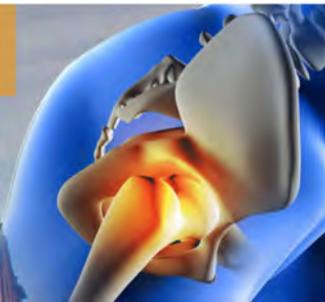


Department of Orthopaedic and Traumatology
AO Mauriziano Umberto I
Chief: Prof. Roberto Rossi

COMPLICANZE NELLE OSTEOSINTESI FRATTURE COLLO TESTA

CONGRESSO NAZIONALE
DELLA SOCIETÀ ITALIANA DELL'ANCA



Prof. Roberto Rossi
Dott. Umberto Cottino

Monza, 23-24 Novembre 2017



Monza, 23-24 Novembre 2017

- FRATTURE (LATERALI E MEDIALI)
- MEDIALI
 - TRATTAMENTO
 - RISULTATI
 - COMPLICANZE
 - CONTROVERSIE
- LATERALI
 - TRATTAMENTO
 - RISULTATI
 - COMPLICANZE
- CONCLUSIONE





Monza, 23-24 Novembre 2017

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 - RISULTATI
 - COMPLICANZE
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FRATTURE MEDIALI

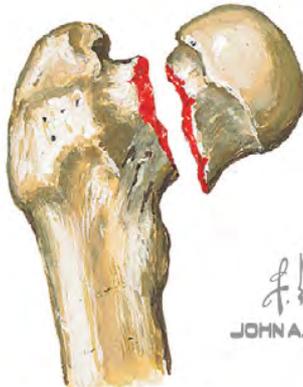


Type I. Impacted fracture

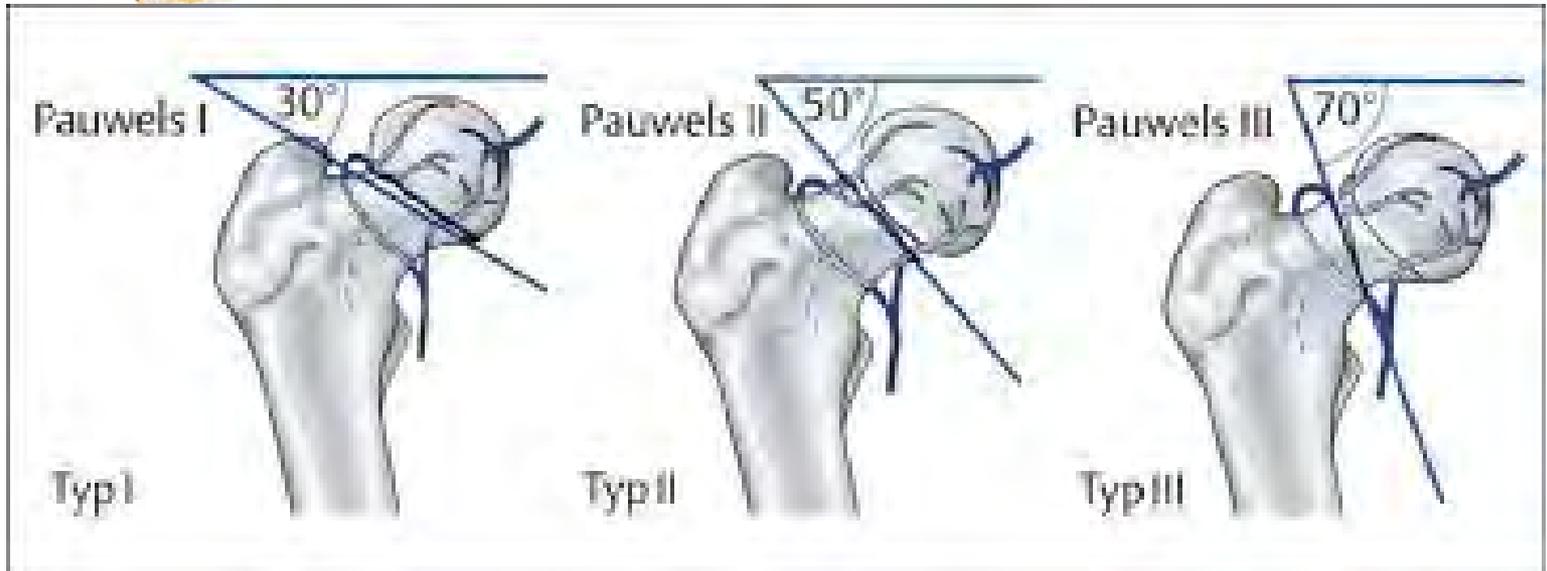


Type II. Nondisplaced fracture

GARDEN'S CLASSIFICATION



PAUWEL'S CLASSIFICATION



TRATTAMENTO



PROTESI

65 ANNI

NEI PAZIENTI TRA 65 E 75 PROTESI SE
ATTIVI



FISSAZIONE

J Bone Joint Surg Am. 2006 Feb;88(2):249-60.

Randomized comparison of reduction and fixation, bipolar hemiarthroplasty, and total hip arthroplasty. Treatment of displaced intracapsular hip fractures in healthy older patients.

Keating JF¹, Grant A, Masson M, Scott NW, Forbes JF.

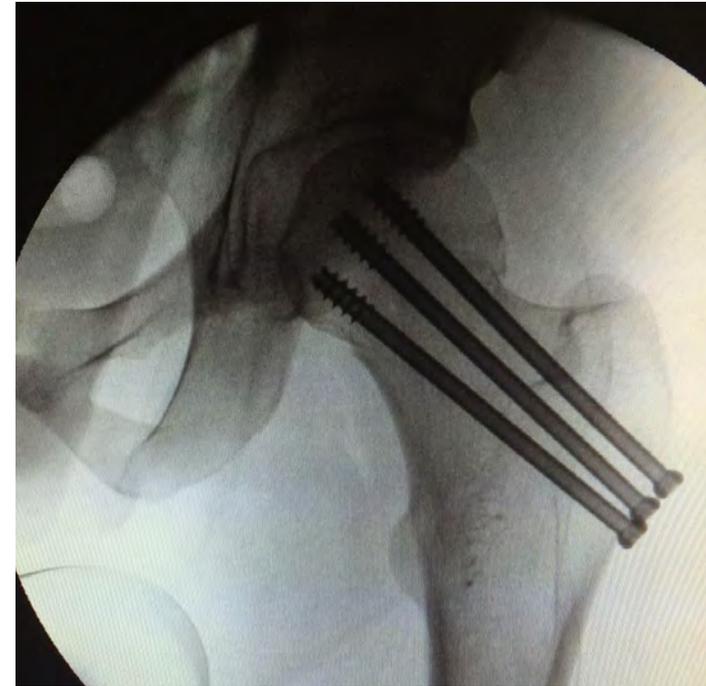
J Bone Joint Surg Br. 2002 Mar;84(2):183-8.

A prospective randomised trial of internal fixation versus arthroplasty for displaced fractures of the neck of the femur. Functional outcome for 450 patients at two years.

Rogmark C¹, Carlsson A, Johnell O, Sembo L.

RISULTATI

PTA HANNO MINOR REVISIONE E RISULTATI MIGLIORI A BREVE TERMINE CON MINOR RISCHIO DI REVISIONE RISPETTO ALLA SINTESI (4% VS 47%)



LE COMPLICANZE DELLE PTA SONO PIU' GRAVI (INFEZIONI, PERDITA EMATICA, MAGGIOR DURATA DELL'INTERVENTO CHIRURGICO, MAGGIOR INVASIVITA')

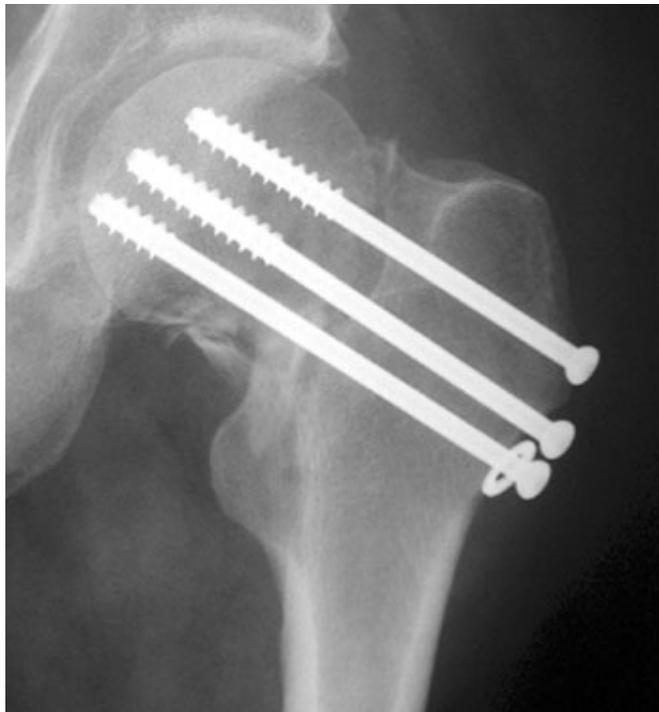
J Bone Joint Surg Am. 2005 Aug;87(8):1680-8.

Comparison of internal fixation with total hip replacement for displaced femoral neck fractures. Randomized, controlled trial performed at four years.

Blomfeldt R¹, Törnkvist H, Ponzer S, Söderqvist A, Tidermark J.

LA SINTESI...COMPLICANZE

OSTEONECROSI



PSEUDOARTROSI

OSTEONECROSI

SEMPRE SINTOMATICA NEI GIOVANI MA NON SEMPRE NEGLI ANZIANI A BASSA RICHIESTA FUNZIONALE

GRAVE COMPLICANZA NEI GIOVANI PERCHE' LA PTA NEI GIOVANI ATTIVI HA RISULTATI INFERIORI E DOVREBBE ESSERE L'ULTIMA SPIAGGIA (DECOMPRESSIONE, BONE GRAFTING, PROTESI DI SUPERFICIE)



Orthop Clin North Am. 2004 Jul;35(3):335-43, ix.

Non-union of femoral neck fractures with osteonecrosis of the femoral head: treatment with combined free vascularized fibular grafting and subtrochanteric valgus osteotomy.

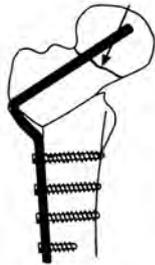
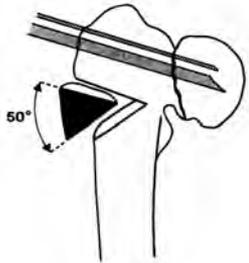
Beris AE¹, Payatakes AH, Kostopoulos VK, Korompilias AV, Mavrodontidis AN, Vekris MD, Kontogeorgakos VA, Soucacos PN.

Clin Orthop Relat Res. 2002 Jun;(399):87-109.

Avascular necrosis of the femoral head after femoral neck fracture.

Bachiller FG¹, Caballer AP, Portal LF.

PSEUDOARTROSI



10-30% DEI CASI



SCELTA PERSONALE E' DI IMPIANTARE PTA

IN LETTERATURA, NEI PAZIENTI GIOVANI, E' INDICATA UN'OSTEOTOMIA VALGIZZANTE INTERTROCANTERICA (86-100% DI SUCCESSO A 7 ANNI)

J Bone Joint Surg Br. 1989 Nov;71(5):782-7.

Intertrochanteric osteotomy for non-union of the femoral neck.

Marti RK¹, Schüller HM, Raaymakers EL.

Clin Orthop Relat Res. 1997 Aug;(341):175-82.

Intertrochanteric osteotomy for failed internal fixation of femoral neck fracture.

Anglen JO¹.

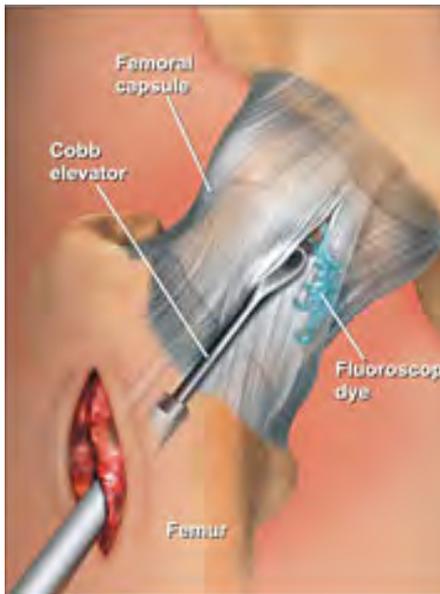
CONTROVERSIE



IL RUOLO DELLA CAPSULOTOMIA



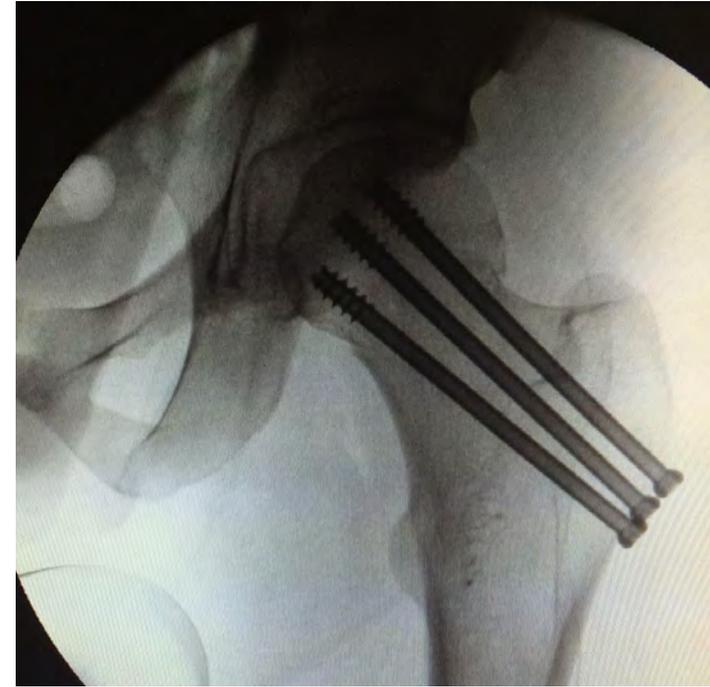
METODI DI FISSAZIONE



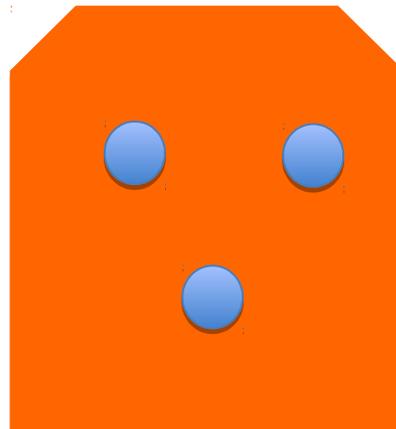
TEMPISTICA DELL'INTERVENTO

METODO DI FISSAZIONE

TRE VITI DA SPONGIOSA PERPENDICOLARI
ALLA FRATTURA CON UNA CONFIGURAZIONE
A V (UNA SOLA VITE DISTALE)
PER RIDURRE IL RISCHIO DI FRATTURE
PERTROCANTERICHE



UNA QUARTA VITE PUO' ESSERE INDICATA IN CASO DI COMMINUZIONE



METODO DI FISSAZIONE

LE VITI CANNULATE SONO IL METODO CHE ASSICURA LA MINOR STABILITA' ED E' DA CONSIDERARE UN'ALTERNATIVA IN CASO DI FRATTURA DI TIPO II DI PAUWEL

PFLP (PROXIMAL FEMORAL LOCKING PLATE) PCCP

DCS

DHS

VITI



IL RUOLO DELLA CAPSULOTOMIA

PERCUTANEA CON LAMA N°10

ESEGUITA PER RIDURRE LA PRESSIONE INTRACAPSULARE E RIDURRE IL RISCHIO DI **NECROSI**

J Bone Joint Surg Br. 1991 Jan;73(1):73-5.

Femoral head blood flow in femoral neck fractures. An analysis using intra-osseous pressure measurement.

Harper WM¹, Barnes MR, Gregg PJ.

Clin Orthop Relat Res. 1987 Jun;(219):124-6.

Intracapsular pressure and caput circulation in nondisplaced femoral neck fractures.

Holmberg S, Dalen N.

J Bone Joint Surg Br. 1988 Mar;70(2):192-4.

Intracapsular pressures in undisplaced fractures of the femoral neck.

Strömqvist B¹, Nilsson LT, Egund N, Thomgren KG, Wingstrand H.

TEMPISTICA DELL'INTERVENTO

PRESTO!!



ENTRO LE 6-8 ORE DALLA FRATTURA PER EVITARE OBLITERAZIONE DEI VASI O
TAMPONAMENTO SANGUIGNO

NON E' UNIVERSALMENTE RICONOSCIUTA LA SUPERIORITA' DEL TRATTAMENTO IN
URGENZA MA IL TRATTAMENTO RITARDATO ESPONE A RISCHIO DI FALLIMENTO IN
ALCUNE CASE SERIES

[Arch Orthop Trauma Surg](#). 2003 Dec;123(10):527-33. Epub 2003 Sep 2.

Surgical treatment of displaced stress fractures of the femoral neck in military recruits: a report of 42 cases.

Lee CH¹, Huang GS, Chao KH, Jean JL, Wu SS.

[Acta Orthop Scand](#). 1993 Apr;64(2):196-202.

The effect of fracture on femoral head blood flow. Osteonecrosis and revascularization studied in miniature swine.

Swiontkowski ME¹, Tepic S, Rahn BA, Cordey J, Perren SM.

[Clin Orthop Relat Res](#). 1993 Jul;(292):77-86.

The treatment of fractures of the femoral neck.

Gerber C¹, Strehle J, Ganz R.



Monza, 23-24 Novembre 2017

- FRATTURE (LATERALI E MEDIALI)
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 - TRATTAMENTO
 - RISULTATI
 - COMPLICANZE
 - CONTROVERSIE
- **LATERALI**
 - TRATTAMENTO
 - RISULTATI
 - COMPLICANZE
- CONCLUSIONE



TRATTAMENTO DI SCELTA

IL TRATTAMENTO DI SCELTA CONTINUA A ESSERE LA FISSAZIONE CON PLACCHE A COMPRESSIONE

I CHIODI ENDOMIDOLLARI SONO MENO INVASIVI

Clin Orthop Relat Res. 2008 Nov;466(11):2827-32. doi: 10.1007/s11999-008-0285-5. Epub 2008 May 9.

Is a sliding hip screw or im nail the preferred implant for intertrochanteric fracture fixation?

Aros B¹, Tosteson AN, Gottlieb DJ, Koval KJ.

Injury. 2005 Jun;36(6):793-800. Epub 2005 Apr 20.

Sliding hip screw fixation of trochanteric hip fractures: outcome of 1024 procedures.

Chirodian N¹, Arch B, Parker MJ.



TRATTAMENTO DI SCELTA

RISULTATI FUNZIONALI PEGGIORI NELLE FRATTURE SCOMPOSTE CON L'UTILIZZO DI CHIODI

MAGGIOR RISCHIO DI CUTOUT CON LE PLACCHE

CHIODO PIU' VERSATILE E UTILIZZABILE ANCHE IN FRATTURE SOTTOTROCANTERICHE O DIAFISARIE

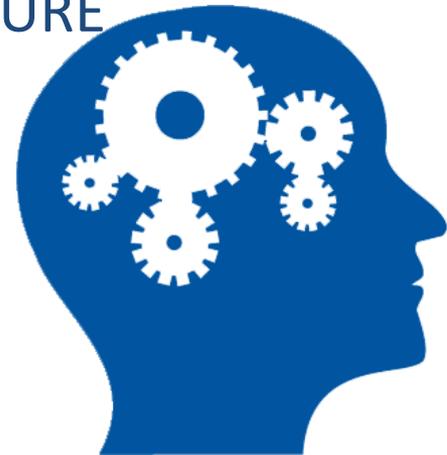


Table 45-1. Summary of Level I and II Studies Comparing Intramedullary Fixation Versus Compression Hip Screws for Intertrochanteric Fractures

Series	Comparison	Perioperative Parameters	Functional Outcomes	Complications
Adams et al	IM nail vs. DHS, n = 400		No difference in early outcomes or at 1 year	DHS: statistically insignificant lower cut-out, femur fracture, need for revision
Ahrengart et al	Gamma nail vs. CHS, n = 426	CHS: less OR time in whole series, but equal in unstable fractures; less blood loss		Nail: problems with distal interlocking, higher malposition, cut-out, and femoral fracture
Baumgaertner et al	IMHS vs. SHS, n = 135	Nail: less OR time; less blood loss	No difference	
Bridle et al	Gamma nail vs. DHS, n = 100	No difference	No differences at 6 months	Loss of reduction equal Nail: 4% femoral fractures
Hardy et al	IMHS vs. CHS, n = 100	CHS: less OR time IMHS: less blood loss	IMHS: better mobility at 1, 3, 6, 12 months	CHS: 2% loss of fixation IMHS: 6% intraoperative fractures, less sliding and shortening
Leung et al	Gamma nail vs. DHS	Nail: smaller incision; less blood loss	Nail: earlier full weight bearing	Nail: postop femoral shaft fracture
Little et al	Long Holland nail vs. DHS, n = 190	DHS: less OR time; less radiation time Nail: less blood loss; less transfusion	Better in nail group	DHS: 2.1% cut-out Nail: no cut-out
O'Brien et al	Gamma nail vs. CHS, n = 101	No difference	No difference	No difference
Pajarinen et al	PFN vs. DHS, n = 108		Nail: faster return to preoperative gait function	No difference
Radford et al	IM nail vs. SHS, n = 200	No difference	Equal	No difference
Saudan et al	IM nail vs. SHS, n = 206	No difference	Equal	No difference
Utrilla et al	Gamma nail vs. CHS, n = 210	No difference in surgical time Nail: lower transfusion	Nail: improved gait in patients with unstable fractures	No difference

CHS, Compression hip screw; DHS, dynamic hip screw; IM, intramedullary; IMHS, intramedullary hip screw; OR, operating room; PFN, proximal femoral nail; SHS, sliding hip screw.

STABILITA'

INDICATORI DELLA STABILITÀ DI SINTESI SONO:

1. INTEGRITÀ DEL MURO LATERALE
2. COMMINUZIONE DEL TROCANTERE
3. ASSOCIAZIONE DI FRATTURA DEL COLLO



J Orthop Trauma. 2005 Jan;19(1):5-9.

Potentially unstable intertrochanteric fractures.

Im GI¹, Shin YW, Song YJ.

Clin Orthop Relat Res. 2004 Aug;(425):82-6.

The lateral trochanteric wall: a key element in the reconstruction of unstable pertrochanteric hip fractures.

Gottfried Y¹.

J Bone Joint Surg Am. 2007 Mar;89(3):470-5.

Integrity of the lateral femoral wall in intertrochanteric hip fractures: an important predictor of a reoperation.

Palm H¹, Jacobsen S, Sonne-Holm S, Gebuhr P; Hip Fracture Study Group.



LA SINTESI...COMPLICANZE

PERIOPERATORIE



PROBLEMATICHE MECCANICHE

PROBLEMATICHE DI GUARIGIONE



PERIOPERATORIE

PAZIENTI FRAGILI

LA **MORTALITA'** AUMENTA ALL'AUMENTARE DELL'ETA' E DELLE COMORBIDITA' ASSOCIATE ED E' PIU' ALTA NEGLI UOMINI

(4% A 30 GIORNI, 14% A 6 MESI E 18% A 1 ANNO)

Injury. 2016 Oct;47 Suppl 4:S91-S97. doi: 10.1016/j.injury.2016.07.055. Epub 2016 Aug 18.

Prognostic factors for mortality after hip fracture: Operation within 48 hours is mandatory.

Rosso F¹, Dettoni F², Bonasia DE², Olivero F³, Mattei L³, Bruzzone M², Marmotti A², Rossi R⁴.

PROBLEMATICHE MECCANICHE

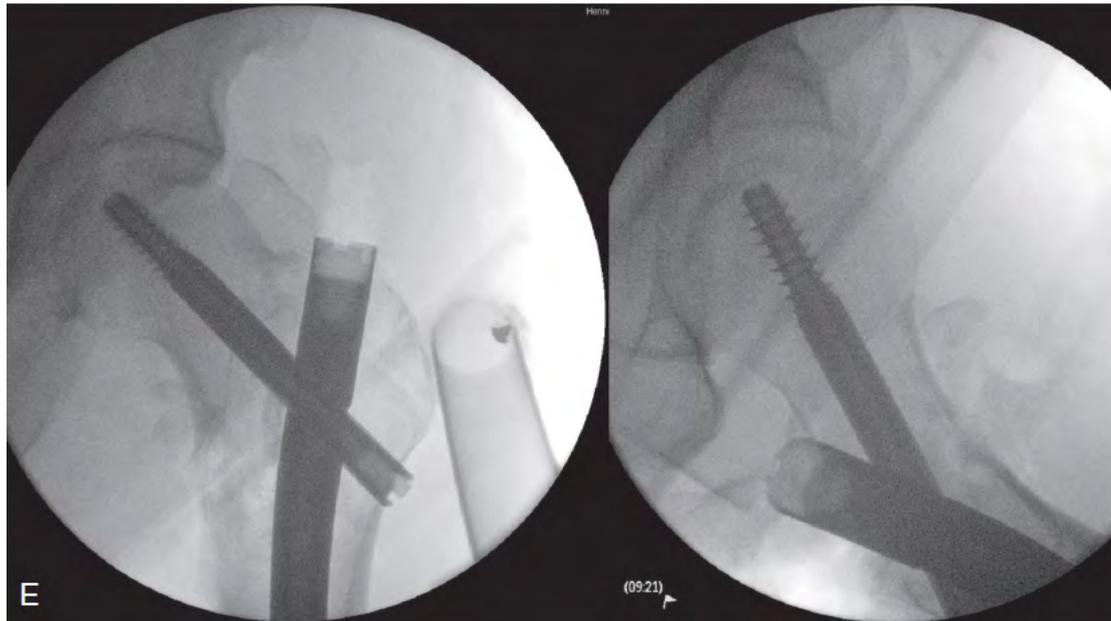


FALLIMENTO DELLA SINTESI:

1. SCARSA QUALITA' OSSEA
2. ATTIVITA' SBAGLIATA DEI PAZIENTI
3. RIDUZIONE DELLA FRATTURA
4. SCELTA DEL MEZZO DI SINTESI
5. POSIZIONE DEL MEZZO DI SINTESI

POSIZIONAMENTO DEL MEZZO DI SINTESI

VITE AL CENTRO DEL COLLO E VICINO ALL'OSSO SUBCONDRALE

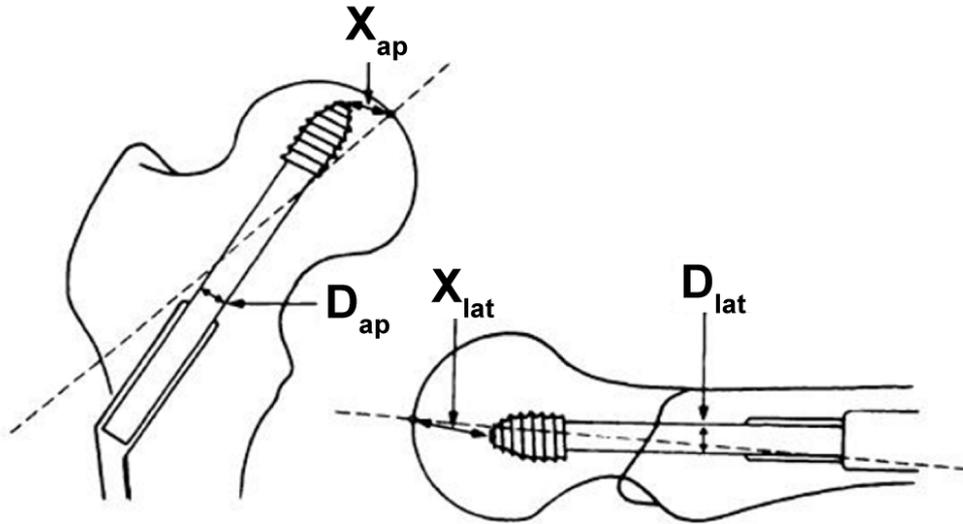


J Bone Joint Surg Am. 1979 Mar;61(2):216-21.

Analysis of six hundred and twenty-two intertrochanteric hip fractures.

Kyle RF, Gustilo RB, Premer RF.

TAD (tip to apex distance)



$$\text{TAD} = \left(X_{\text{ap}} \times \frac{D_{\text{true}}}{D_{\text{ap}}} \right) + \left(X_{\text{lat}} \times \frac{D_{\text{true}}}{D_{\text{lat}}} \right)$$

TAD <25 mm o TAD >25 mm
RR 12.71 DI CUT-OUT

J Orthop Sci. 2013 Jul;18(4):592-8. doi: 10.1007/s00776-013-0402-5. Epub 2013 May 2.

Tip to apex distance in femoral intertrochanteric fractures: a systematic review.

Rubio-Avila J¹, Madden K, Simunovic N, Bhandari M.

Injury. 2004 Oct;35(10):994-8.

Prediction of fixation failure after sliding hip screw fixation.

Pervez H¹, Parker MJ, Vowler S.

J Bone Joint Surg Br. 1997 Nov;79(6):969-71.

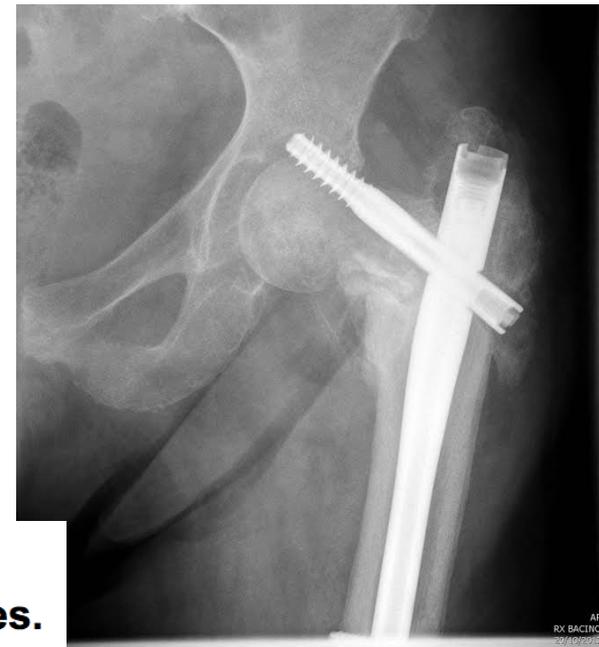
Awareness of tip-apex distance reduces failure of fixation of trochanteric fractures of the hip.

Baumgaertner MR¹, Solberg BD.

PROBLEMATICHE DI GUARIGIONE

PRATICAMENTE SEMPRE **ASSOCIATE** A FALLIMENTO DELLA FISSAZIONE
(CUT-OUT)

IN CASO NON CI FOSSE CUT-OUT LA
REVISIONE E' POSSIBILE CON UNA PLACCA A
COMPRESSIONE
SUCCESSO NEL 90% DEI CASI



Clin Orthop Relat Res. 2003 Jul;(412):184-8.

Salvage of failed internal fixation of intertrochanteric hip fractures.

Haidukewych GJ¹, Berry DJ.

UN FALLIMENTO DEI CHIODI A DOPPIA VITE CEFALICA



Z EFFECT

J Orthop Res. 2007 Dec;25(12):1568-73.

The "Z-effect" phenomenon defined: a laboratory study.

Strauss EJ¹, Kummer FJ, Koval KJ, Egol KA.

CONCLUSIONE

FRATTURE MEDIALI

NEI PAZIENTI GIOVANI TENTARE SEMPRE LA SINTESI

RIDUZIONE PERFETTA

NEGLI ANZIANI MEGLIO LA PROTESI CON RISULTATI PIU' RIPRODUCIBILI



FRATTURE LATERALI

PLACCA A COMPRESSIONE TRATTAMENTO DI SCELTA

CHIODO INTRAMIDOLLARE PIU' VERSATILE

VALUTARE PAZIENTE PER INDICAZIONE A MEZZO DI SINTESI CORRETTO

CORRETTO POSIZIONAMENTO DEI MEZZI DI SINTESI E' FONDAMENTALE

A panoramic view of Turin, Italy, at dusk. The Mole Antonelliana, a large Gothic church with a tall spire, is the central focus, illuminated from below. The surrounding city is lit up, with buildings and streets glowing. In the foreground, there are green trees and a stone wall. The sky is a mix of blue and purple, with some clouds. The word "GRAZIE" is written in white, italicized capital letters in the upper right quadrant.

GRAZIE



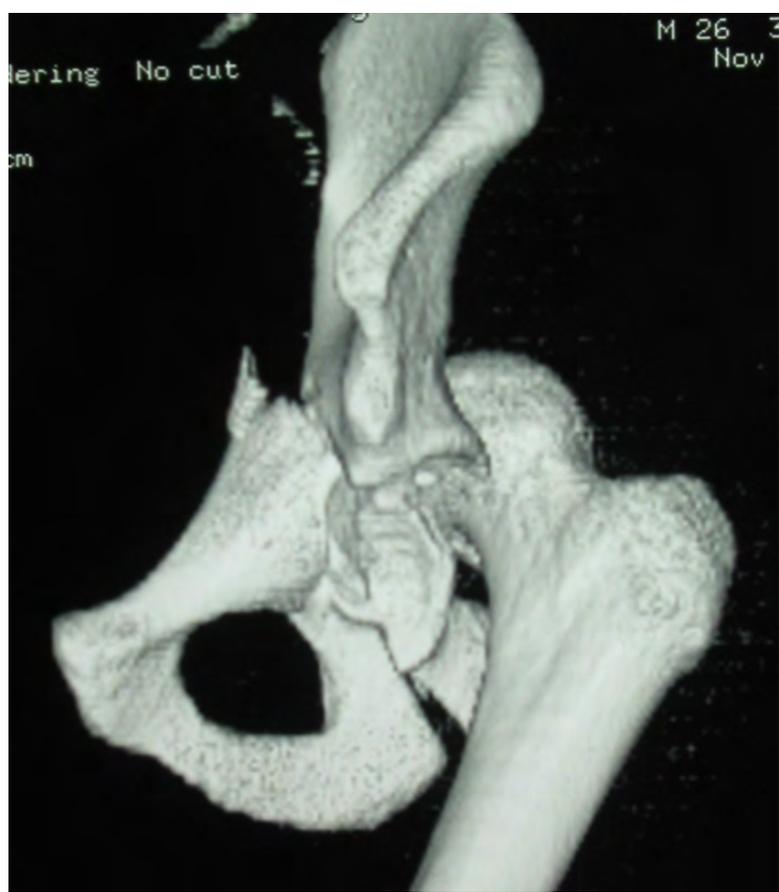
COMPLICANZE NELLE OSTEOSINTESI: FRATTURE ACETABOLO

A. Massè

Università degli Studi di Torino
Centro Traumatologico Ortopedico
Clinica Ortopedica e Traumatologica I

www.chirurgia-bacino-anca.unito.it





Emile Letournel
Robert Judet †

Fractures of the Acetabulum

Second Edition
Entirely Revised and Enlarged



Springer-Verlag

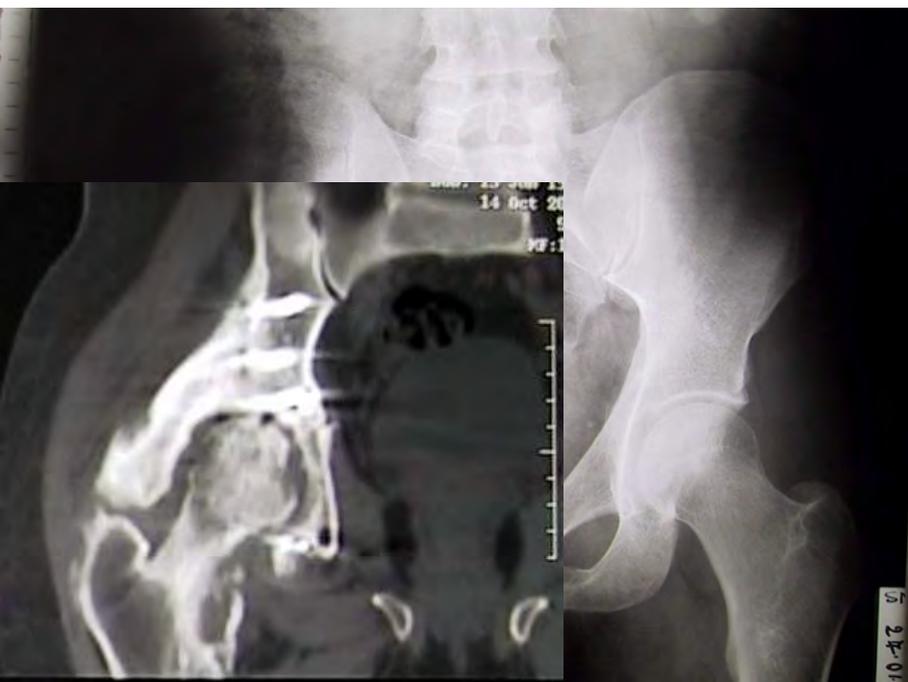


- Infection
- Ectopic bone formation
- Avascular necrosis
- Vascular /nerve damage (approach related)
- OA

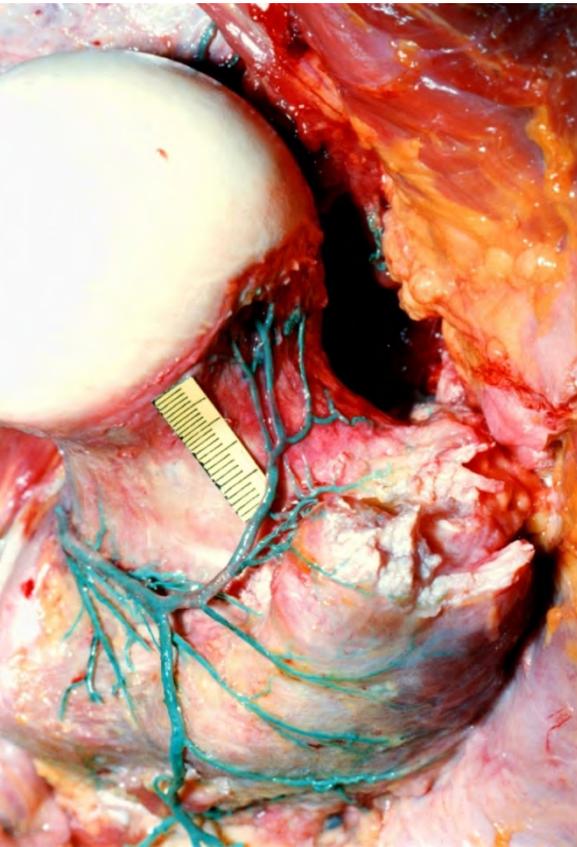
Surgical Site Infection Following Fixation of Acetabular Fractures

In our study, the prevalence of SSI following fixation of acetabular fractures is 5.6% which is comparable to other studies. Suzuki et reported the SSI rate of 5.2% after acetabulum fracture surgery, both superficial and deep. Mayo founded the infection rate after acetabular fracture fixation of 4%

- Heterotopic ossifications 30%
- Minimus gluteus debridement
- Medical prevention



- Reported in up to 40% of pw fx/dislo
- Related to the trauma
- Sometime hyatrogenic



Anatomy of the medial femoral circumflex artery and its surgical implications

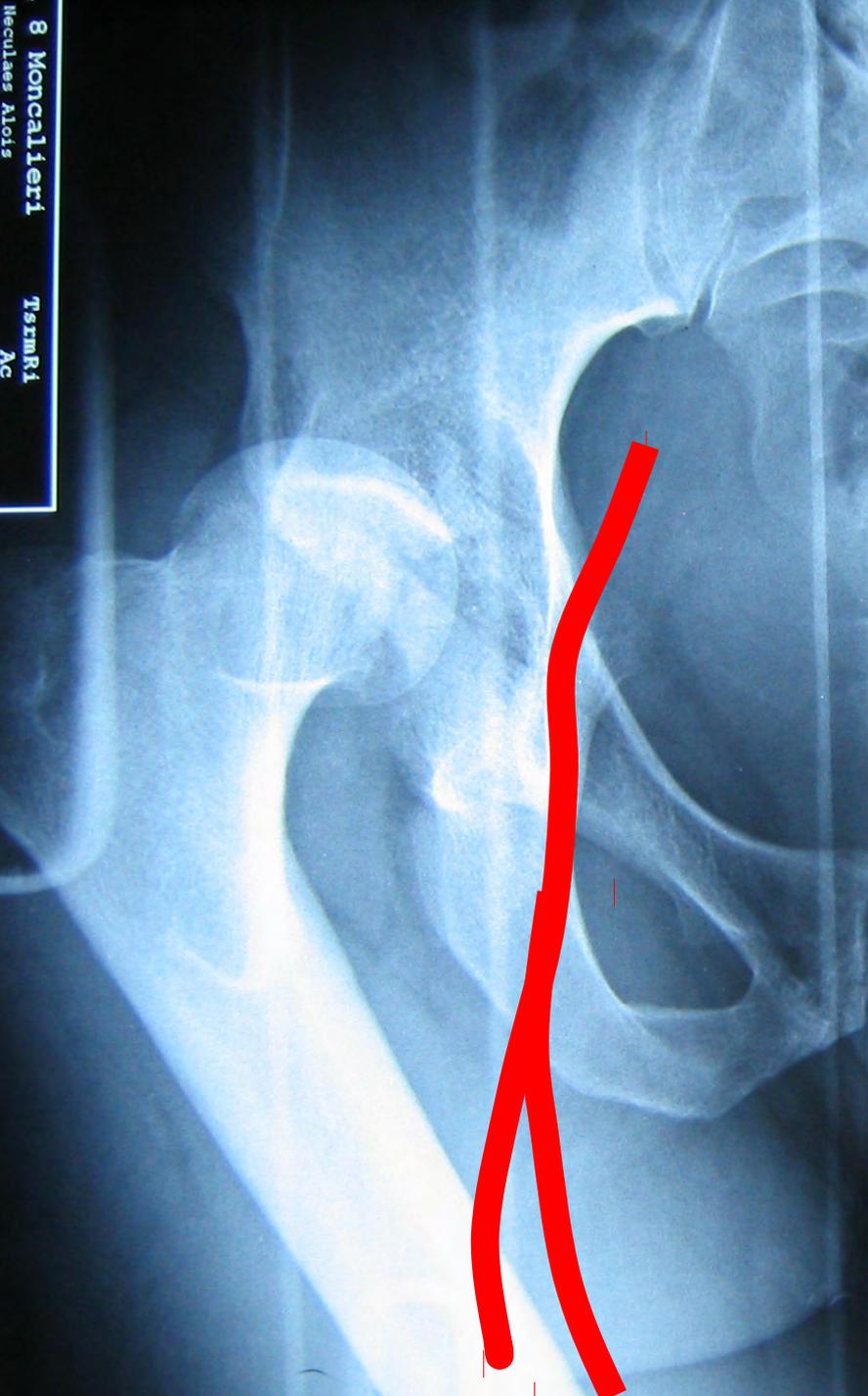
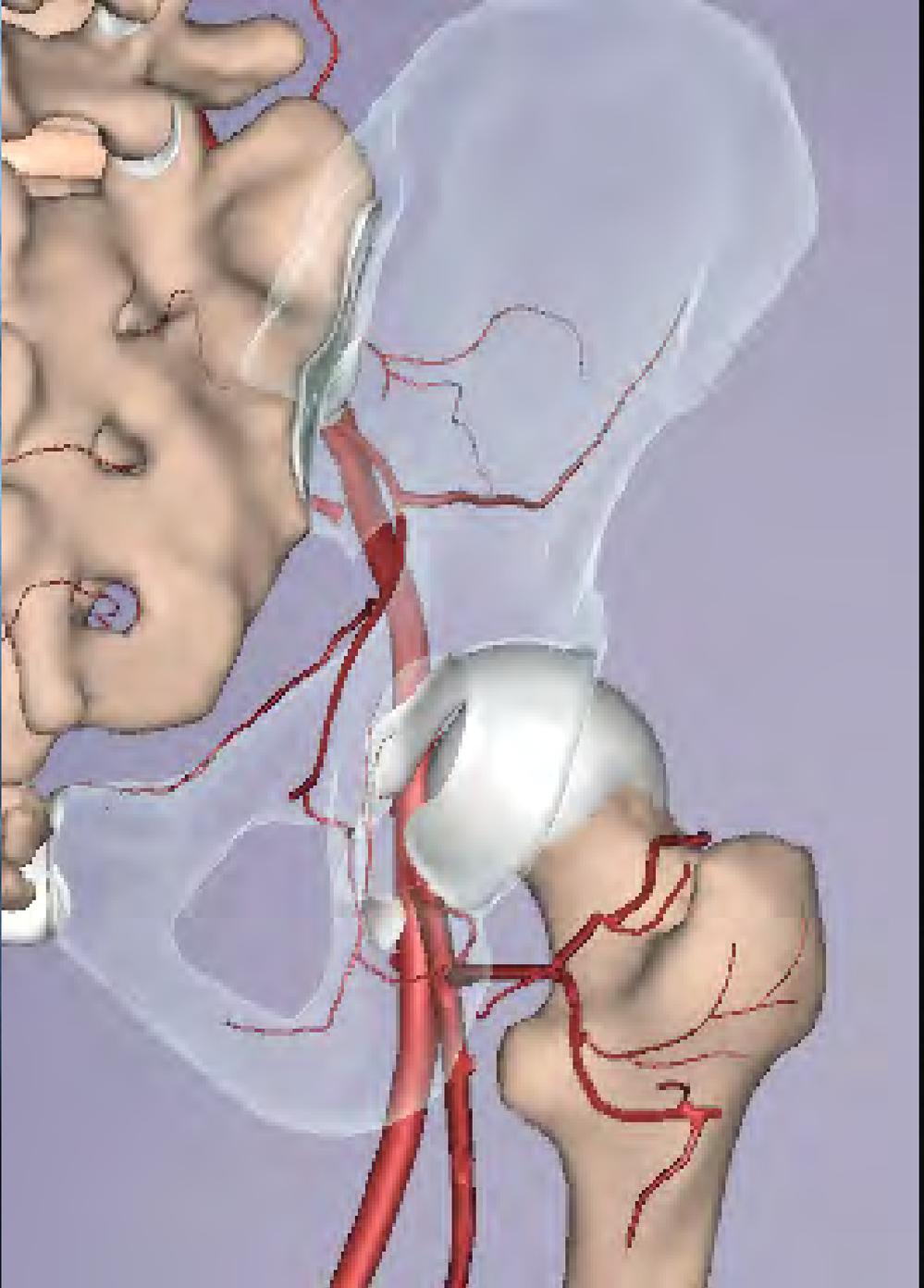
Emanuel Gautier, Katharine Ganz, Nathalie Krügel, Thomas Gill, Reinhold Ganz

From L'Hôpital Cantonal, Fribourg, Switzerland

Mechanisms of vascular injury

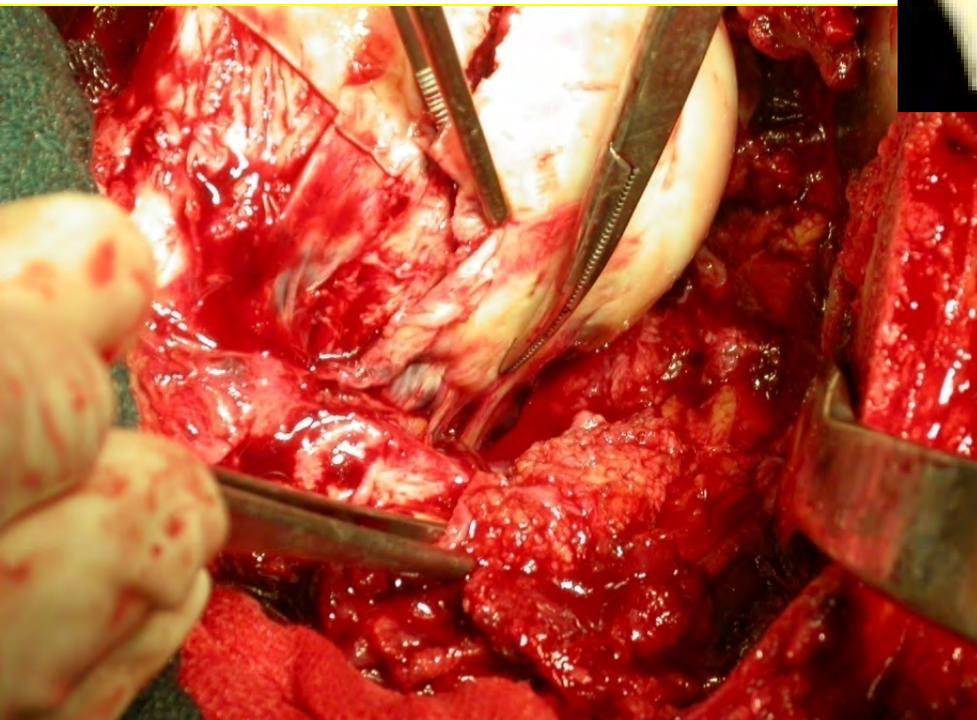
- Stretching/twisting/tear of the MCFA
- Stretching-tear of the subsynovial terminal branches





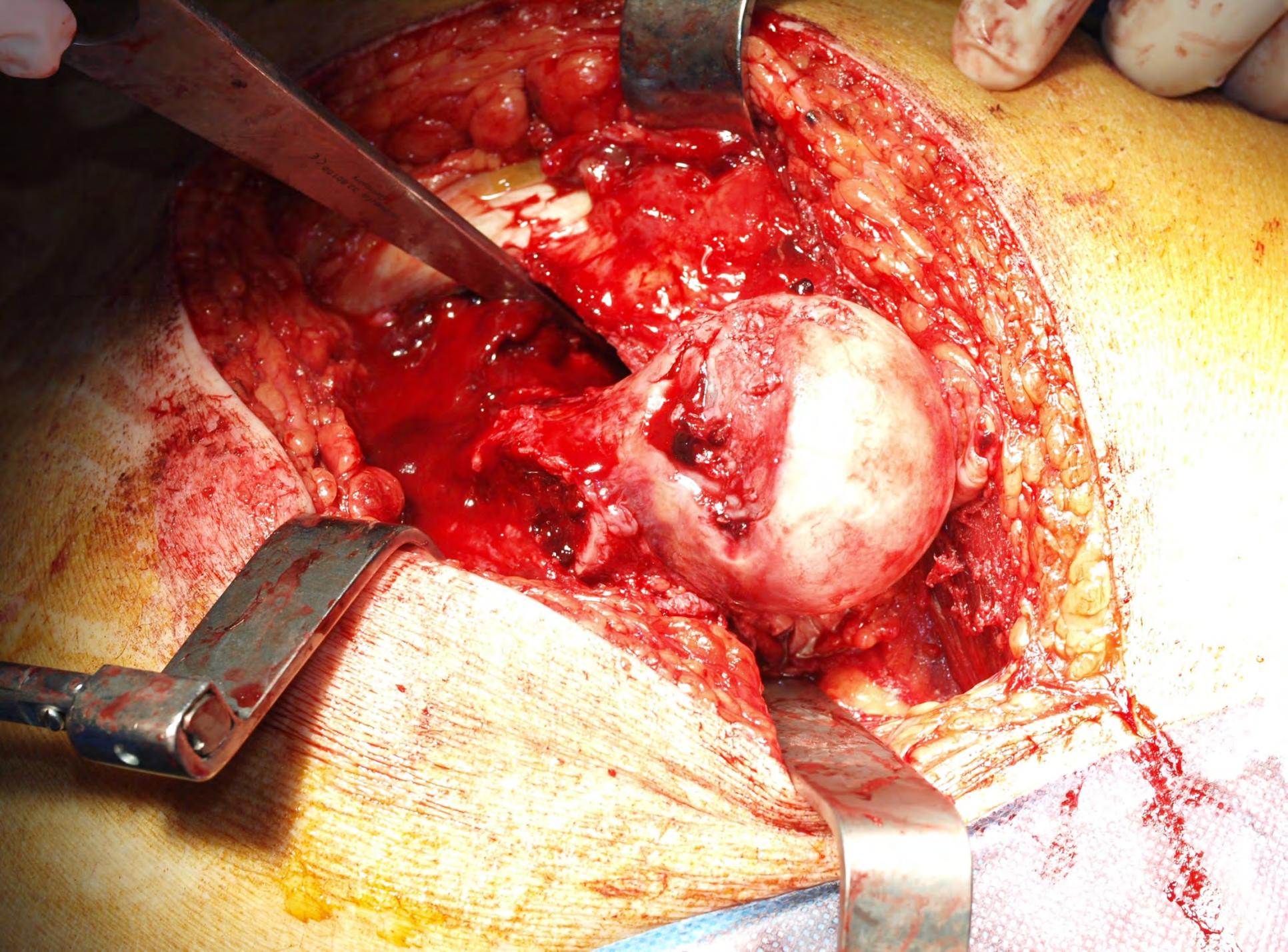
Mechanisms of vascular injury

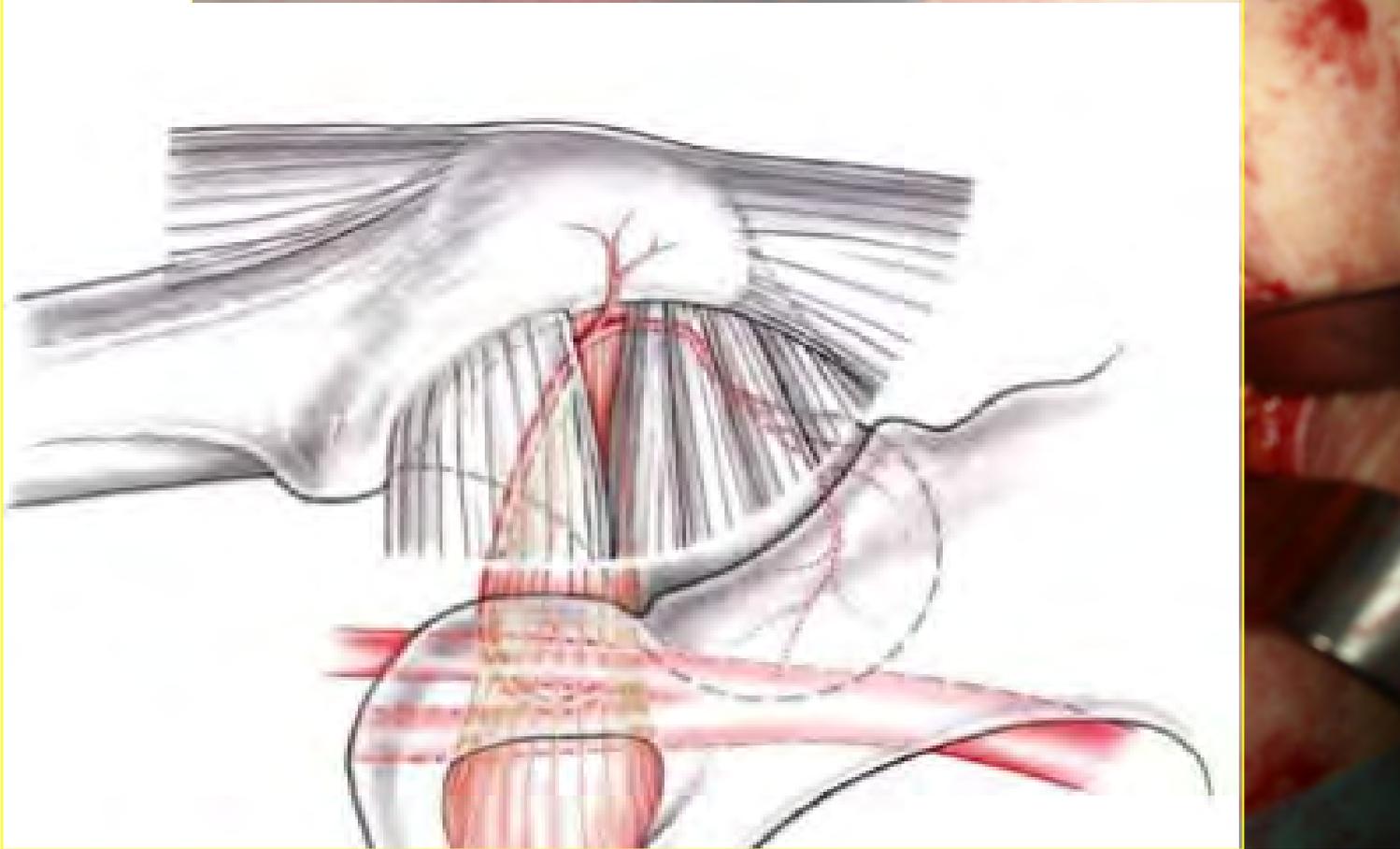
- Stretching / twisting /tear of the MCFA
- Stretching-tear of the subsynovial terminal branches:
 - ❖ subcapital fracture
 - ❖ head impaction





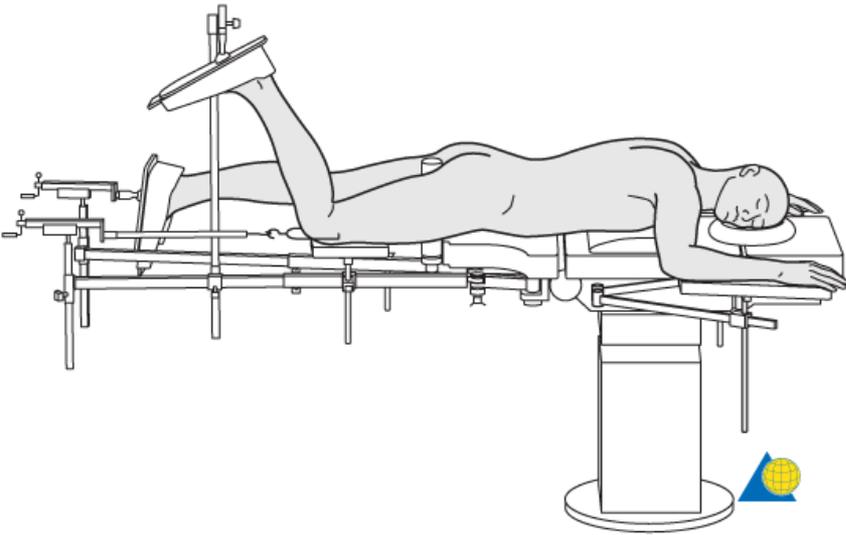
Dx





- **External rotators transection at 1.5cm from the origin**
- **Reinsertion dangerous**

Approach related complications: Kocher Langenbeck



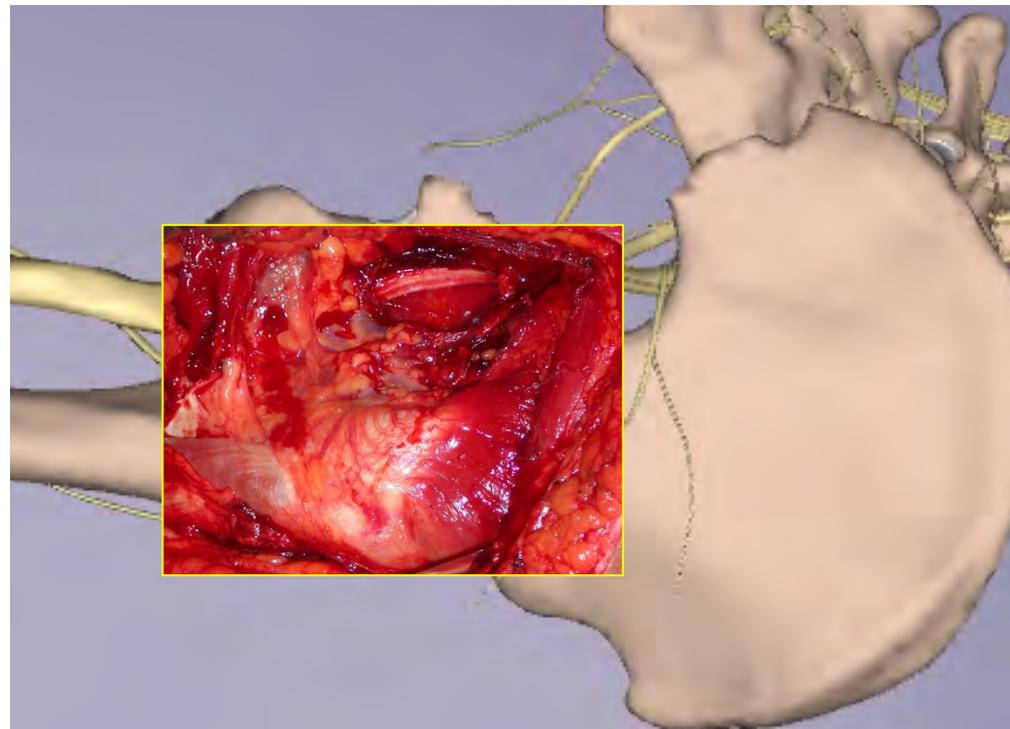
- Well known
- Prone or lateral
- excellent view of posterior wall-column



- Sciatic nerve palsy: 8%
- Keep the knee flexed
- Proper sciatic retractor

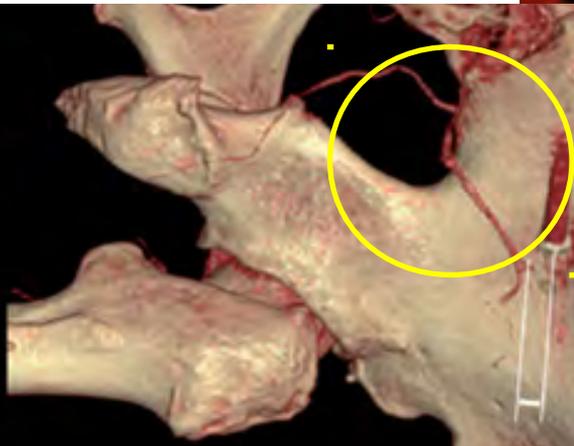
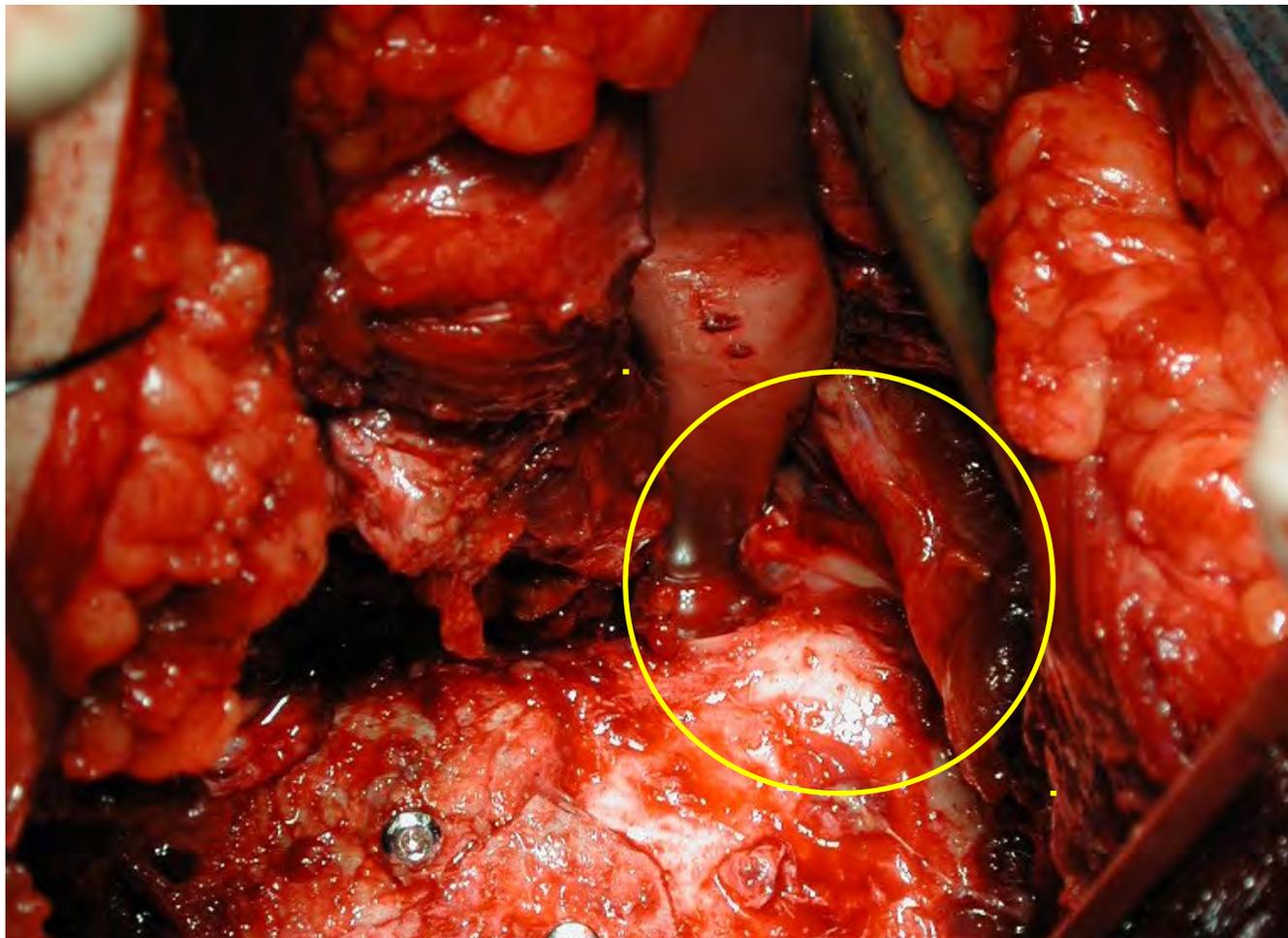


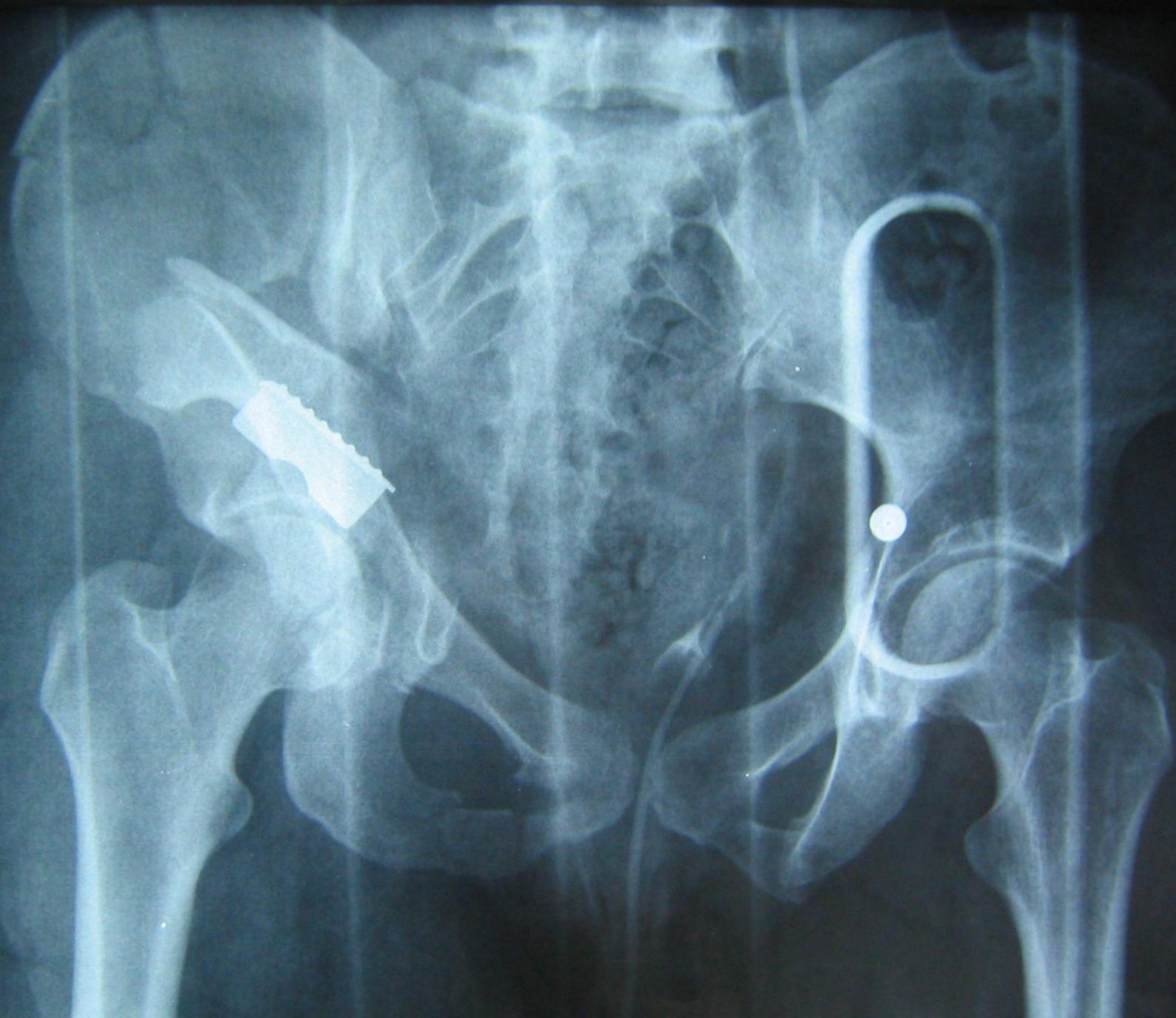
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Kocher Langenbeck: risks





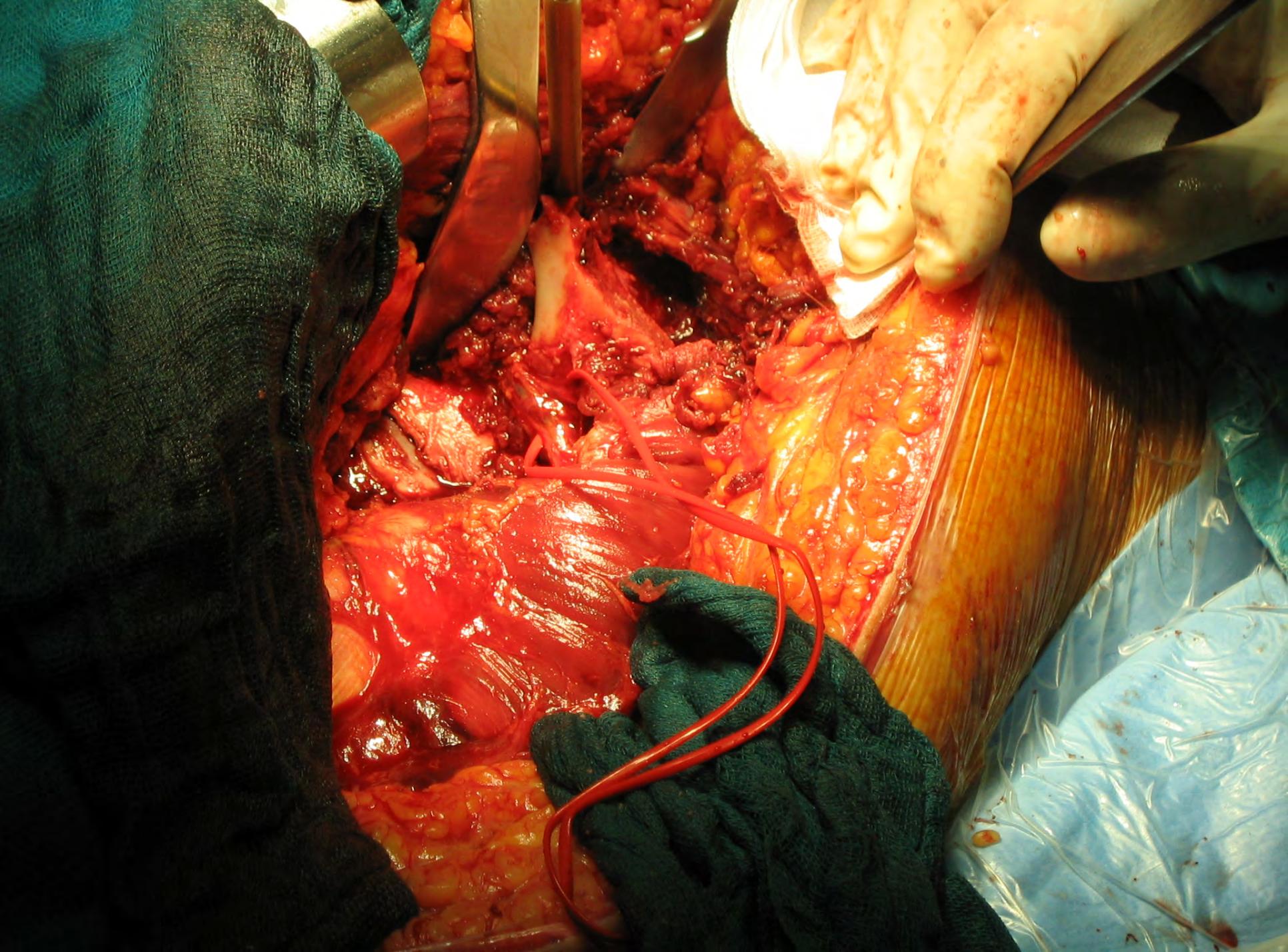


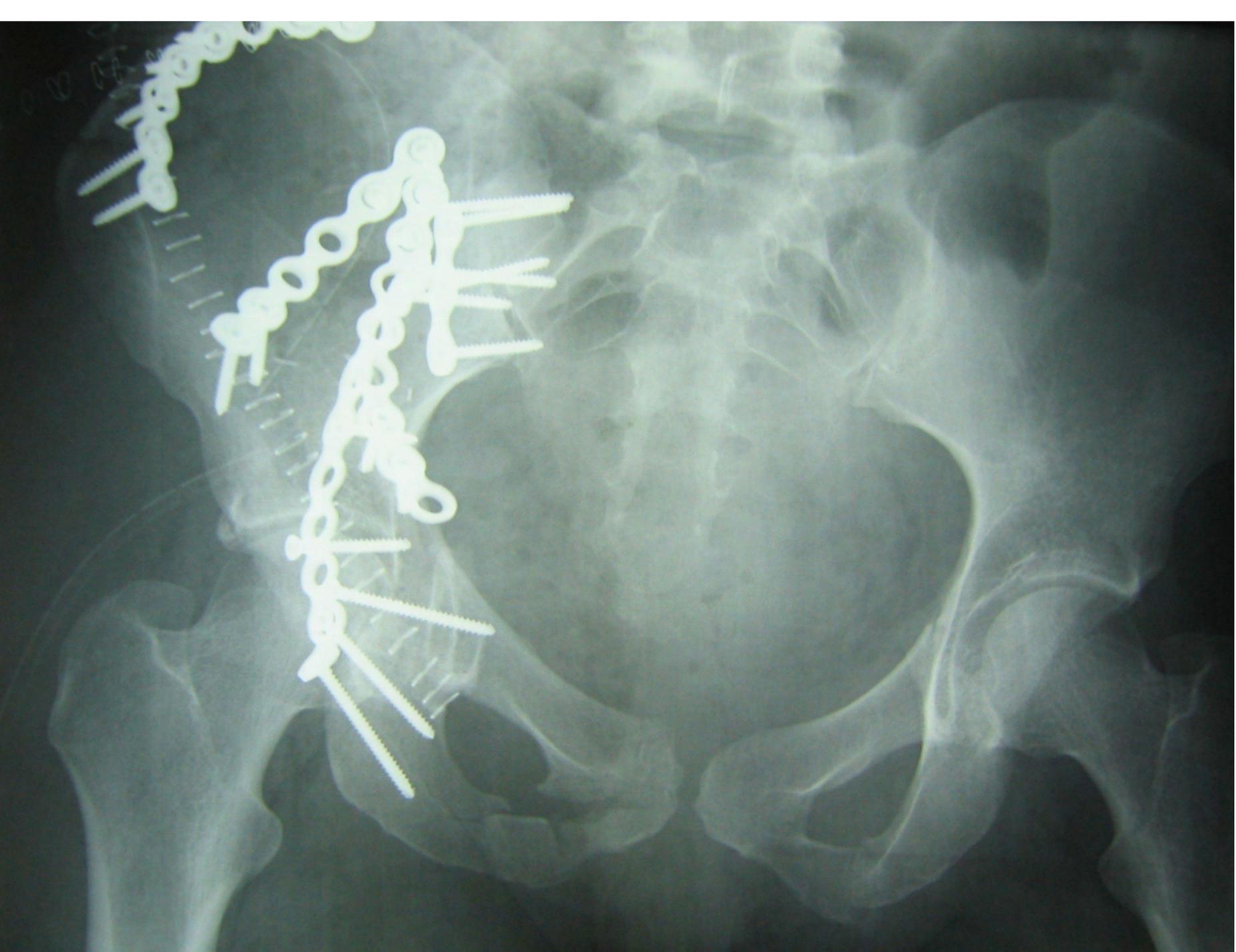
DFOV 30.0 cm
STANDARD
809/65



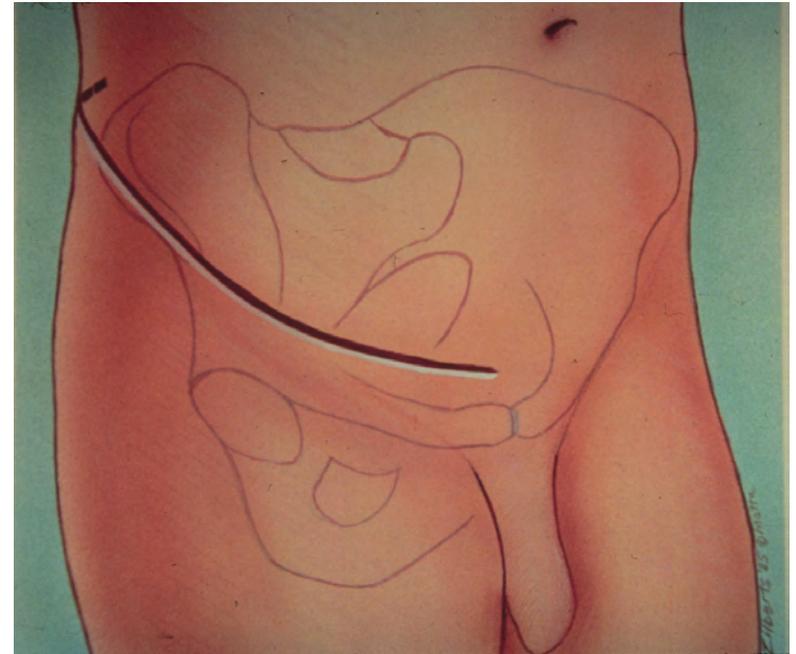
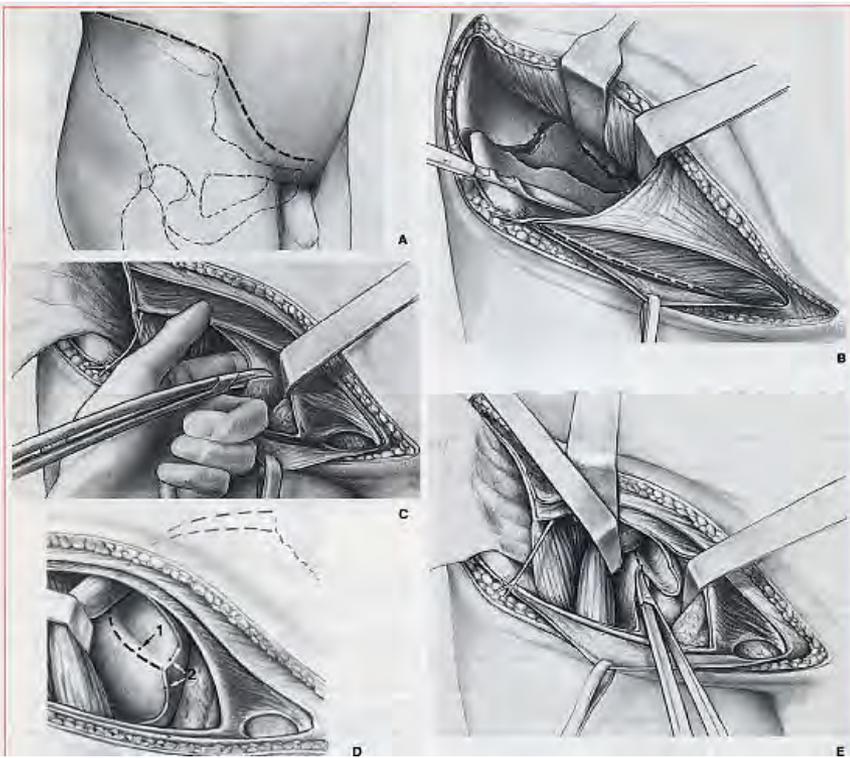
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I

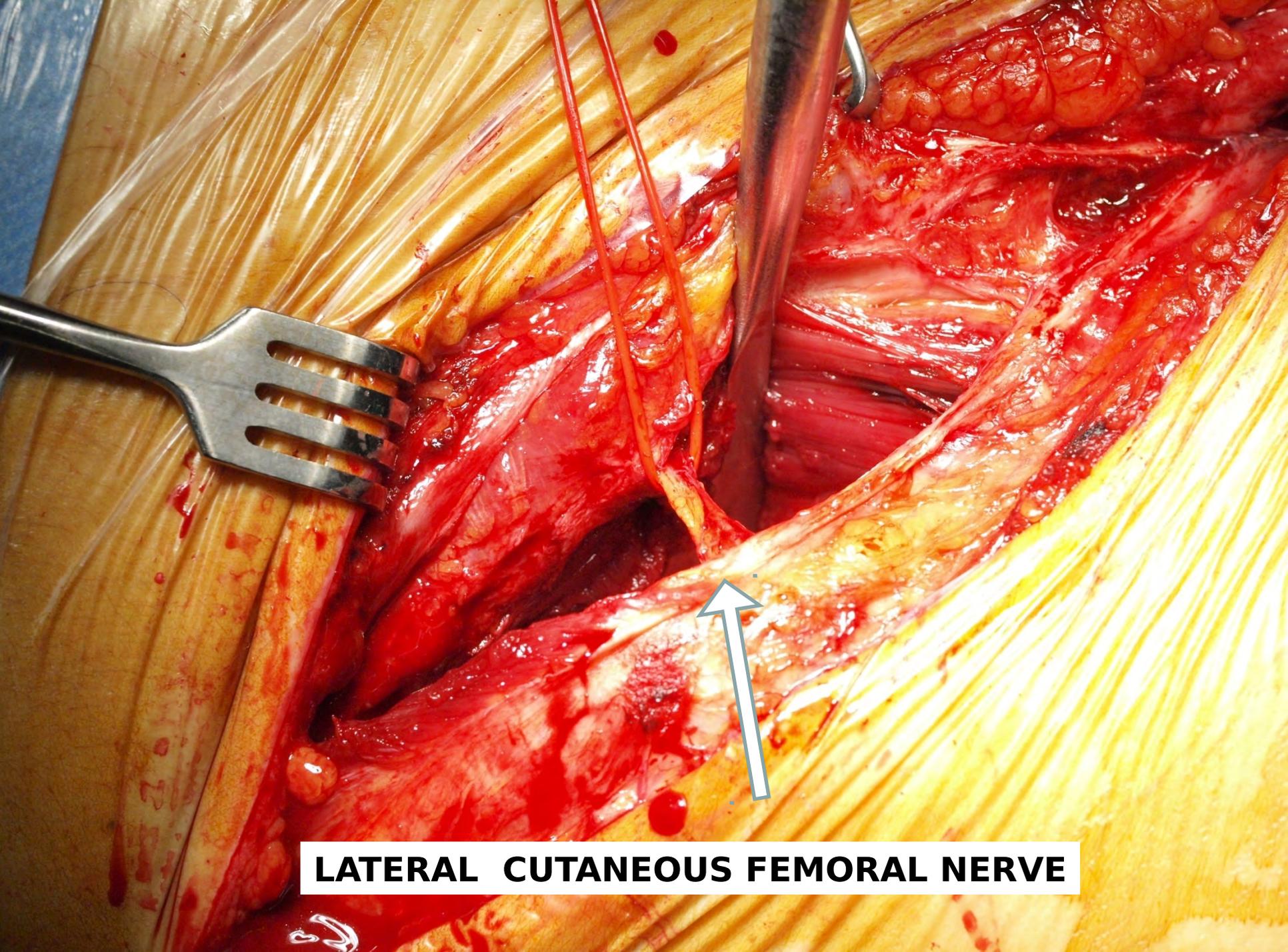




Ilioinguinal

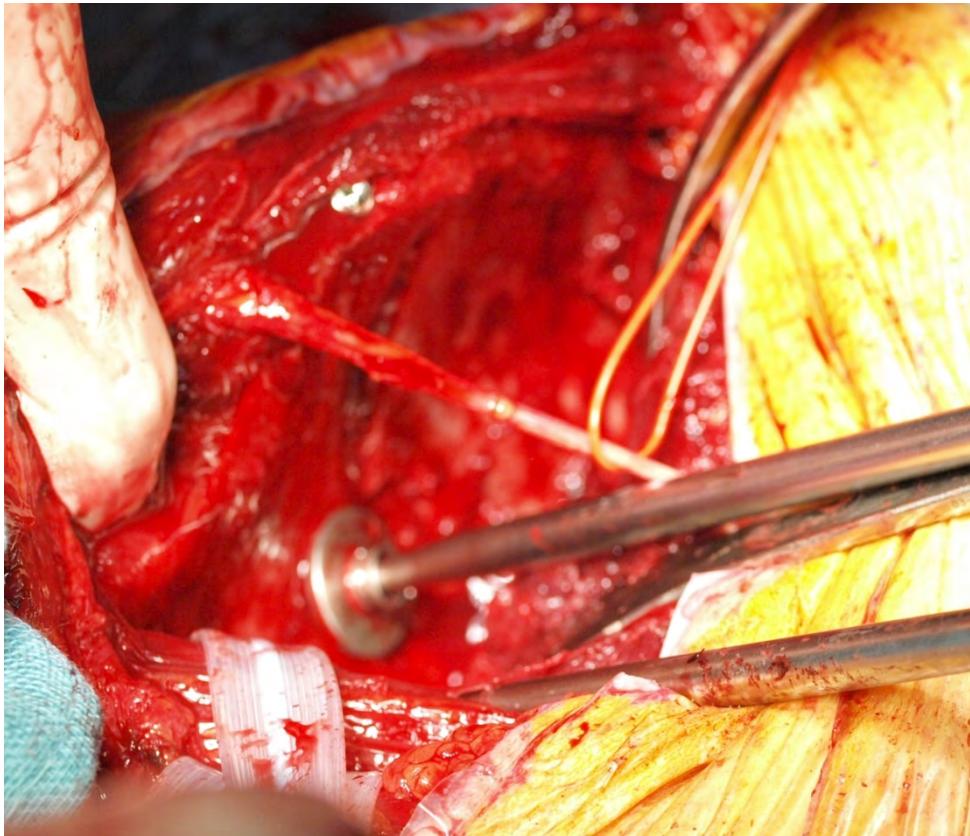
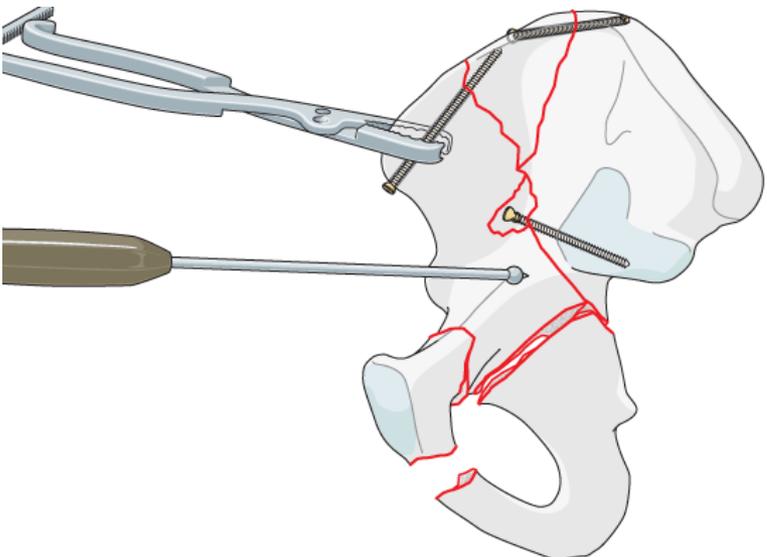
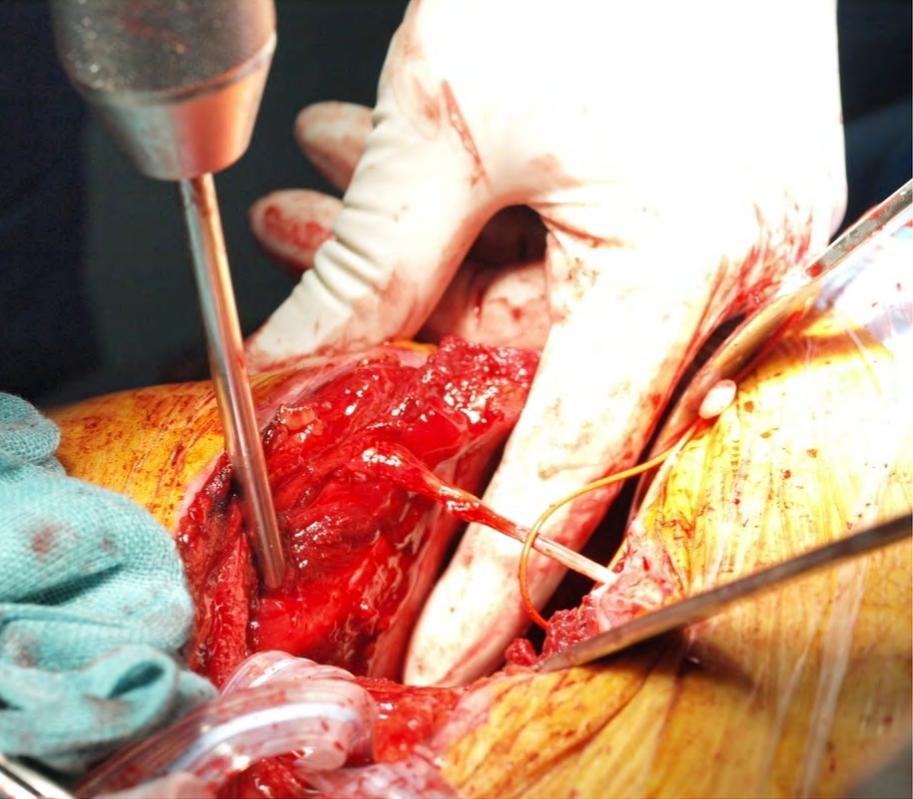


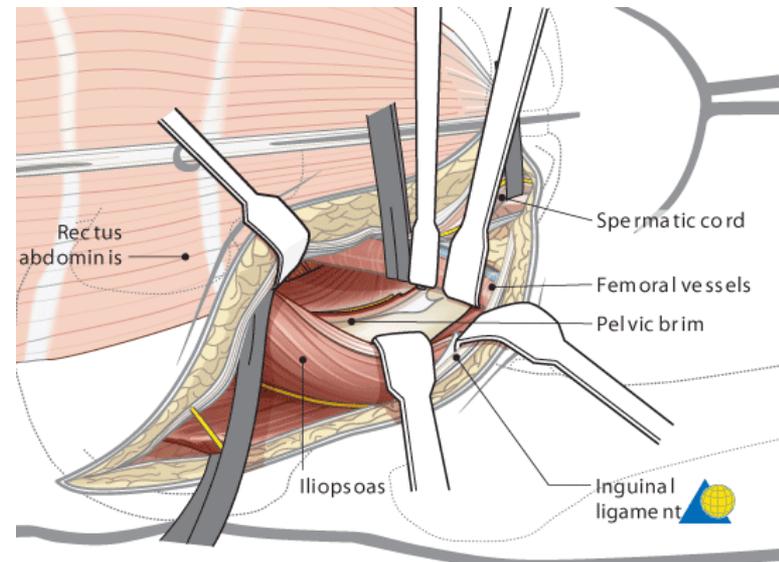
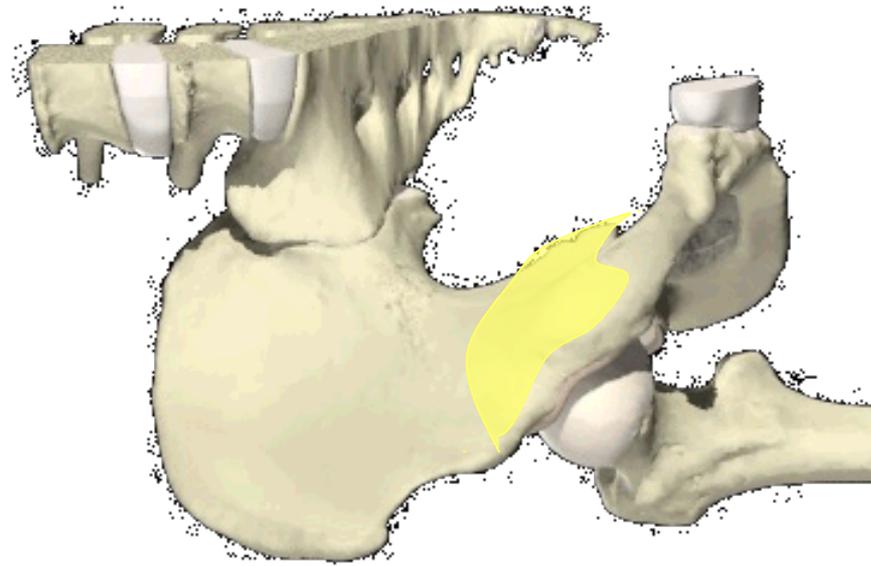
- Standard approach for anterior fractures
- Allows for reduction and fixation of posterior column
- Standard approach for both column fractures
- Indirect reduction

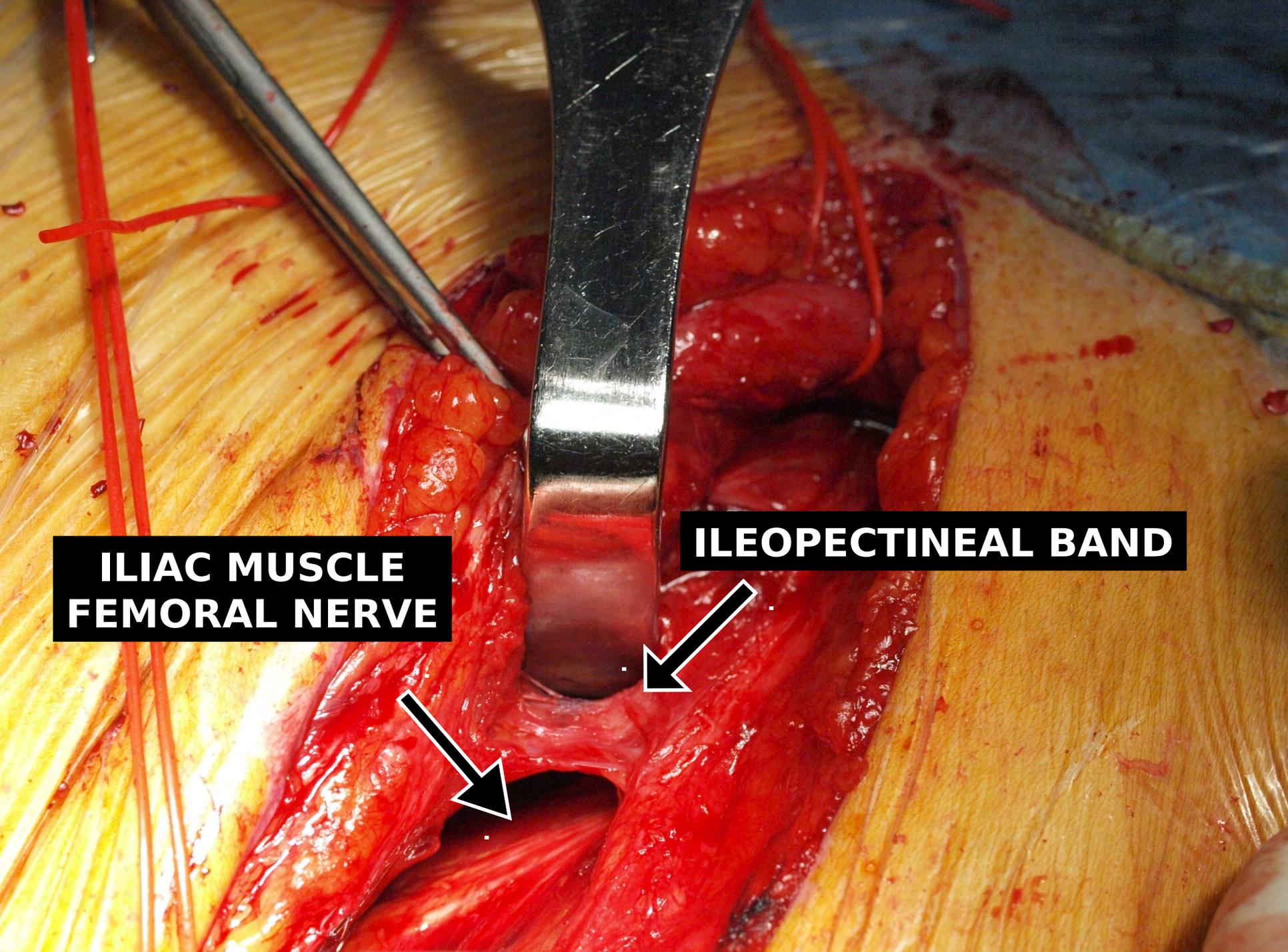


LATERAL CUTANEOUS FEMORAL NERVE

DAMAGE OF THE LCFN



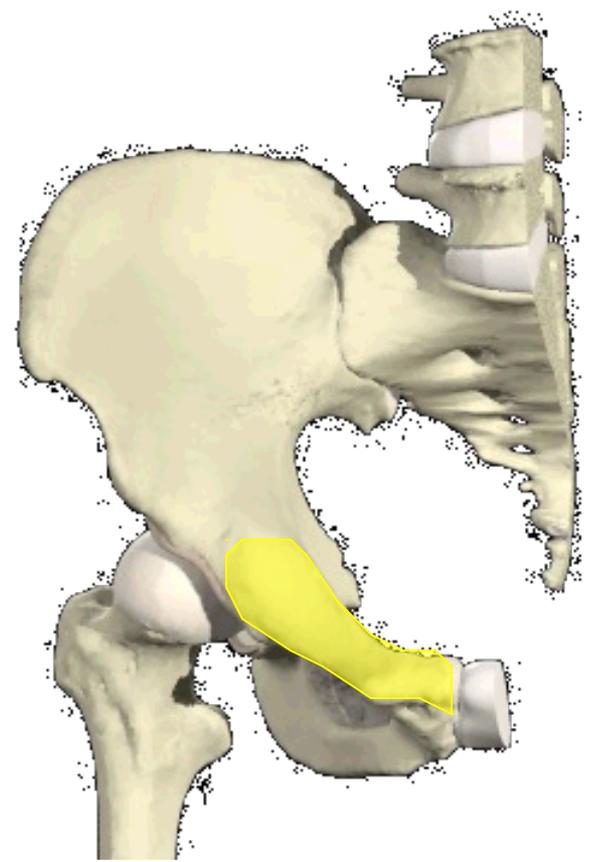
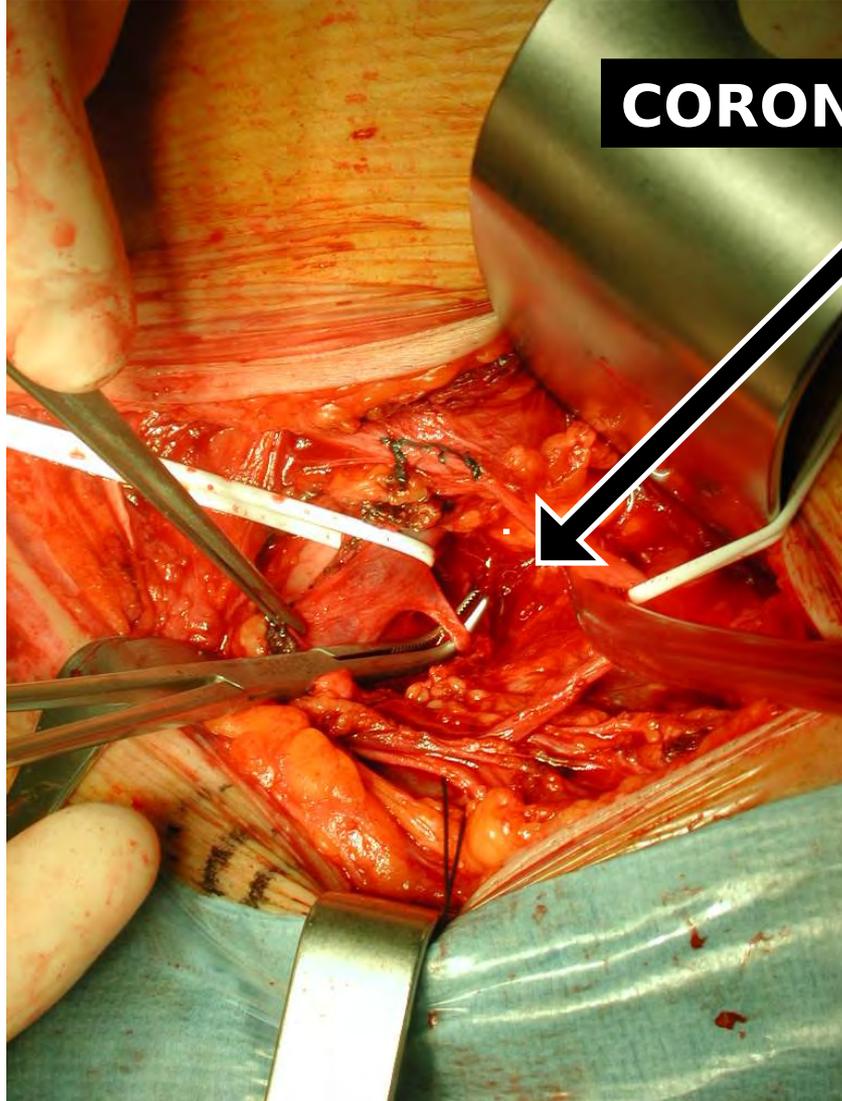




**ILIAC MUSCLE
FEMORAL NERVE**

This image shows a surgical dissection of the iliopectineal region. The iliac muscle is visible on the left, and the femoral nerve is shown passing through a tunnel formed by the iliopectineal band. A metal retractor is used to hold back muscle fibers. Two white arrows point to the femoral nerve and the iliopectineal band. The labels are in black boxes with white text.

ILEOPECTINEAL BAND





Joel Matta

OSTEOARTHRITIS

Table 26.4

Type of fracture	Clinical result					Total	Percentage of excellent results
	Excellent	Very good	Good	Fair	Poor		
Posterior wall	87	6	3	4	17	117	74%
Posterior column	9	—	1	1	—	11	81.82%
Anterior wall	6	—	1	1	1	9	66.67%
Anterior column	12	1	1	—	2	16	75.00%
Transverse	17	1	—	—	1	19	89.47%
T-shaped	20	3	—	—	3	26	76.92%
Transverse and posterior wall	49	16	10	9	17	101	48.51%
Posterior column and posterior wall	5	1	2	1	8	17	29.41%
Anterior column and posterior hemitransverse	26	5	4	3	3	41	63.41%
Both-column	76	21	14	11	13	135	56.30%
Total	307	54	36	30	65	492	62.40%
	62.40%	10.98%	7.32%	6.10%	13.21%	100%	

J Bone Joint Surg Br. 2011 Feb;93(2):229-36.

Outcomes of acetabular fracture fixation with ten years' follow-up.

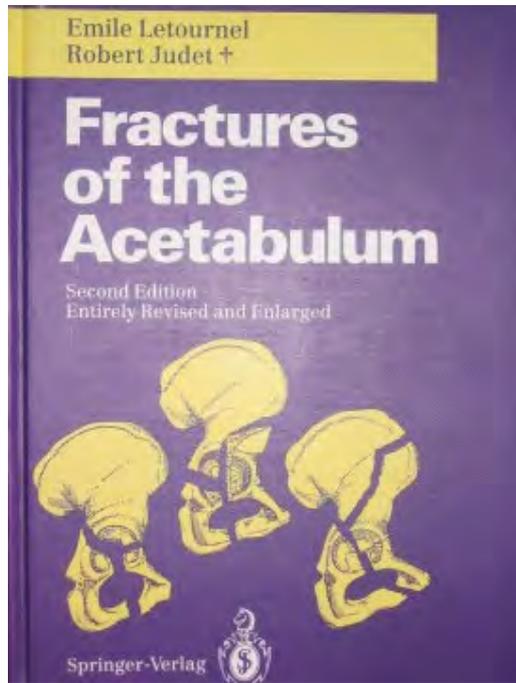
Briffa N, Pearce R, Hill AM, Bircher M.

Department of Trauma and Orthopaedics, St George's Hospital, Blackshaw Road, London SW17 0QT, UK. nukol@hotmail.com

measures. We observed simple fractures in 108 patients (42%) and associated fractures in 149 (58%). The result was excellent in 75 patients (47%), good in 41 (25%), fair in 12 (7%) and poor in 33 (20%). Poor prognostic factors included increasing age, delay to surgery, quality of reduction and some fracture patterns. Complications were common in the medium- to long-term and functional outcome was variable. The gold-standard treatment for displaced acetabular fractures remains open reduction and internal fixation performed in dedicated units by specialist surgeons as soon as possible.

- 73% good / excellent results
- 27% fair / poor results
- Prognosis related to
 - age
 - Time before surgery
 - Quality of the reduction



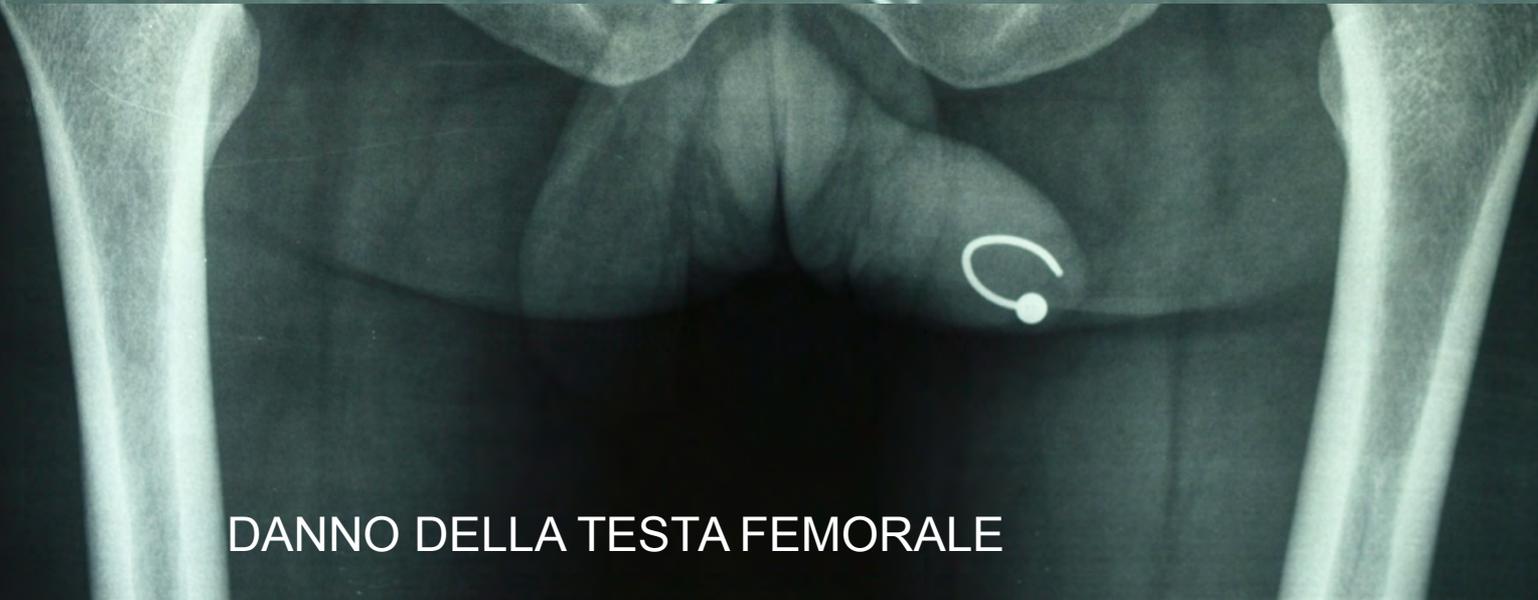
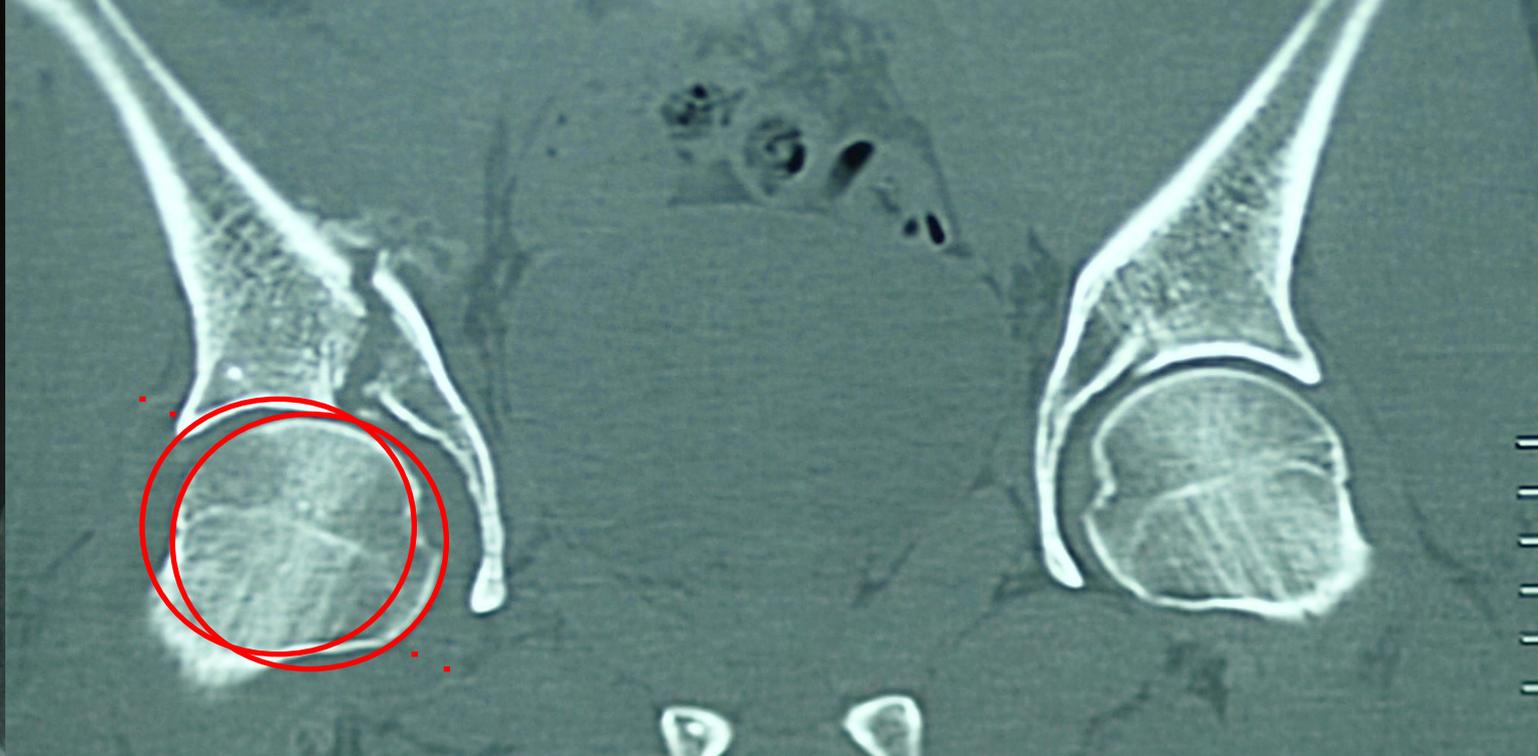


Displacement $>2\text{mm}$

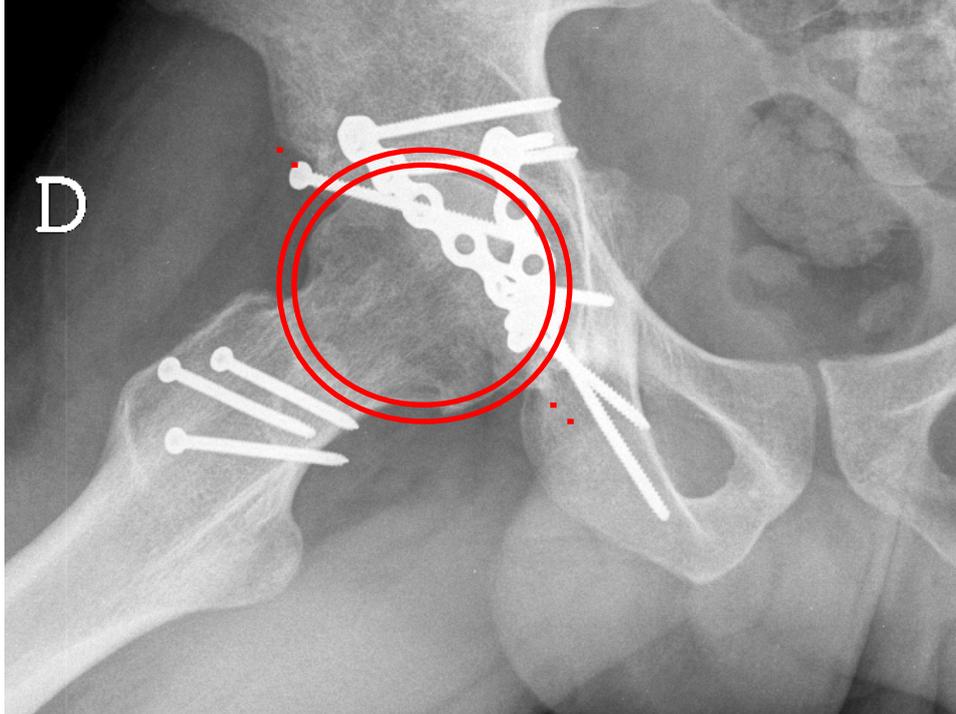
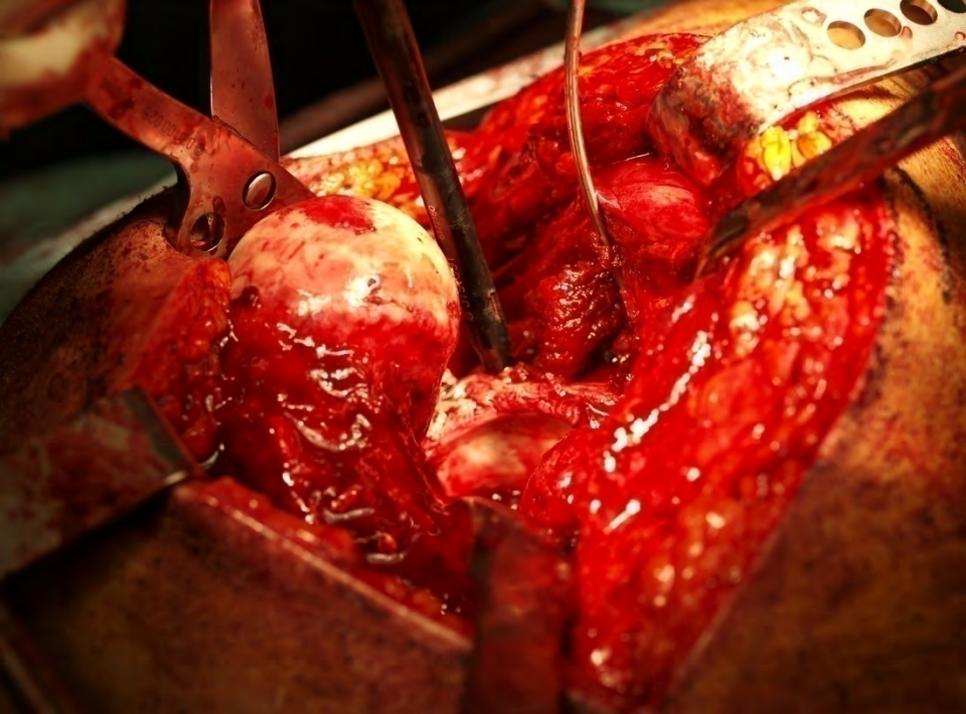
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Early OA





DANNO DELLA TESTA FEMORALE





Welcome!

Welcome to the Orthopaedic Survival Database! To begin using this service, please select a database below.

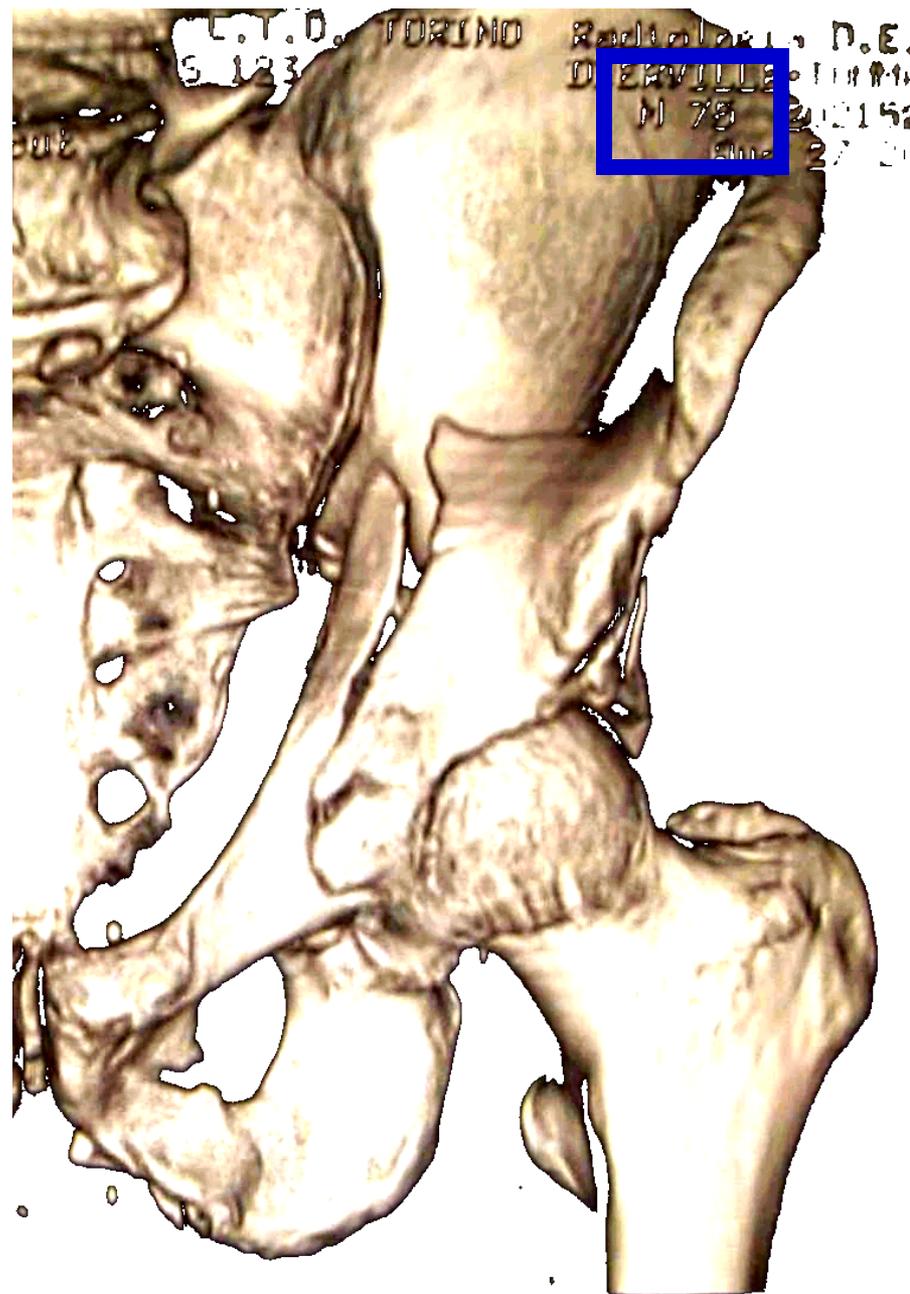
Acetabular Fractures



This database provides survival data for patients age 11 to 90 who have undergone operative treatment of acetabular fractures.

[Start using this database](#)

Version: Desktop | [Mobile](#)



Please review the form and answer the questions as best you can. All fields are required.

Acetabular Fractures

Age

Anterior Dislocation Yes No

Posterior Wall Involvement Yes No

Initial Displacement >20mm Yes No

Femoral Cartilage Lesion Yes No

Congruent Joint Yes No

Anatomic Reduction Yes No

Fracture Pattern

Ripristina

Invia

Please review the form and answer the questions as best you can. All fields are required.

Acetabular Fractures

Age

Anterior Dislocation Yes No

Posterior Wall Involvement Yes No

Initial Displacement >20mm Yes No

Femoral Cartilage Lesion Yes No

Congruent Joint Yes No

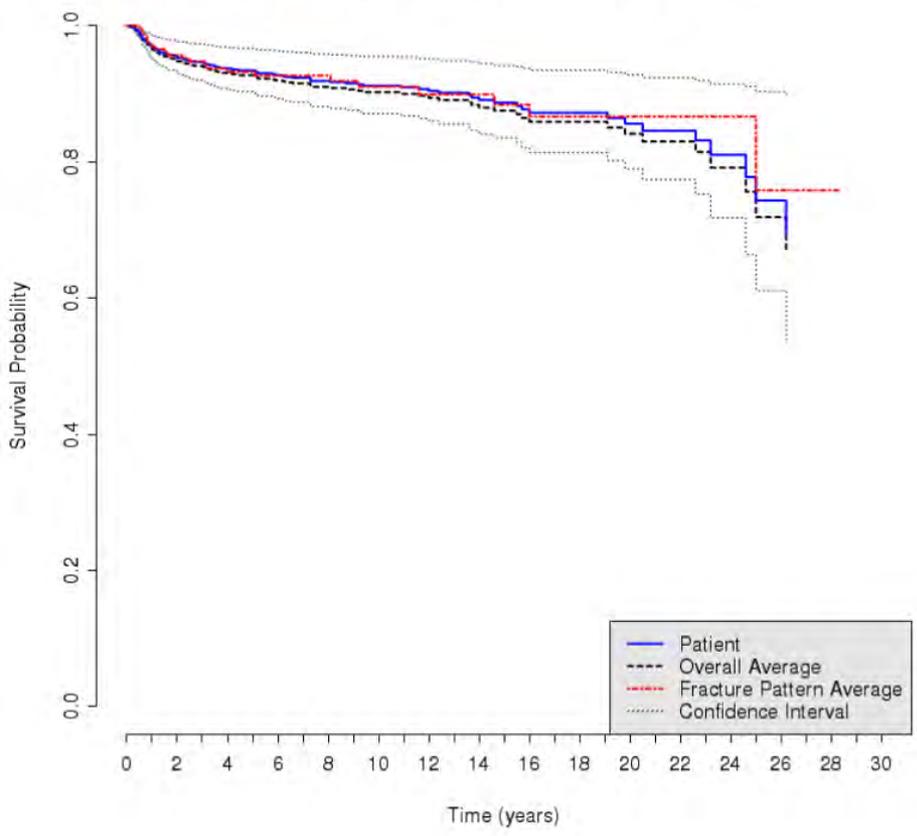
Anatomic Reduction Yes No

Fracture Pattern

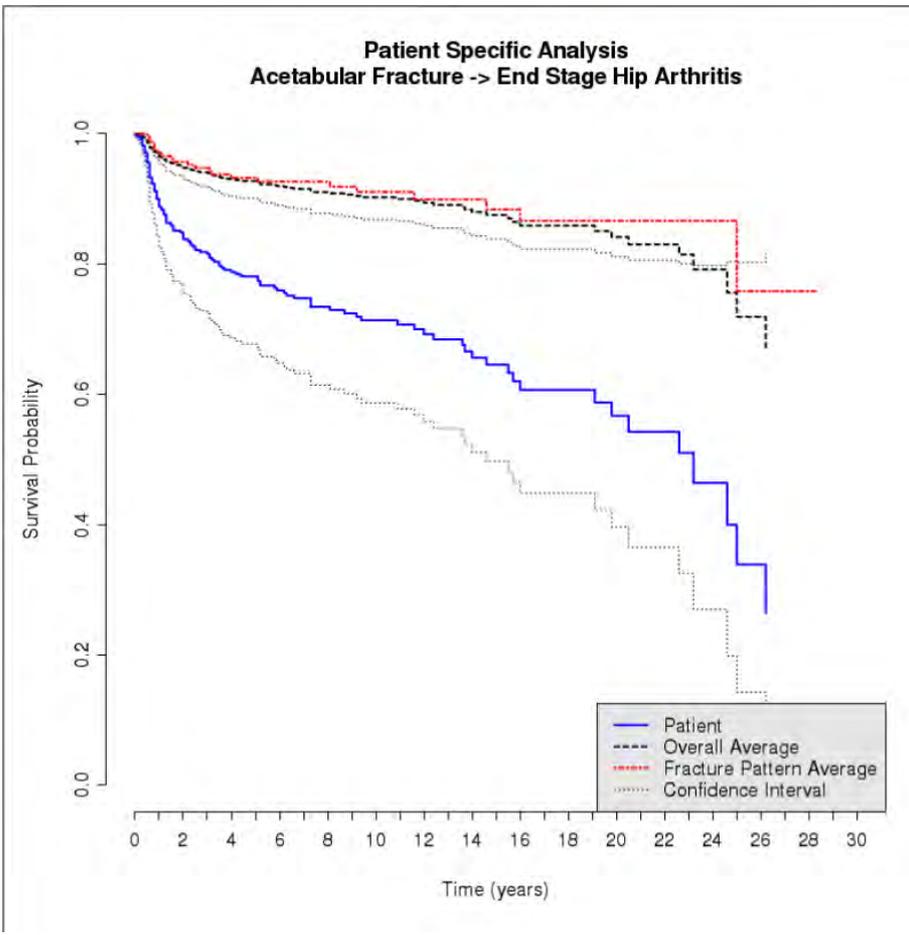
Ripristina

Invia

**Patient Specific Analysis
Acetabular Fracture -> End Stage Hip Arthritis**



**Patient Specific Analysis
Acetabular Fracture -> End Stage Hip Arthritis**



Please review the form and answer the questions as best you can. All fields are required.

Acetabular Fractures

Age

Anterior Dislocation Yes No

Posterior Wall Involvement Yes No

Initial Displacement >20mm Yes No

Femoral Cartilage Lesion Yes No

Congruent Joint Yes No

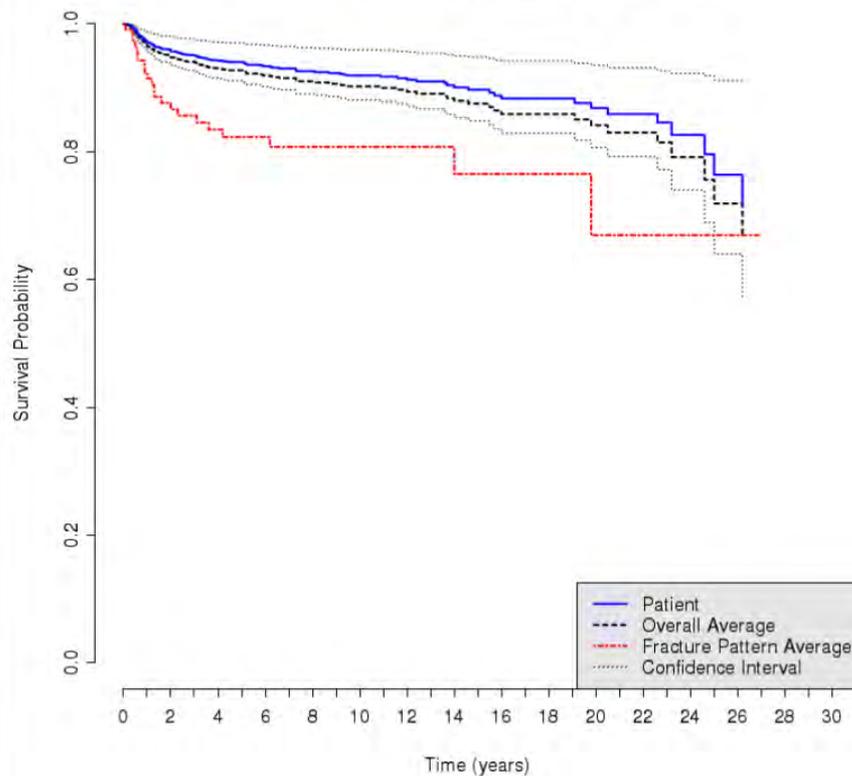
Anatomic Reduction Yes No

Fracture Pattern

Ripristina

Invia

Patient Specific Analysis Acetabular Fracture -> End Stage Hip Arthritis



Please review the form and answer the questions as best you can. All fields are required.

Acetabular Fractures

Age

Anterior Dislocation

Posterior Wall Involvement

Initial Displacement >20mm

Femoral Cartilage Lesion

Congruent Joint

Anatomic Reduction

Fracture Pattern

Excellent

Very good

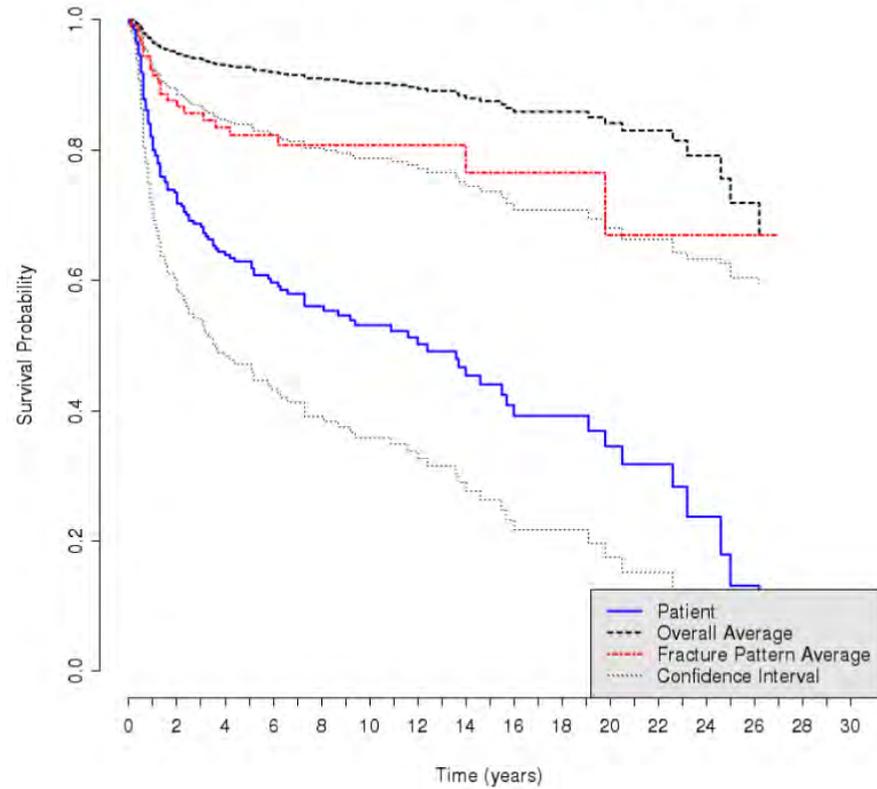
Good

Average

Poor



Patient Specific Analysis Acetabular Fracture -> End Stage Hip Arthritis



Please review the form and answer the questions as best you can. All fields are required.

Acetabular Fractures

Age

Anterior Dislocation Yes No

Posterior Wall Involvement Yes No

Initial Displacement >20mm Yes No

Femoral Cartilage Lesion Yes No

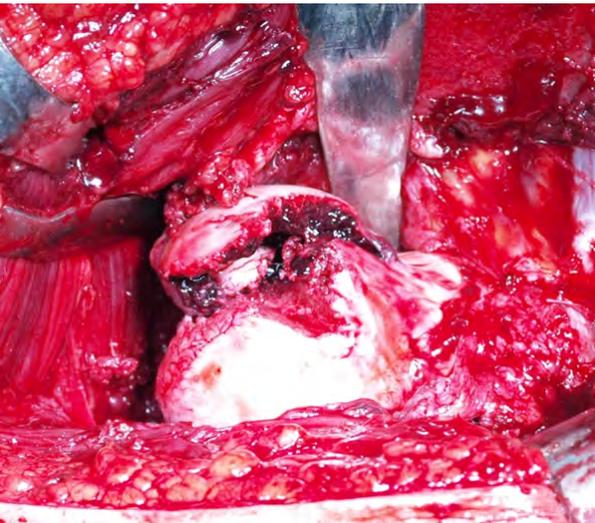
Congruent Joint Yes No

Anatomic Reduction Yes No

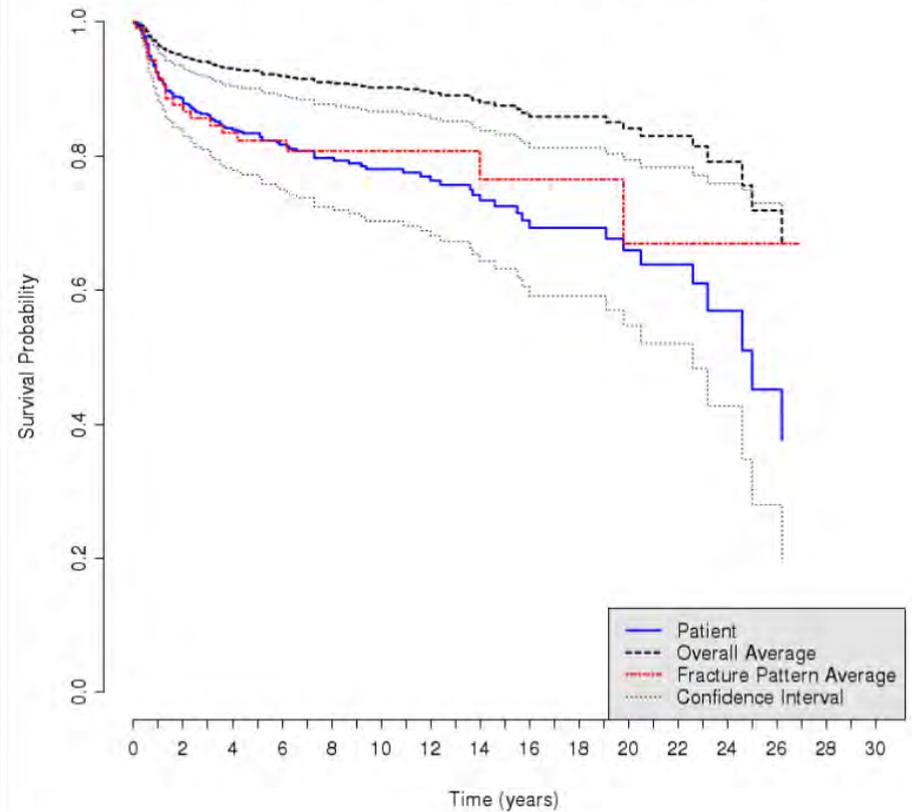
Fracture Pattern

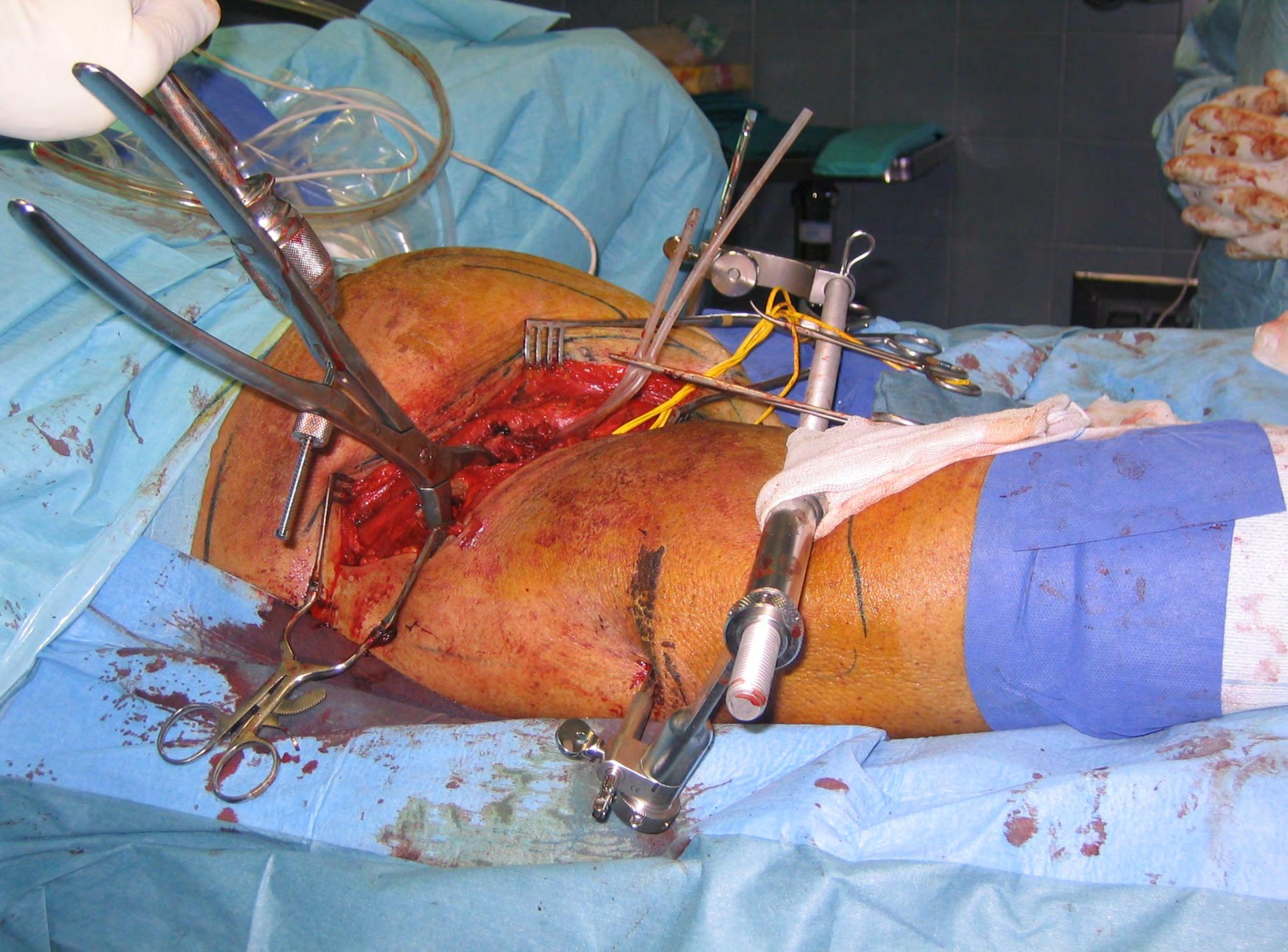
Ripristina

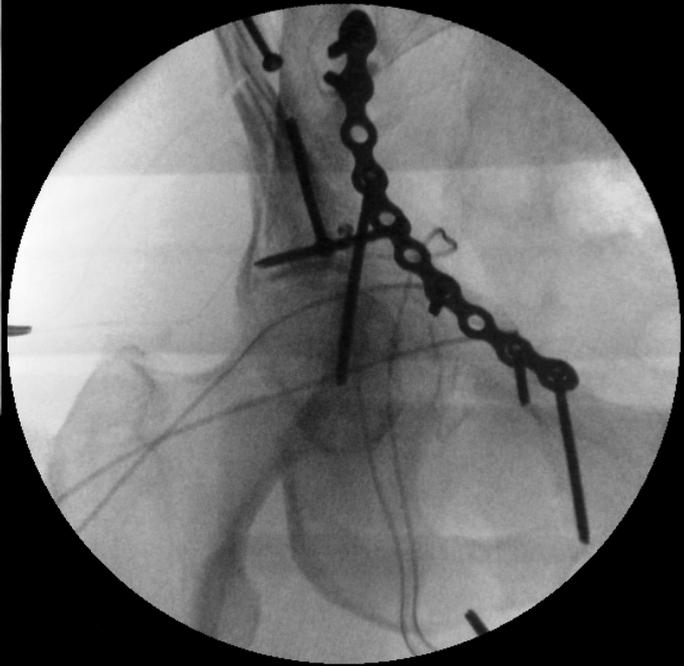
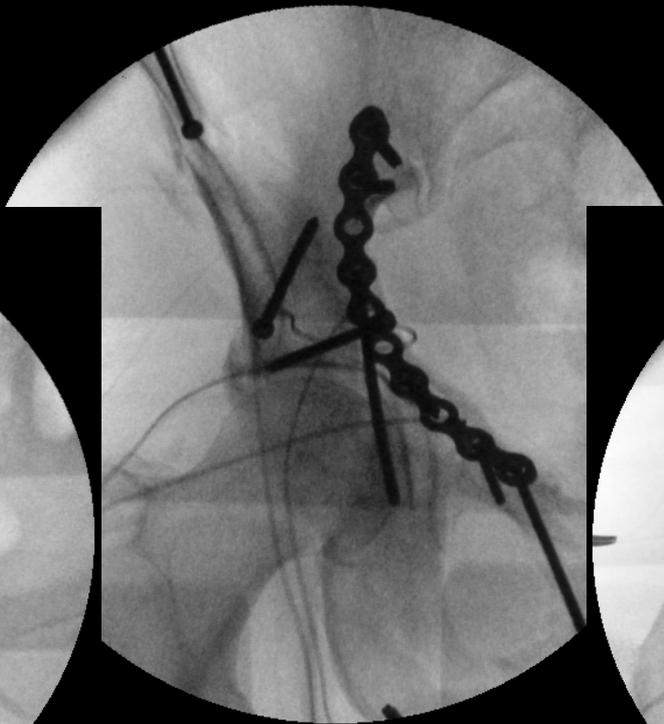
Invia



Patient Specific Analysis Acetabular Fracture -> End Stage Hip Arthritis







- Learning curve
- Dedicated tools
- Accurate planning
- Intra-op imaging

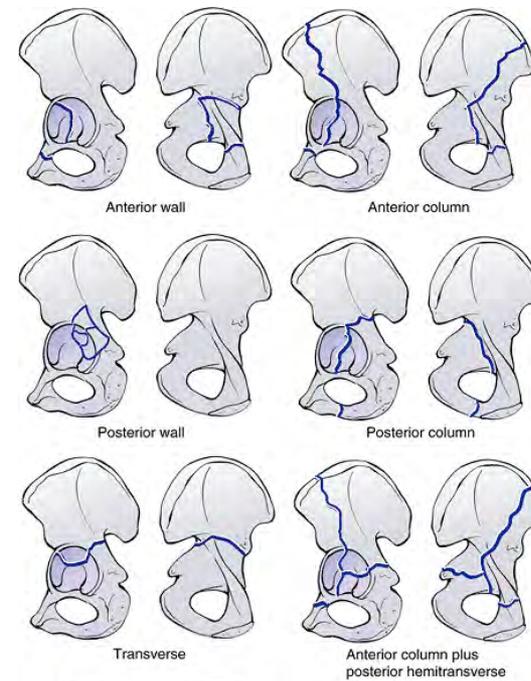
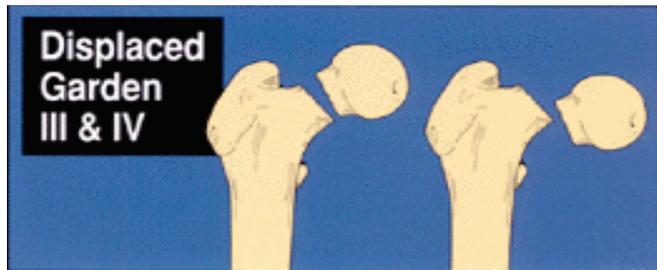
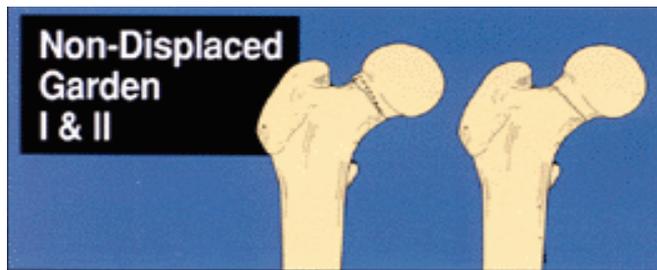
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- Avoid occasional surgery



COMPLICANZE ARTROPROTESI NELLE FRATTURE DELL'ANCA

Antonio Capone, Giuseppe Marongiu, Rossella Sirianni



Clinica Ortopedica e Traumatologica, Università degli Studi di Cagliari
Direttore Prof. Antonio Capone



COMPLICANZE LOCALI PTA

1) LUSSAZIONE

2) MOBILIZZAZIONE ASETTICA

3) MOBILIZZAZIONE SETTICA

4) FRATTURE PERIPROTESICHE

5) OSSIFICAZIONI ETEROTOPICHE

6) PROTESI DOLOROSA



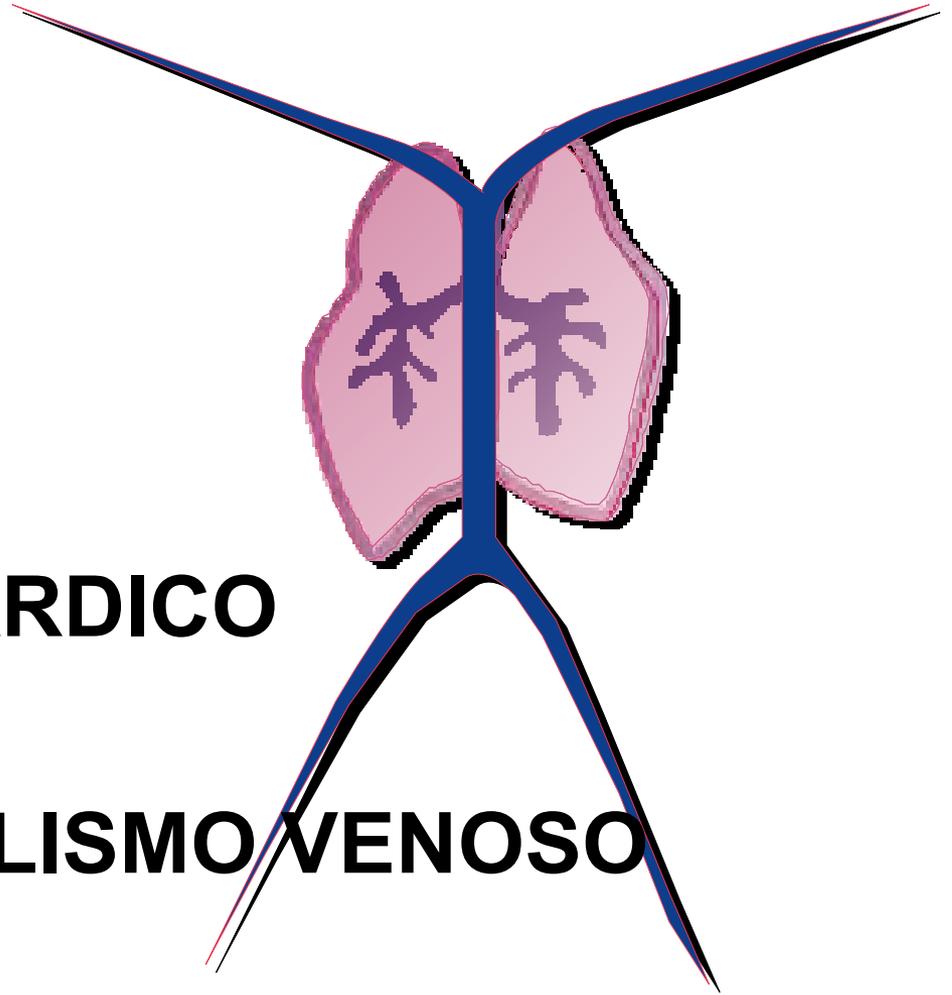
COMPLICANZE GENERALI PTA

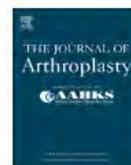
1) MORTALITA'

2) INFEZIONI

3) INFARTO MIOCARDICO

4) TROMBOEMBOLISMO VENOSO





Total Hip Arthroplasty For Femoral Neck Fracture Comparing In-Hospital Mortality, Complications, and Disposition to an Elective Patient Population

Adam Sassoon, MD ^a, Michele D'Apuzzo, MD ^b, Stephen Sems, MD ^a, Joseph Cass, MD ^a, Tad Mabry, MD ^a

Table 1
Patient Demographics and Disposition for Each Time Interval and Overall.

	90–'95		96–'01		02–'07		Overall	
	OA	FNF	OA	FNF	OA	FNF	OA	FNF
Procedures performed	486,698	63,287	664,487	56,746	1,008,876	54,608	2,160,061	174,641
Age (years)	69.6	79.4	68.8	78.8	67.7	79.2	68.4	79.1
Female gender	41.10%	82.40%	58.60%	68.80%	55.50%	73.80%	57.20%	75.30%
DCS ^a								
None	80.2%	59.5%	77.8%	55.8%	72.5%	49.4%	75.9%	55.1%
Moderate	19.6%	40.0%	22.0%	43.2%	27.1%	48.0%	23.8%	43.5%
Substantial	0.2%	0.5%	0.2%	1.0%	0.4%	2.5%	0.3%	1.3%
Length of stay (days)	7.9	11.1	4.6	7.8	3.9	8.3	5.1	9.1
Home dismissal	60.90%	29.40%	46.20%	16.10%	49.00%	15.20%	50.80%	20.70%

Note: All differences between groups (OA and FNF) were statistically significant ($P < 0.01$).

^a DCS: Deyo Comorbidity Score.

Conclusions

THA is an attractive option for a subset of patients with FNFs. Patients undergoing THA in this setting have a higher incidence of medical comorbidity, a higher in-hospital mortality rate, a higher in-hospital complication rate, a longer length of stay, and a greater need for continued institutionalized care following hospital dismissal when compared to their elective THA counterparts. Recent advances in THA



Total Hip Arthroplasty For Femoral Neck Fracture
Comparing In-Hospital Mortality, Complications, and Disposition to an Elective
Patient Population

Adam Sassoon, MD ^a, Michele D'Apuzzo, MD ^b, Stephen Sems, MD ^a, Joseph Cass, MD ^a, Tad Mabry, MD ^a

Table 2

In-Hospital Mortality and Complication Rates for Each Time Interval and Overall.

	90–'95		96–'01		02–'07		Overall	
	OA	FNF	OA	FNF	OA	FNF	OA	FNF
Mortality	0.20%	1.70%	0.10%	2.90%	0.30%	0.80%	0.20%	1.80%
Pulmonary embolus	0.40%	1.30%	0.30%	0.60%	0.20%	0.40%	0.30%	0.80%
Hematoma	1.4%*	1.5%*	1.70%	0.50%	1%	1.50%	1.30%	1.20%
Infection	0.60%	4.70%	0.40%	0.10%	0.10%	<0.10%	0.30%	1.70%
Dislocation	0.10%	0.20%	<0.10%	0.20%	<0.10%*	<0.10%*	0.02%	0.14%

Note: All differences between groups (OA and FNF) were statistically significant ($P < 0.01$), unless marked with (*).

Total hip replacement for neck of femur fracture: Comparing outcomes with matched elective cohort

J.W. Lim^{a,*}, G.S. Ng^b, R.C. Jenkins^b, D. Ridley^a, A.C. Jariwala^a, S. Sripada^a

Injury, Int. J. Care Injured 47 (2016) 2144–2148

^a Department of Orthopaedics and Trauma, Ninewells Hospital, Dundee, DD1 9SY, UK

^b University of Dundee, Ninewells Hospital and Medical School, Dundee DD1 9SY, UK

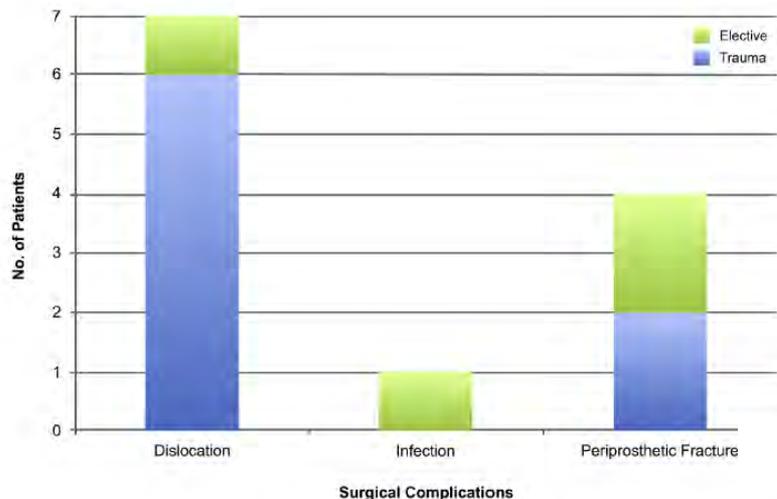


Fig. 1. The surgical complications.

Table 5

The medical and surgical outcomes in both trauma and elective cohort.

Outcomes	Trauma (%)	Elective (%)	p-value
Surgical Complication	9	4	0.233
Medical Complication	32	6	0.001
Dislocation	7	1	0.055
Death rate	14	4	0.022
1-year Mortality	6	1	0.633

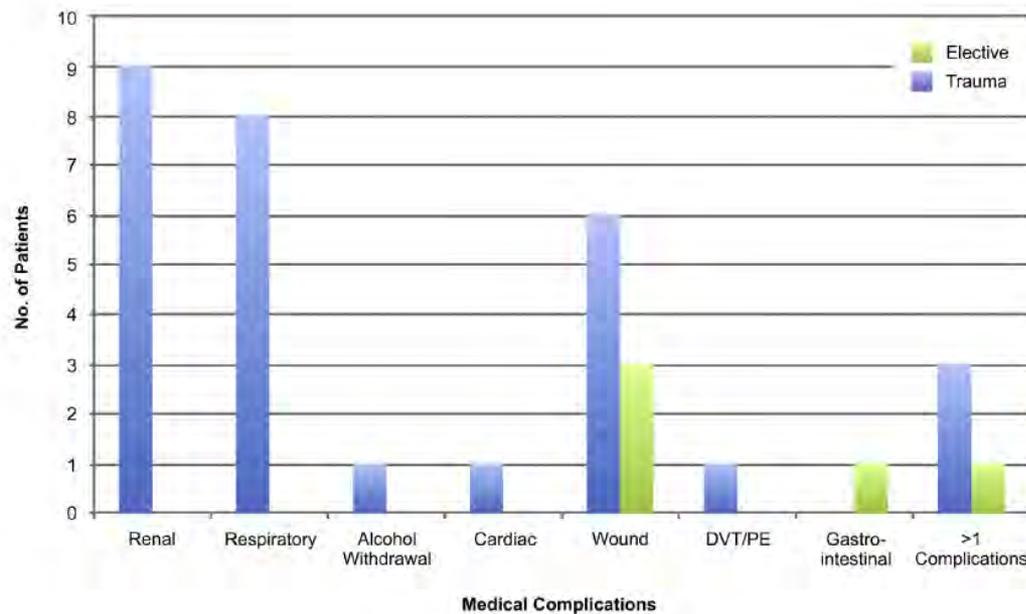


Fig. 2. The medical complications.

COMPLICANZE PROTESI NELLE FRATTURE COLLO

REVIEW

1. LUSSAZIONE

Clin Orthop Relat Res (2011) 469:3148–3153
DOI 10.1007/s11999-011-1987-7

CLINICAL RESEARCH



High Dislocation Cumulative Risk in THA versus Hemiarthroplasty for Fractures

Alexandre Poignard MD, Mohamed Bouhou MD,
Olivier Pidet MD, Charles-Henri Flouzat-Lachaniette MD,
Philippe Hernigou MD

Table 1. Comparison of THA and hemiarthroplasties

Study	Mean followup	THA		Hemiarthroplasties		
		Revision	Dislocation	Revision	Dislocation	Acetabular erosion
Dorr et al. [7]	2 years	0/39 0%	7/39 17%	0/37 0%	2/37 5.4%	0/37 0%
Baker et al. [2]	3 years	1/40 2%	3/40 7%	2/41 5%	0/41 0%	21/41 51%
Keating et al. [14]	2 years	6/69 7%	3/69 4%	5/111 5%	3/111 3%	NA
Macaulay et al. [18]	2 years	1/17 6%	1/17 6%	0/23 0%	2/23 0%	0/23 9%
Hedbeck et al. [9]	4 years	3/60 5%	0/60 0%	0/60 0%	0/60 0%	4/60 7%
Current study	8 years	8/380 2%	58/380 13%	42/412 10%	22/412 5%	41/412 10%

NA = non available.

COMPLICANZE PROTESI NELLE FRATTURE COLLO

FEMORE

1. CAUSE LUSSAZIONE

a) CORRELATE AL PAZIENTE



b) CORRELATE ALLO
INTERVENTO
CHIRURGICO



COMPLICANZE PROTESI NELLE FRATTURE COLLO FEMORE

PREVENZIONE LUSSAZIONE

Instructional Lecture: Hip

EOR | VOLUME 1 | MAY 2016
DOI: 10.1302/2058-5241.1.000054
www.efort.org/openreviews

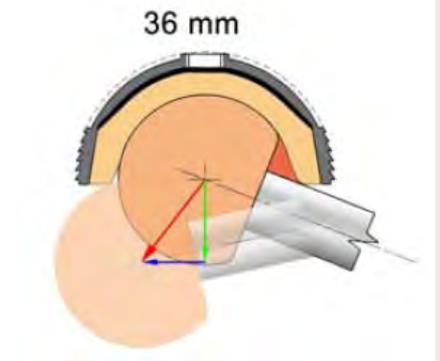
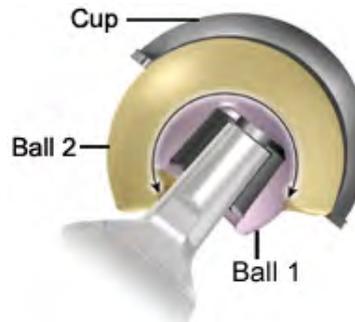


EFORT open reviews

Constrained liners, dual mobility or large diameter heads to avoid dislocation in THA

Olivier Guyen

Introduction



RISULTATI IN LETTERATURA

International Orthopaedics (SICOT) (2014) 38:1241–1245
DOI 10.1007/s00264-013-2276-8

ORIGINAL PAPER

Dual mobility cup reduces dislocation and re-operation when used to treat displaced femoral neck fractures

Anne S. Bensen • Thomas Jakobsen • Niels Krarup

International Orthopaedics (SICOT) (2014) 38:1241–1245

1243

Table 2 Results

Parameter	Bipolar HA	95 % CI	SD	THA with DMC	95 % CI	SD	<i>p</i> value
Dislocation	25/171	9.3–19.9 %	–	8/175	1.5–7.7 %	–	0.002
Re-operation	32/171	12.9–24.6 %	–	16/175	4.8–13.4 %	–	0.01
Waiting time for surgery, mean (h)	22	20–25	15	29	27–32	18	<0.001
Length of surgery, mean (min)	68	65–72	23	74	70–78	27	0.04
Perioperative blood loss, mean (ml)	310	268–352	241	424	266–481	338	0.002
Duration of stay, mean (days)	7.4	6.9–7.9	3.5	7.3	6.8–7.8	3.1	0.76
Mortality 3 months post-operatively	26/171	9.8–21 %	–	18/175	5.8–15 %	–	0.17
Mortality 1 year post-operatively	50/171	22–36 %	–	30/175	12–23 %	–	0.008



Figure 28: Frequency and Percentage of Dual Mobility Cups Implanted by Year (N=9,792)

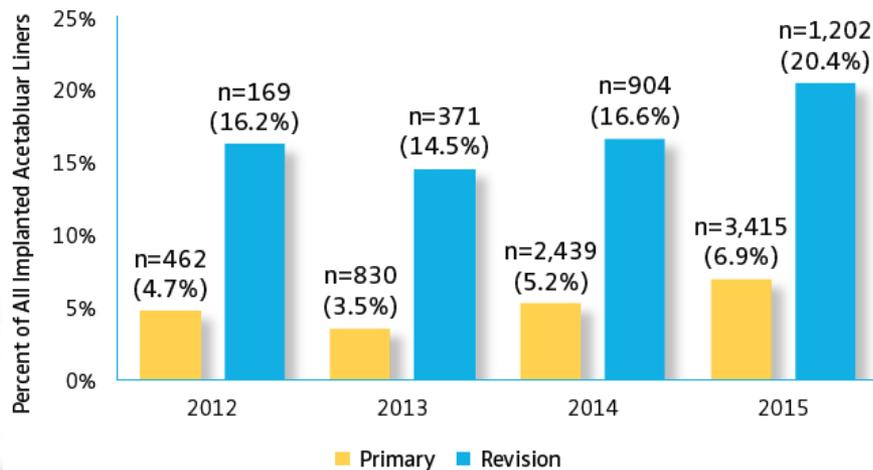
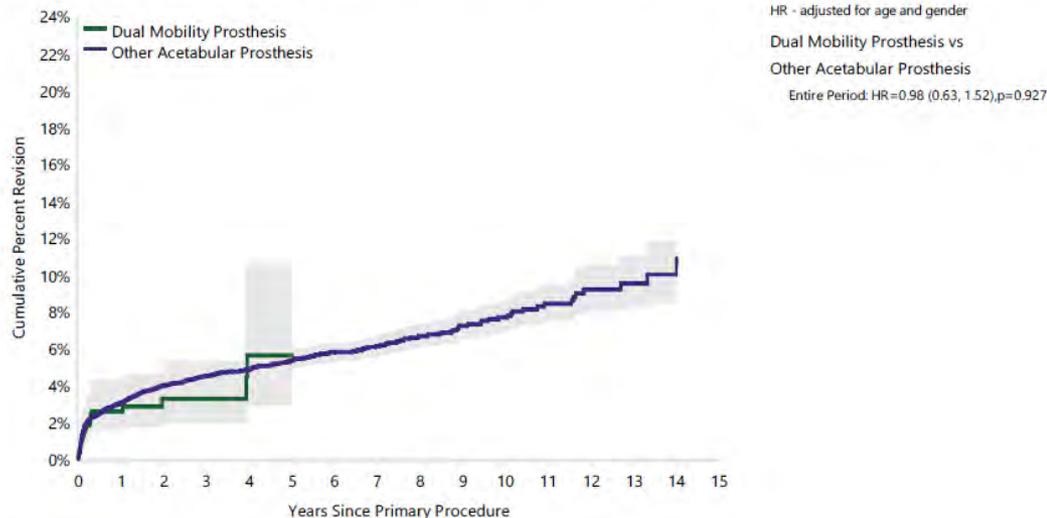


Figure HT54 Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Acetabular Mobility (Primary Diagnosis Fractured NOF)



NATIONAL JOINT REPLACEMENT REGISTRY

Hip, Knee & Shoulder Arthroplasty

2016

COMPLICANZE PROTESI NELLE FRATTURE COLLO

FEMORE

2. MOBILIZZAZIONE STELO FEMORALE



CEMENTATO



NON CEMENTATO

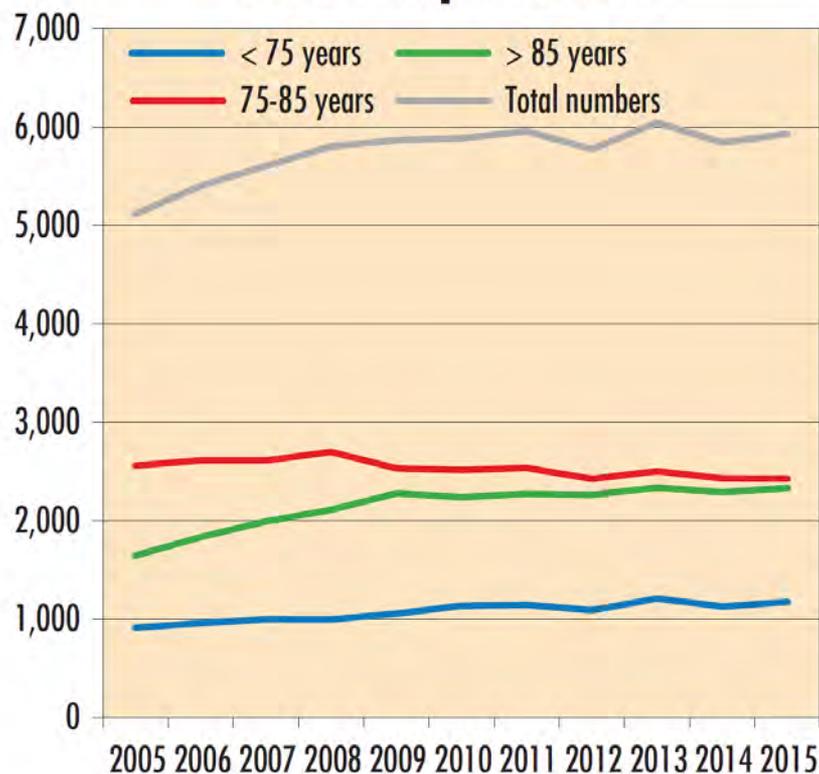
The Swedish Hip Arthroplasty Register

Annual Report 2015

FOR YEAR 2015

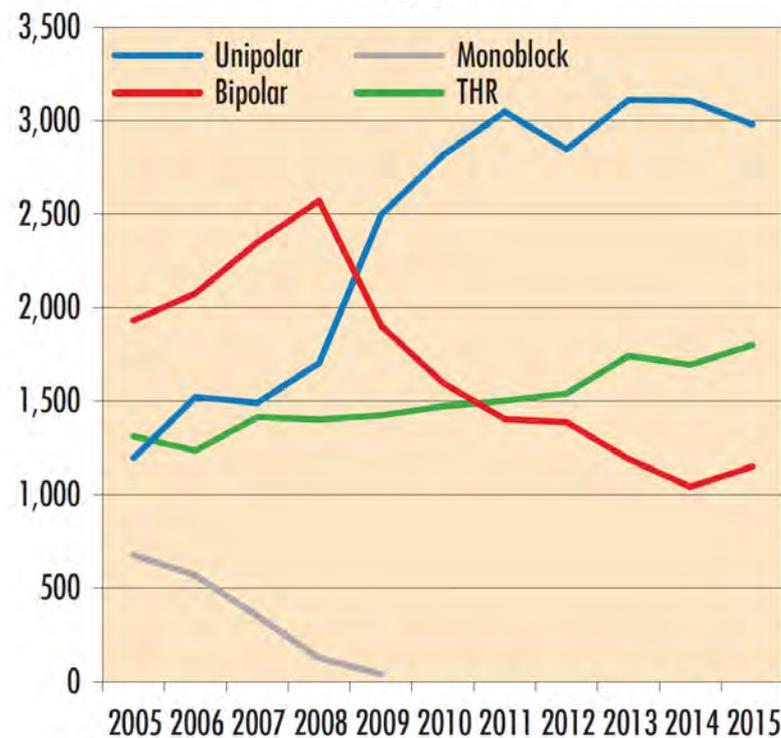


Age groups treated with hip prosthesis in case of hip fracture



Copyright© 2016 Swedish Hip Arthroplasty Register

Choice of prosthesis in case of fracture-related hip prosthesis



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The Swedish Hip Arthroplasty Register

Annual Report 2015

FOR YEAR 2015

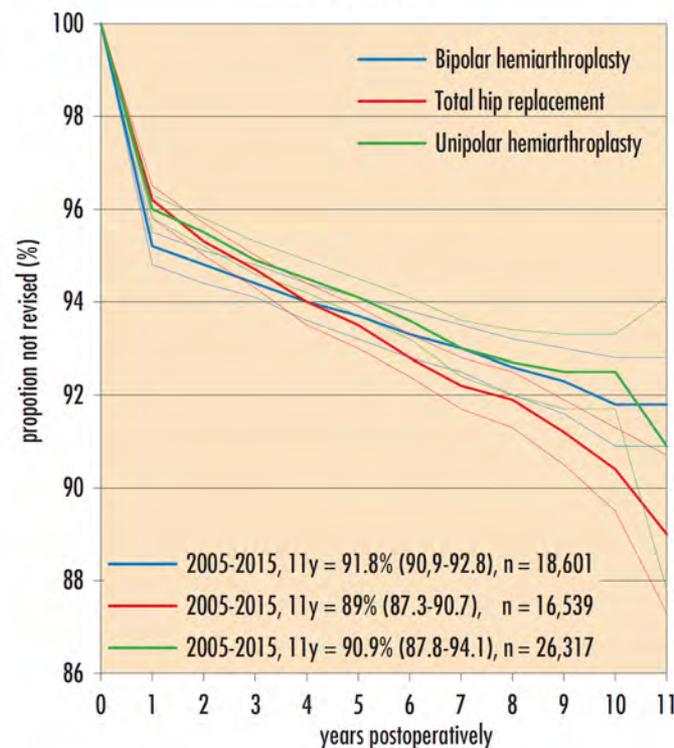


Cause for reoperation 2005–2015

	Number	Proportion of all operations	Proportion of all reoperations
Dislocation	948	1.5	31.5
Infection	994	1.6	33.0
Periprosthetic fracture	681	1.1	22.6
Erosion and pain	157	0.2	5.2
Aseptic loosening	109	0.2	3.6
Other causes	118	0.2	3.9
Missing data	3	0	0.1
Total number of reoperations	3,010	4.8	100

Copyright © 2016 Swedish Hip Arthroplasty Register

Protestyp 2005–2015



Copyright © 2016 Swedish Hip Arthroplasty Register

2016

Figure 16: Cemented and Cementless Femoral Stems in Hemiarthroplasty (N=15,701)

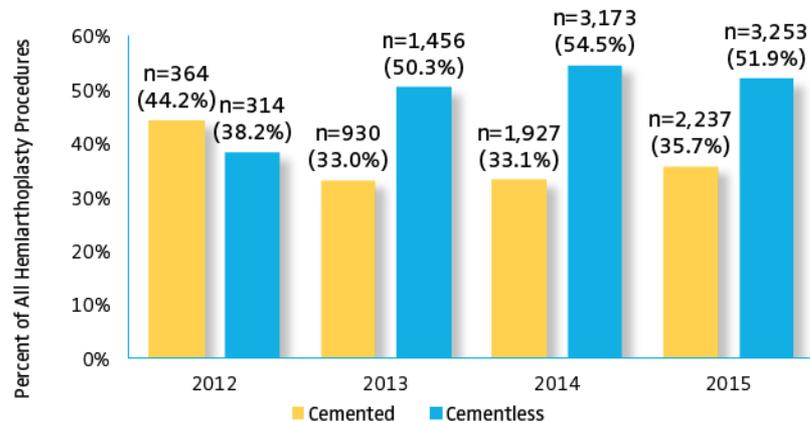


Figure 15: Hemiarthroplasty and Total Hip Arthroplasty Performed for the Diagnosis of Femoral Neck Fracture (N=16,972)

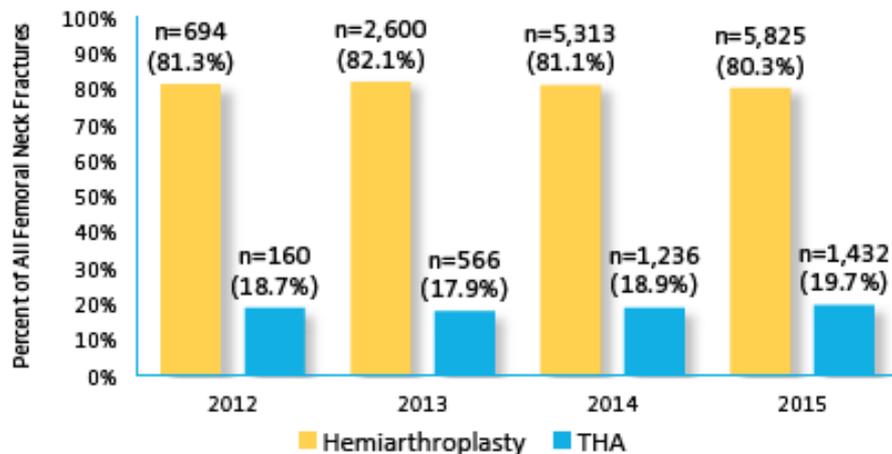
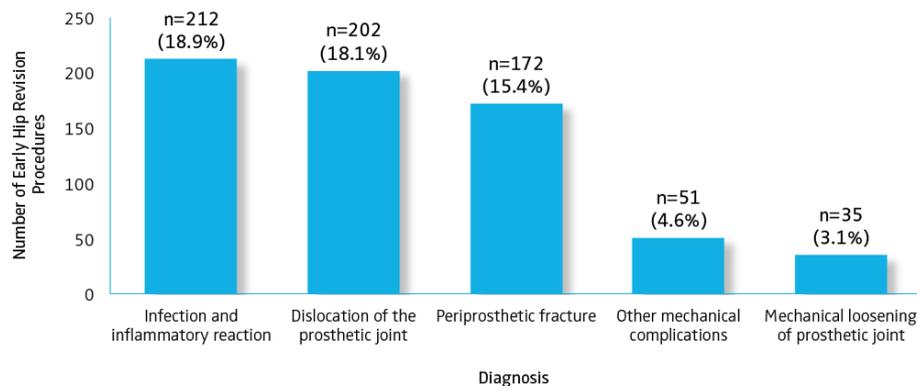


Figure 33: Most Frequently Reported Diagnosis Codes for Hip Revisions (<3 Months to Revision)



NATIONAL JOINT REPLACEMENT REGISTRY

Hip, Knee & Shoulder Arthroplasty



Figure HT3 Primary Total Conventional Hip Replacement by Fixation

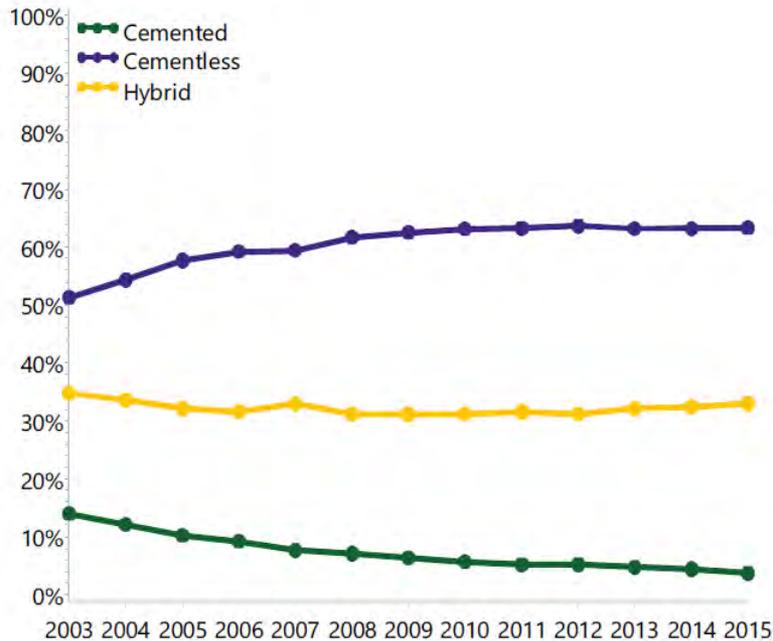


Figure HP1 Primary Partial Hip Replacement by Class

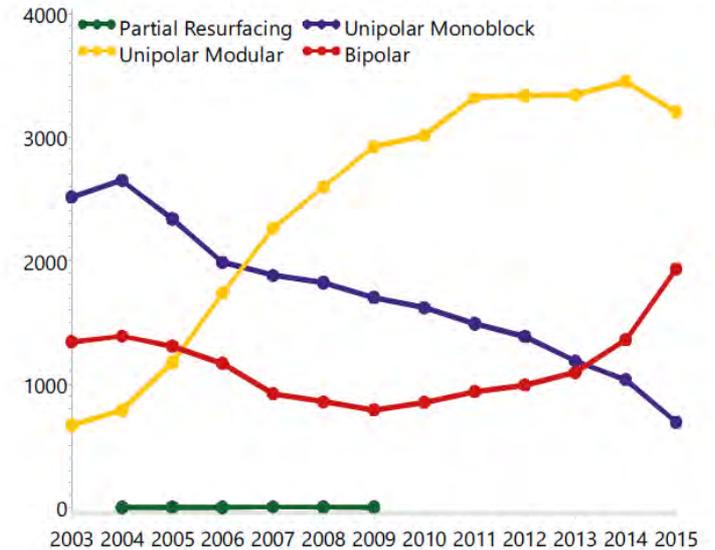
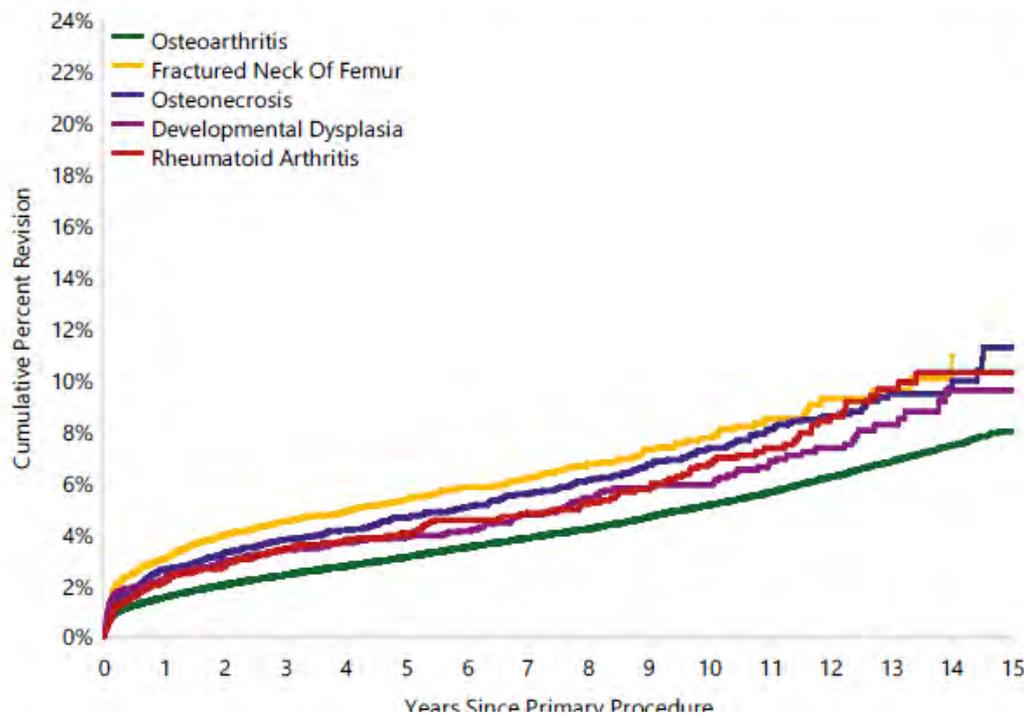


Table HT10 Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Primary Diagnosis

Primary Diagnosis	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs
Osteoarthritis	10032	292565	1.5 (1.5, 1.6)	2.4 (2.3, 2.4)	3.1 (3.0, 3.1)	3.8 (3.7, 3.9)	5.1 (5.0, 5.2)	8.0 (7.7, 8.3)
Fractured Neck Of Femur	652	13919	3.0 (2.7, 3.3)	4.5 (4.1, 4.9)	5.3 (4.9, 5.8)	6.2 (5.6, 6.7)	7.7 (6.9, 8.6)	
Osteonecrosis	563	10970	2.6 (2.3, 2.9)	3.7 (3.4, 4.1)	4.6 (4.2, 5.1)	5.5 (5.0, 6.1)	7.3 (6.7, 8.1)	11.2 (9.5, 13.3)
Developmental Dysplasia	195	4088	2.3 (1.8, 2.8)	3.3 (2.8, 4.0)	3.8 (3.3, 4.5)	4.7 (4.0, 5.6)	5.9 (5.0, 6.9)	9.6 (7.8, 11.7)
Rheumatoid Arthritis	182	3487	2.1 (1.7, 2.7)	3.4 (2.8, 4.1)	4.0 (3.4, 4.8)	4.8 (4.0, 5.7)	6.7 (5.7, 7.9)	10.2 (8.5, 12.3)
Other (6)	283	5458	3.3 (2.8, 3.8)	4.8 (4.2, 5.5)	5.9 (5.1, 6.7)	6.8 (6.0, 7.8)	8.8 (7.6, 10.2)	
TOTAL	11907	330487						

Figure HT4 Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Primary Diagnosis



HR - adjusted for age and gender

Fractured Neck Of Femur vs Osteoarthritis

0 - 2Wk: HR=1.60 (1.21, 2.11),p<0.001

2Wk - 3Mth: HR=2.47 (2.16, 2.83),p<0.001

3Mth - 1.5Yr: HR=1.94 (1.66, 2.26),p<0.001

1.5Yr+: HR=1.36 (1.18, 1.57),p<0.001

Osteonecrosis vs Osteoarthritis

0 - 6Mth: HR=1.53 (1.33, 1.77),p<0.001

6Mth - 9Mth: HR=2.77 (2.07, 3.72),p<0.001

9Mth - 1.5Yr: HR=1.25 (0.95, 1.66),p=0.117

1.5Yr+: HR=1.30 (1.15, 1.47),p<0.001

Developmental Dysplasia vs Osteoarthritis

0 - 2Wk: HR=2.42 (1.63, 3.58),p<0.001

2Wk - 1Mth: HR=1.87 (1.28, 2.75),p=0.001

1Mth+: HR=1.06 (0.90, 1.26),p=0.477

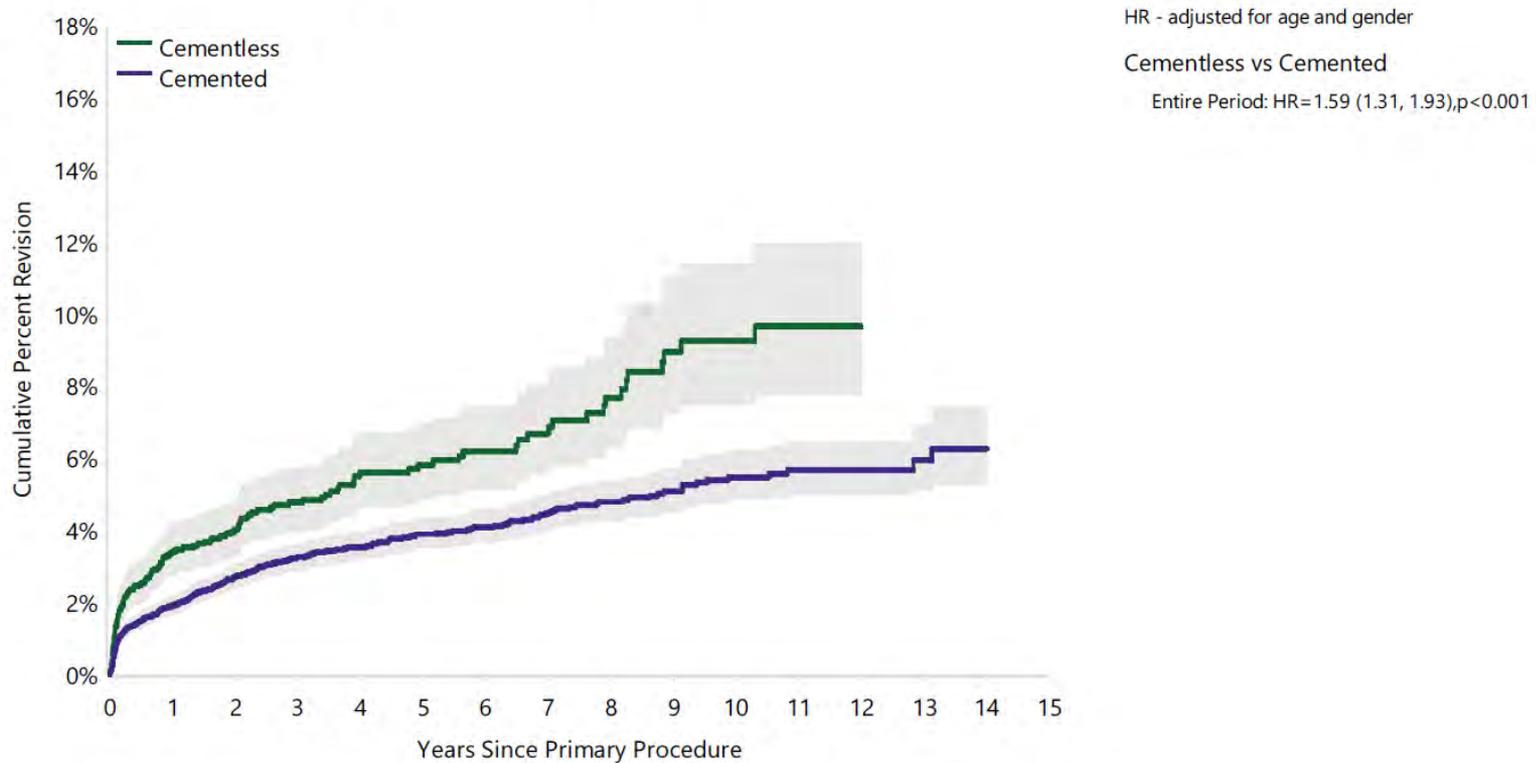
Rheumatoid Arthritis vs Osteoarthritis

Entire Period: HR=1.33 (1.15, 1.54),p<0.001

Table HP32 Cumulative Percent Revision of Primary Bipolar Hip Replacement by Femoral Fixation (Primary Diagnosis Fractured NOF)

Femoral Fixation	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Cementless	141	2934	3.4 (2.7, 4.1)	4.7 (3.9, 5.7)	5.8 (4.8, 7.0)	6.7 (5.5, 8.0)	9.2 (7.5, 11.4)	
Cemented	375	12543	1.9 (1.7, 2.2)	3.2 (2.9, 3.6)	3.9 (3.5, 4.3)	4.4 (4.0, 5.0)	5.5 (4.8, 6.2)	6.2 (5.2, 7.4)
TOTAL	516	15477						

Figure HP23 Cumulative Percent Revision of Primary Bipolar Hip Replacement by Femoral Fixation (Primary Diagnosis Fractured NOF)



Arthroplasties (with and without bone cement) for proximal femoral fractures in adults (Review)

Parker MJ, Gurusamy KS, Azegami S



2010



Authors' conclusions

There is good evidence that cementing the prostheses in place will reduce post-operative pain and lead to better mobility. From the trials to date there is no evidence of any difference in outcome between bipolar and unipolar prosthesis. There is some evidence that a total hip replacement leads to better functional outcome than a hemiarthroplasty. Further well-conducted randomised trials are required.

Arthroplasty options in femoral-neck fracture: answers from the national registries

Arun Kannan · Ramprasad Kancherla ·
 Stephen McMahon · Gabrielle Hawdon · Aditya Soral ·
 Rajesh Malhotra

Table 3 Influence of fixation type on failure of prostheses used in femoral-neck fracture

Registry	Prosthesis	Follow-up period	Hazard ratio
Australia	Unipolar monoblock (cementless vs cemented)	0–3 month	1.94 ($p < 0.001$)
		3 month–9 month	4.49 ($p < 0.001$)
		9 month–1.5 years	2.62 ($p < 0.001$)
		1.5–8 years	0.94 ($p = 0.684$)
	Unipolar modular (cementless vs cemented)	6 years	1.52 ($p < 0.001$)
		Bipolar (cementless vs cemented)	0–3 month
	3 month–7 years		1.04 (0.69–1.57), ($p = 0.840$)
	THA (cementless vs cemented)	0–1 month	7.29 ($p < 0.001$)
		1 month–8 years	2.04 ($p = 0.004$)
		THA (hybrid vs cemented)	8 years
THA (cementless vs hybrid)		0–1 month	3.16 ($p < 0.001$)
	1 month–8 years	0.88 ($p = 0.431$)	
England and Wales	THA (cementless vs cemented)	3 years	2.9
	THA (cementless vs hybrid)	3 years	2.1

Hemiarthroplasty of the Hip with and without Cement: A Randomized Clinical Trial

Fraser Taylor, BSc, MBChB, FRACS, Mark Wright, MBChB, FRACS, and Mark Zhu, BHB

Investigation performed at Auckland City Hospital, Auckland, New Zealand

TABLE II Complications					
Complication	Cemented (N = 80)		Uncemented (N = 80)		P Value
	No.	%*	No.	%*	
Cardiovascular	7	8.8 (4.3-17.0)	6	7.5 (3.5-15.4)	0.999
Respiratory infection	7	8.8 (4.3-17.0)	8	10 (5.2-18.5)	1
Superficial or deep wound infection	4	5 (2.0-12.2)	5	6.3 (2.7-13.8)	0.999
Urinary tract infection	3	3.8 (1.3-10.5)	3	3.8 (1.3-10.5)	1
Subsidence	1	1.3 (0.2-6.8)	18 (includes fracture subsidence)	22.5 (14.7-32.8)	<0.001
Postoperative fracture	1	1.3 (0.2-6.8)	12 (6 greater trochanter fractures)	15 (8.8-22.4)	0.0023
Intraoperative fracture	0	0 (0-4.6)	6	7.5 (3.5-15.4)	0.028
Reoperation	2	2.5 (0.69-8.7)	4	5 (2.0-12.2)	0.50
Dislocation	2	2.5 (0.69-8.7)	0	0 (0-4.6)	0.50
Other	1 peroneal nerve palsy	1.3 (0.2-6.8)	1 retroverted implant	1.3 (0.2-6.8)	1

*Values are given as the percentage, with the 95% confidence interval in percent in parentheses.

Hemiarthroplasty of the Hip with and without Cement: A Randomized Clinical Trial

Fraser Taylor, BSc, MBChB, FRACS, Mark Wright, MBChB, FRACS, and Mark Zhu, BHB

Investigation performed at Auckland City Hospital, Auckland, New Zealand

TABLE III Follow-up and Mortality

Time Point	Followed		Withdrawn		Died			
	Cemented	Uncemented	Cemented	Uncemented	Cemented		Uncemented	
					No.	%*	No.	%*
6 weeks	63	62	7	8	10	12.5 (6.9-21.5)	10	12.5 (6.9-21.5)
6 months	36	48	24	15	20	25 (16.8-35.5)	17	21.3 (13.7-31.4)
1 year	29	38	26	29	25	31.3 (22.2-42.1)	23	28.8 (20.0-39.5)
2 years	21	27	24	21	35	43.8 (33.4-54.7)	32	40 (30.0-51.0)

*Values are given as the percentage, with the 95% confidence interval in percent in parentheses.

Conclusions: In elderly patients (seventy years or older) without severe cardiopulmonary compromise who were treated with hemiarthroplasty for a displaced femoral neck fracture, use of a cemented Exeter implant and use of an uncemented Alloclassic implant provided a comparable outcome with regard to pain. However, implant-related complication rates were significantly lower in the group treated with a cemented implant. Trends toward better function and better mobility in the cemented group were observed. These trends reached significance in particular functional scores at some postoperative time points.

Level of Evidence: Therapeutic Level II. See Instructions for Authors for a complete description of levels of evidence.



More complications in uncemented compared to cemented hemiarthroplasty for displaced femoral neck fractures: a randomized controlled trial of 201 patients, with one year follow-up

Sophie Moerman^{1*}, Nina M. C. Mathijssen¹, Dieu D. Niesten¹, Roeland Riedijk², Willard J. Rijnberg³, Sander Koëter⁴, Keetie Kremers van de Hei⁴, Wim E. Tuinebreijer⁵, Tim L. Molenaar¹, Rob G. H. H. Nelissen⁶ and Anne J. H. Vochteloo⁷

Table 2 One-year complication rate per category as categorized by Parvizi

		Uncemented (91)	Cemented (110)	<i>P</i>
Major local	Peripheral nerve injury	0	1	
	Infection leading to revision	0	1	
	Periprosthetic fracture	14	3	
	<i>intraoperatively</i>	12	0	
	<i>postoperatively</i>	2	3	
	Dislocation	5	3	
	Total number of patients with ≥ 1 major local complication ^a	19 out of 91 (20.9%)	8 out of 110 (7.3%)	0.005
Minor local	Hematoma	1	6	
	Persistent wound drainage	3	4	
	Superficial wound infection	3	6	
	Skin blisters	1	1	
	Other	6	2	
	Total number of patients with ≥ 1 minor local complication ^a	12 out of 91 (13.2%)	19 out of 110 (10.9%)	0.42

Figura 4.2. Anca. Tasso di incidenza per 100.000 abitanti per tipo di intervento (anni 2001-2013)

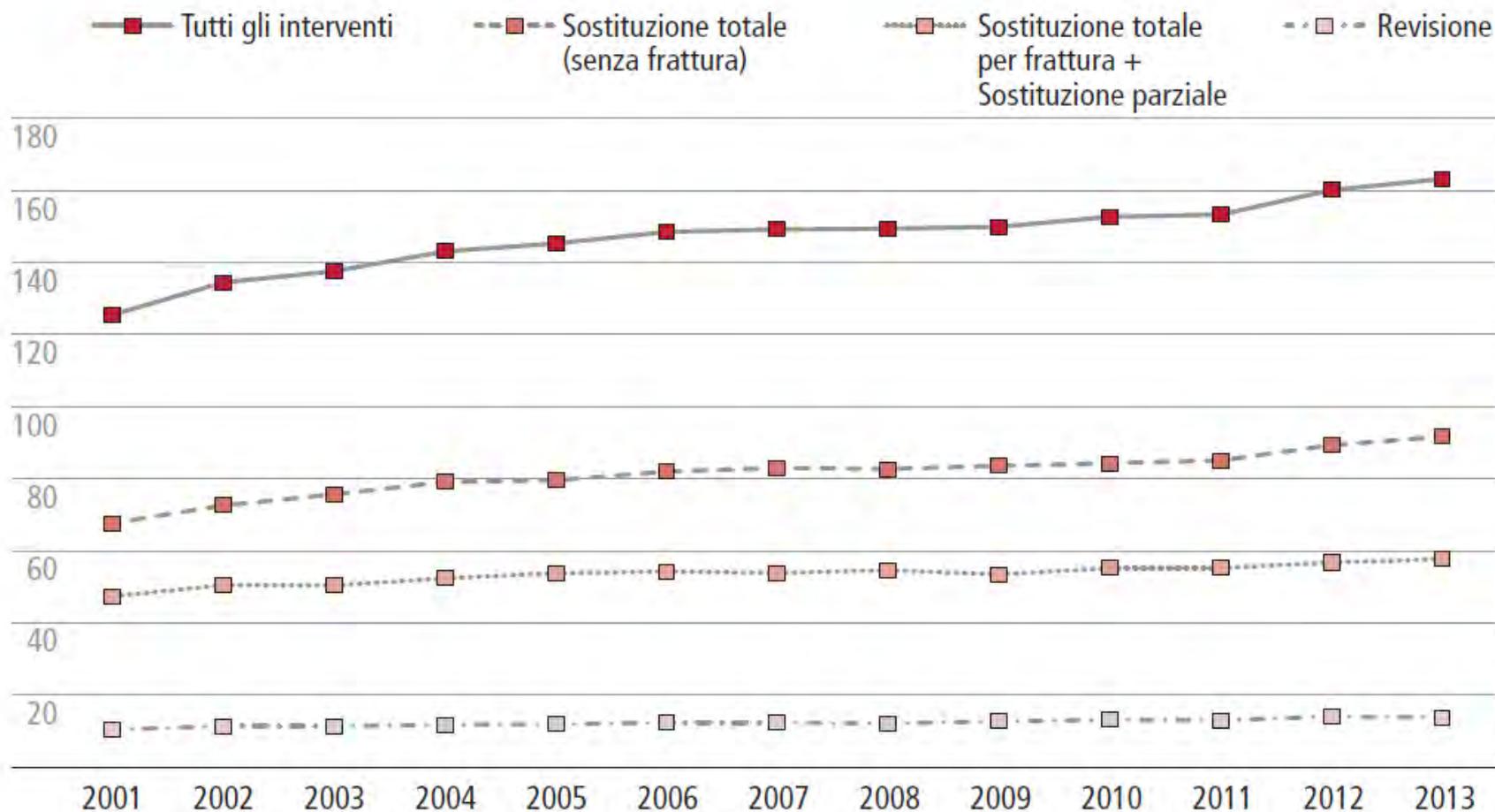




Tabella 4.6b. Anca. Sostituzione totale *con frattura*. Interventi per tipo, per sesso e per classe di età

	Totale (con frattura)				Parziale			
	Maschi	Femmine	TOTALE		Maschi	Femmine	TOTALE	
<i>Età media</i>	72,7	74,4	74,0		82,5	83,6	83,3	
Classe di età	Maschi	Femmine	TOTALE	%	Maschi	Femmine	TOTALE	%
<45	65	28	93	1,0	58	43	101	0,4
45 - 54	142	179	321	4,2	63	69	132	0,5
55 - 64	309	829	1.138	14,0	139	237	376	1,5
65 - 74	682	2.285	2.967	34,5	547	1.322	1.869	7,7
75 - 84	780	2.481	3.261	33,6	2.446	7.498	9.944	41,0
≥ 85	366	1.049	1.415	12,7	2.932	8.912	11.844	48,9
TOTALE	2.344	6.851	9.195	100,0	6.185	18.081	24.266	100,0

Fonte: Ministero della Salute. Database SDO (Anno 2013). Elaborazione Istituto Superiore di Sanità

2015



Progetto Registro Italiano ArtroProtesi

VERSO L'OPERATIVITÀ

Secondo Report

Tabella 5.6. Anca. Distribuzione degli interventi primari per tipo di intervento e per caratteristiche del paziente, lato operato, via di accesso, modalità di fissazione, ultimo intervento effettuato sulla stessa articolazione

	Totale (senza frattura)		Totale (con frattura)		Parziale		TOTALE	
Età								
Età media (DS)	68,2 (11,2)		73,2 (10,8)		83,3 (7,6)			
Minimo - Massimo	18-93		23-101		23-103			
Differenza interquartile (25% - 75%)	62-76		67-80		79-88			
Sesso	N	%	N	%	N	%	N	%
Femmine	8.112	55,1	1.314	75,1	5.092	75,2	14.518	62,4
Maschi	6.612	44,9	435	24,9	1.681	24,8	8.728	37,6
Lato								
Destro	7.966	55,0	890	50,9	3.306	49,4	12.162	53,1
Sinistro	6.438	44,5	858	49,0	3.383	50,6	10.679	46,6
Bilaterale	67	0,5	1	0,1	2	0,0	70	0,3
Via di accesso								
Postero-Laterale	6.911	51,0	786	47,3	2.476	39,8	10.173	47,4
Laterale	4.215	31,1	711	42,8	3.107	49,9	8.033	37,5
Antero-Laterale	788	5,8	98	5,9	512	8,2	1.398	6,5
Anteriore	1.617	11,9	67	4,0	127	2,0	1.811	8,5
Altro	21	0,2	0	0,0	9	0,1	30	0,1
Fissazione								
Non cementata	10.994	92,5	956	77,5	1.651	34,0	13.601	75,8
Cementata	379	3,2	93	7,7	182	3,7	654	3,6
Ibrida (^)	392	3,3	92	7,7	1.947*	40,1*	2.431	13,5
Ibrida inversa (^ ^)	70	0,6	39	3,2	72*	1,5*	181	1,1
Solo stelo cementato	7	0,1	18	1,5	684	14,1	709	4,0
Solo stelo non cementato	38	0,3	5	0,4	324	6,6	367	2,0

2015

Tabella 5.9. Anca. Distribuzione degli interventi di revisione per diagnosi

Diagnosi	Revisione (*)	
	N	%
Mobilizzazione asettica della coppa	260	20,3
Lussazione	208	16,2
Mobilizzazione asettica dello stelo	152	11,8
Frattura periprotetica	139	10,8
Mobilizzazione asettica totale	121	9,4
Usura dei materiali	98	7,6
Infezione	65	5,0

COMPLICANZE PROTESI NELLE FRATTURE COLLO FEMORE

3. INFEZIONE



PBA

5 %



PTA

1 %

What Are the Risk Factors for Infection in Hemiarthroplasties and Total Hip Arthroplasties?

José Cordero-Ampuero MD, PhD, Marisol de Dios MD



Table 2. Incidence and prevalence of risk factors in infected cases and noninfected control subjects in hip hemiarthroplasties

Suspected risk factor for infection	Hemiarthroplasties		
	Infected cases (N = 23)	Noninfected control subjects (N = 100)	“p” Value
Age (years) (mean ± SD)	81 ± 7	84 ± 7	0.049
Female/male	22/1	77/23	0.042
Previous surgery	2 (9%)	0 (0%)	0.003
Obesity	2 (9%)	1 (1%)	0.031
Diabetes	6 (26%)	18 (18%)	0.378
Rheumatoid arthritis	1 (4%)	1 (1%)	0.252
Liver disease	1 (4%)	5 (5%)	0.896
Corticoid therapy	3 (13%)	2 (2%)	0.016
Immunosuppressive therapy	1 (4%)	0 (0%)	0.036
Tuberculosis	0 (0%)	4 (4%)	0.329
Thalassemia	1 (4%)	3 (3%)	0.630
Preoperative leukocyte count (cells/ml) (mean ± SD)	10,202 ± 3966	9748 ± 3062	0.546
Length of surgery (minutes)	90 ± 36	69 ± 18	0.000
Inadequate AB prophylaxis	3 (12%)	1 (1%)	0.016
Haematocrit loss (% of total blood volume occupied by red blood cells) (mean ± SD)	10.7 ± 4.4	10.0 ± 3.9	0.456
Blood transfusion	15 (68%)	57 (57%)	0.334
Volume transfused (ml) (mean ± SD)	865 ± 695	615 ± 570	0.079
Intraoperative periprosthetic fractures	1 (4%)	3 (3%)	0.742
Persistent secretion	17 (85%)	6 (6%)	0.000
Hematoma	6 (27%)	1 (1%)	0.000
Dislocation	6 (27%)	3 (3%)	0.000
Reoperation	1 (4%)	1 (1%)	0.252
Cutaneous infection	7 (30%)	8 (8%)	0.003
Urinary infection	9 (39%)	17 (17%)	0.019
Abdominal infection	4 (17%)	3 (3%)	0.007
Pneumonia	4 (17%)	9 (9%)	0.238
Oral/dental infection	0 (0%)	1 (1%)	0.630



What Are the Risk Factors for Infection in Hemiarthroplasties and Total Hip Arthroplasties?

José Cordero-Ampuero MD, PhD, Marisol de Dios MD

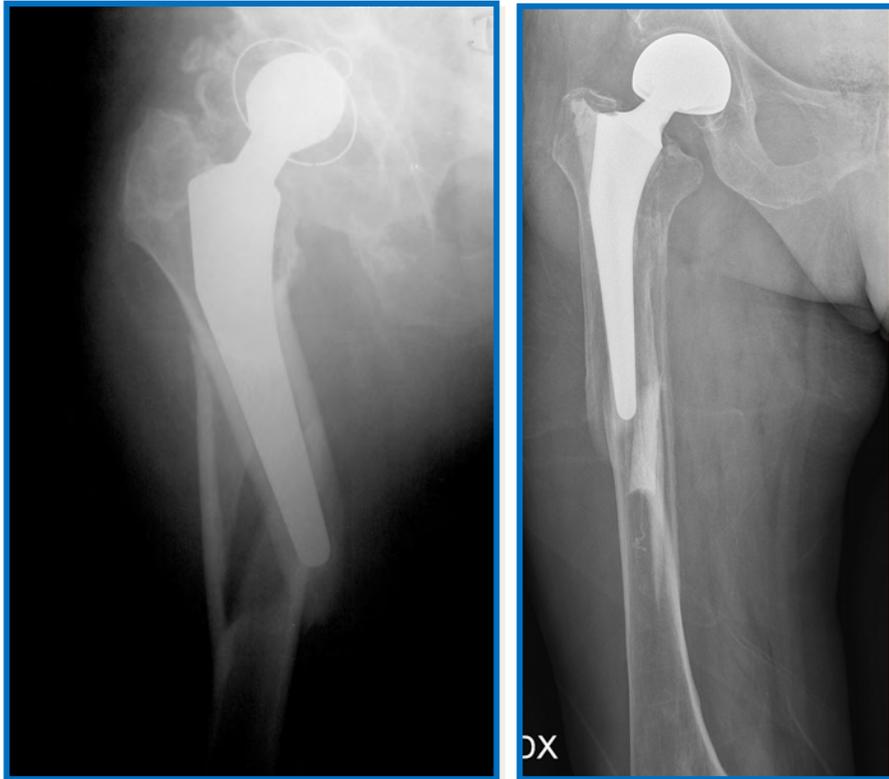
Table 3. Incidence and prevalence of risk factors in infected cases and noninfected control subjects in THAs

Suspected risk factor for infection	Total arthroplasties		
	Infected cases (N = 24)	Noninfected control subjects (N = 100)	"p" value
Age (years) (mean ± SD)	67 ± 12	69 ± 10	0.352
Female/male	58/42	55/45	0.768
Posttraumatic	4 (17%)	3 (3%)	0.039
Osteoarthritis	15 (63%)	79 (79%)	0.039
Previous surgery	14 (60%)	6 (6%)	0.000
Obesity	8 (33%)	19 (19%)	0.127
Diabetes	6 (25%)	11 (11%)	0.073
Rheumatoid arthritis	2 (8%)	2/100	0.115
Other inflammatory arthritis	1 (4%)	1 (1%)	0.269
Liver disease	5 (21%)	2 (2%)	0.000
Alcohol abuse	3 (13%)	0 (0%)	0.000
Parenteral drug abuse	2 (8%)	0 (0%)	0.004
Corticoid therapy	3 (13%)	0 (0%)	0.000
Immunosuppressive therapy	2 (8%)	3 (3%)	0.233
Tuberculosis	0 (0%)	11 (11%)	0.089
Thalassemia	0 (0%)	1 (1%)	0.623
Preoperative leukocyte count (cells/ml) (mean ± SD)	8570 ± 2440	7410 ± 4040	0.332
Length of surgery (minutes)	133 ± 31	98 ± 22	0.000
Inadequate AB prophylaxis	0 (0%)	3 (3%)	0.913
Hematocrit loss (% of total blood volume occupied by red blood cells) (mean ± SD)	12 ± 3	15 ± 4	0.005
Blood transfusion	11 (85%)	83 (83%)	0.884
Volume transfused (ml) (mean ± SD)	925 ± 450	910 ± 570	0.937
Intraoperative periprosthetic fractures	0 (0%)	5 (5%)	0.274
Persistent secretion	6 (46%)	8 (8%)	0.000
Hematoma	2 (14%)	5 (5%)	0.175
Dislocation	6 (40%)	6 (6%)	0.000
Reoperation	4 (21%)	1 (1%)	0.000
Cutaneous infection	2 (9%)	0 (0%)	0.002
Urinary infection	8 (36%)	2 (2%)	0.000
Abdominal infection	3 (14%)	3 (3%)	0.037
Pneumonia	5 (23%)	5 (5%)	0.006
Oral/dental infection	0 (0%)	0 (0%)	

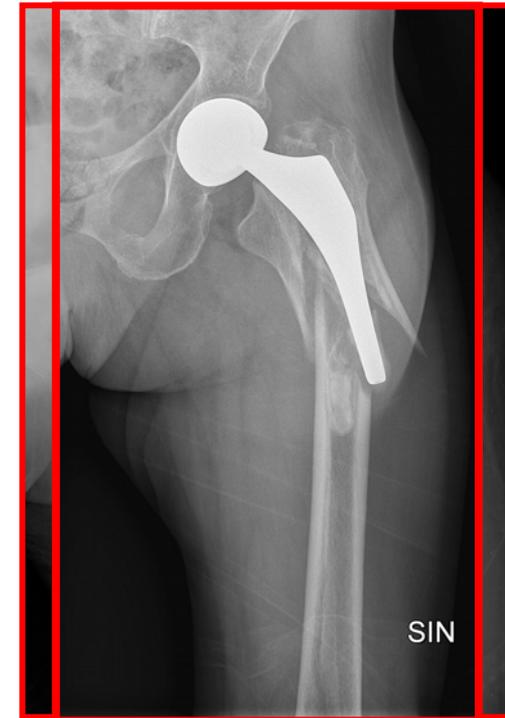
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FEMORE

4. FRATTURE PERIPROTESICHE



CEMENTATO



NON CEMENTATO



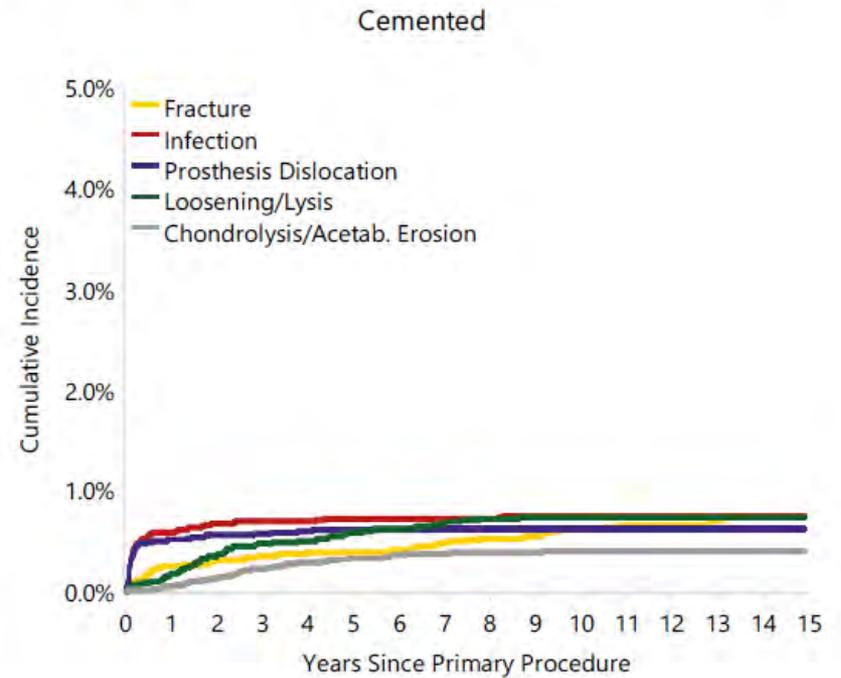
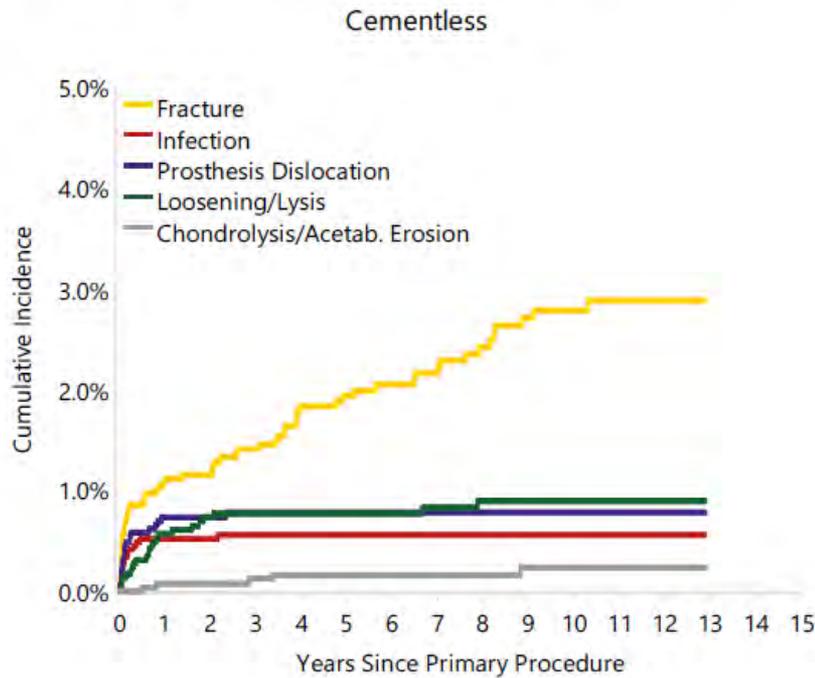
More complications in uncemented compared to cemented hemiarthroplasty for displaced femoral neck fractures: a randomized controlled trial of 201 patients, with one year follow-up

Sophie Moerman^{1*}, Nina M. C. Mathijssen¹, Dieu D. Niesten¹, Roeland Riedijk², Willard J. Rijnberg³, Sander Koëter⁴, Keetie Kremers van de Hei⁴, Wim E. Tuinebreijer⁵, Tim L. Molenaar¹, Rob G. H. H. Nelissen⁶ and Anne J. H. Vochteloo⁷

Table 2 One-year complication rate per category as categorized by Parvizi

		Uncemented (91)	Cemented (110)	P
Major local	Peripheral nerve injury	0	1	
	Infection leading to revision	0	1	
	Periprosthetic fracture	14	3	
	<i>intraoperatively</i>	12	0	
	<i>postoperatively</i>	2	3	
	Dislocation	5	3	
Total number of patients with ≥ 1 major local complication ^a		19 out of 91 (20.9%)	8 out of 110 (7.3%)	0.005
Minor local	Hematoma	1	6	
	Persistent wound drainage	3	4	
	Superficial wound infection	3	6	
	Skin blisters	1	1	
	Other	6	2	
	Total number of patients with ≥ 1 minor local complication ^a		12 out of 91 (13.2%)	19 out of 110 (10.9%)

Figure HP24 Cumulative Incidence Revision Diagnosis of Primary Bipolar Hip Replacement by Femoral Fixation (Primary Diagnosis Fractured NOF)



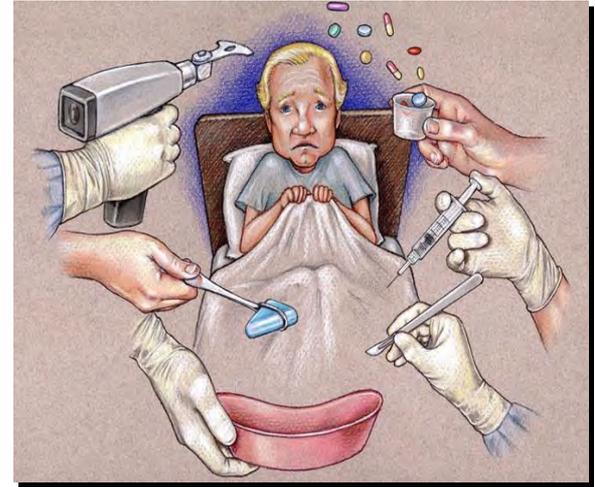
COMPLICANZE GENERALI PTA

1) MORTALITA'

2) INFEZIONI

3) INFARTO MIOCARDICO

4) TROMBOEMBOLISMO VENOSO



Complications and their risk factors following hip fracture surgery

Keng Soon Poh, K Lingaraj
National University Hospital, Singapore

Table 1
Complications following hip fracture surgery

	No. (%) of patients (n=242)
Patients with at least one complications	137 (56.7)
Type of complication	
Death	4 (1.7)
Acute urinary retention	95 (39.3)
Urinary tract infection	58 (24.0)
Deep vein thrombosis	21 (8.6)
Chest infection	11 (4.5)
Upper gastrointestinal bleeding	8 (3.3)
Myocardial infarction	5 (2.1)
Cerebrovascular accident	1 (0.4)

Table 2
Variables associated with postoperative complications

Variable	Patients without complication (n=104)	Patients with at least one complication (n=137)	p Value
Mean±SD age (years)	74.8±9.7	79.4±10.1	<0.001
American Society of Anesthesiologists grade			0.001
I or II	47	35	
III or higher	58	102	
Time to operation (hours)			0.001
≤48	59	48	
>48	46	89	
Mean±SD length of hospitalisation (days)	12.0±9.5	16.0±11.0	<0.001

Table 3
Risk factors of developing postoperative complications

Risk factor	Odds ratio	p Value
Patient age	1.042	0.004
American Society of Anesthesiologists grade 3 or higher	2.273	0.005
Time to operation of >48 hours	1.766	0.045



ELSEVIER



Complications - Other

Major Complications and Transfusion Rates After Hemiarthroplasty and Total Hip Arthroplasty for Femoral Neck Fractures

Emmanouil Lioudakis, MD^{*}, John Antoniou, MD, PhD, David J. Zukor, MD,
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Department of Orthopaedic Surgery, Jewish General Hospital, McGill University, Montreal, Canada

Table 2

Thirty-Day Complication Rates According to Type of Procedure.

Complications	HA (N = 3192), n (%)	THA (N = 866), n (%)	P Value (Univariate)
Major complications (life threatening)	329 (10.3)	57 (6.6)	.001
Sepsis	53 (1.7)	2 (0.2)	<.001
Septic shock	28 (0.9)	6 (0.7)	.833
Acute renal failure	10 (0.3)	1 (0.1)	.476
Pulmonary embolism	18 (0.6)	9 (1.0)	.154
Occurrences ventilator >48 h	21 (0.7)	7 (0.8)	.644
Occurrences unplanned intubation	41 (1.3)	12 (1.4)	.866
Myocardial infarction	45 (1.4)	8 (0.9)	.314
Cardiac arrest requiring CPR	19 (0.6)	5 (0.6)	1.0
Stroke with neurologic deficit	23 (0.7)	6 (0.7)	1.0
Mortality	189 (5.9)	25 (2.9)	<.001
Minor complications (not life threatening)	395 (12.4)	79 (9.1)	.009
Urinary tract infection	207 (6.5)	49 (5.7)	.431
Pneumonia	133 (4.2)	16 (1.8)	.001
Superficial surgical site infection	32 (1.0)	7 (0.8)	.698
Wound dehiscence	1 (0.0)	3 (0.3)	.033
Progressive renal insufficiency	9 (0.3)	2 (0.2)	1.0
Deep wound infection	13 (0.4)	5 (0.6)	.562
DVT requiring therapy	26 (0.8)	7 (0.8)	1.0
Overall complications	620 (19.4)	120 (13.9)	<.001
Adverse events not included in the overall complication rate			
Intraoperative/postoperative transfusions	835 (26.2)	265 (30.6)	.01
Readmission	78 (14.5)	12 (7.8)	.03
Reoperation	25 (4.0)	9 (5.3)	.52

Conclusion: The risk of major complications is influenced by patient factors rather than the choice of procedure. However, THA was a risk factor for transfusions after controlling for all other variables.

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More complications in uncemented compared to cemented hemiarthroplasty for displaced femoral neck fractures: a randomized controlled trial of 201 patients, with one year follow-up

Sophie Moerman^{1*}, Nina M. C. Mathijssen¹, Dieu D. Niesten¹, Roeland Riedijk², Willard J. Rijnberg³, Sander Koëter⁴, Keetie Kremers van de Hei⁴, Wim E. Tuinebreijer⁵, Tim L. Molenaar¹, Rob G. H. H. Nelissen⁶ and Anne J. H. Vochteloo⁷

Table 2 One-year complication rate per category as categorized by Parvizi

		Uncemented (91)	Cemented (110)	P
Major systemic	Death	25 (27,5%)	21 (19 %)	(0.18)
	Tachyarrhythmia	1	4	
	Myocardial infarction	4	2	
	Pulmonary embolus	1	6	
	Acute renal failure	3	2	
	Stroke and/or TIA	3	3	
	Bowel obstruction	0	1	
	Total number of patients with ≥ 1 major systemic complication ^a	29 out of 91 (31.9%)	29 out of 110 (26.4%)	
Minor systemic	Anemia	30	39	0.92
	Urinary tract infection	14	22	
	Mental status change	23	21	
	Gastric hypomotility	0	2	
	Deep venous thrombosis	0	1	
	Pneumonia	14	12	
	Social complication	2	9	
	Others	2	2	
Total number of patients with ≥ 1 minor systemic ^a	73 out of 91 (80.2%)	89 out of 110 (80.9%)	0.92	



Surgical treatment of acetabular fractures in the elderly: a systematic review of the results

Antonio Capone¹
Marcella Peri²
Michele Mastio¹



Table 3. Pooled analysis of outcome measures by type of surgical treatment

	All patients (15 studies) ⁵⁻¹⁹		ORIF (7 studies) ^{7,11-14,18,19}		Acute THA (8 studies) ^{5,6,8-10,15-17}	
	Patients (n)	Mean (95% CI)	Patients (n)	Mean (95% CI)	Patients (n)	Mean (95% CI)
Age (yrs)	354	71.6 (71.0 to 72.2)	224	70.2 (69.5 to 70.9)	130	74.4 (73.6 to 75.2)
Gender (Male %)	276	70.3 (64.6 to 75.4)	179	73.7 (66.8 to 79.6)	97	63.9 (54 to 72.8)
Follow-up (months)	318	43 (41.3 to 44.7)	195	44.3 (42.2 to 45.2)	123	39 (34.8 to 43.2)
Operation time (min)	239	209.3 (207.6 to 216)	127	236.6 (228.8 to 245.2)	112	178.4 (170.5 to 186.3)
Blood loss (ml)	187	822.6 (781.4 to 863.8)	106	707 (632.4 to 781.6)	81	974 (929.5 to 1018.5)
Mortality at one yr (%)	208	17.3 (12.8 to 23)	128	22.6 (16.3 to 30.6)	80	8.8 (4.3 to 17)
Non-fatal complication rate (%)	267	31.5 (26.2 to 37.3)	178	32.02 (25.6 to 39.2)	89	30.3 (21.8 to 40.5)
Harris Hip Score	186	84.1 (83.2 to 85)	90	85.8 (85.4 to 86.2)	96	82.5 (81 to 84)
Satisfactory results (%)	192	74.5 (67.9 to 80.1)	161	72.7 (65.3 to 79)	31	83.9 (67.4 to 92.9)
THA conversion rate (%)			195	16.96 (12.6 to 22.4)		
Time to failure (mths)			39	27.7 (23.9 to 31.6)		
Revision procedure (%)					123	4.9% (2.2 to 10.2)

CI, confidence interval; ORIF, open reduction and internal fixation; THA, total hip arthroplasty; IF, internal fixation

CONCLUSIONI

GISOOS

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**TRATTAMENTO FRATTURE ANCA NEL
PAZIENTE ANZIANO**

ONE-SHOT SURGERY

TRATTAMENTO FRATTURE DA FRAGILITA'

TECNICA CHIRURGICA ADATTATA A ..

1. CONDIZIONI GENERALI DEL PAZIENTE

2. QUALITA' OSSO

3. TIPO FRATTURA

4. ESPERIENZA CHIRURGO

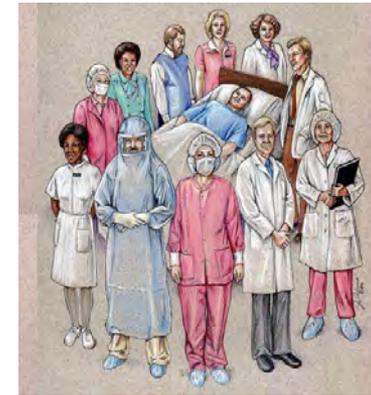


RIDURRE IL RISCHIO DI COMPLICANZE



Mortality after hip fracture in the elderly: The role of a multidisciplinary approach and time to surgery in a retrospective observational study on 23,973 patients

Silvia Forni^a, Francesca Pieralli^{b,*}, Alessandro Sergi^a, Chiara Lorini^c,
Guglielmo Bonaccorsi^d, Andrea Vannucci^a



S. Forni et al. / Archives of Gerontology and Geriatrics 66 (2016) 13–17

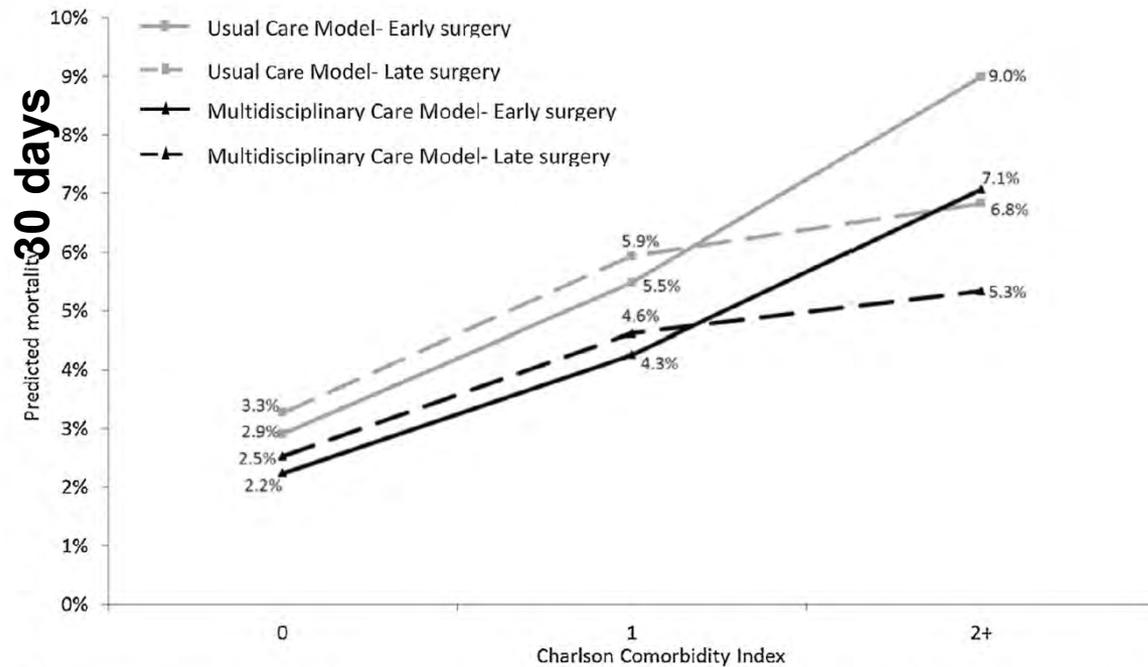


Fig. 1. Predicted mortality (%): timing of surgery and Charlson Comorbidity Index in Multidisciplinary Care Model and Usual Care Model.

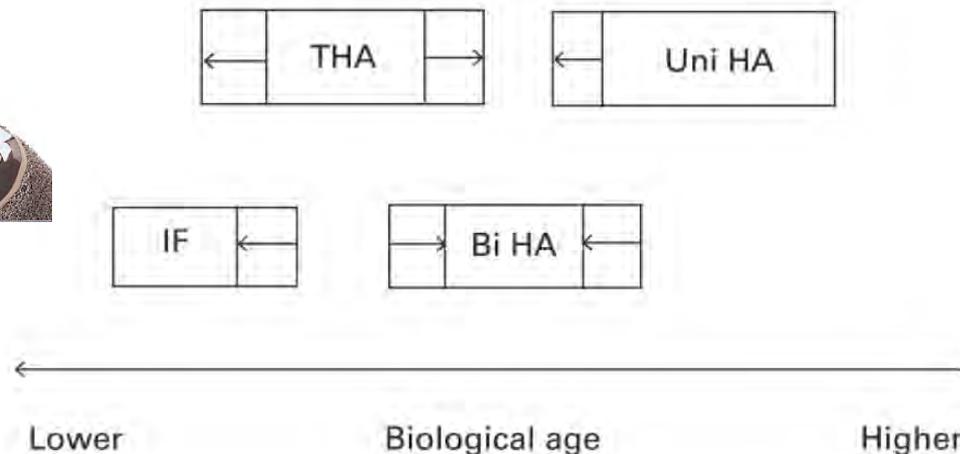
Hip arthroplasty for the treatment of displaced fractures of the femoral neck in elderly patients

C. Rogmark,
O. Leonardsson

From Department of Orthopaedics, Lund University, Skåne University Hospital, Malmö, Sweden

This review summarises the evidence for the treatment of displaced fractures of the femoral neck in elderly patients. Results from randomised clinical trials and national register studies are presented when available.

The advantages of arthroplasty compared with internal fixation are supported by several studies. A number of studies contribute to the discussions of total hip arthroplasty (THA) versus hemiarthroplasty and unipolar versus bipolar hemiarthroplasty, but no clear-cut evidence-based recommendation can be made. THA may be particularly advantageous for active, lucid patients with a relatively long life expectancy. For patients who are physiologically older, hemiarthroplasty is probably satisfactory, and for the oldest patients with more comorbidities, unipolar implants are considered to be sufficient. If the hospital can support emergency THA surgery in sufficient numbers and quality, there may be few patients who warrant bipolar hemiarthroplasty.





Displaced intracapsular neck of femur fractures in the elderly: Bipolar hemiarthroplasty may be the treatment of choice; a case control study



S.C. Jonas^{*}, R. Shah, N. Al-Hadithy, M.R. Norton, S.A. Sexton, R.G. Middleton

Royal Cornwall Hospital, Truro, TR1 3UJ

Table 1

(pre-operative patient characteristics) Pre-operative Data.

	Bipolar	THR	<i>P</i> value
Female	44/55	44/55	–
Mean age (years)	79 (70–89)	78 (70–91)	<i>p</i> = 0.55
Mean ASA grade	2.3 (1–4)	2.3 (1–4)	<i>p</i> = 0.36
Mean pre-op amts	9.6 (7–10)	9.7 (7–10)	<i>p</i> = 0.16
Admitted from own home	53/55	53/55	–
walk without aids outdoors	41/55	41/55	–
Preoperative hip pain	5/55	7/55	
Mean tonnis grade	1.38	1.02	<i>p</i> = 0.002

Table 2

(clinical outcome at time of follow up) Follow up Data.

24 m

	Bipolar	THR	<i>P</i> value
Mean time to F/U (months)	24 (12–36)	24 (12–38)	<i>p</i> = 0.08
Mean OHS	37 (16–48)	37 (2–38)	<i>p</i> = 0.79
Mean SF-36 (norm based score)			
Mental component	52.68	52.30	<i>p</i> = 0.48
Physical component	36.43	40.73	<i>p</i> = 0.23

Dislocation

0 %

9 %

***P* < 0.001**



COMPOSTE

FRATTURE COLLO FEMORE

SCOMPOSTE



ETA' BIOLOGICA
< 70 aa

ETA' BIOLOGICA
> 70 aa

- PZ NON COLLABORANTE
- OSTEOPOROSI SEVERA

ETA' BIOLOGICA
< 75

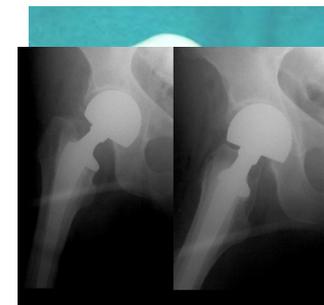
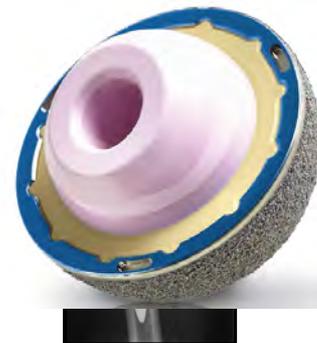
ETA' BIOLOGICA
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**OSTEOSINTESI
CON VITI
CANNULATE**

**PROTESI CEFALICA
CEMENTATA**

**ARTROPROTESI
NON CEMENTATA**

**PROTESI CEFALICA
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**BIOTECNOLOGIE E BIOMATERIALI
NELLE REVISIONI
D'ANCA E DI GINOCCHIO**

Bologna, 16 febbraio 2018

**PROGRAMMA
PREDEFINITIVO**