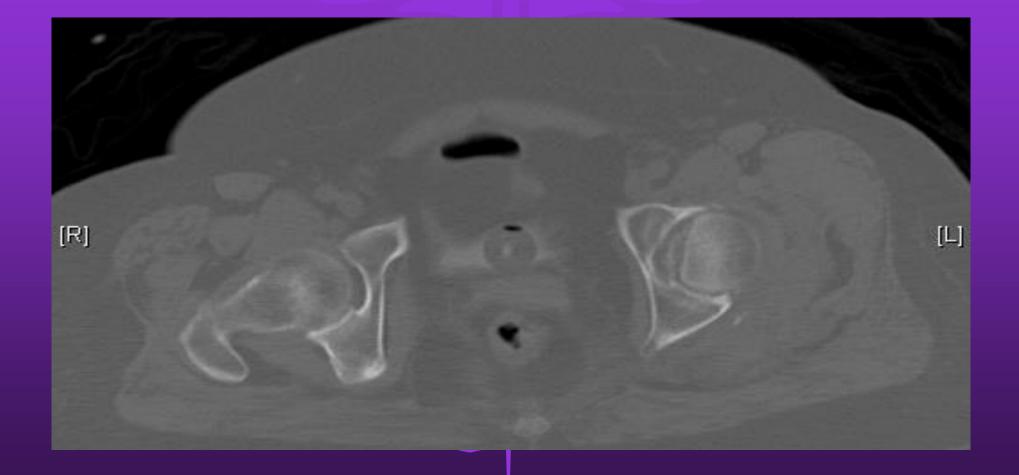
- 56 yo female s/p MVA, unrestrained passenger
- h/o osteoporosis, hypothyroid, depression, OSA, breast cancer
- Posterior hip dislocation with Pipkin 2 fracture

Injury Films

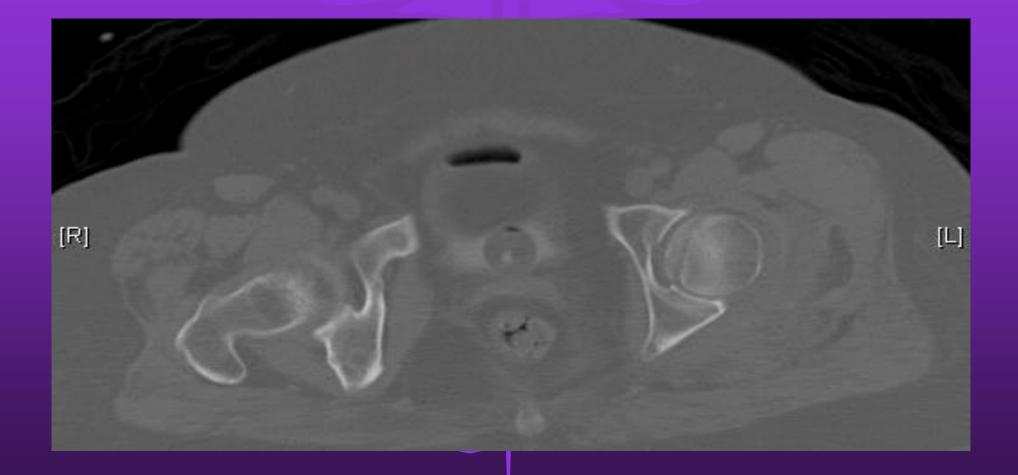




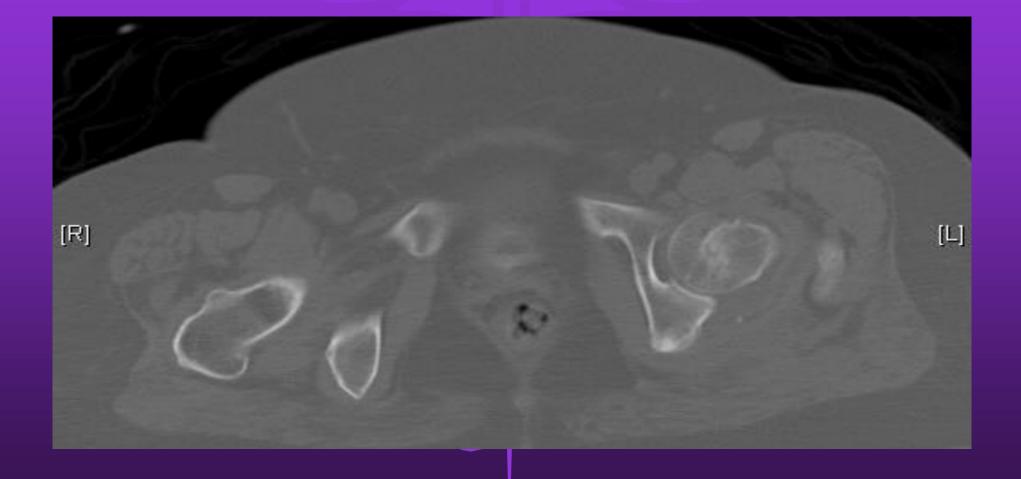




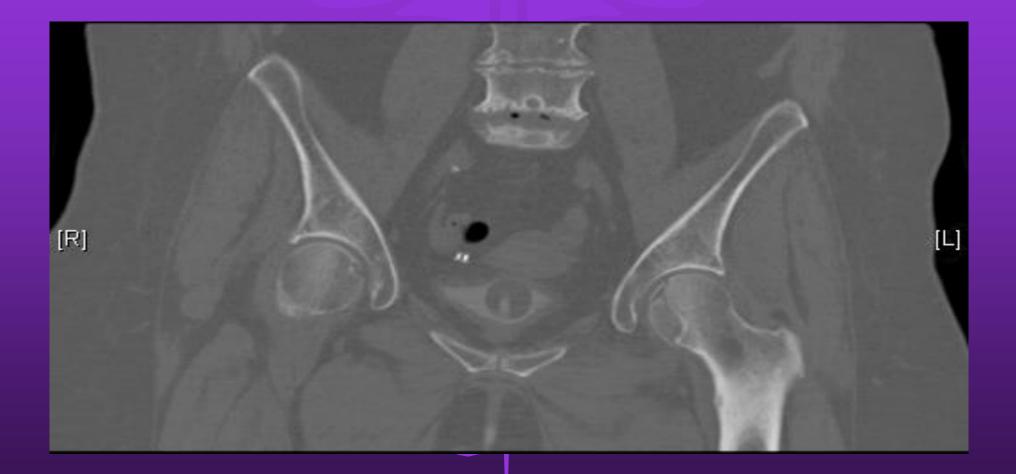














- ORIF through Smith-Peterson approach
- 3.0 cannulated screws

Post-Op



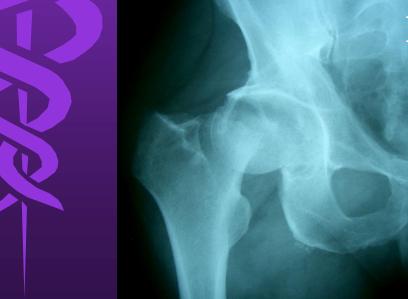
Post-Op











Pipkin 3

IC 539.44 Im: 89 DFOY 37.7cm BONE	GAUTREAU, PAUL M 58 879768 DOB: Aug 27 1946 Dec 24 2004 512 MF:1.1		
R 19		xe: 8 IC \$45.14 Im: 86 IFOV 37.7cm ONE	GAUTREAU, PAUL M 58 879768 DOB: Aug 27 1946 Dec 24 2004 512 MF:1.1
ky 120 mA 140		C 1	L 120
Ex: 25036 Se: 8 8 IC S56.54 6 In: 80 4 2 DFOV 37.7cm 1 BONE	GAUTREAU, PAUL M 58 879768 DOB: Aug 27 1946 Dec 24 2004 512 MF:1.1	120	
L 183	T 183		
kv 120 mA 140 Large 2.500mm/3.75 0.75:1 Tilt: 0.0			

Se: 8

UDVEN LOVE BATISTA BERGINA FEMELIK KOGHL

in A

45

Head first then neck (careful with blood suppy)

HE PARALLUSING THE

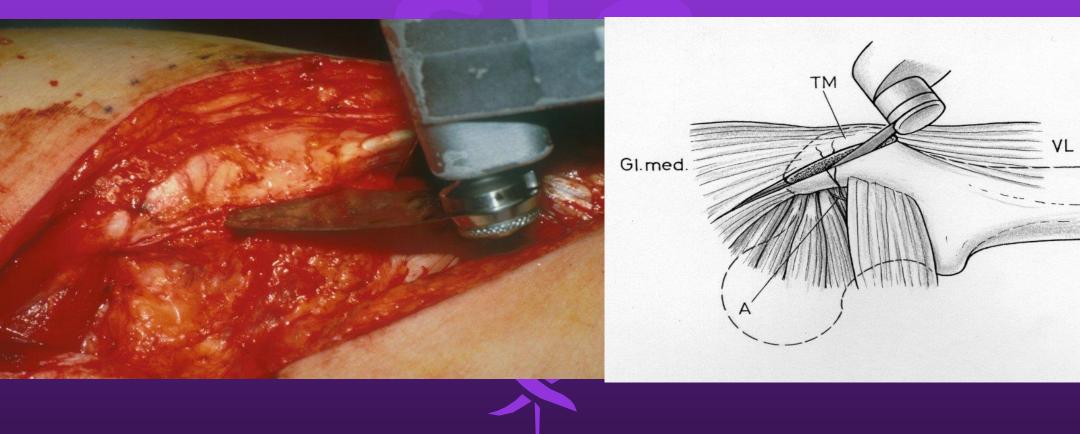
OEC



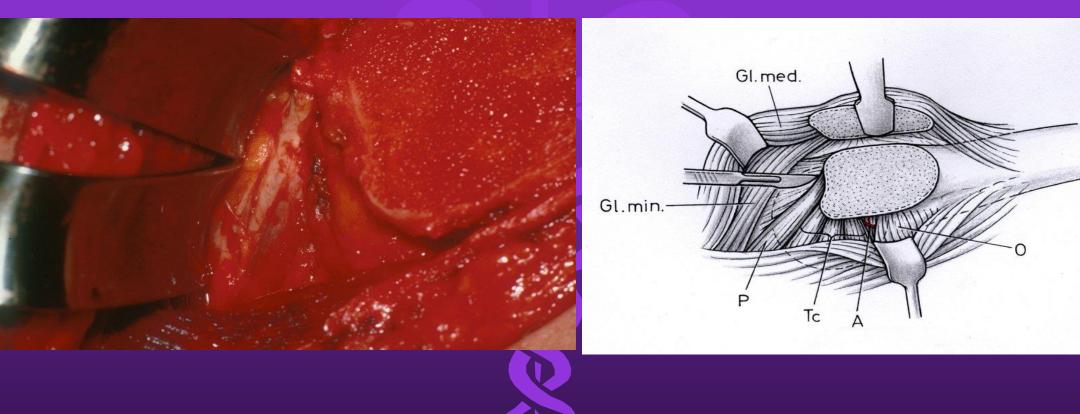
Pipkin 4 Surgical Dislocations

- KL in lateral decubitus with a trochanteric slide (instead of a flip)
- Pipkin fracture with a posterior wall
- Some use it in Tr to see the reduction

osteotomy of greater trochanter

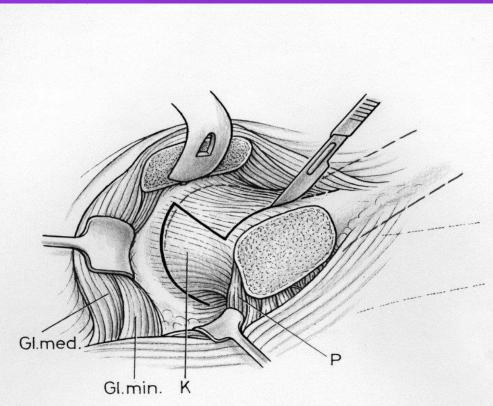


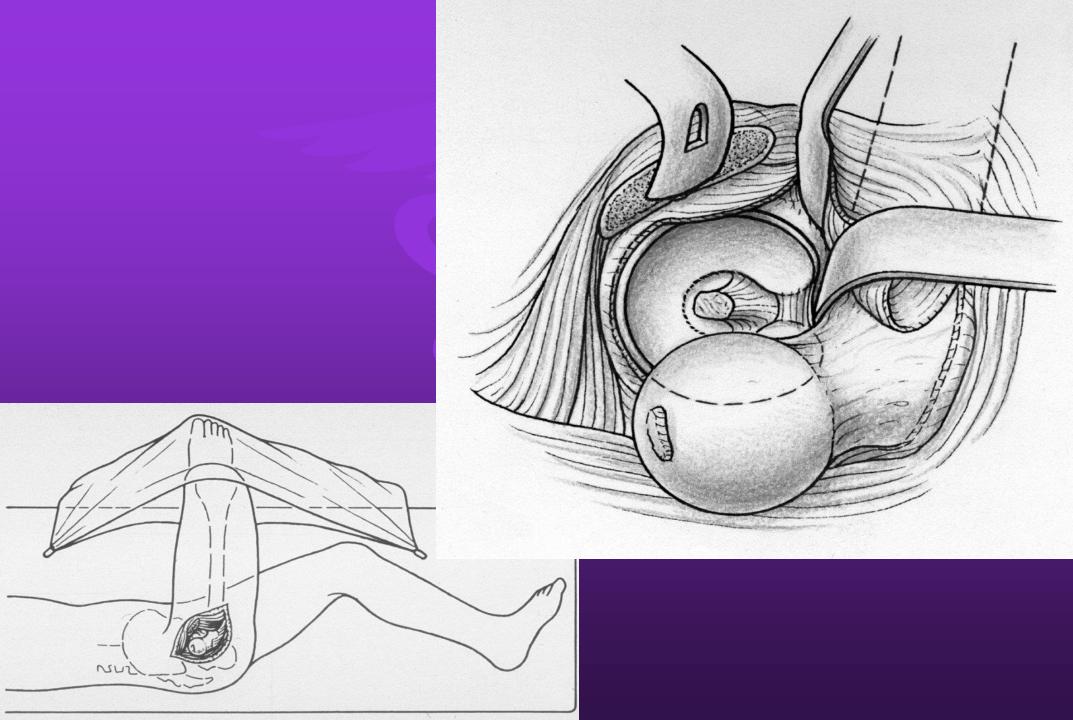
piriformis muscle



capsulotomy



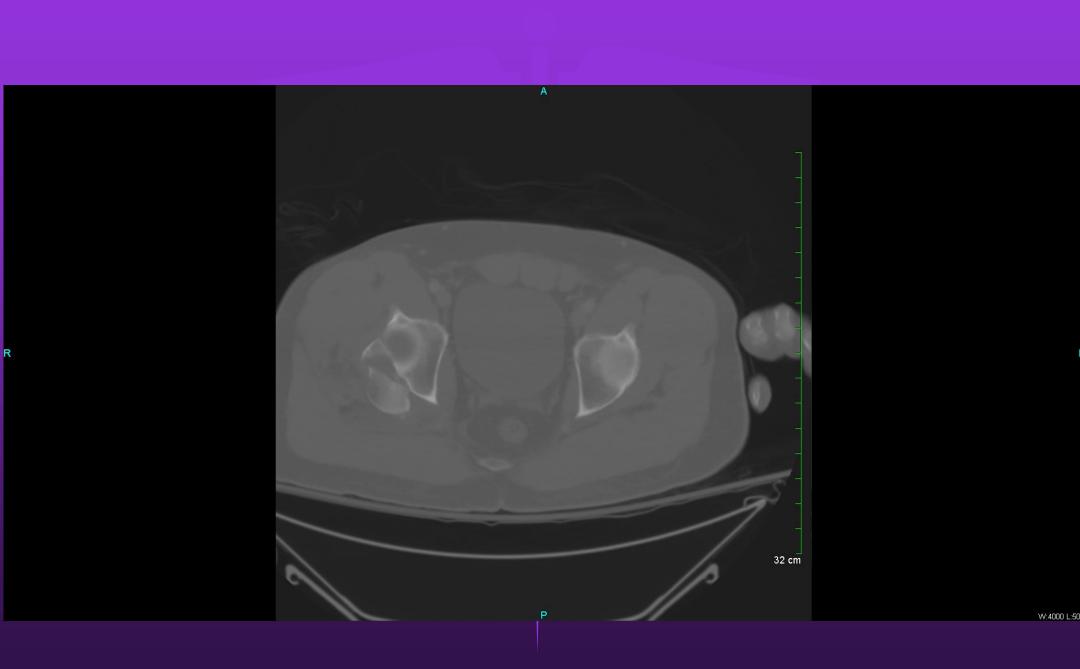


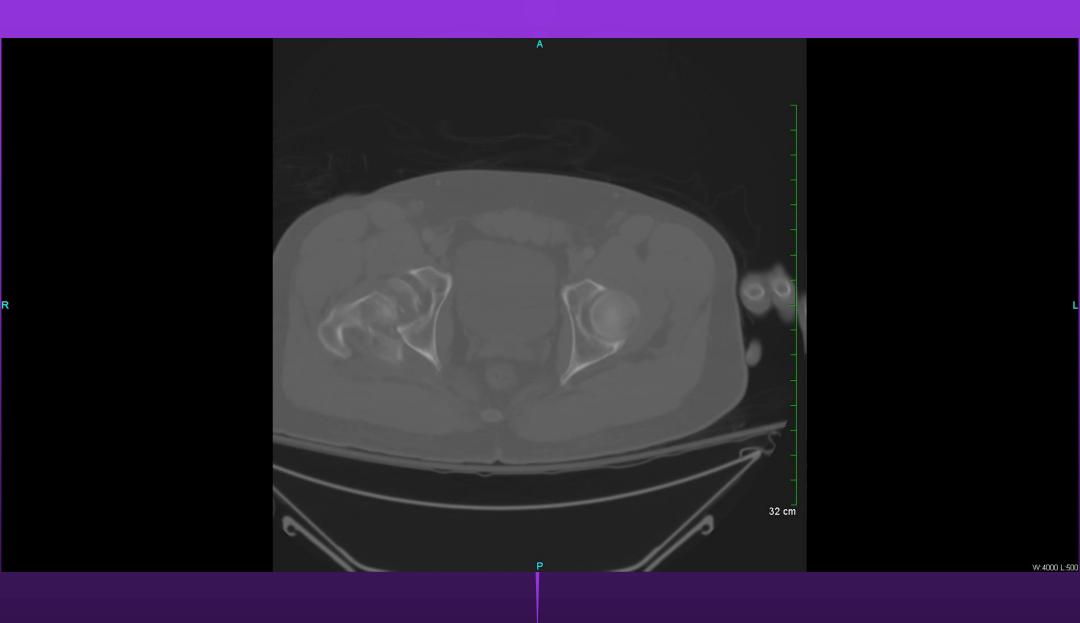


41yo MVA RS



W:4094 L:2047

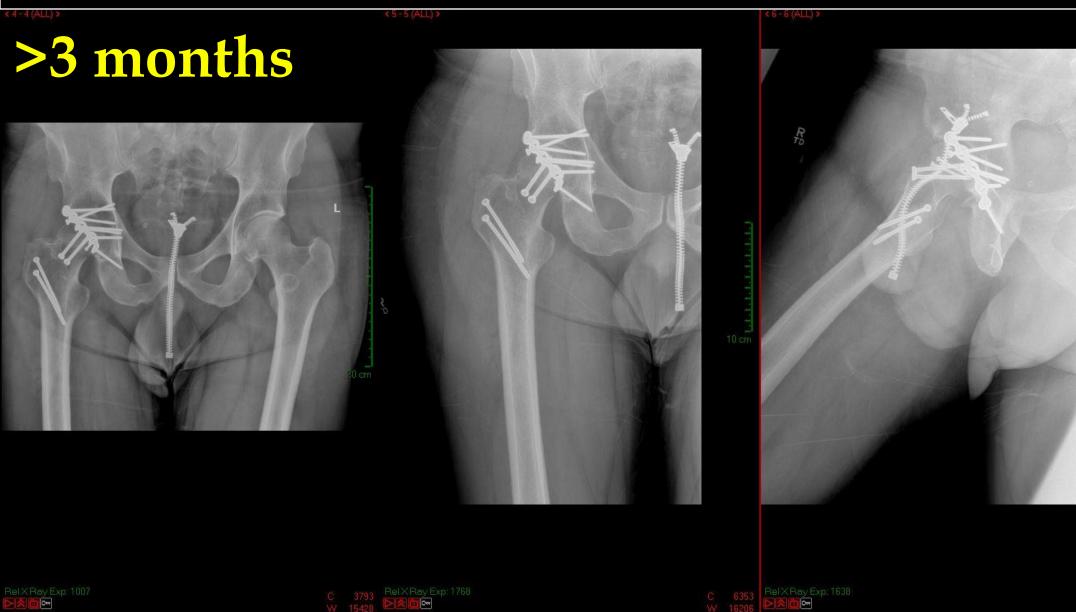




2/5/18 FH, FN, PW



W:4094 L:2047



Rel X Ray Exp; 1007





- 38 yo intoxicated pedestrian struck by motor vehicle
- Sustained Pipkin 4 fracture dislocation of hip with posterior wall fracture and irreducible dislocation







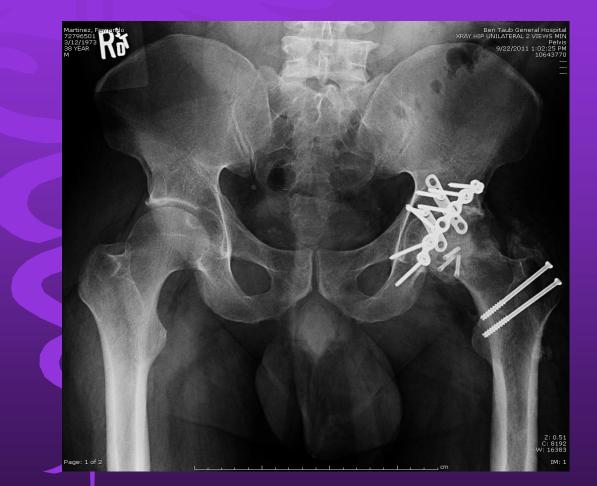


- Trochanteric osteotomy with surgical hip dislocation
- Femoral head fracture repaired with 3 Acutrak screws
- Marked comminution and chondral injury to posterior wall articular surface
- Posterior wall fixed with 2 hook plates and 6 hole pelvic recon plate



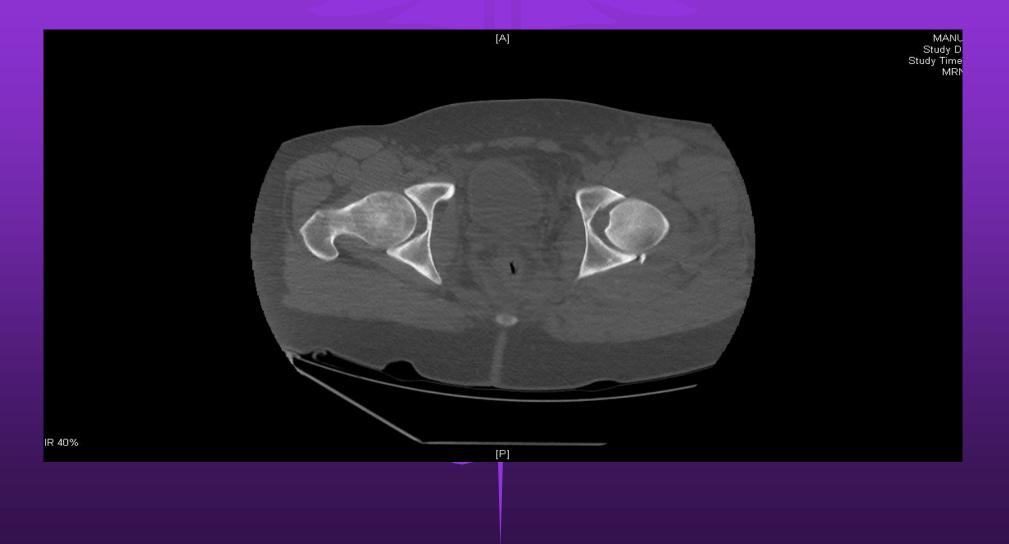
Post-Op Course

- TDWB 3 months
- Seen at 5 months follow up with no significant pain or limitations
- Stable HO seen

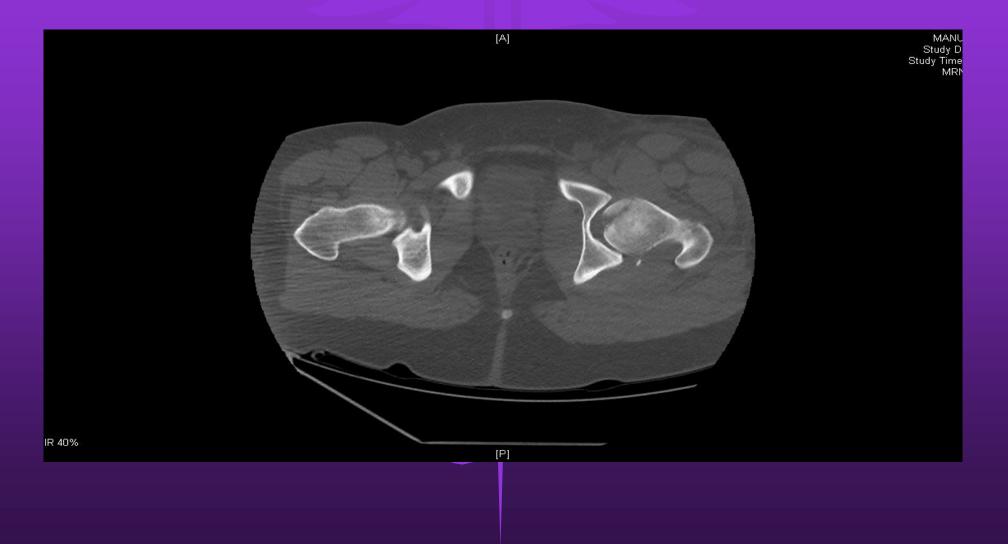


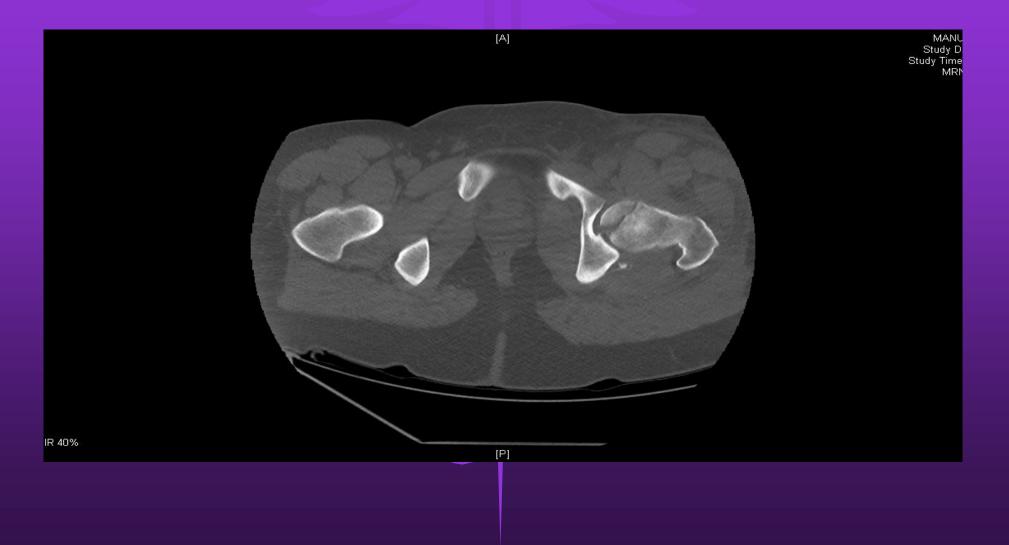


- 21 yo healthy male, s/p MVA (passenger)
- Posterior hip dislocation, closed reduced at outside hospital and transferred
- Left femoral head fracture with posterior wall fracture







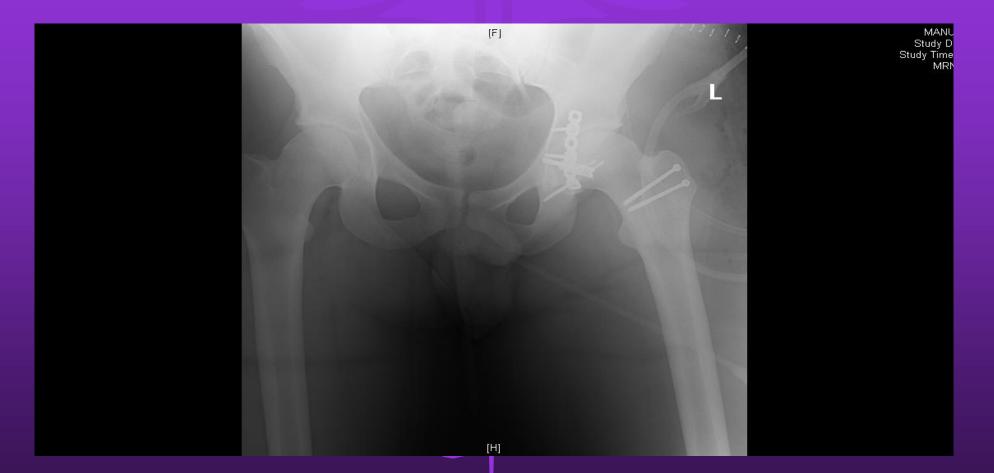






- Kocher-Langenbeck approach with greater trochanteric osteotomy and surgical dislocation
- Fixation with 3.0 cannulated screws followed by fixation of posterior wall with spring plate and 5-hole recon plate

Post-Op









Large 2.500m/3.76 0.75:1 Tilt: 0.0 1.0s /10:12:59:49/42.56				
V:2000 L:300	P 150		¥:2000	
LightSpeed Plus SYS#CT99_OCC Ex: 25146	A 219	Tulane Univ. Medical Center	LightSp Ex: 251	
Se: 2		HALE, LARRY	Se: 2	
10 1338.29		M 44 D880084	IC 1340	
Lm: 89		DOB: Jan 11 1960	Im: 90	
		Dec 30 2004		
DFOV 42.0cm		512	DFOV 42	
BONE			BONE	



DFOV 42.0cm BONE

Large 2.500mm/3.75 0.7 Tilt: 0.0 1.0s /HE 12:59:4 W:2000 L:300	
LightSpeed Plus Ex: 25146 Se: 2 IC I340.19 Im: 90	SYS
DFOV 42.0cm BONE	

R

2

- 02



LightSpeed Plus SYS#CT99_ Ex: 25146 Se: 2 IC I347.79 In: 94 DFOV 42.0cm BONE

Medical Center HALE, LARRY N 44 D880084 OB: Jan 11 1960	LightSpeed Plus SYS Ex: 25146 Se: 2 IC 1326.89 Im: 83	5#CT99_OCO A 218	Tulane Univ. Medical Center HALE, LARRY M 44 D880084 DOB: Jan 11 1960 Dec 30 2004	LightSpe Ex: 2514 Se: 2 IC 1328 Im: 84
Dec 30 2004 512 MF:1.1	DFOV 42.0cm BONE		512 MF:1.1	DFOV 42. BONE
	15			- 6
	R 198			R 19 8
	kv 120 mA 275	-		kv 120 mA 275 Large
	Large 2.500mm/3.745_0.75:1 Tilt: 0.0 1.0s /HE 12:59:49/4 W:2000 L:300			2.500mm Tilt: 0 1.0s /H W:2000
v. Medical Center	LightSpeed Plus ST Ex: 25146	YS#CT99_0C0 A 219	Tulane Univ. Medical Center HALE, LARRY	LightSp Ex: 251 Se: 2
HALE, LARRY M 44 D880084	Se: 2 IC I334.49		M 44 D880084 DRR: Jan 11 1960	IC 1336 Im: 88

Large 2.500ms/3776 0.75:1 Tilt: 0.0 1.0s /HE-12:59:49/41.04	- ا		2.500mm/3.75 Tilt: 0.0 1.0s /HE 12:
1.05 /RE 12:55:45/41.04 W:2000 L:300	P 150		W:2000 L:300
LightSpeed Plus SYS#CT99_0C0 Ex: 25146 Se: 2 ID 1332.59 In: 86	A 219	Tulane Univ. Medical Center HALE, LARRY M 44 D880084 D08: Jan 11 1960 Dec 30 2004	LightSpeed P Ex: 25146 Se: 2 IC 1334.49 Im: 87
DFOV 42.0cm BONE		512	DFOV 42.0cm BONE



LightSpeed Plu

Large 2.500mm/3.75 Tilt: 0.0 1.0s /HE 12:5 W:2000 L:300

kv 120 ma 275

R

niv. Medical Center

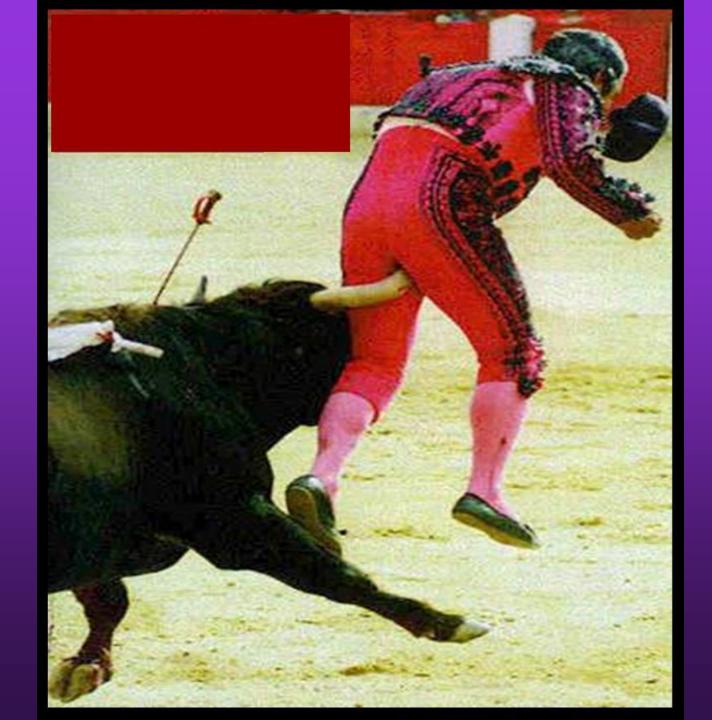
NALE, LARRY N 44 D880084 D0B: Jan 11 1960 Dec 30 2004 512 NF:1.1

000 A 219 SYSHCT99

Tulane Univ. Medical Center

Treatment

• KL followed by SP

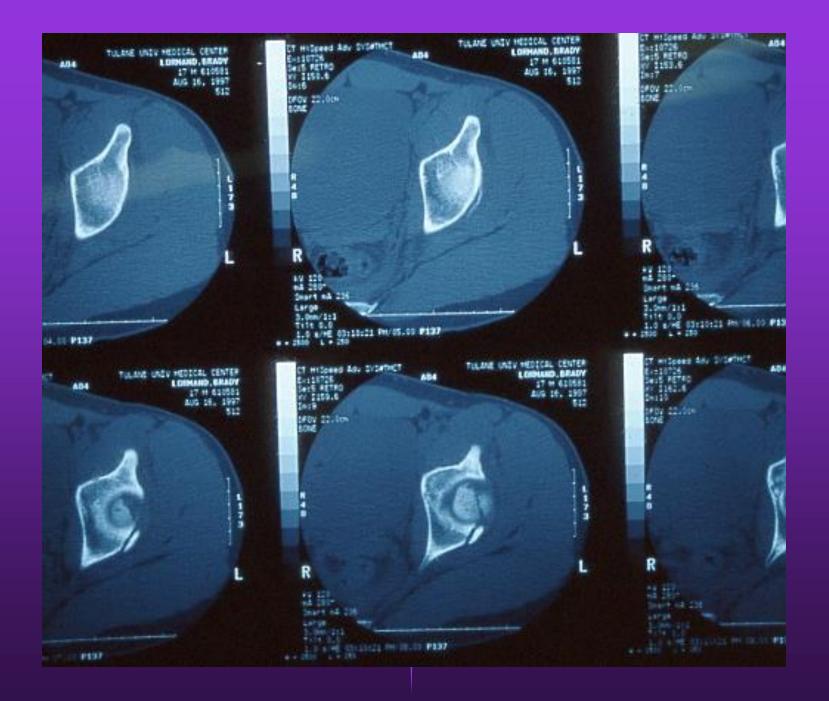


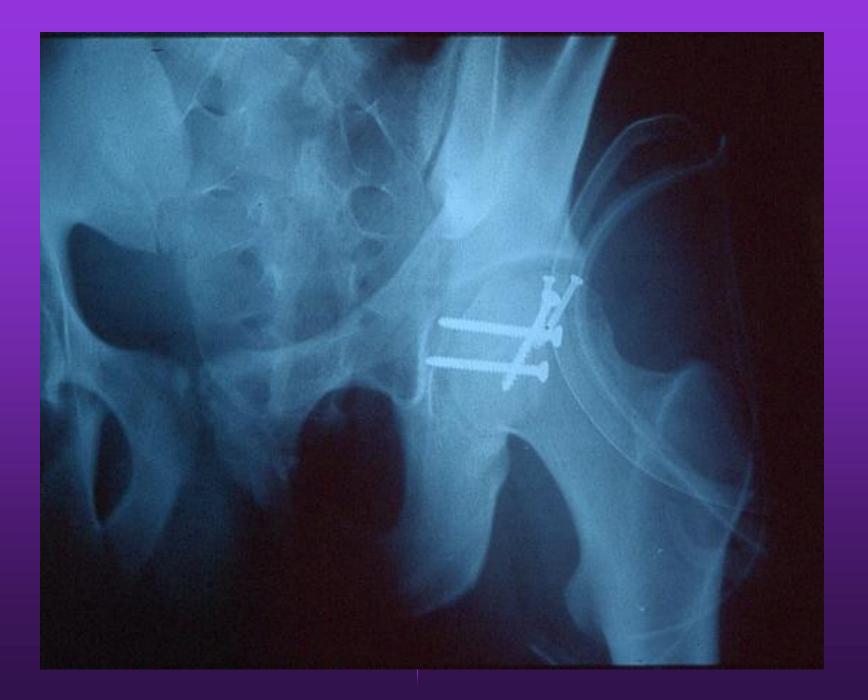




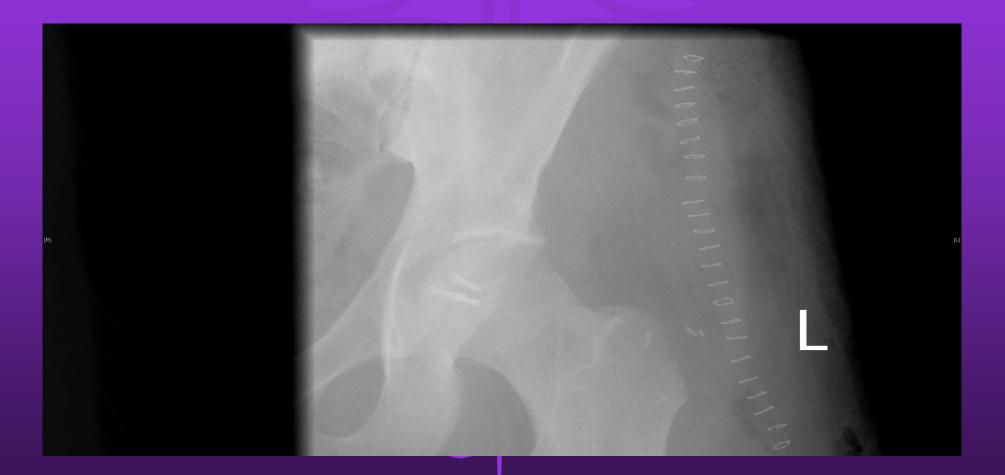




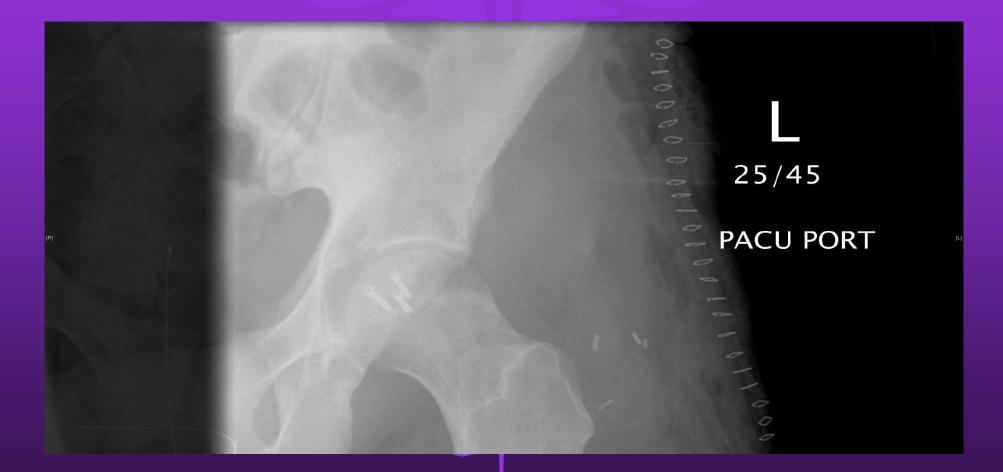




MC Post-Op



MC Post-Op



Treatment

- Pipkin 1- conservative (<2mm displaced after closed reduction posterior dislocation, >2mm excise)
- Pipkin 2- conservative (<1mm) most orif usually anterior
 - Always check femoral neck before reducing posterior hip dislocation

Treatment cont.

- Pipkin 3- conservative (<1mm) most orif of femoral neck and head through anterior approach
- Pipkin 4- orif of acetabular fracture and femoral head with KL, trochanteric slide, and surgical dislocation

