CONGRESSO NAZIONALE DELLA
SOCIETÀ ITALIANA DELL'ANCA



CORSI DI ISTRUZIONE

CONGRESSO NAZIONALE DELLA
SOCIETÀ ITALIANA DELL'ANCA



19-20
settembre 2019
BERGAMO

AUDITORIUM

GIOVEDÌ
19 SETTEMBRE 2019

08.00 **CORSO DI ISTRUZIONE 1**

08.45 **FRATTURE PERIPROTESICHE: VANCOUVER E USC TIPO B**
Moderatore: **Antonio Toro** (Sarno)

08.00 La valutazione della stabilità dell'impianto
Lorenzo Scialpi (Taranto)

08.10 Sintesi
Mario Manca (Lido Di Camaiore)

08.20 Revisione
Enrico Vaienti (Parma)

08.30 Discussione

CONGRESSO NAZIONALE DELLA
SOCIETÀ ITALIANA DELL'ANCA



CORSO ISTRUZIONE

Fratture periprotesiche: Vancouver e USC tipo B

LA VALUTAZIONE DELLA STABILITA' DELL'IMPIANTO

Lorenzo Scialpi (Taranto)

FRATTURE PERIPROTESICHE

Primary hip arthroplasty

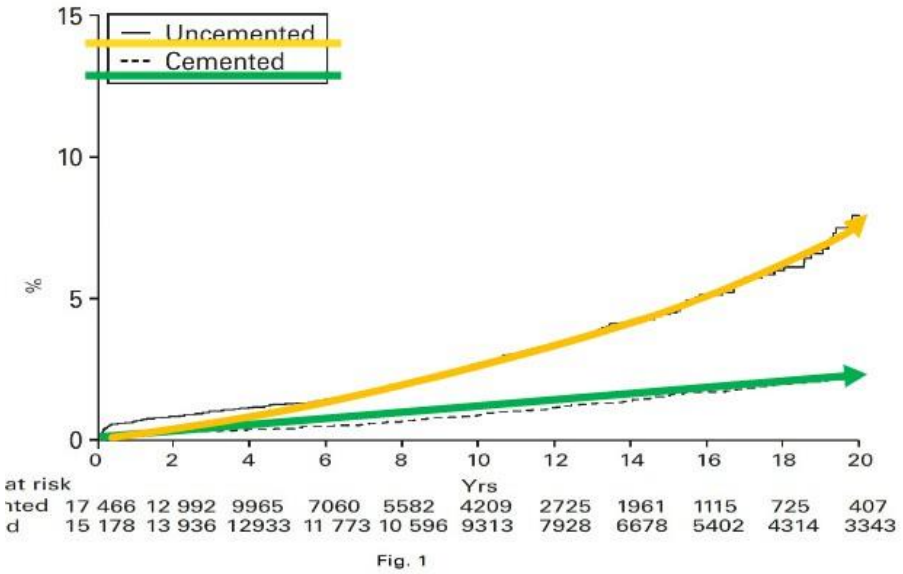


Fig. 1

Revision hip arthroplasty

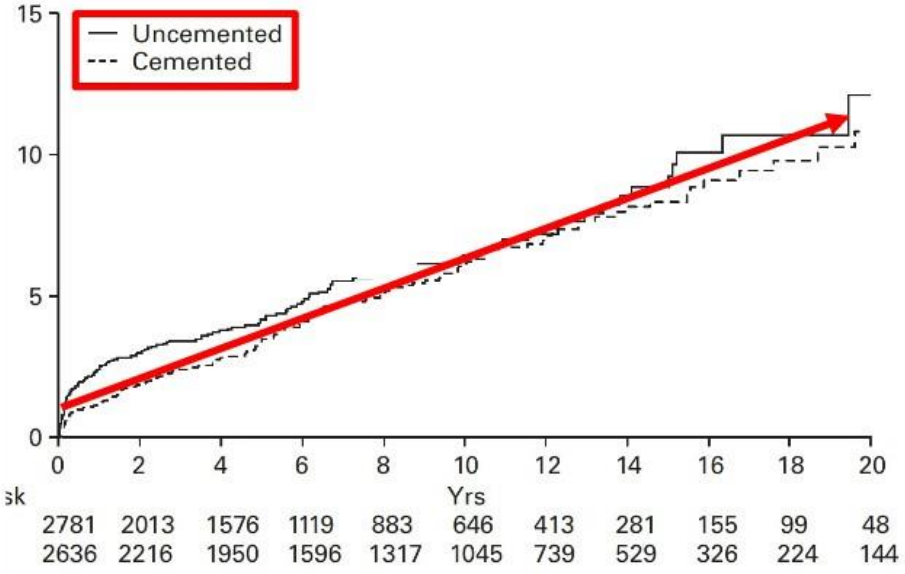


Fig. 1

POLITRAUMA ORTOGERIATRICO









EPIDEMIOLOGIA

INTRA-OPERATORIE:

CEMENTATE 0.2%
(35 : 15178)

NON CEMENTATE 1.7%
(529 : 17466)

POST-OPERATORIE:

CEMENTATE 1.46% (222:15178)

NON CEMENTATE 1.91%
(529 : 17466)

INCIDENZA:

PRIMO IMPIANTO 0.9%

REVISIONE 4.2%



■ HIP

Epidemiology of periprosthetic fracture of the femur in 32 644 primary total hip arthroplasties

A 40-YEAR EXPERIENCE

2016

M. P. Abdel,
C. D. Watts,
M. T. Houdek,
D. G. Lewallen,
D. J. Berry

From Mayo Clinic, Minnesota, United States

FRATTURE PERIPROTESICHE DI ANCA

■ HIP

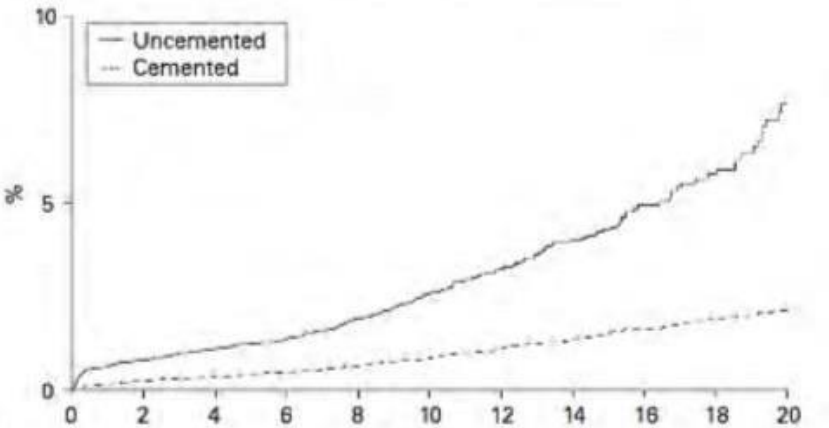
Epidemiology of periprosthetic fracture of the femur in 32 644 primary total hip arthroplasties

A 40-YEAR EXPERIENCE

2016

M. P. Abdel,
C. D. Watts,
M. T. Houdek,
D. G. Lewallen,
D. J. Berry

From Mayo Clinic, Minnesota, United States



Number at risk											
Uncemented	17 466	12 992	9965	7060	5582	4209	2725	1961	1115	725	407
Cemented	15 178	13 936	12933	11 773	10 596	9313	7928	6678	5402	4314	3343

Fig. 1

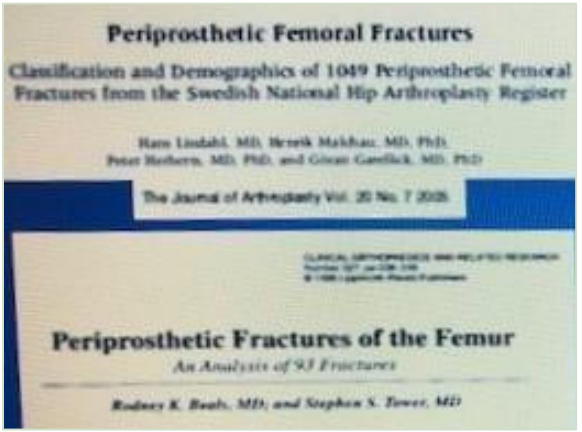
The 20-year cumulative probability of post-operative periprosthetic femoral fracture based on stem fixation

FRATTURE IN CONTINUO AUMENTO

- aumento della vita media
- incremento della richiesta di protesizzazione
- pazienti ad elevata richiesta funzionale
- (aumento del tasso di revisioni protesiche)

TRAUMI A BASSA ENERGIA

- 76% cadute in casa
- 24% fuori casa



- ALTO TASSO DI FALLIMENTI
- FRATTURE DIFFICILI, TRATTAMENTO OTTIMALE DIBATTUTO
- RICHIEDONO UNA DUBLICE ESPERIZA: ORIF E REVISIONE

FRATTURE PERIPROTESICHE DI FEMORE

CLASSIFICAZIONE DI VANCOUVER

FRATTURE POST-OPERATORIE

Instr Course Lect. 1995;44:293-304.

Fractures of the femur after hip replacement.



C.P. Duncan

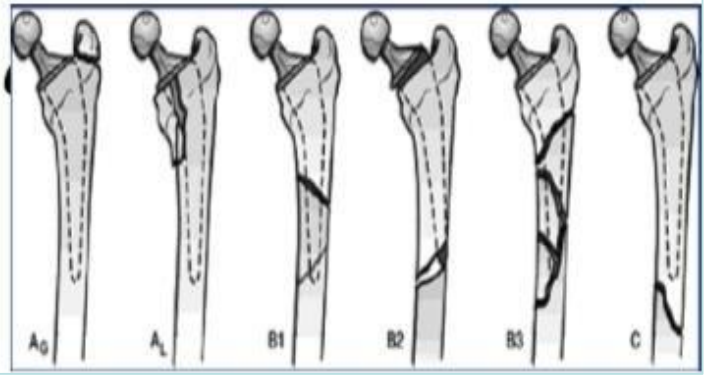


B.A.Masri

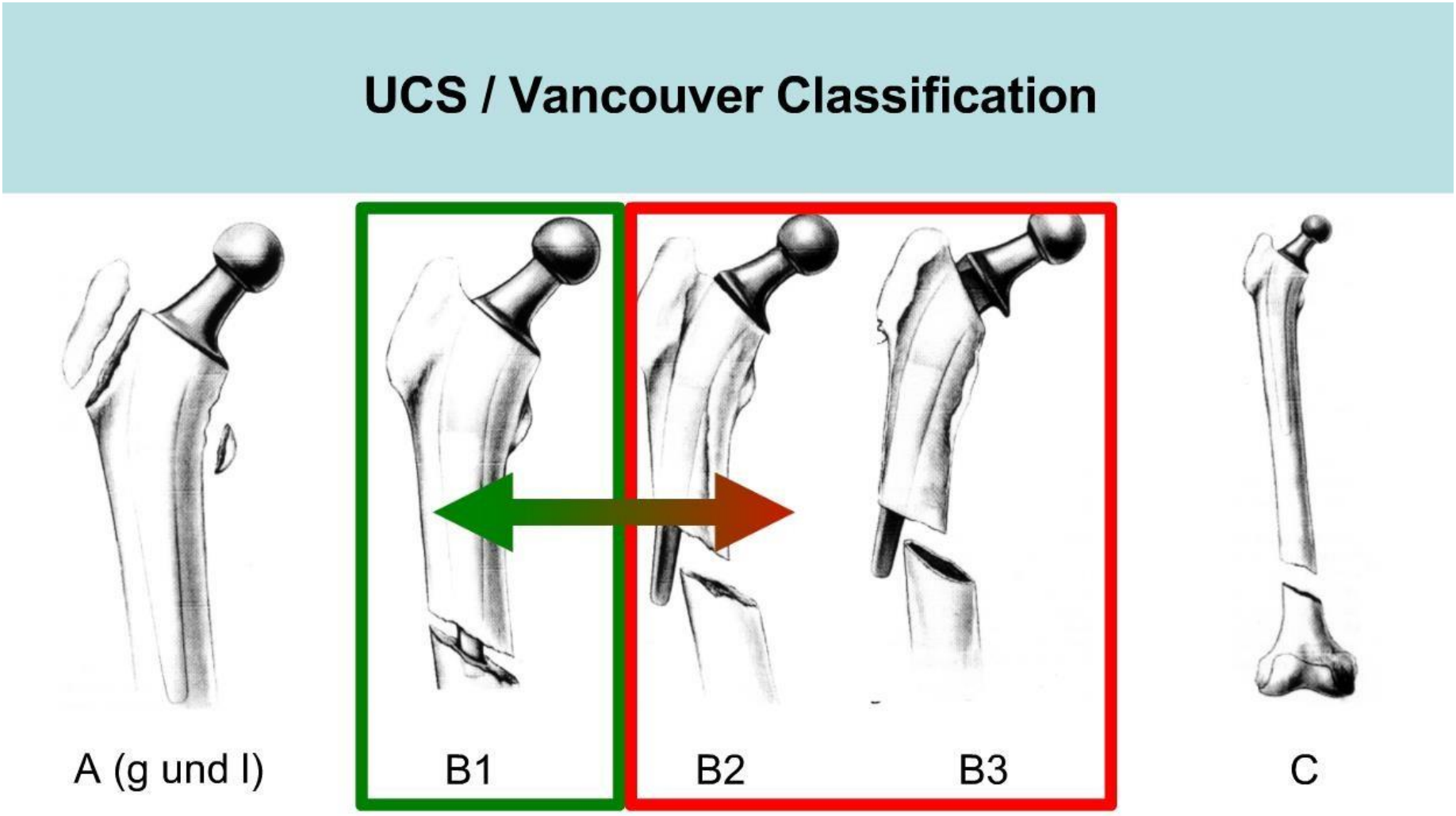
Department of Orthopaedics, University of British Columbia, Vancouver, Canada

VALUTA

- *Localizzazione della frattura*
- *Stabilità dell'impianto*
-



CLASSIFICAZIONE-STABILITÀ DELL'IMPIANTO



Brady OH et al .Techniques in Orthopaedics, June 1999 Jun;14(2).

TIPO B

fratture diafisarie che si estendono intorno allo stelo o subito al di sotto



B1
Stelo Stabile

TIPO B

fratture diafisarie che si estendono intorno allo stelo o subito al di sotto



B2
Stelo mobilizzato

TIPO B

fratture diafisarie che si estendono intorno allo stelo o subito al di sotto



B3
Stelo mobilizzato con perdita di massa ossea

B1



NON TUTTE LE B1 SONO UGUALI !!

- ***Osteoporosi***
- ***Rima di frattura***
- ***Potenziale di guarigione***

CLASSIFICAZIONE-STABILITÀ DELL'IMPIANTO

COPYRIGHT © 2006 BY THE JOURNAL OF BONE AND JOINT SURGERY, INCORPORATED

THREE HUNDRED AND TWENTY-ONE PERIPROSTHETIC FEMORAL FRACTURES

BY HANS LINDAHL, MD, GÖRAN GARELLICK, MD, PHD, HANS REGNÉR, MD, PETER HERBERTS, MD, PHD, AND HENRIK MALCHAU, MD, PHD

TABLE I Vancouver[a] Classification of Fractures Based on Surgeons' Findings*

Vancouver Category	Primary-Replacement Group (N = 230)†
A	3% (6)
B_1	24% (56)
B_2	53% (123)
B_3	10% (24)
C	9% (21)

*The first author (H.L.) classified the fractures on the basis of both the surgeons' pr
erative report. †The values are given as the percentage of hips with the number of h

- 47% delle B1 in realtà sono B2
- ¼ delle B l'impianto era instabile

CLASSIFICAZIONE DI VANCOUVER



European validation of the Vancouver classification of peri-prosthetic proximal femoral fractures

J Bone Joint Surg [Br]
2008;90-B:1576-9.
Received 3 January 2008;
Accepted after revision 14 July 2008

E. Rayan,
M. Dodd,
F. S. Haddad

From University College London Hospital, London, England

- *Analisi di 30 Rx*
- *6 Specialisti,*

In 3 gruppi diversi

I 3 gruppi erano d'accordo nel 77% delle fratture, pertanto tale classificazione è oggettiva, semplice e riproducibile

B2



Periprosthetic Femoral Fractures

Classification and Demographics of 1049 Periprosthetic Femoral Fractures from the Swedish National Hip Arthroplasty Register

The Journal of Arthroplasty Vol. 20 No. 7 2005

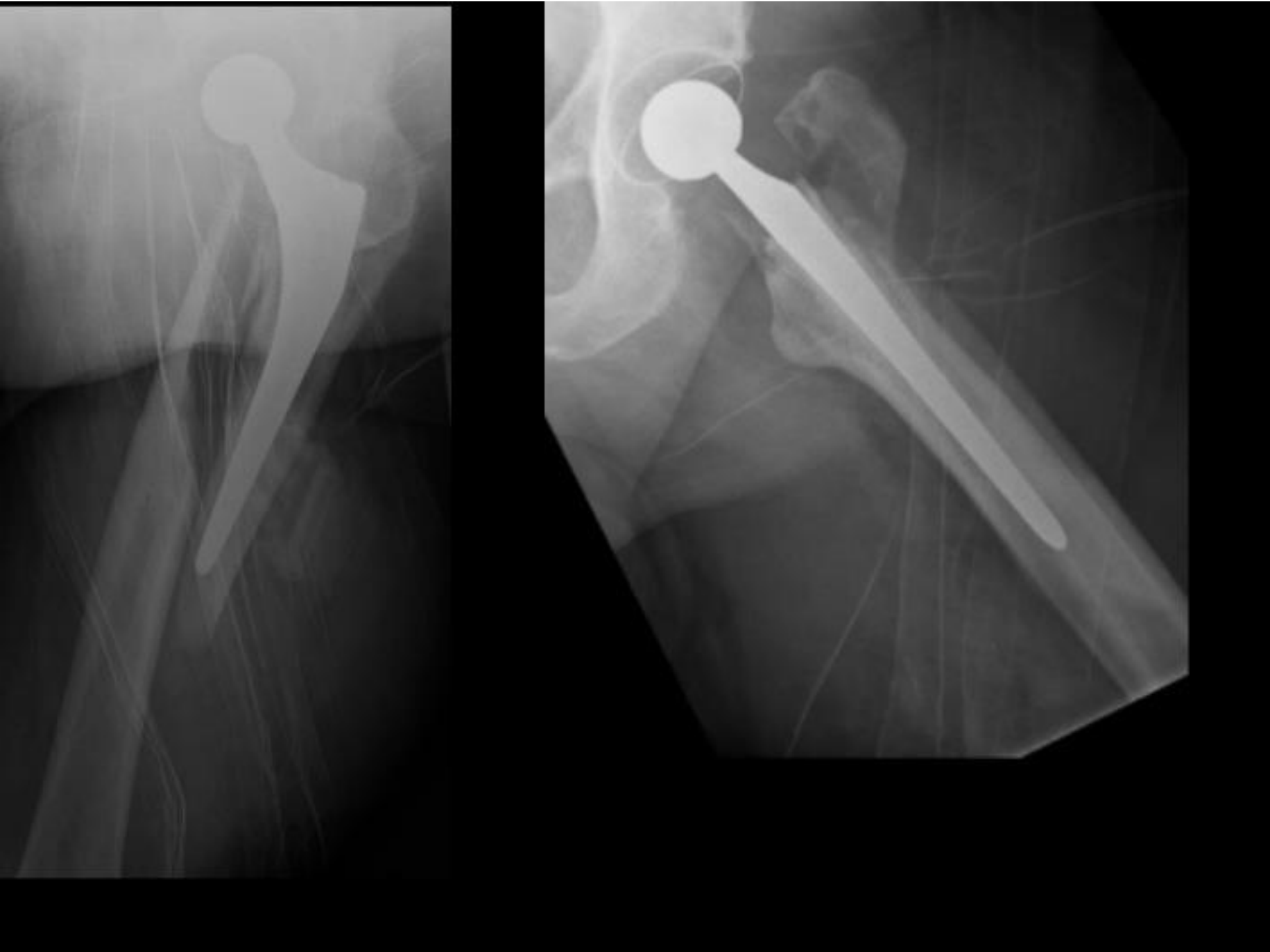
Hans Lindahl, MD, Henrik Malchau, MD, PhD,
Peter Herberts, MD, PhD, and Göran Garellick, MD, PhD

***75%* dei casi la *mobilizzazione è precedente* alla frattura**

STORIA CLINICA

1. Pregresso dolore
2. Pregressa funzione
3. Pregresse radiografie
4. Pregressi test ematici (infezione?)


R

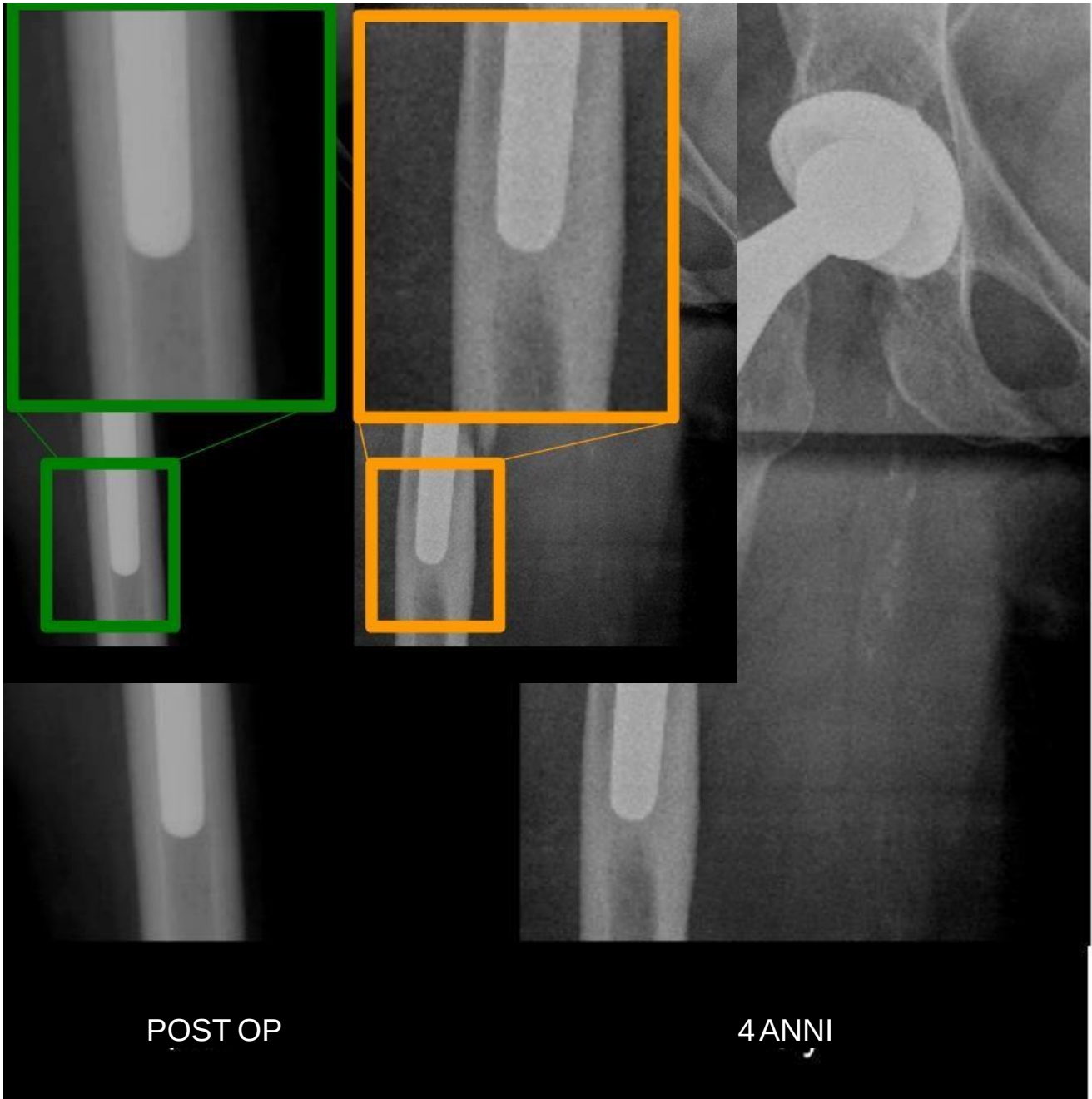




SEGNI DI INSTABILITÀ

- Unhappy hip

Injury. 2007 Jun;38(6):661-8.
Classification of femoral periprosthetic fractures.
Ninan TM[1], Costa ML, Krikler SJ.



SEGNI DI INSTABILITÀ

- Unhappy hip
- Fratture comminute
  (trauma ad alta energia)



SEGNI DI INSTABILITÀ

- Unhappy hip
- Fratture comminute (trauma ad alta energia)
- Migrazione dello stelo (confronto con rx precedenti)



SEGNI DI INSTABILITÀ

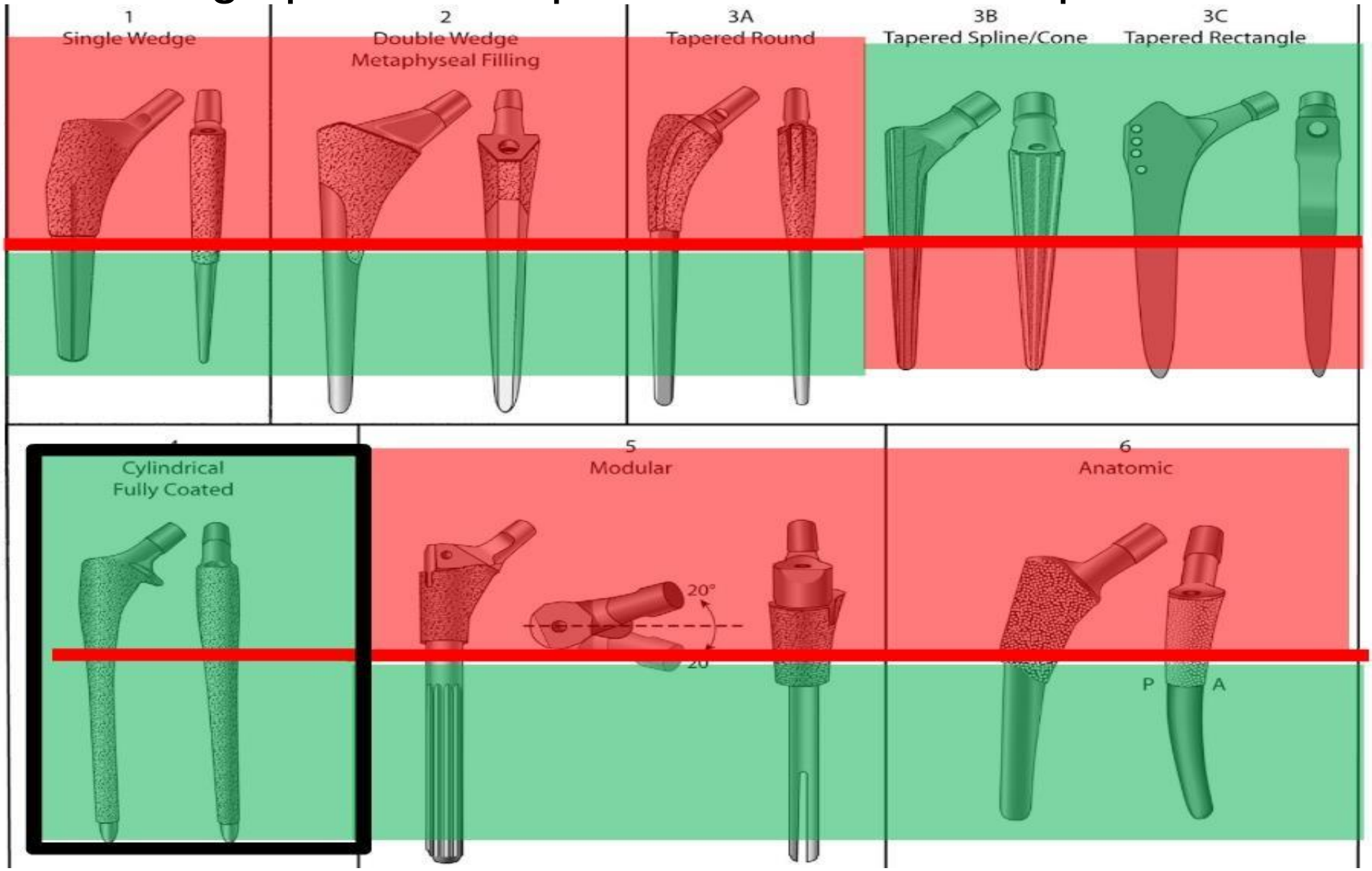
- Unhappy hip
- Fratture comminute (trauma ad alta energia)
- Migrazione dello stelo (confronto con rx precedenti)
- Osteolisi \ rottura del mantello di cemento (70%)



LINDAHL, H., et al. Risk factors for failure after treatment of a periprosthetic fracture of the femur. *Bone & Joint Journal*, 2006, 88.1: 26-30.

SEGNI DI INSTABILITÀ

Design protesico - perdita della stabilità primaria

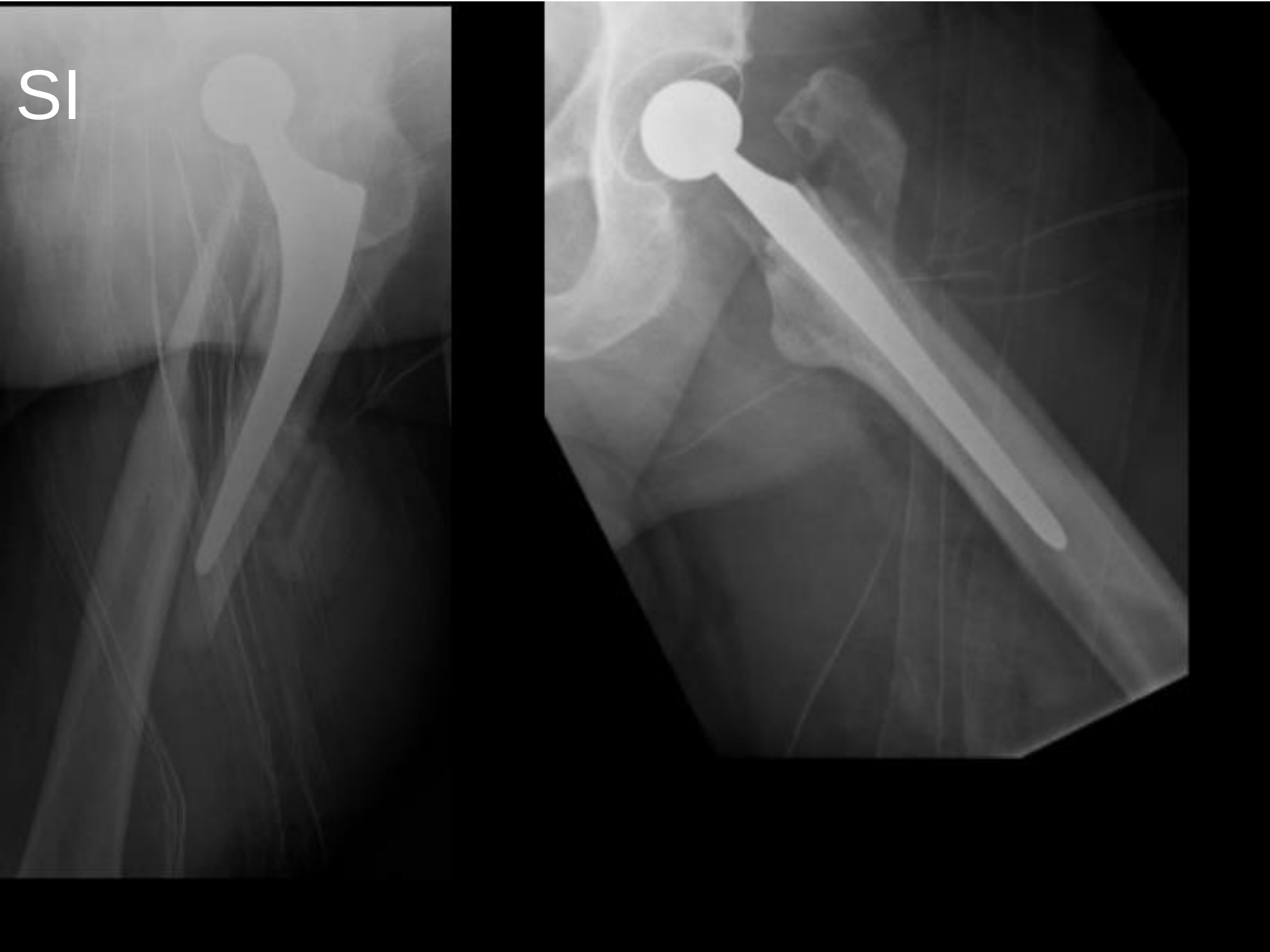


SEGNI DI INSTABILITÀ

- Unhappy hip
- Fratture comminute
  (trauma ad alta energia)
- Migrazione dello stelo
  (confronto con rx precedenti)
- Osteolisi \ rottura del mantello di cemento (70%)
- Perdita della stabilità primaria (design protesico)
- TC
- Valutazione intra op

NO




SI

B1



FALLIMENTO B1
a sei mesi



- L’osteosintesi permette la guarigione della frattura ma non la stabilità della protesi
- L’instabilita’ di una protesi condiziona il futuro di un paziente
- Tante protesi su frattura in realtà erano già mobilizzate
- Tante fratture B1 sono in realtà B2

CONCLUSIONI

- Studiare attentamente le linee di fratture
- Analizzare la clinica del paziente
- Analizzare i radiogrammi precedenti ed i segni radiologici di mobilizzazione
- Riconoscere la tipologia di protesi e valutarne le caratteristiche di fissazione


Grazie



Fratture Periprotesiche Vancouver e USC Tipo B

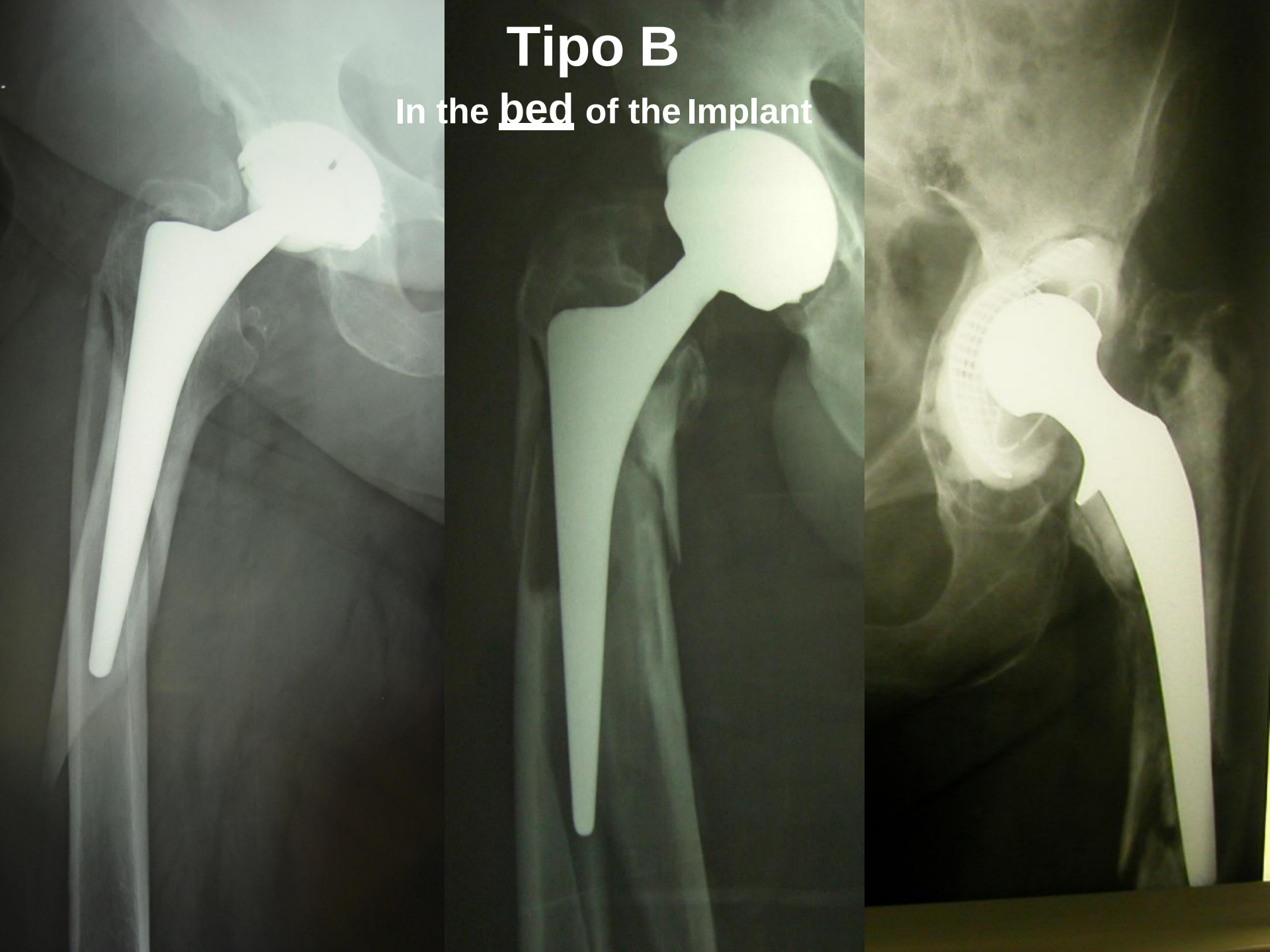
Sintesi

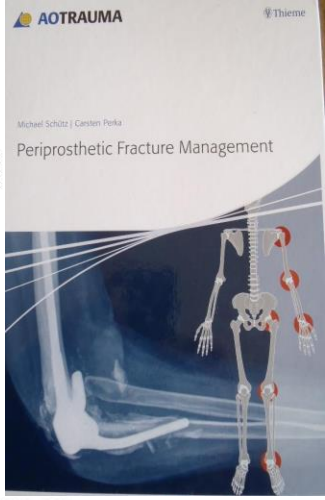
U.S.L. Nordovest Toscana

Ospedale Versilia

U.O.C. Ortopedia e Traumatologia

Direttore: M. Manca


Tipo B
In the bed of the Implant



THE BONE & JOINT JOURNAL

■ SPECIALTY UPDATE

The Unified Classification System (UCS): improving our understanding of periprosthetic fractures

C. P. Duncan,
F. S. Haddad

From Department of Orthopaedics, University of British Columbia, Canada

Periprosthetic fractures are an increasingly common complication following joint replacement. The principles which underpin their evaluation and treatment are common across the musculoskeletal system. The Unified Classification System proposes a rational approach to treatment, regardless of the bone that is broken or the joint involved.

Cite this article: ***Bone Joint J*** **2014;96-B:713–16.**

Introduction

Periprosthetic fractures are an increasingly common complication of joint replacement. They are difficult to manage and may have a poor outcome. They were the third most common indication for revision surgery in the Swedish Hip Registry in 2011[1] and only slightly less common in others, such as in the United Kingdom and Australia.[2,3] It is therefore important to establish the principles of management which are most likely to provide

of the femur, loose implants and substantial bone deficiency (Fig. 1).

The types. Type A is a fracture of an apophysis or protuberance of bone, to which one or more soft-tissue structures are attached. Examples in relation to a joint replacement include the trochanters of the femur and the tuberosities of the humerus. The principles of treatment are common to all and will be outlined below.

Type B involves the bed supporting or adjacent to an implant. Examples include a fracture

Tipo B

In the bed of the Implant

Più Frequenti

Tipo B 1

Impianto Stabile

Tipo B 2

Impianto Instabile

Tipo B 3

Impianto Instabile

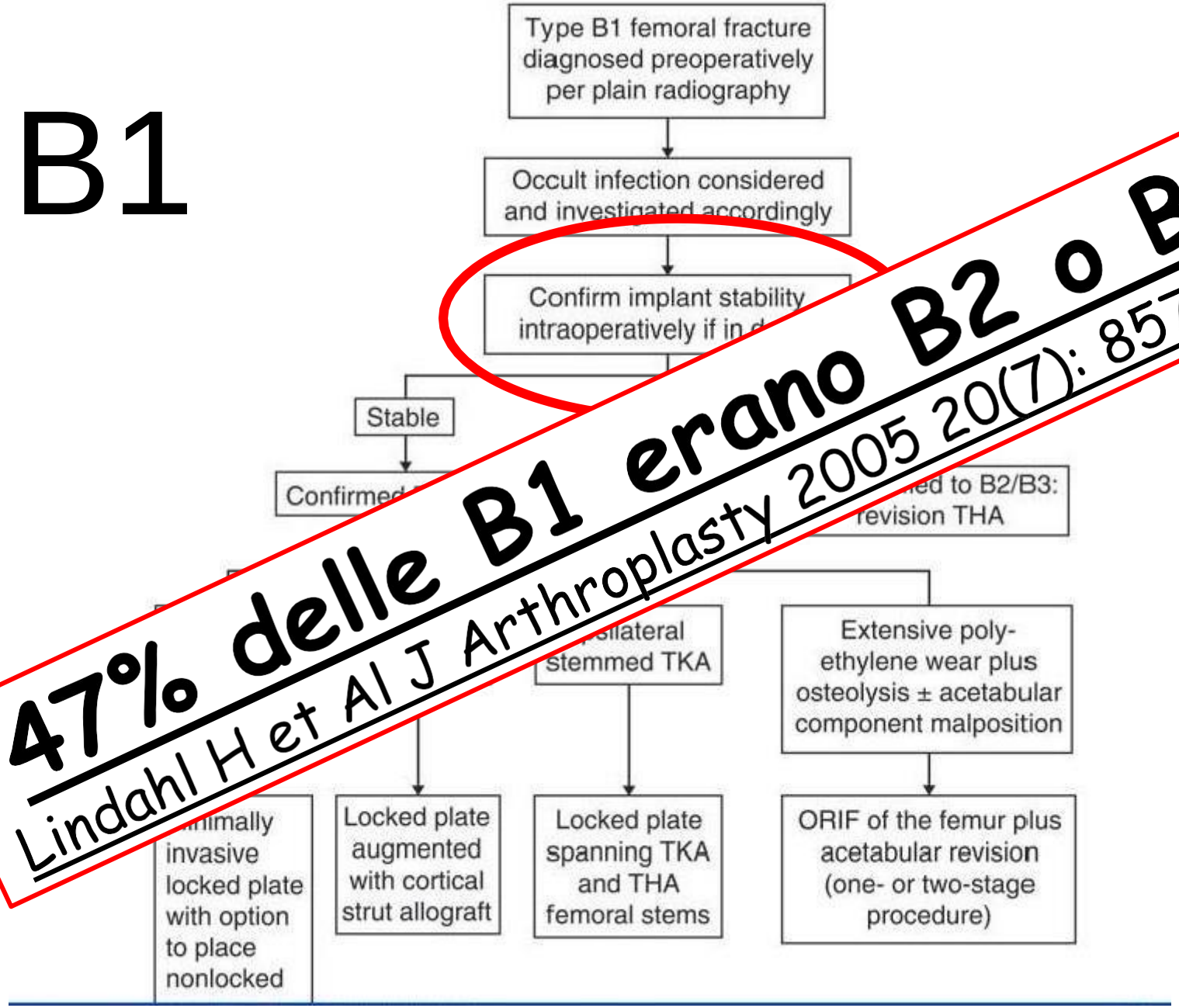
«Bone Loss»

Goal

- **Diagnosi Accurata**
- **Ottimizzare la funzione a lungo termine**
- **Ottenere la consolidazione della frattura**
- **Ottenere e mantenere la stabilità degli Impianti**
- **Permettere un carico immediato**

AAOS 2011 I.C.L. 111

B1



47% delle B1 erano B2 o B3

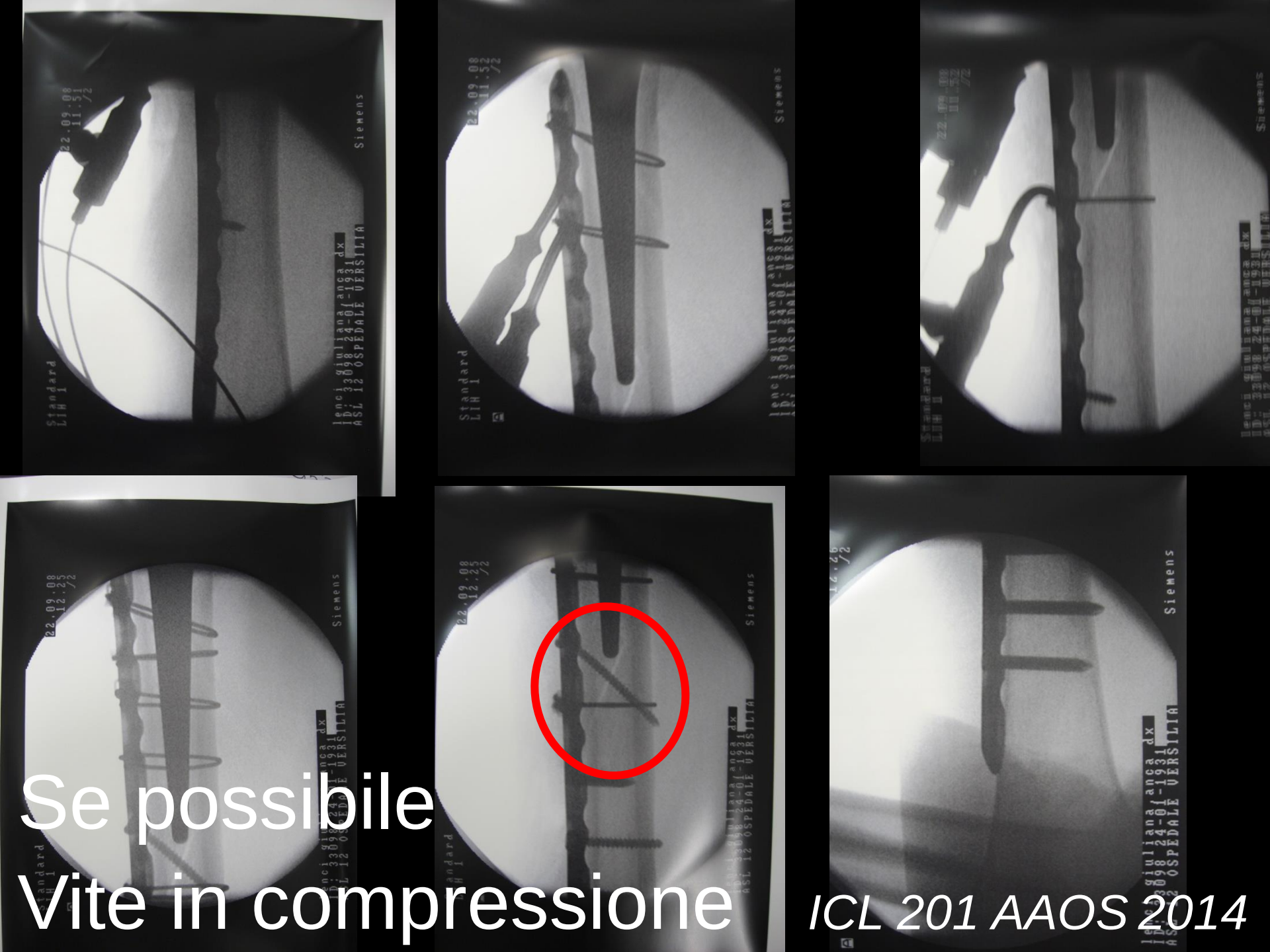
Lindahl H et Al J Arthroplasty 2005 20(7): 857-865

AAOS 2013 I.C.L. 352

Tipo B1

L.M. ♀ 80 aa




Se possibile
Vite in compressione
ICL 201 AAOS 2014



Placca Molto Lunga

3 Cavi prossimali

4-6 Viti distali

ICL 201 AAOS 2014

12 Mesi Post op

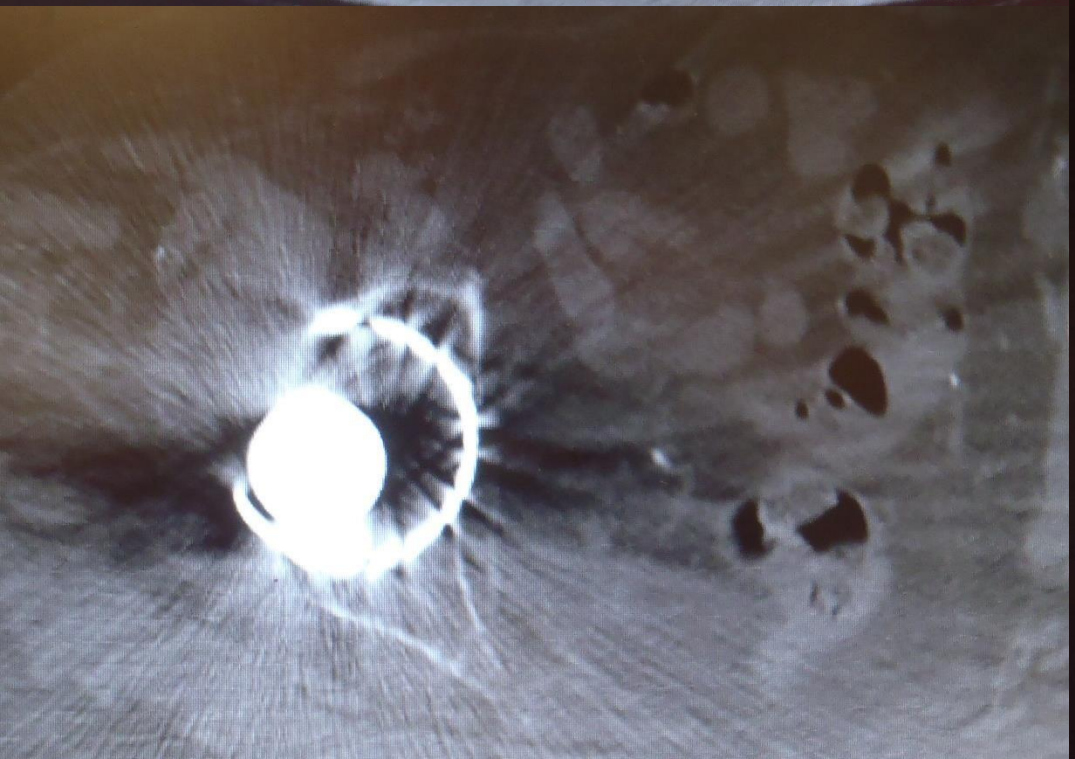







R.A.M. ♀ 90 aa
2 aa prima

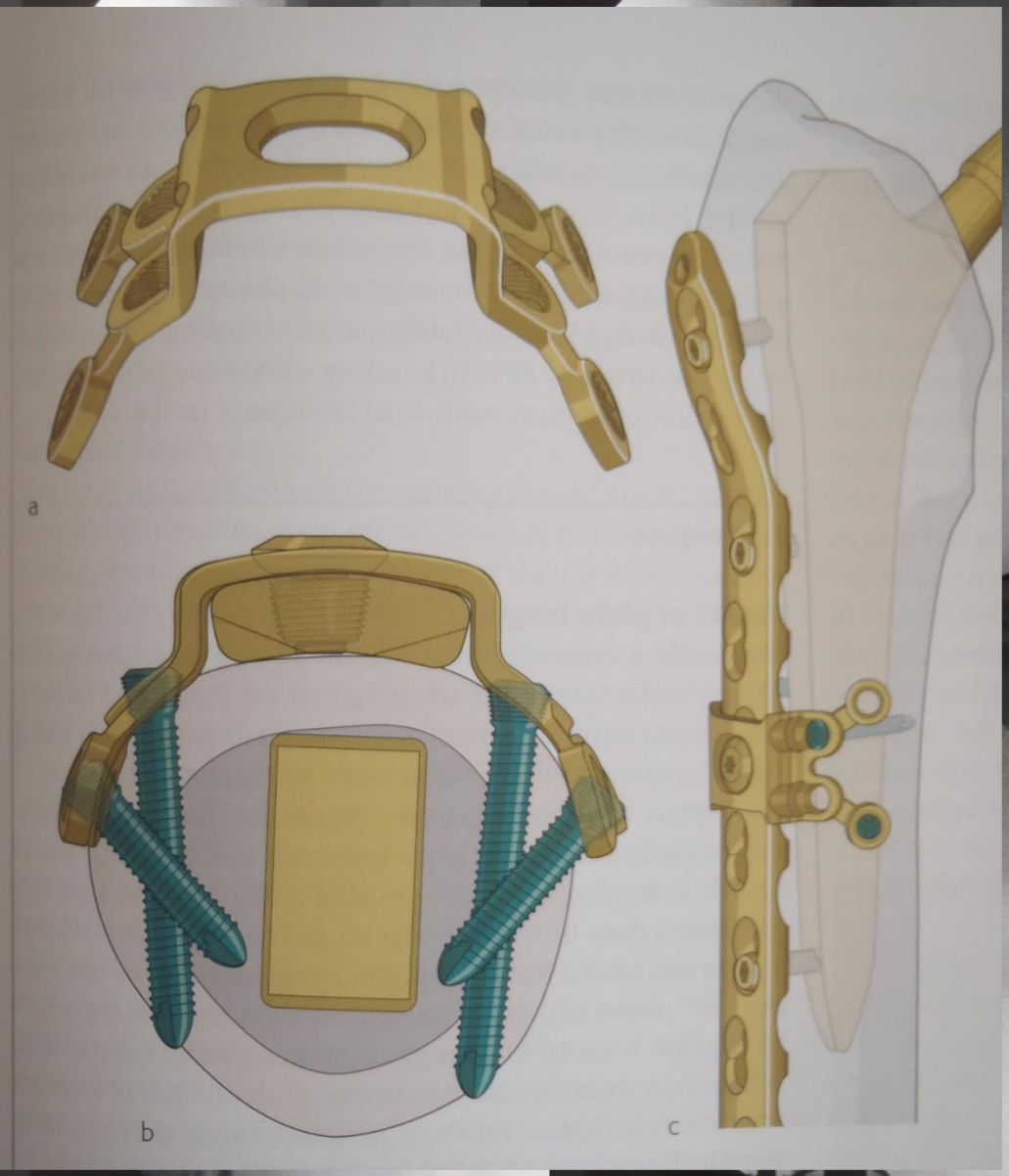


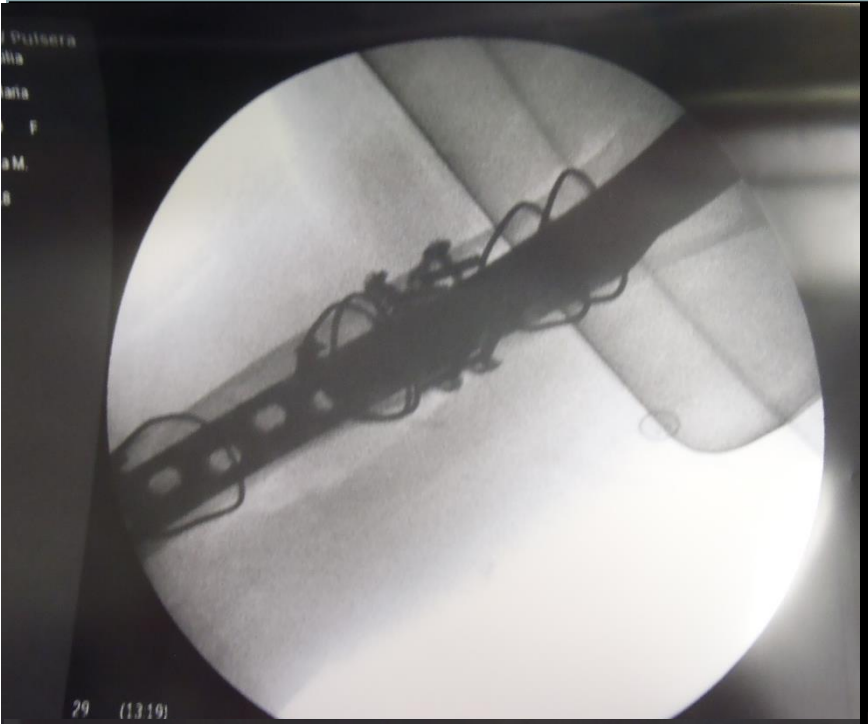



Dx

2 aa dopo




a
b
c




45 gg dopo



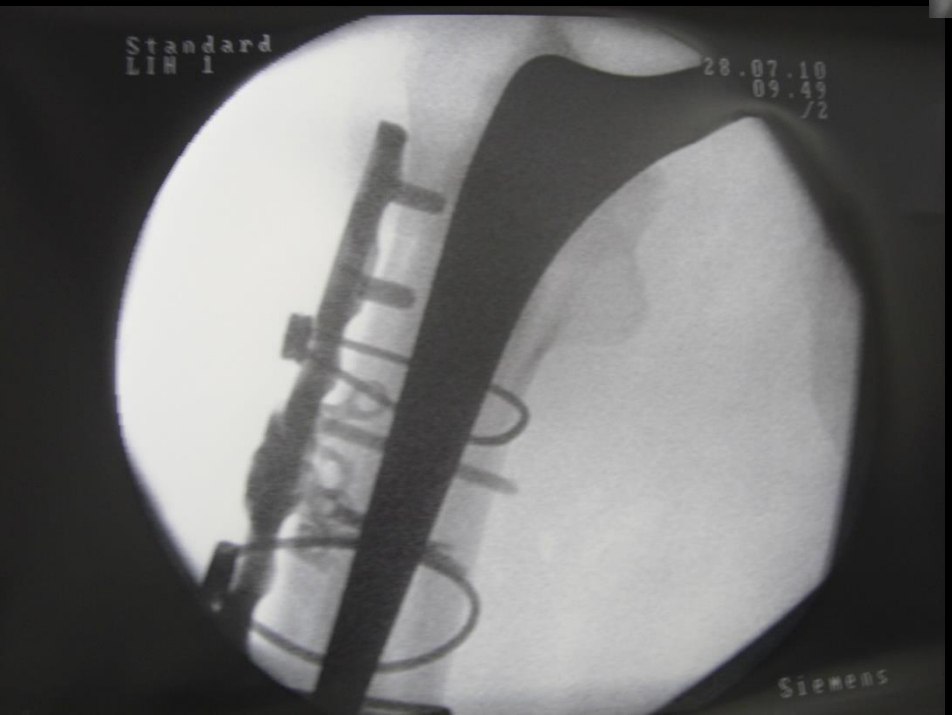


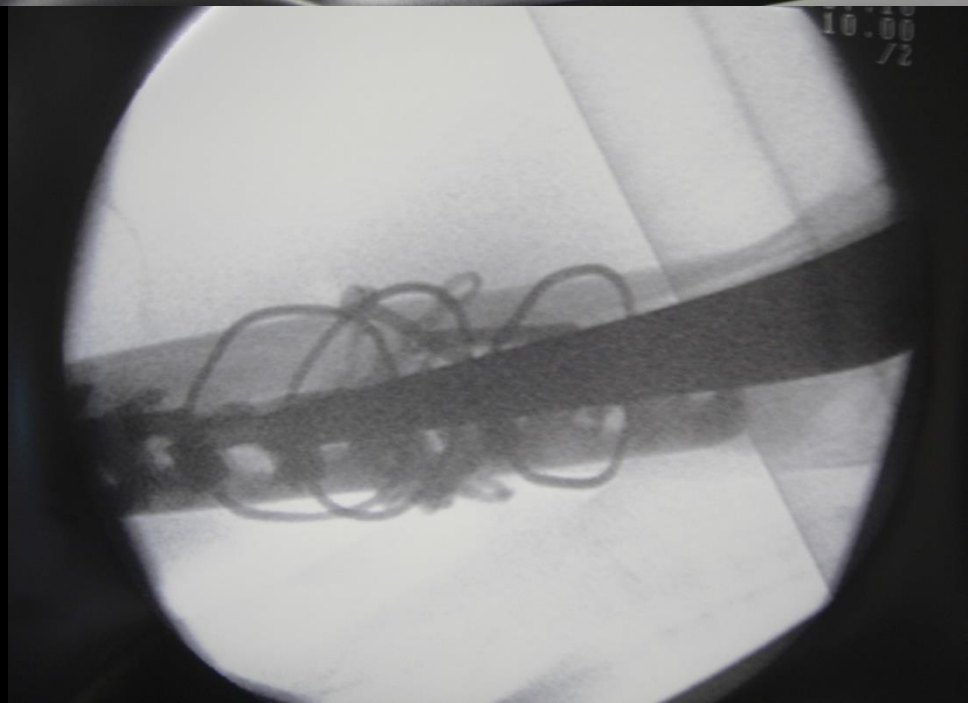

45 gg dopo
DX


M.M. ♀ 93 aa
Tipo B1?
B2?
56470
MASINI MARIA
DFOV 24.7cm
STND/+
Tipo B1?




Standard
LIH 1
28.07.10
09.59
/2


Standard
LIH 1
28.07.10
09.49
/2
Siemens

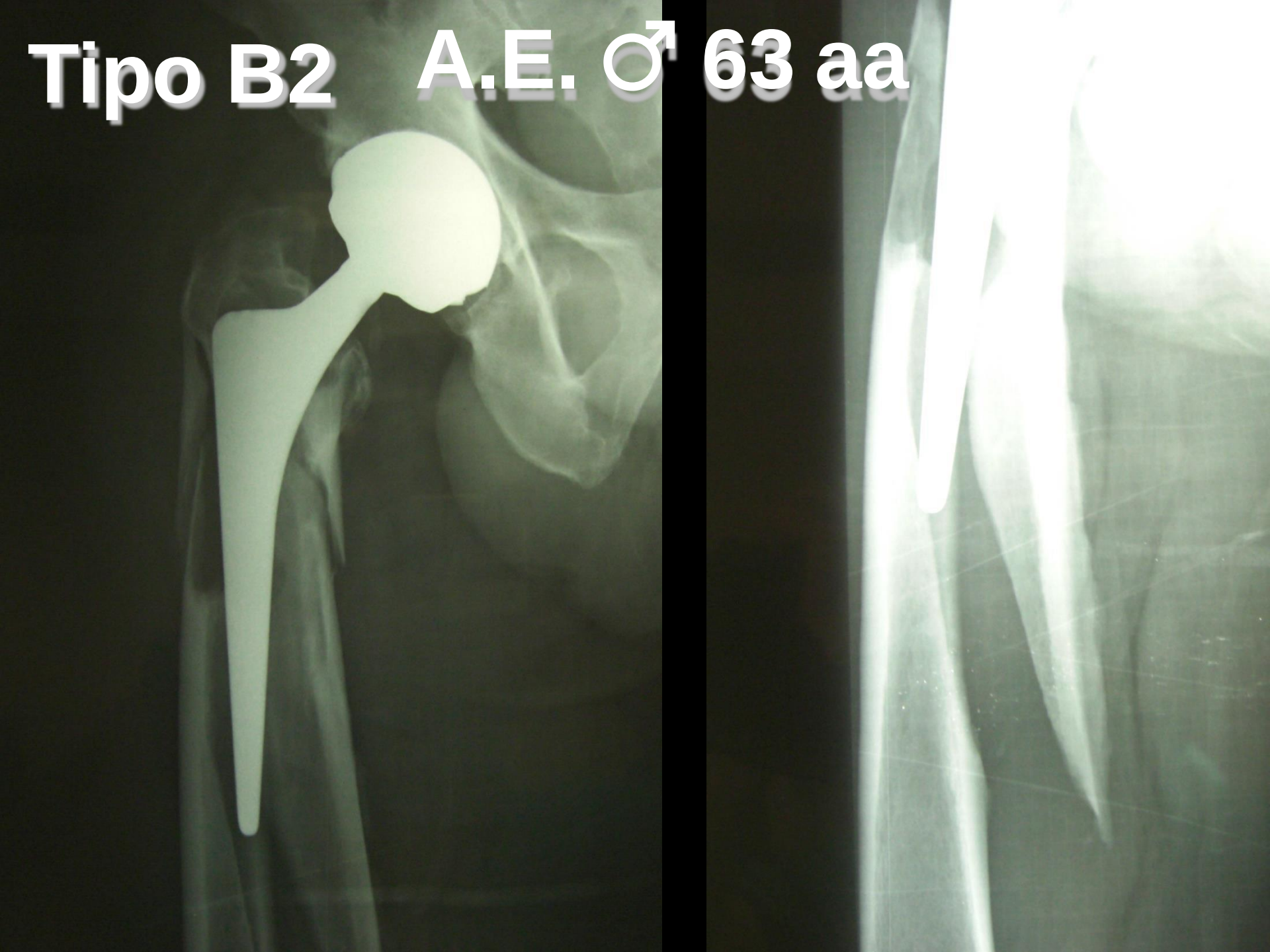



Post op
56470
[F] 18.04.1923B

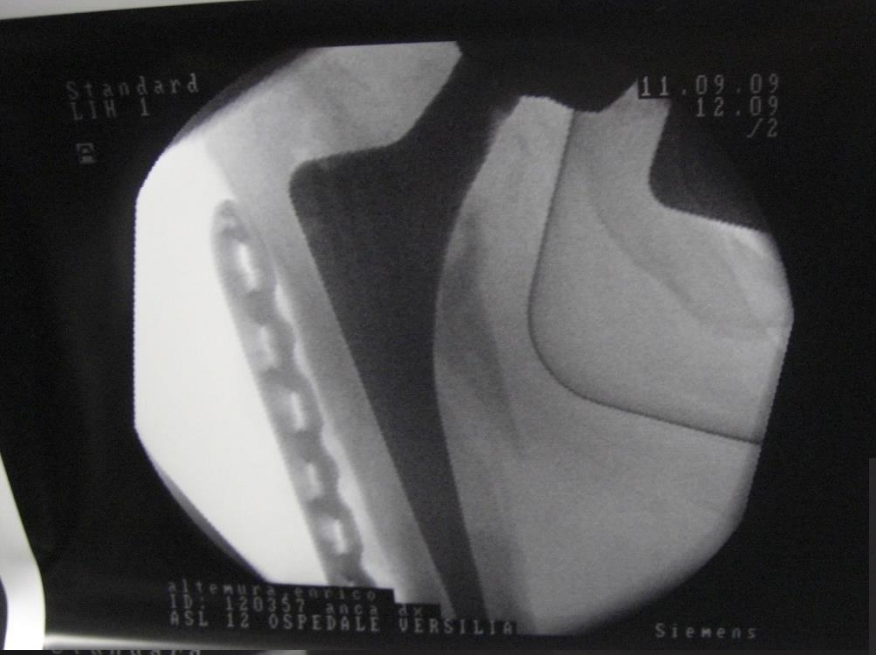


3 Mesi Post op


3 Mesi Post op

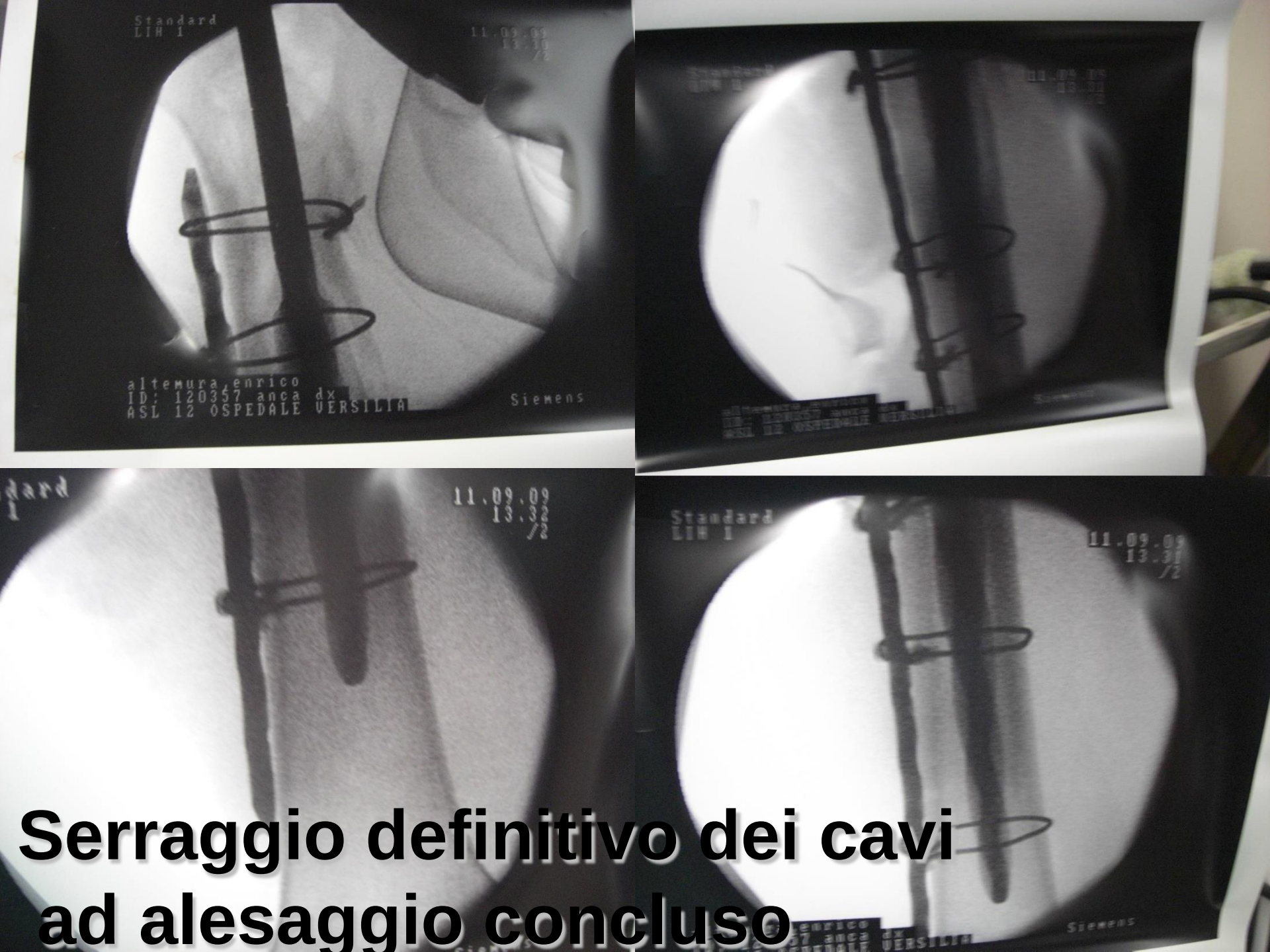

Tipo B2
A.E. ♂ 63 aa

La protesi come “stampo”

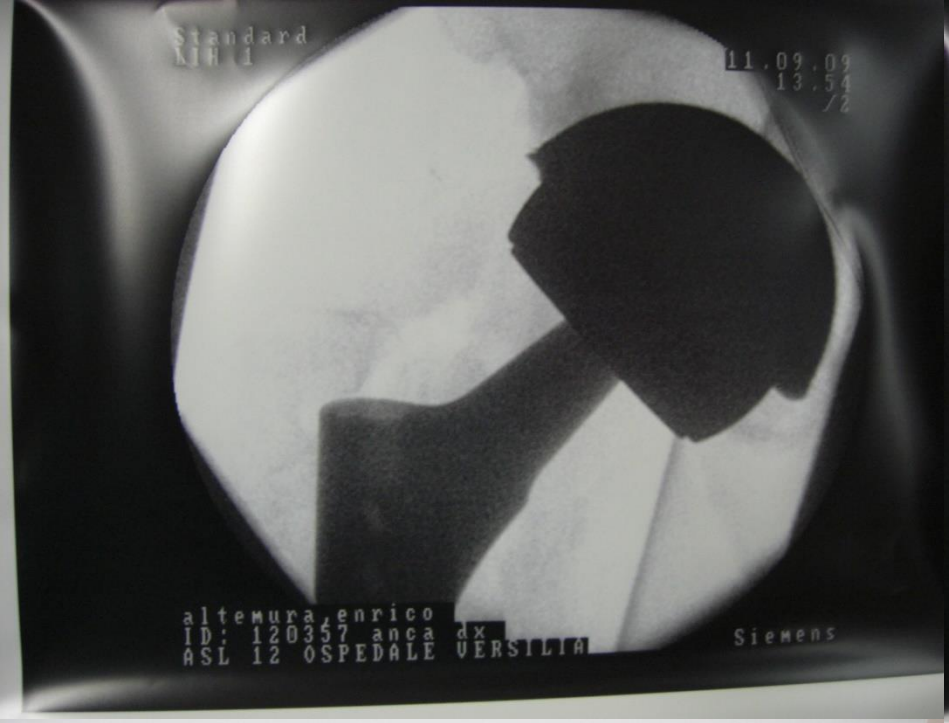


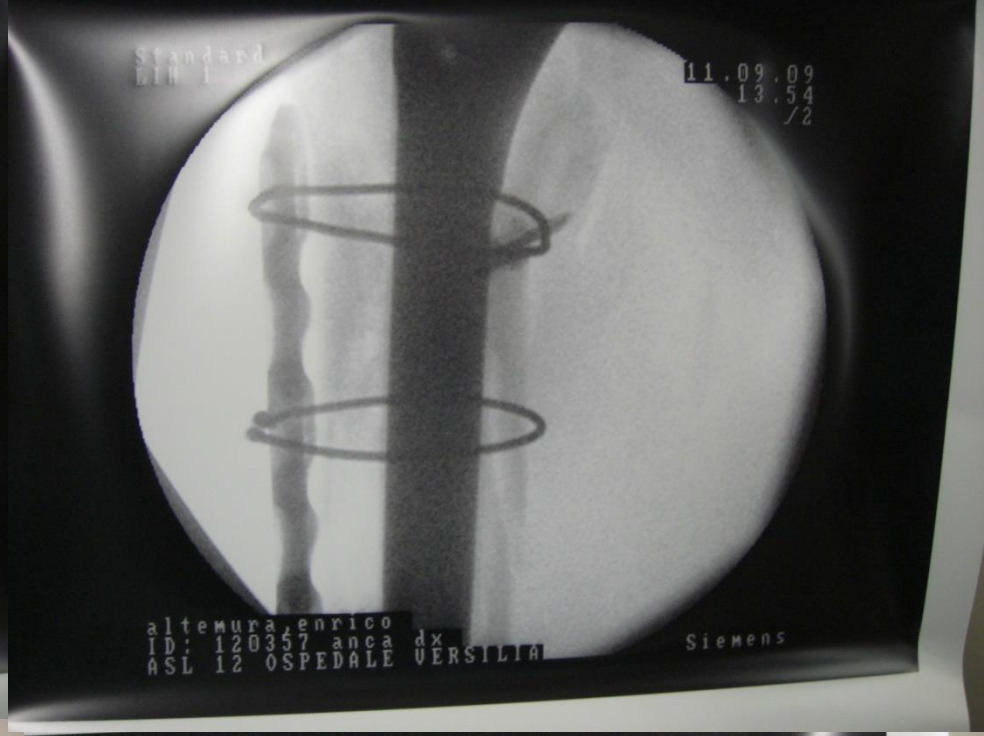






Serraggio definitivo dei cavi ad alesaggio concluso









Stelo deve passare di oltre due diametri di corticale

RADIOL. OSPEDALE VERSILIA
Dx
FEMORE\GINOCCHIO EST
120357
ALTEMURA ENRICO [M] 17.11.1948B
EXP:16.09.2009[18:04] SC:50% RT-02
Dx
HIP-J
120357
ALTEMURA ENRICO [M] 17.11.1948B
EXP:16.09.2009[18:02] SC:50% RT-01

Post Op





Un mese post op

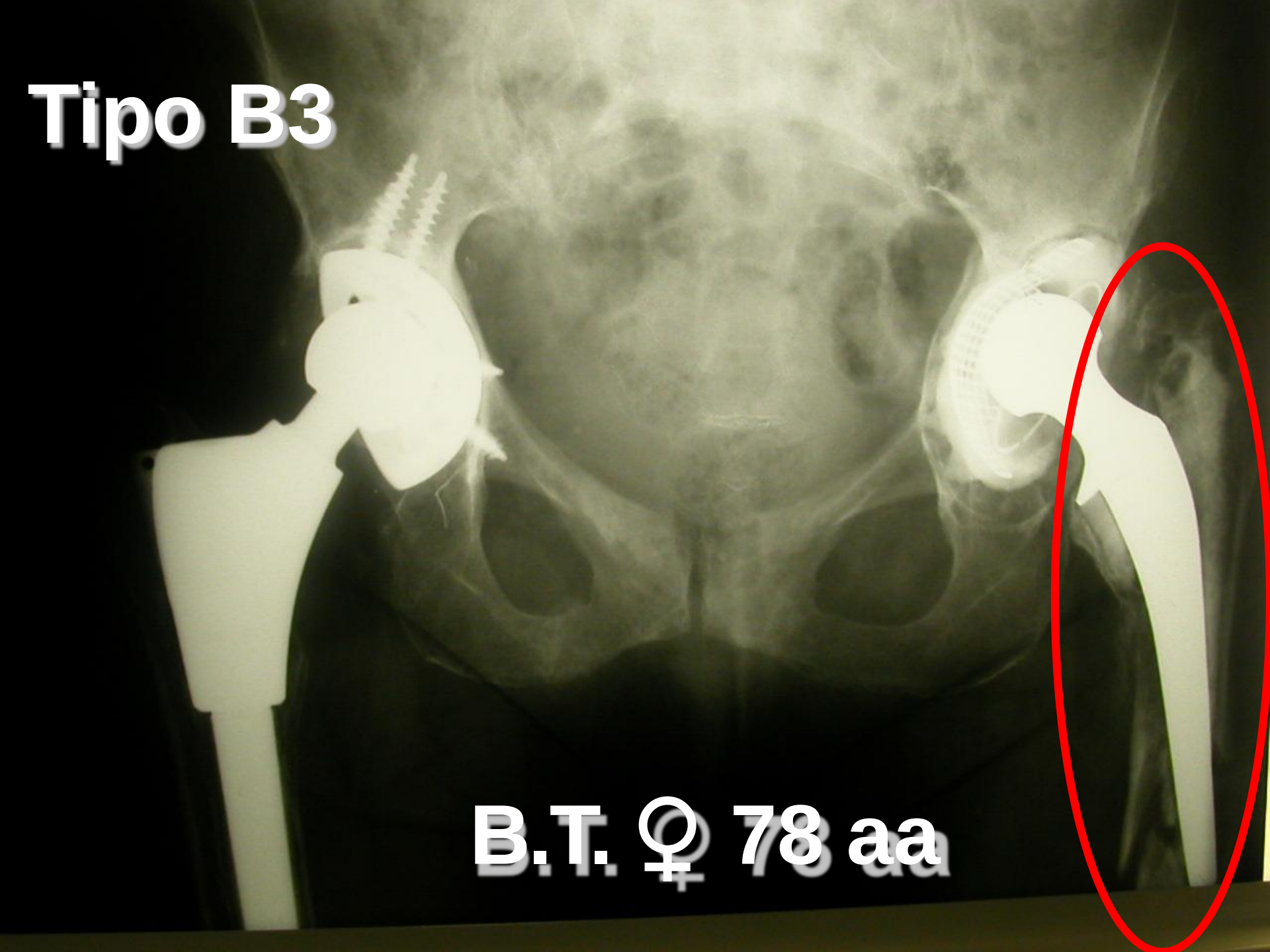


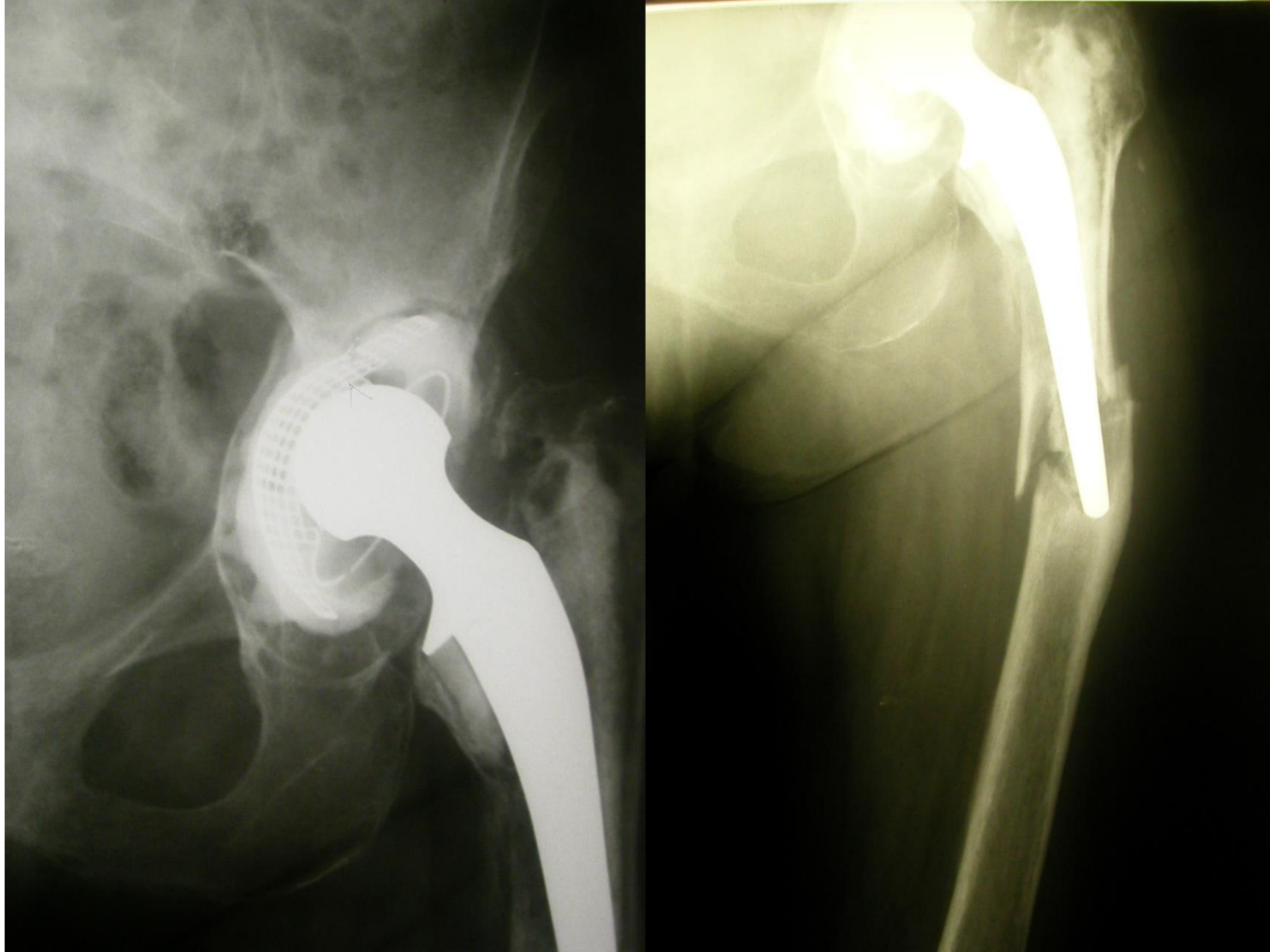


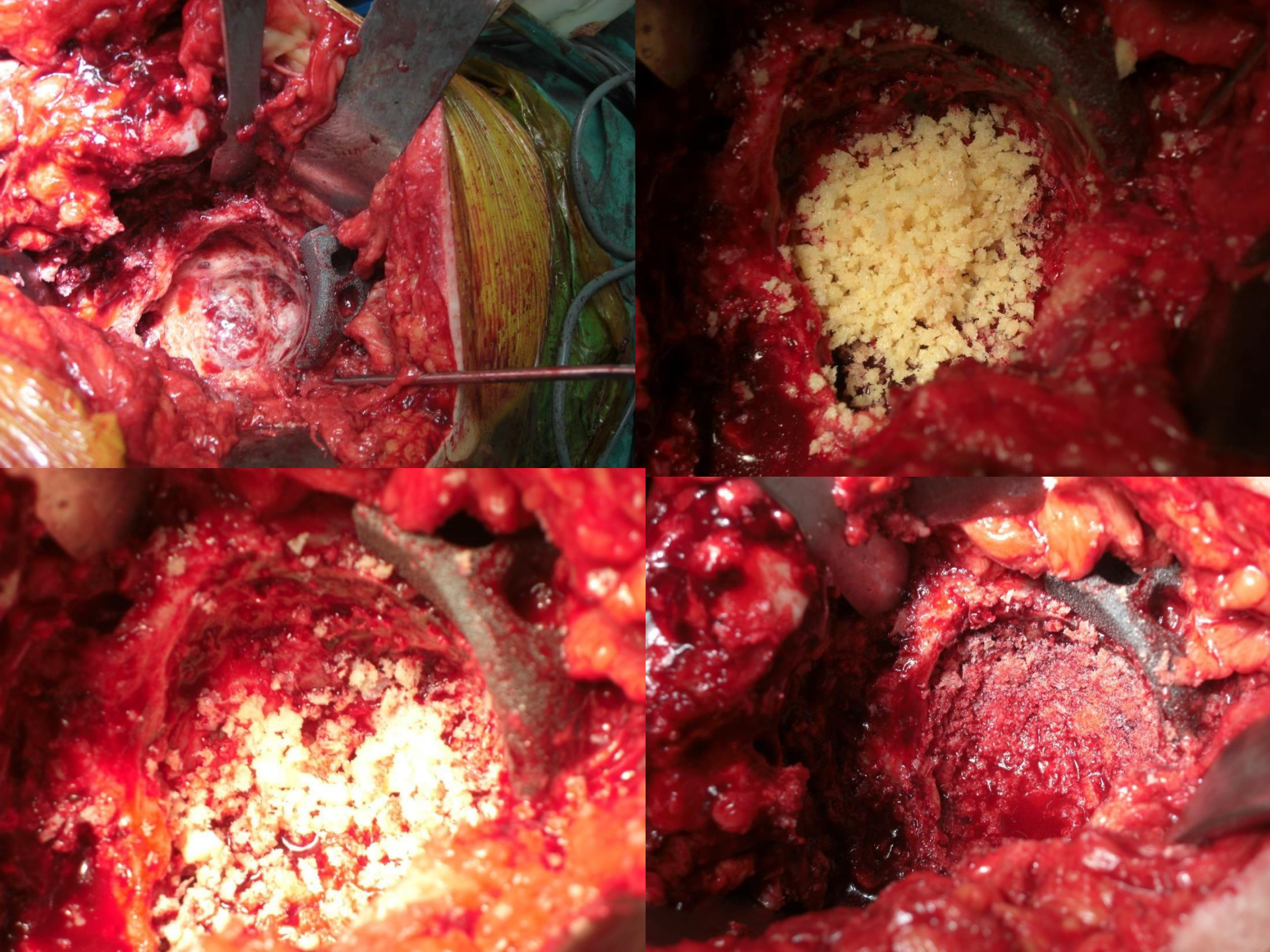


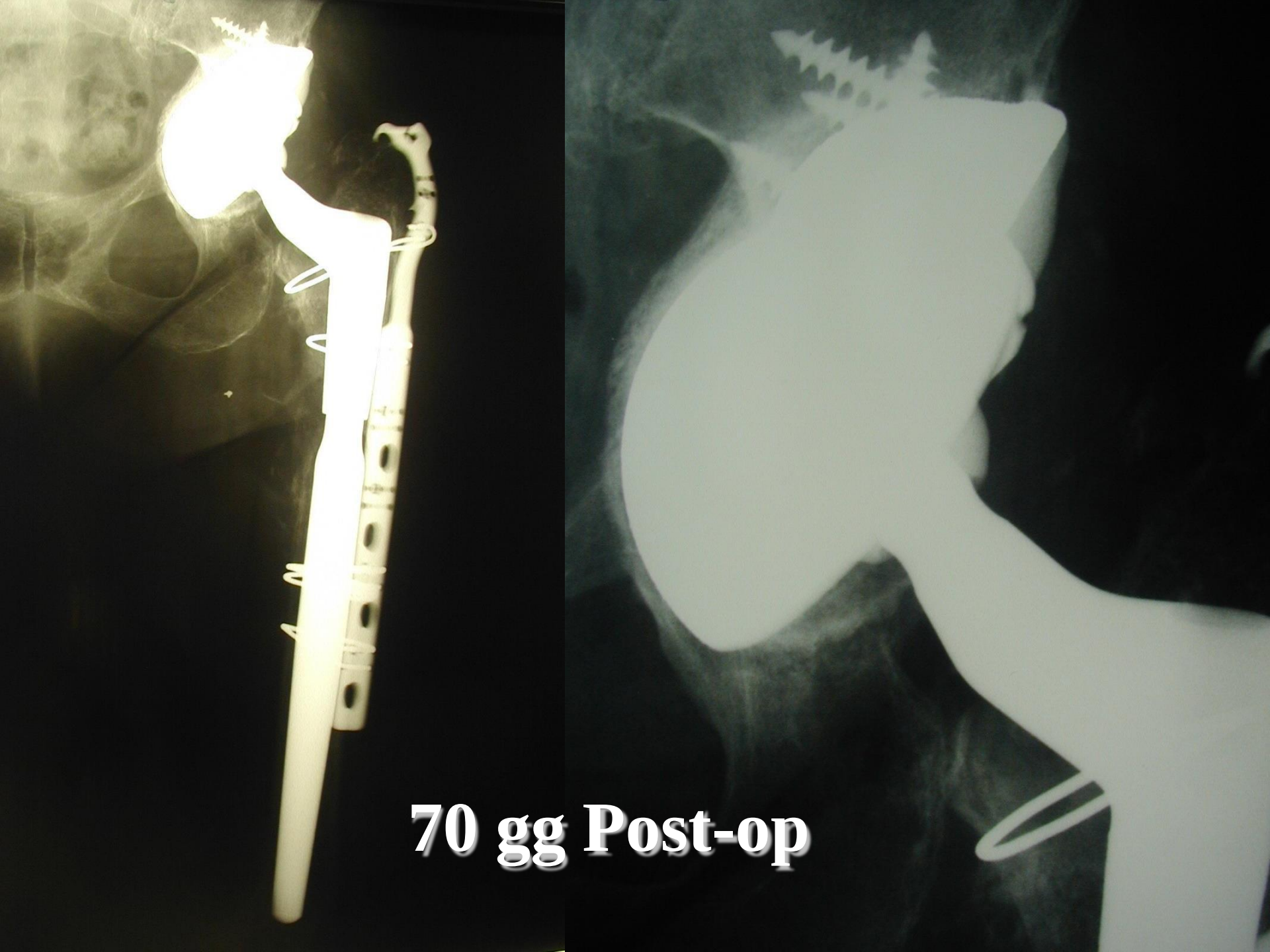
Un mese post op


Sei mesi post op


Tipo B3
B.T. ♀ 78 aa

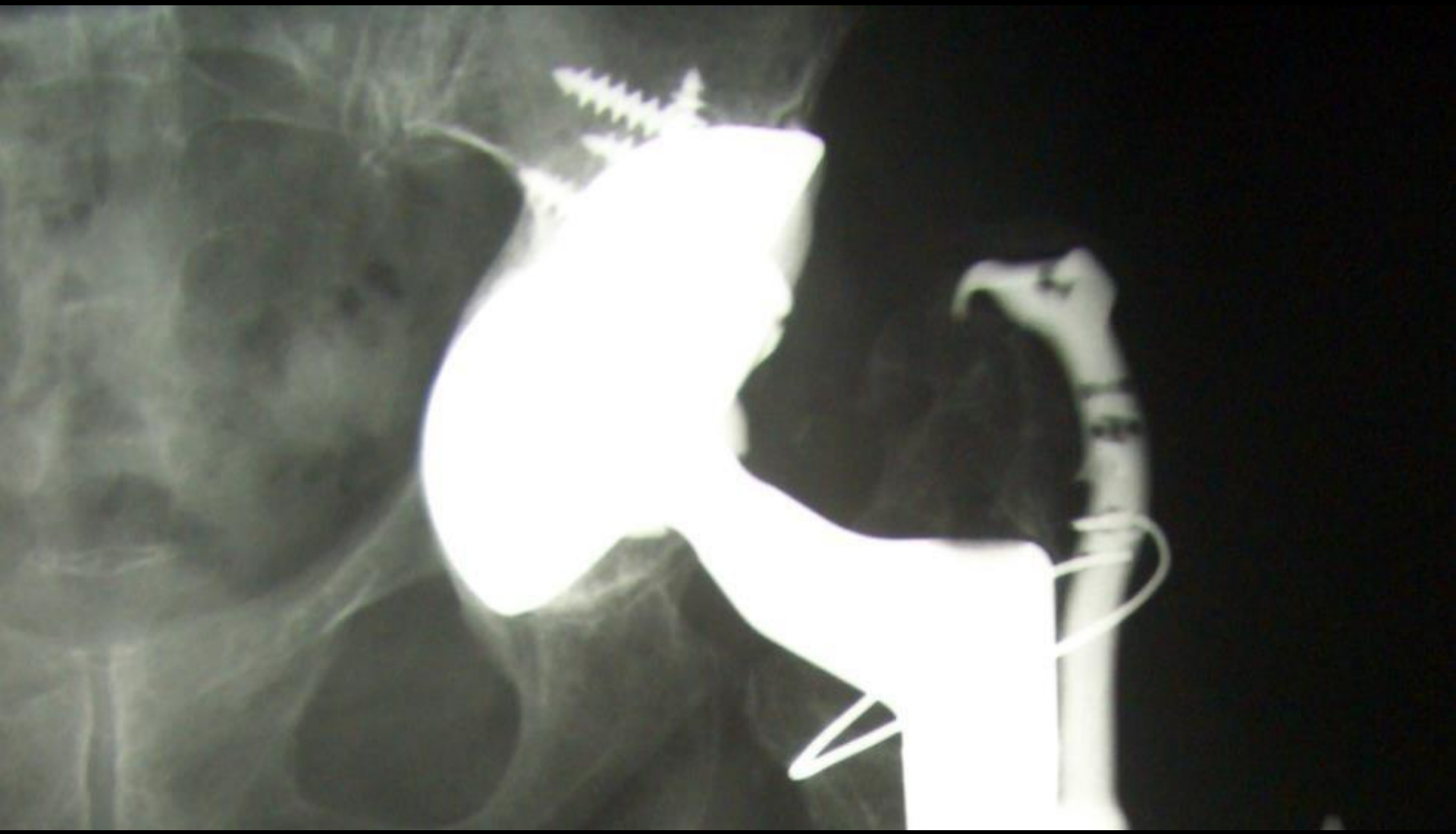




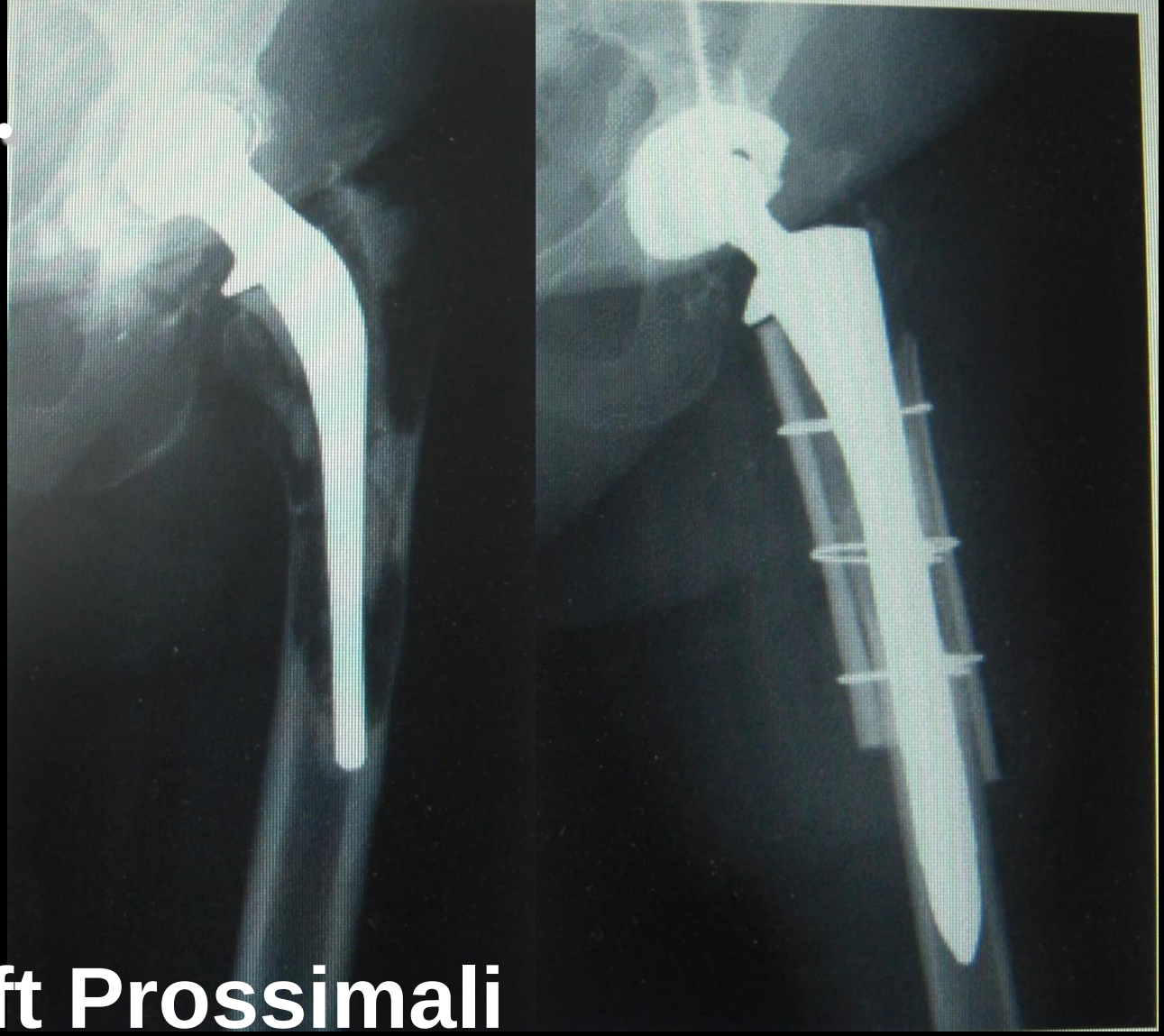

70 gg Post-op




3 anni Post-op



Oggi .....



Allograft Prossimali

Pike et Al JAAOS 2009 17(11):677-88

AAOS 2011 I.C.L. 111

Casi Limite



G.L. ♀ 86 aa

11/04/2012

Casi Limite

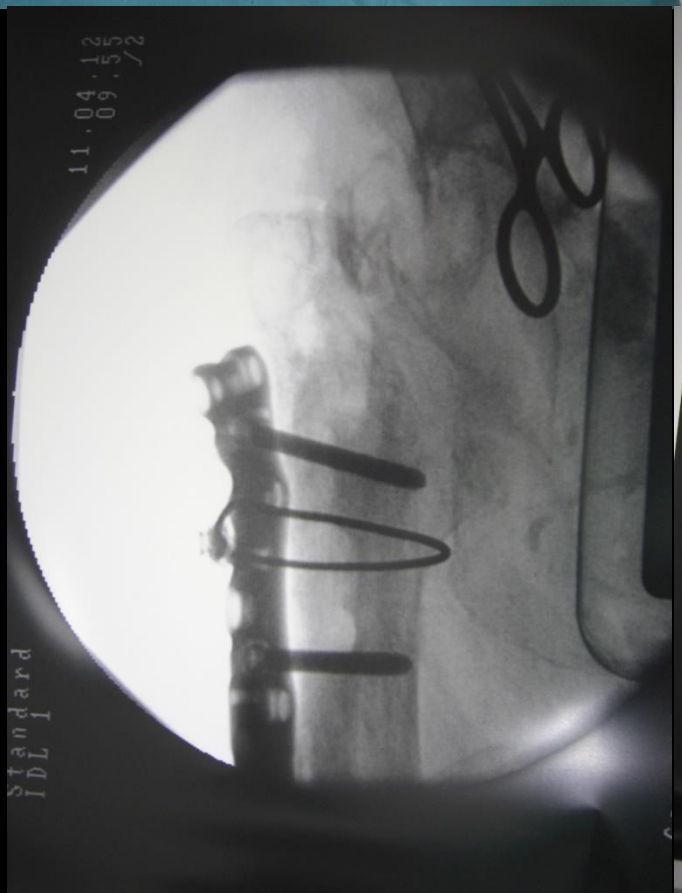


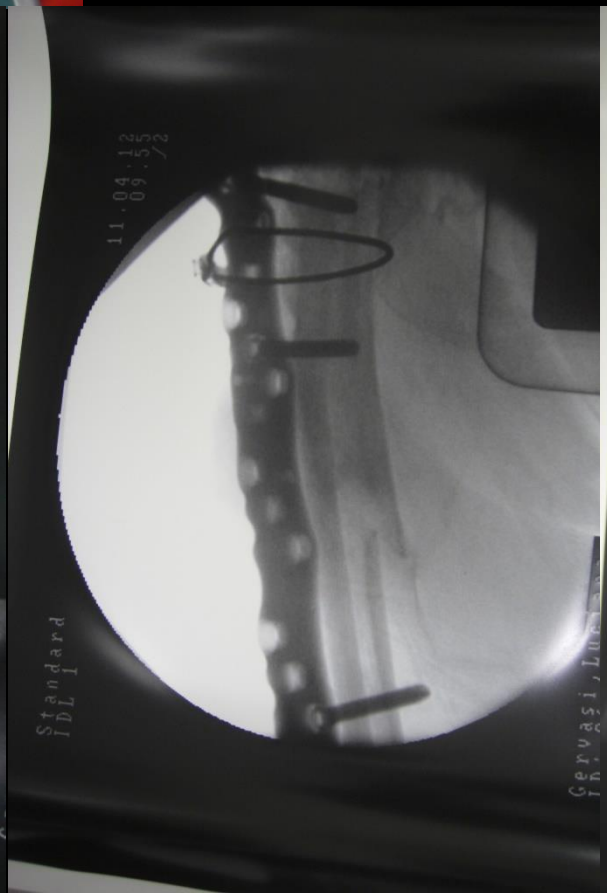
G.L. ♀ 86 aa

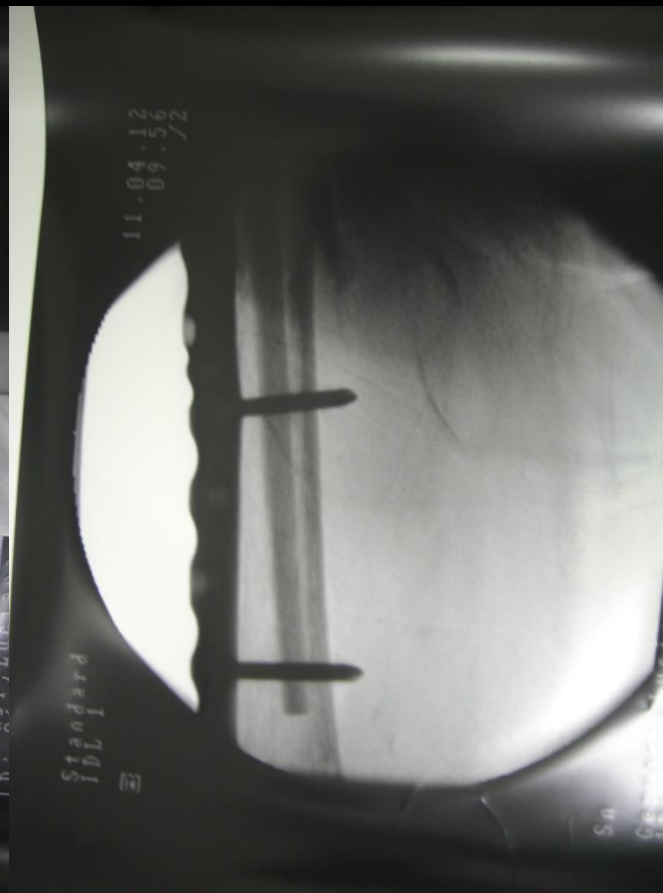
11/04/2012

11/04/2012




11.04.12
09.55
/2
Standard


11.04.12
09.55
/2
Standard


11.04.12
09.56
/2
Standard

23/05/2012






23/05/2012


Dx
ORTOST.
Sn


1927 Feb 06 F 219365
Acc: 9-51-839088
2012 Jul 04
Acq Tm: 08:20:14.843
Se: 1001/2
Im: 1001/1
LOW_EXM
Mag: 0.1x
Sn
SIZES ARE APPROXIMATE
Se: 1002/2
Im: 1002/1
PELVIS
Mag: 0.1x
Dx

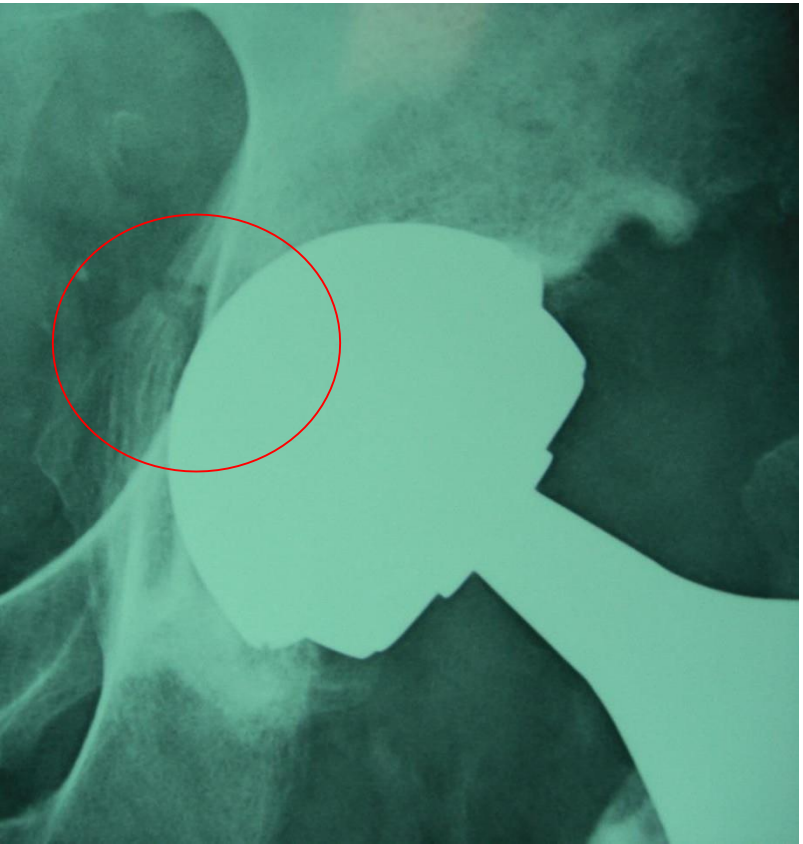



04/07/2012

Cotile

Intraoperatoria

- **La diagnosi deve essere accurata ma può essere difficile**

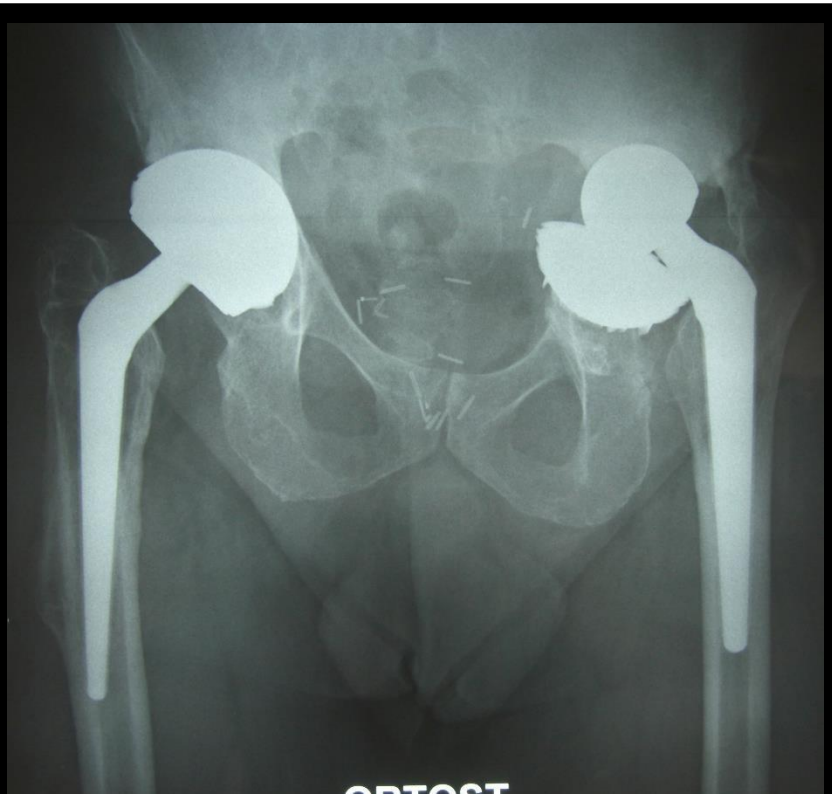


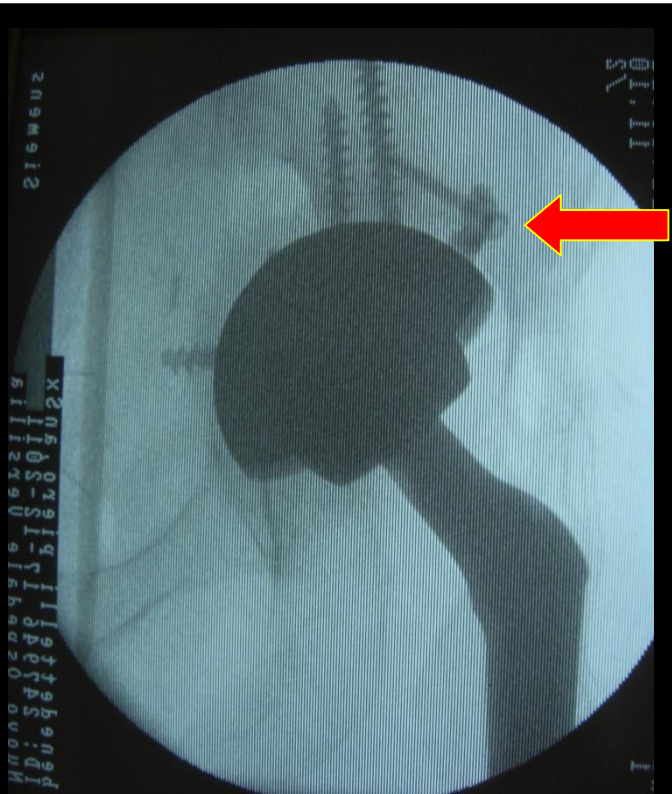



A.E. ♂ 59 aa
“Dissociazione Pelvica”

Discontinuità pelviche recenti con potenzialità di consolidazione possono essere trattate con posizionamento preventivo di placche di sintesi e successivo impianto con cotile in trabecular metal

Scott M. Sporer ICL 102 AAOS Annual Meeting 2011





Osso Morcellizzato

In presenza di deficiente bone stock, l'aggiunta di osso morcellizzato impattato è riconosciuto come un mezzo efficare di recupero del bone stock

Haddas FS et Al Orthopedics 2009 Sep;32(9)





Due mesi post op



Adeguato Piano riabilitativo





Take Home Message

Principi Generali di Management

- **Sicuro e rapido recupero della funzione**
  - **a) Evita allettamento e il carico limitato**
  - **b) Valuta i rischi delle procedure chirurgiche**

- **Pianifica per una "longevità" dell'Impianto**
  - **a) Cambia le teste logore o graffiate e ogni volta che cambi l'inserto o lo stelo**
  - **b) Cambia il polietilene consumato**
  - **c) Conosci le componenti in situ ed abbi disponibili prodotti da revisione**

Take Home Message

Principi Generali di Management

- **Aspettati il peggio (Piano A, B, C,…)**

  Prevedi ciò che vorresti e ciò che sarebbe necessario se….
  - **Si frattura il femore**
  - **L'impianto è inaspettatamente mobile**
  - **L'anca è instabile dopo la sintesi**
  - **L'inserto è inaspett. logoro o mobile**
  - **Il collo della protesi non è 14/12…**

- **Escludi con sicurezza l'infezione**

Algoritmo di Trattamento

AAOS 2011 I.C.L. N° 241 e N°111

Principi Generali Chirurgici

- **Impianto Instabile, Fr. diafisaria scomposta**

a) Cambia lo stelo e"vai lungo" come chiodo

b) Necessità di sintesi corticale aggiuntiva (non puoi bloccarlo come un chiodo)

- **Sostegno metallico o Allograft**
- **Di solito principi della stabilità relativa**

c) Utilizza tutte le tecniche per limitare il trauma chirurgico ed evitare fallimenti



mario.manca@uslnordovest.toscana.it

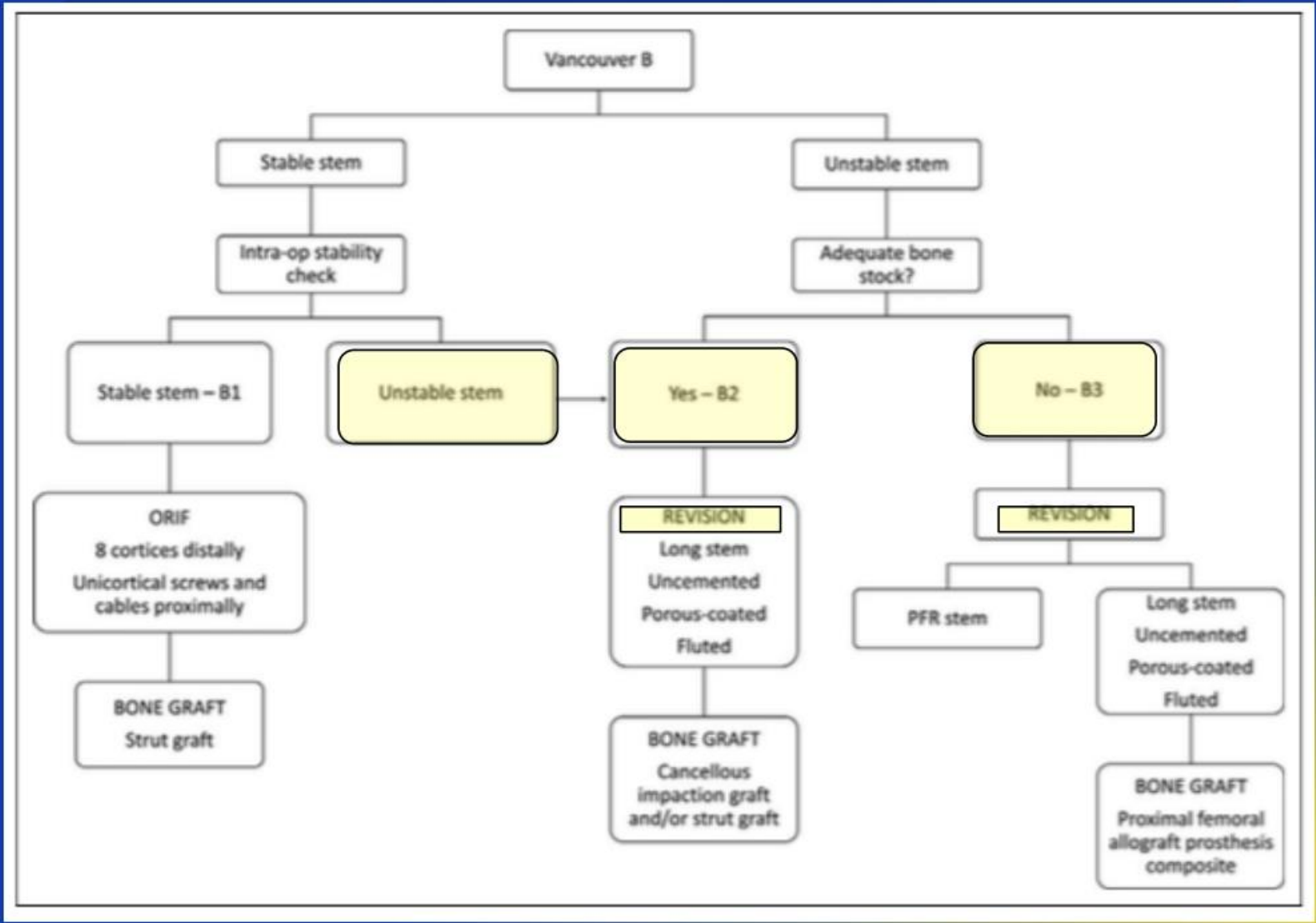
SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA
Azienda Ospedaliero - Universitaria di Parma

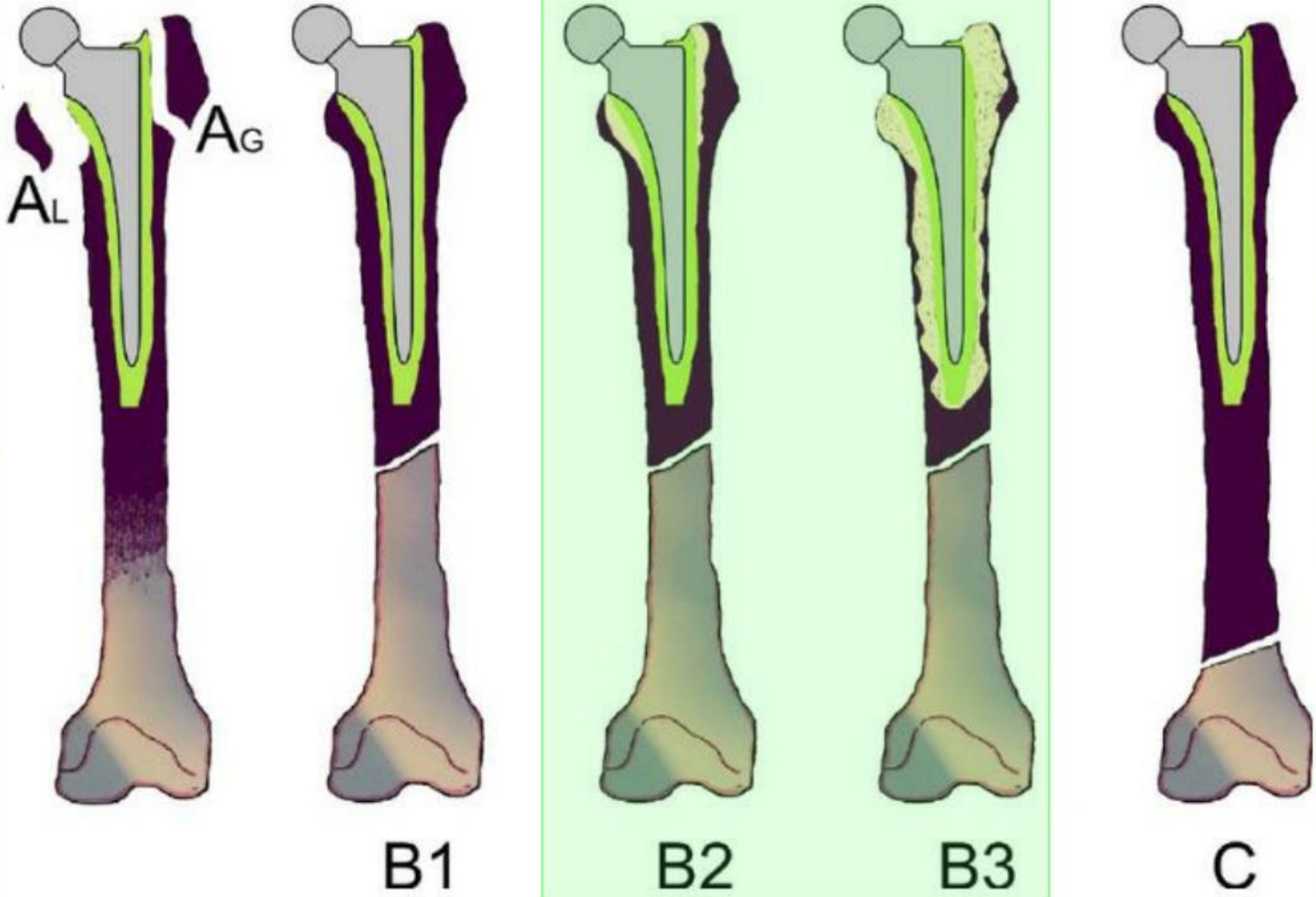
AZIENDA OSPEDALIERO-UNIVERSITARIA DI PARMA
DIPARTIMENTO CHIRURGICO
U.O.C. CLINICA ORTOPEDICA
DIRETTORE: PROF. E.VAIENTI

LA RIPROTESIZZAZIONE

A Review of Periprosthetic Femoral Fractures Associated With Total Hip Arthroplasty

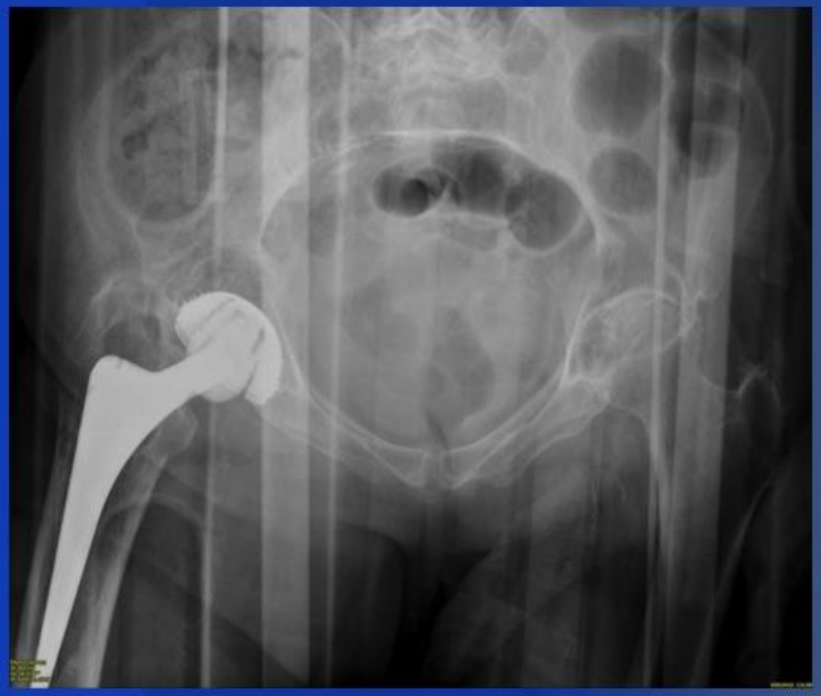
Daniel Marsland, MRCS, MSc (SEM)[1], and
Simon C. Mears, MD, PhD[2]

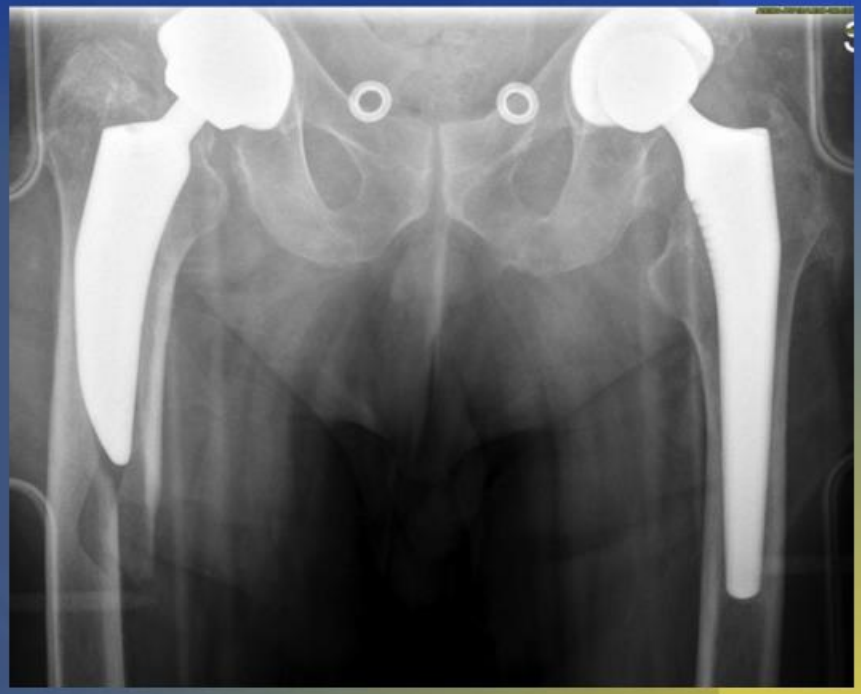


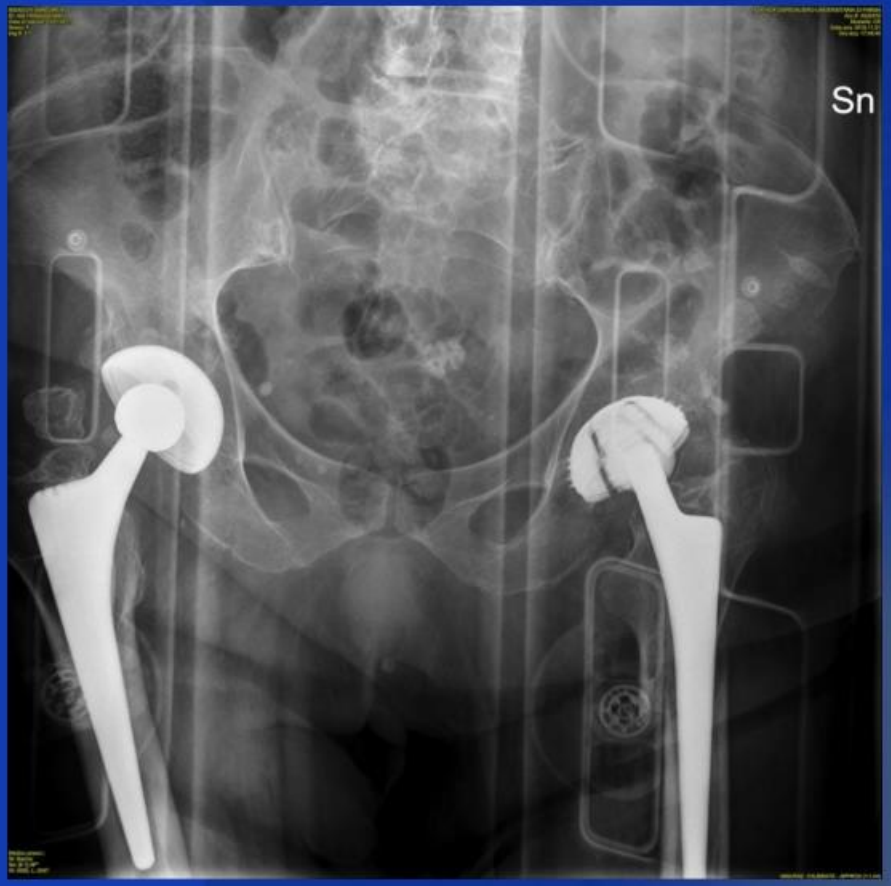


Vancouver classification of postoperative periprosthetic femur fractures.

RADIOGRAFIA STANDARD
RADIOGRAFIE DI QUALITA’






Sn









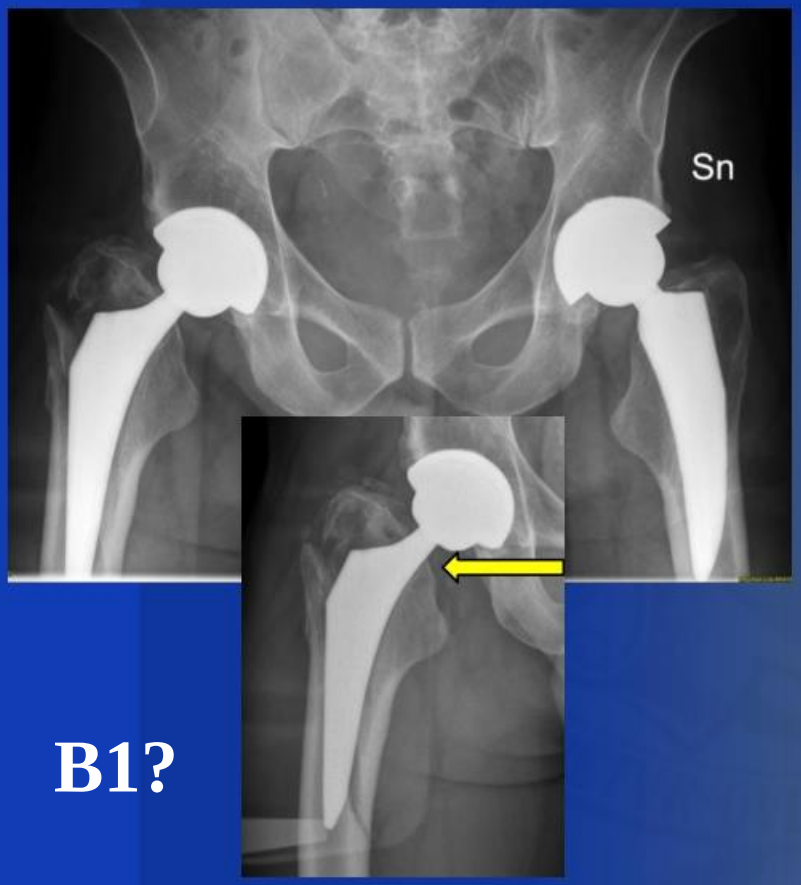
B1?



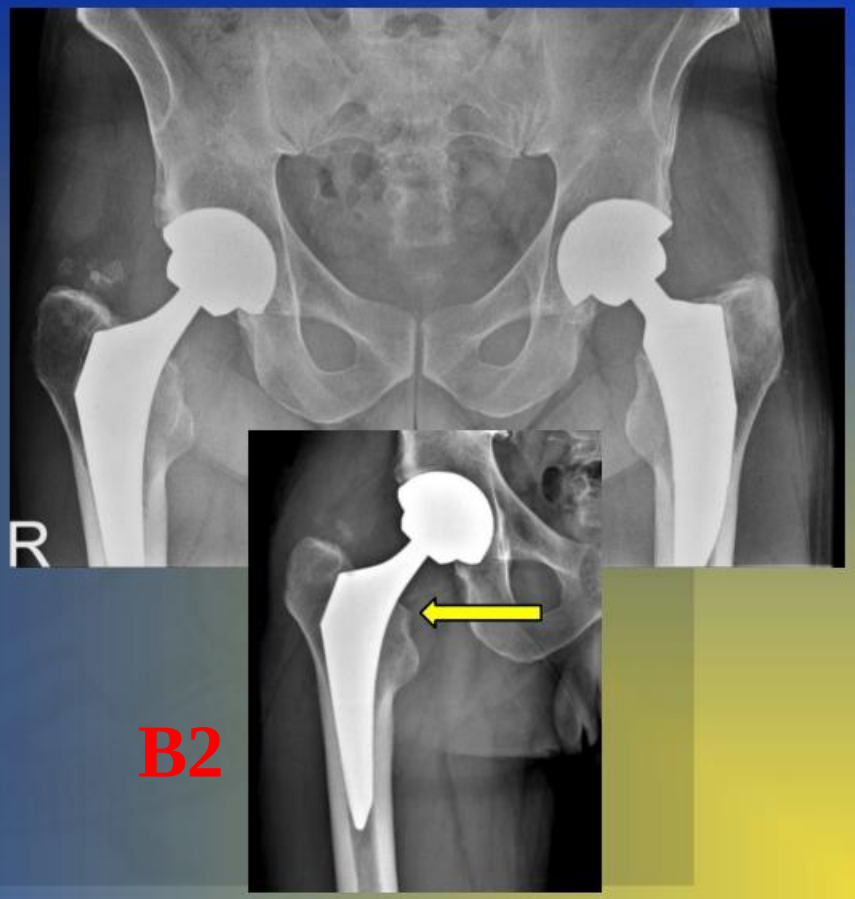


B2

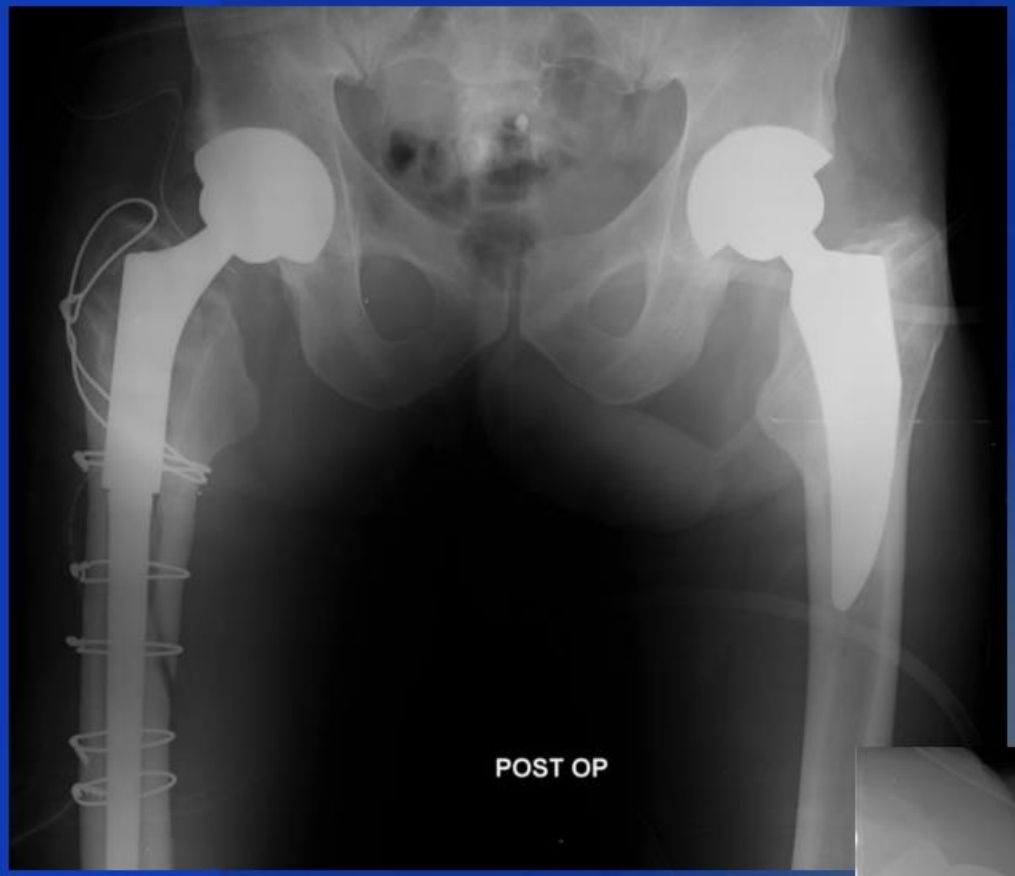
CONFRONTO CON IMMAGINI PRECEDENTI



B1?



B2

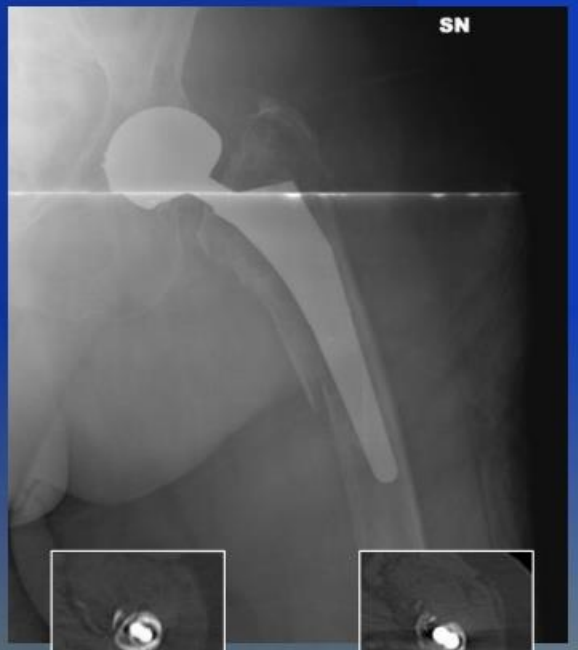

POST OP




POST OP

TAC









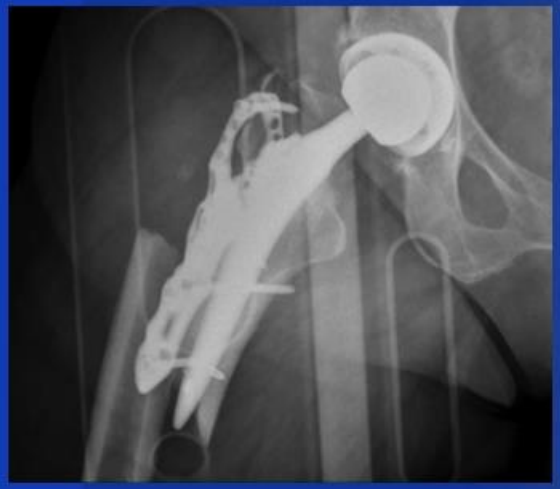




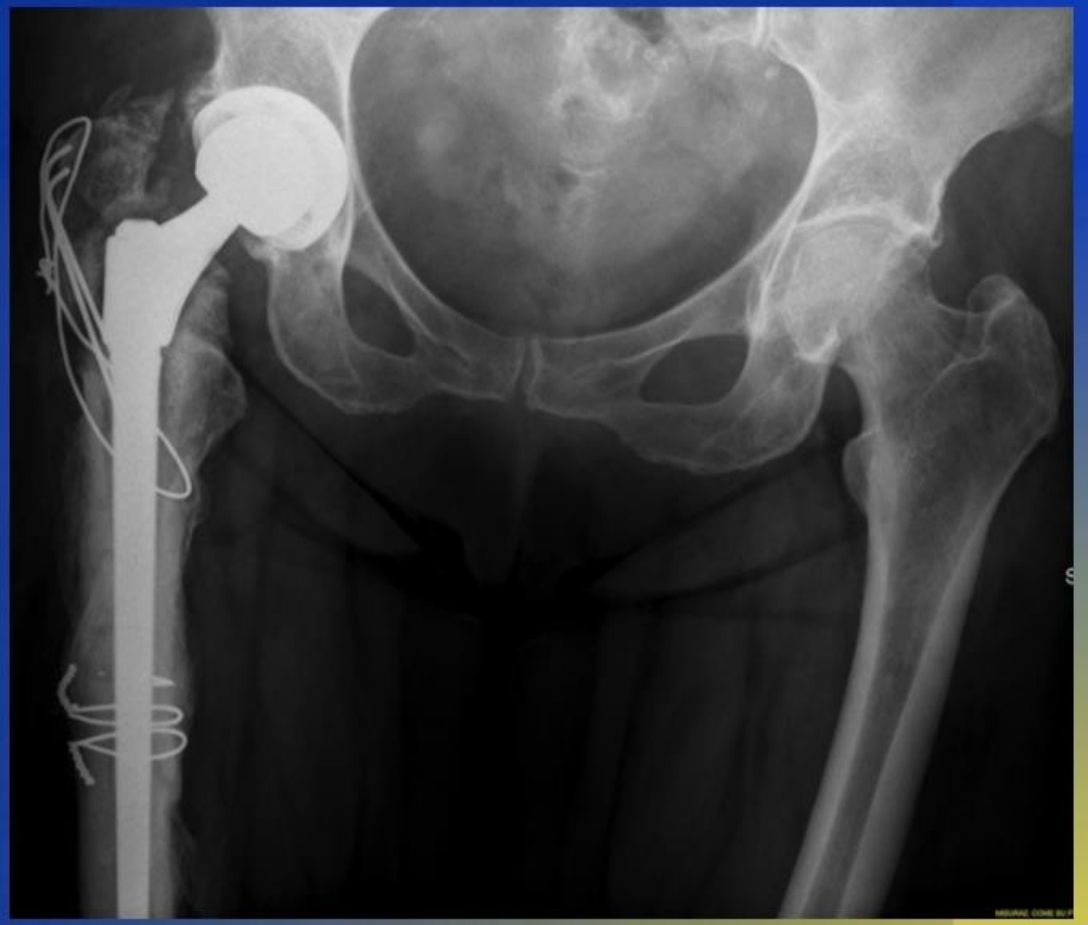



00488221
: 1946.01.20
Data
Bacino (Adult)
RT Range>






op



- **MOBILIZZAZIONE PRECEDENTE?**
- **INFEZIONE?**

80% tipo B

75%delleB ha mobilizzazione stelo

Elevata % sono tardive

Elevata % a basso trauma

J Arthroplasty. 2009 Aug;24(5):722-7. doi: 10.1016/j.arth.2008.05.026. Epub 2008 Sep 11.

Inflammatory laboratory markers in periprosthetic hip fractures.

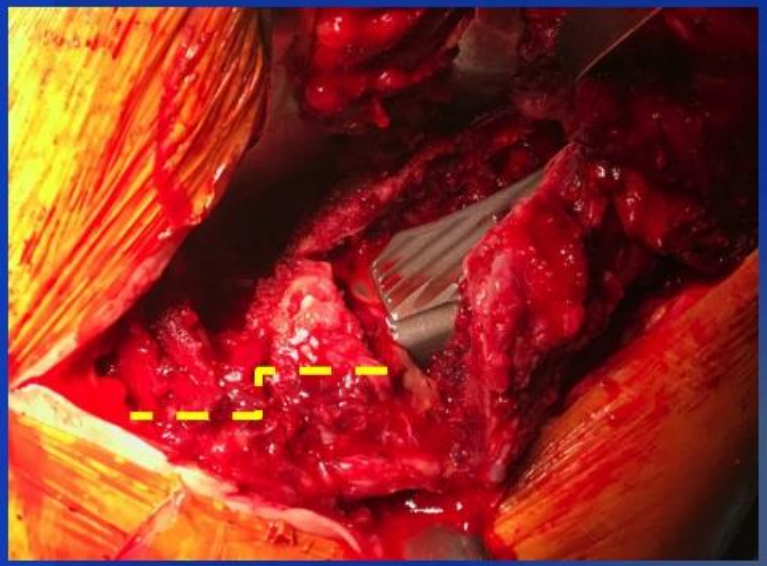
Chevillotte CJ[1], Ali MH, Trousdale RT, Larson DR, Gullerud RE, Berry DJ.

value for these markers for infection was poor (18%, 21%, and 29%, respectively). These findings suggest that increased inflammatory laboratory values in patients with periprosthetic fracture are not good indicators for deep periprosthetic infection and do not necessarily warrant additional evaluations before definitive surgical treatment.

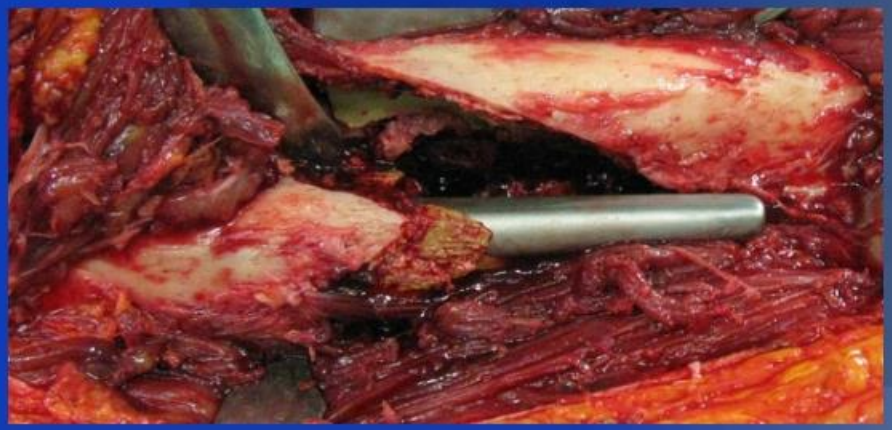
PIANIFICARE L'INTERVENTO

CHIRURGO PRONTO A SOLUZIONE "B"
DISPONIBILITA' ORGANIZZATIVA DI MATERIALI E MEZZI

RIMOZIONE IMPIANTO









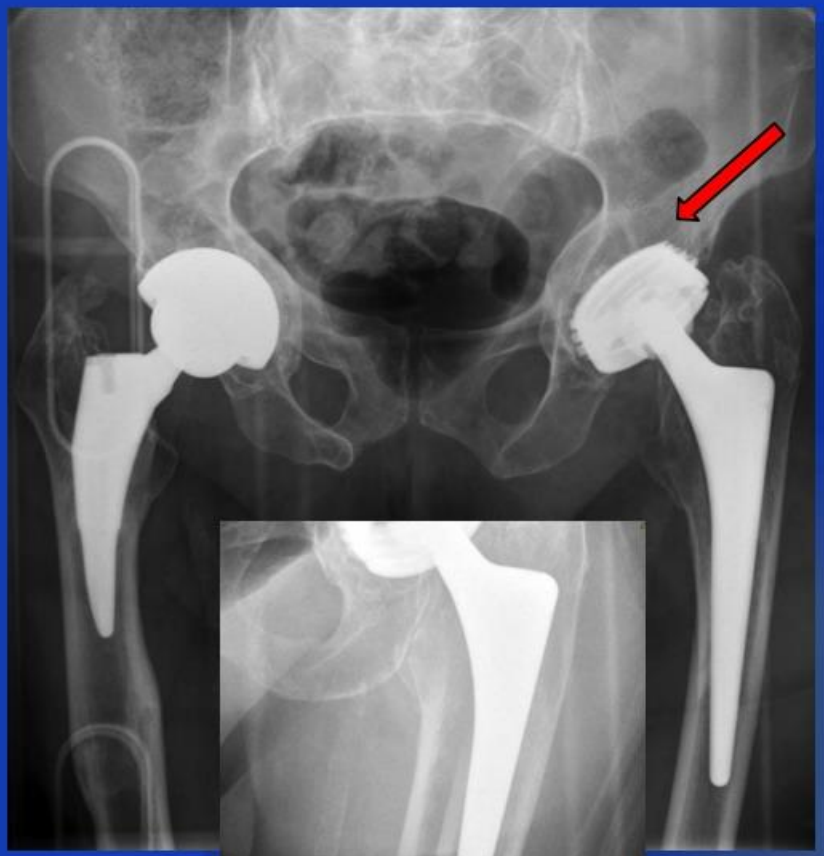
EVENTUALE REVISIONE ACETABOLO

- **USURA**
- **MOBILIZZAZIONE**
- **ROTTURA**
- **MALPOSIZIONE**
- **INCOMPATIBILITÀ**
- **MOM**

Fare molta attenzione:

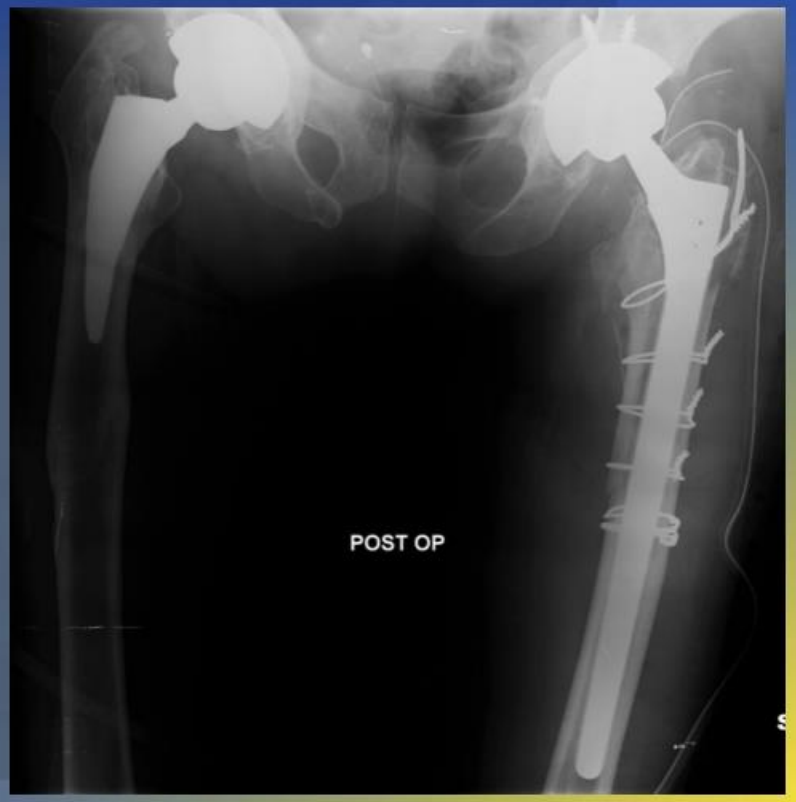
- **Inserti ancora disponibili?**
- **Materiale compatibile (cer-cer, m-m,…)?**
- **Diametri di testina disponibili?**

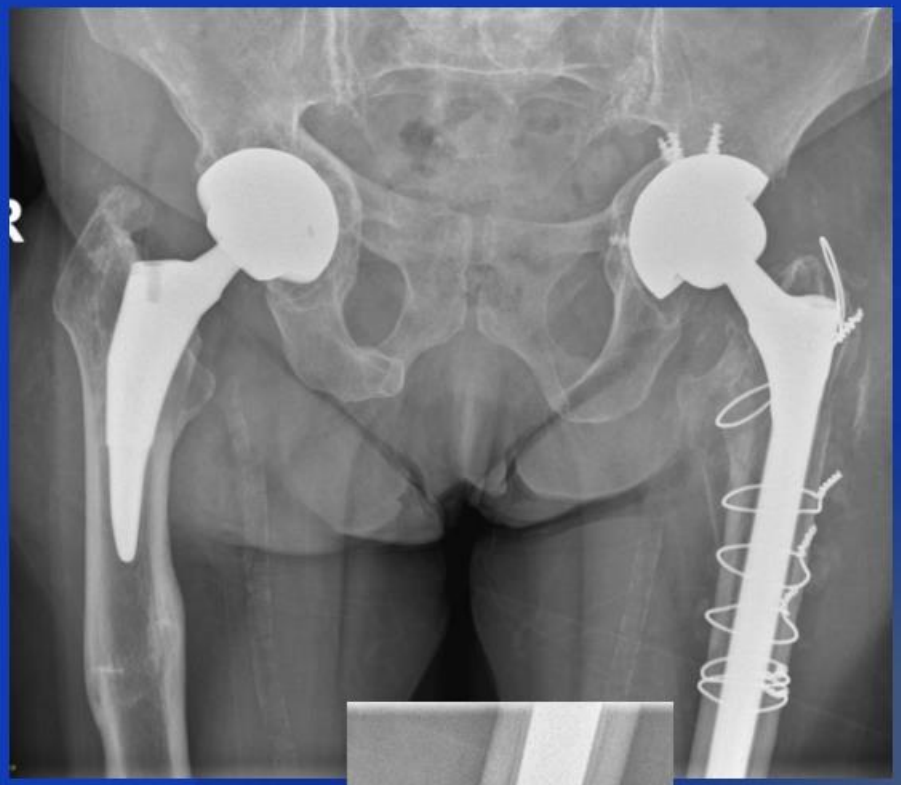
Rimuovere la testina e conservarla sterile

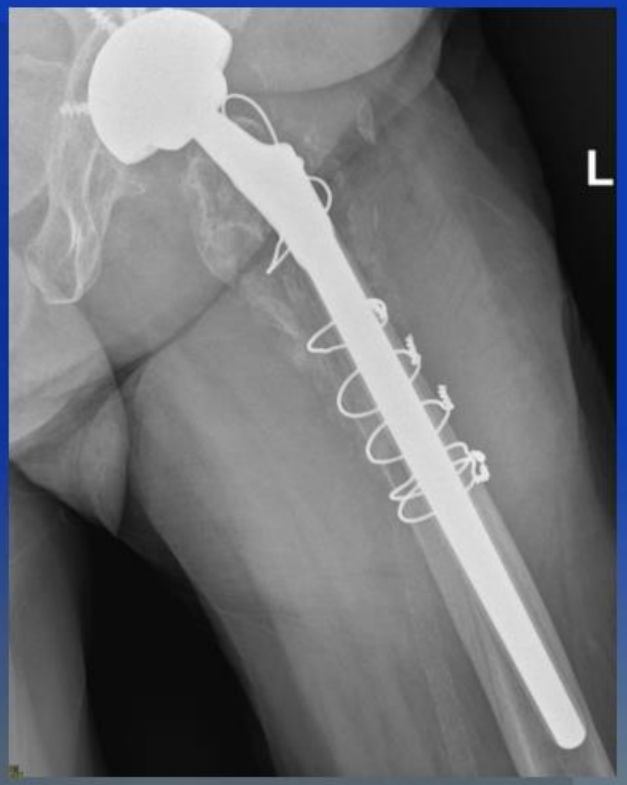


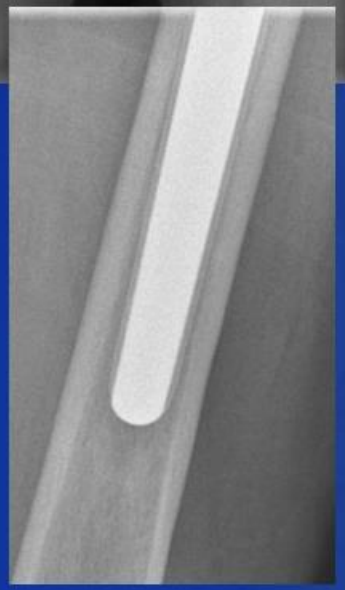


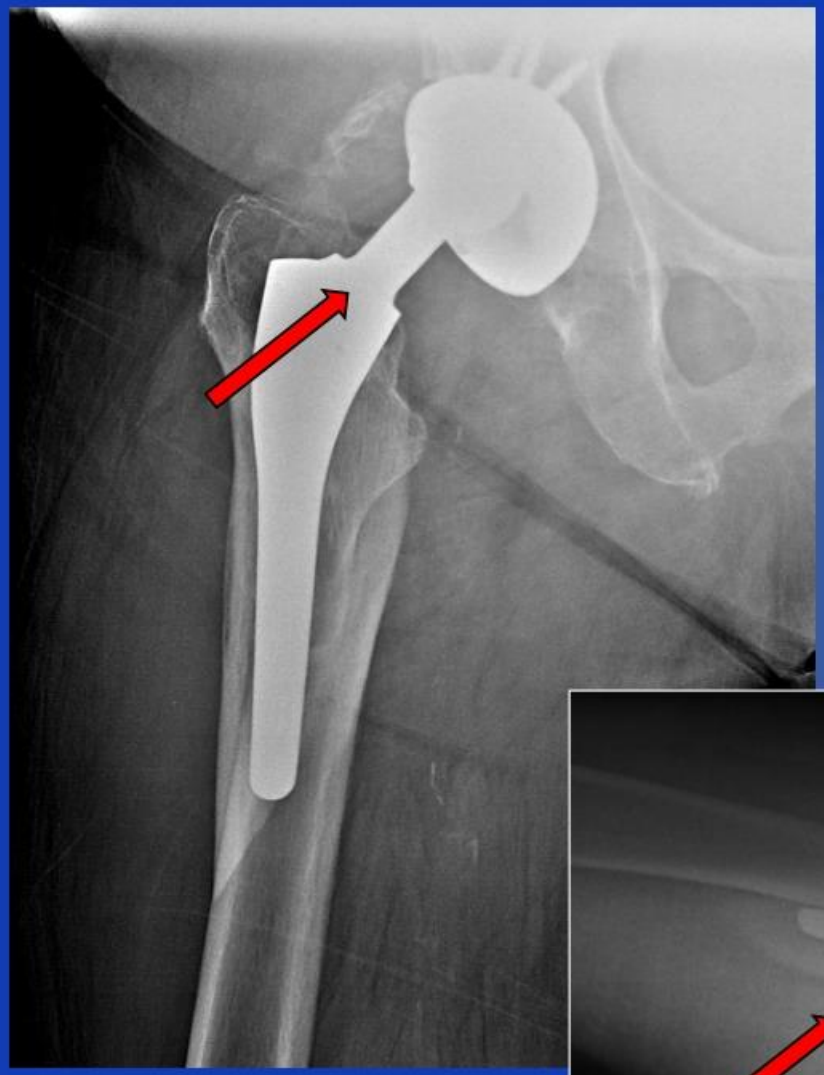


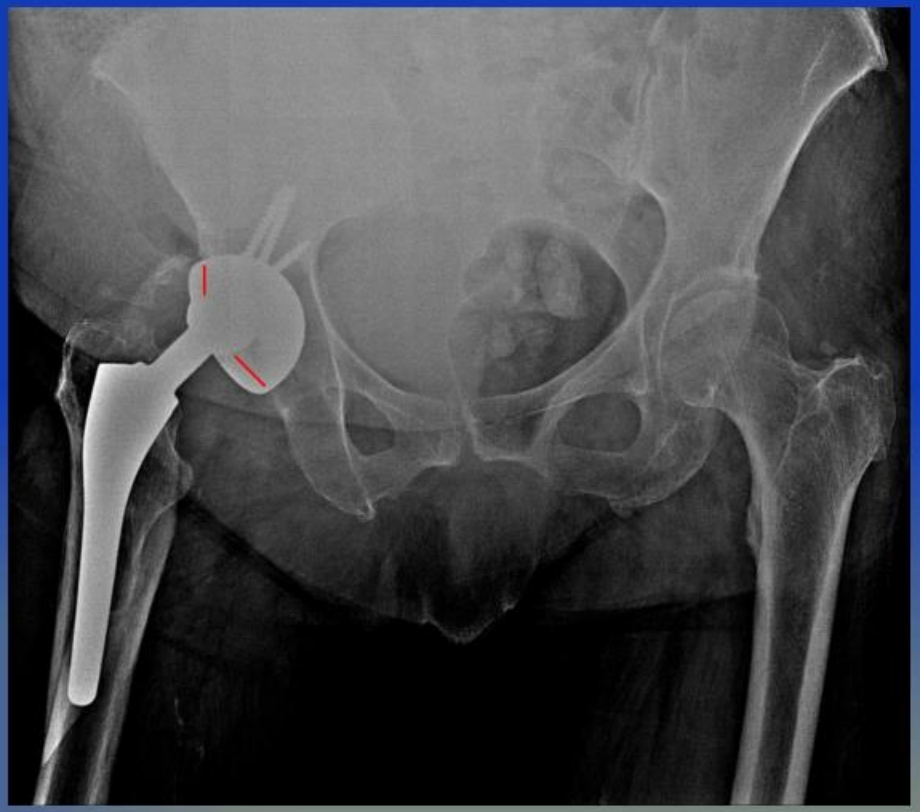

POST OP


R


L



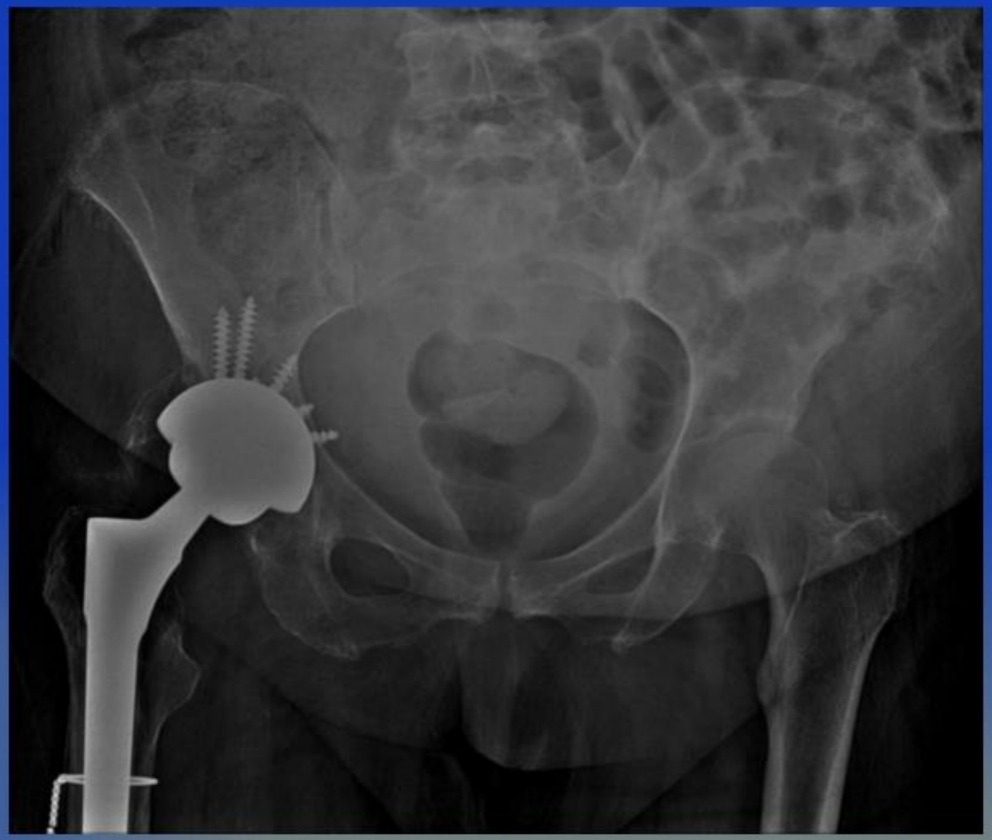




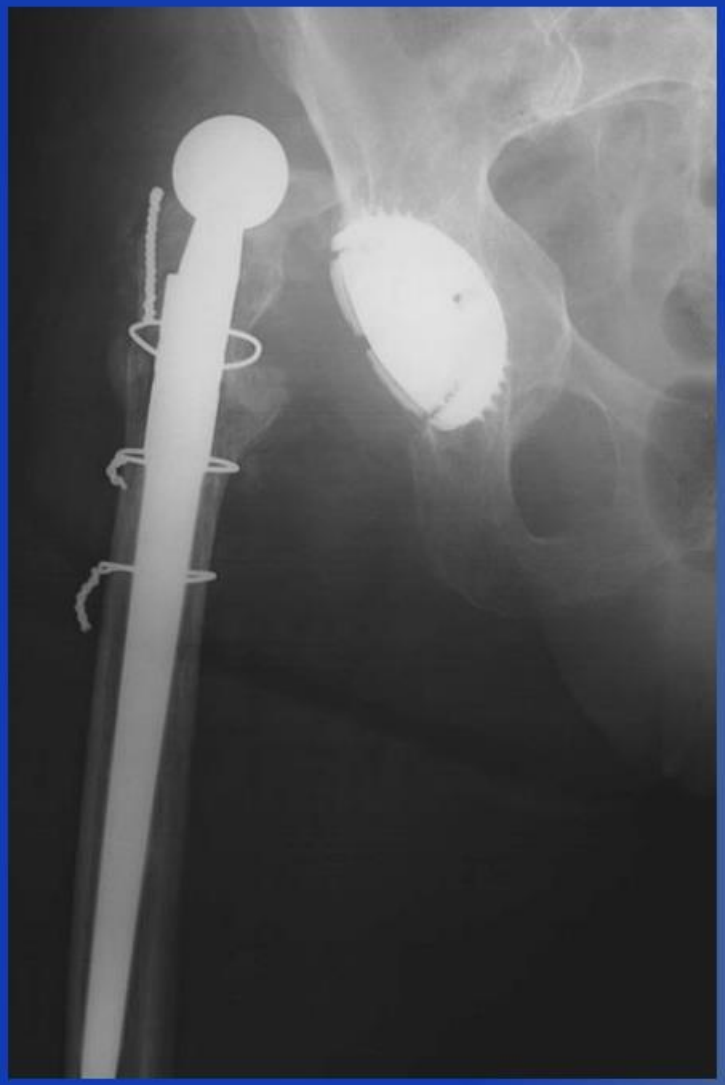


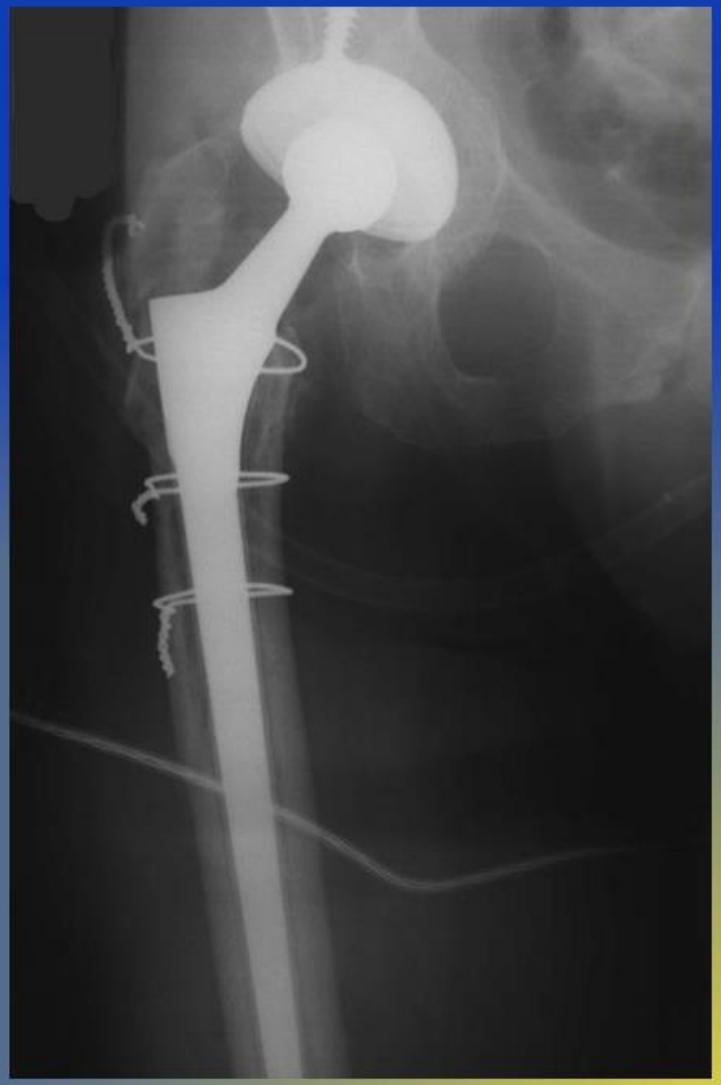
B2

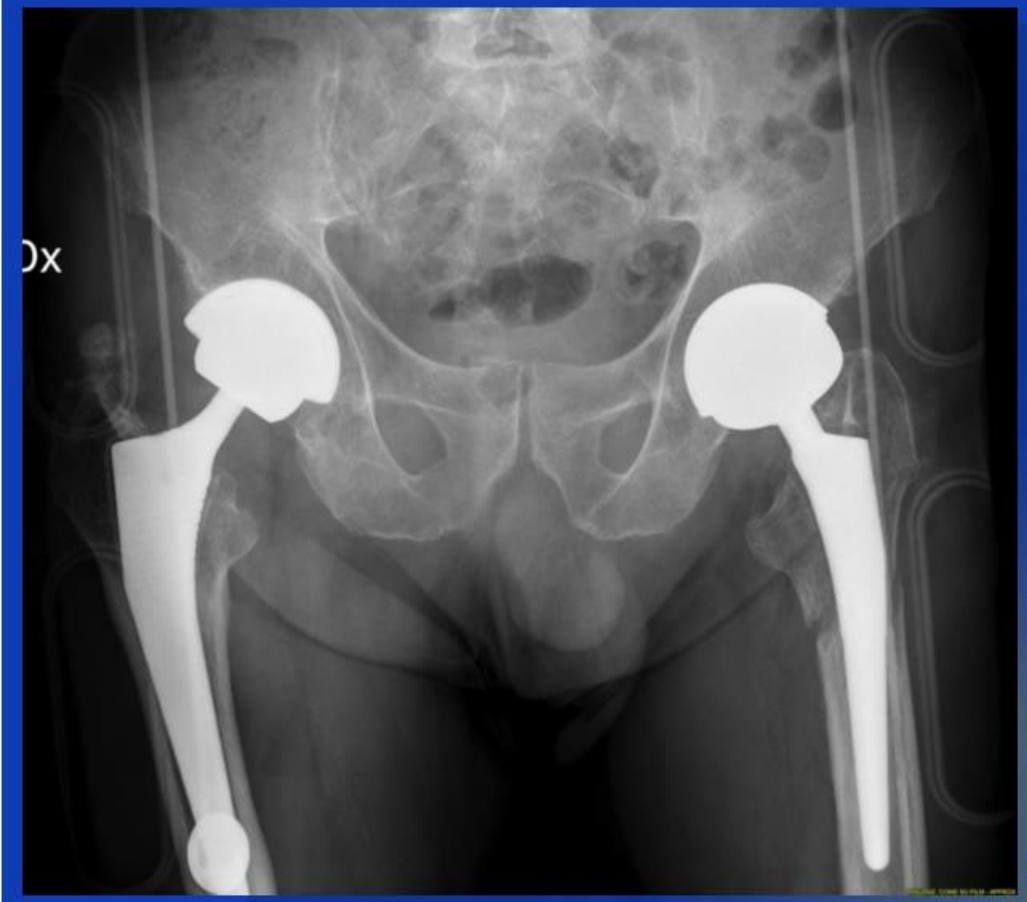






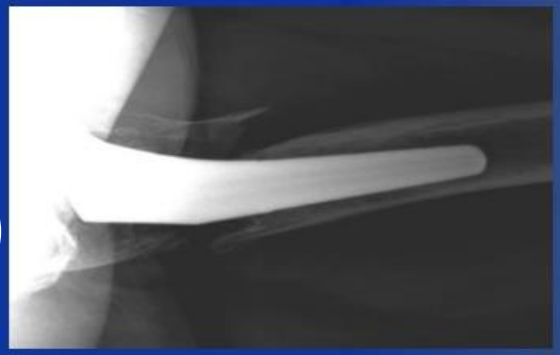






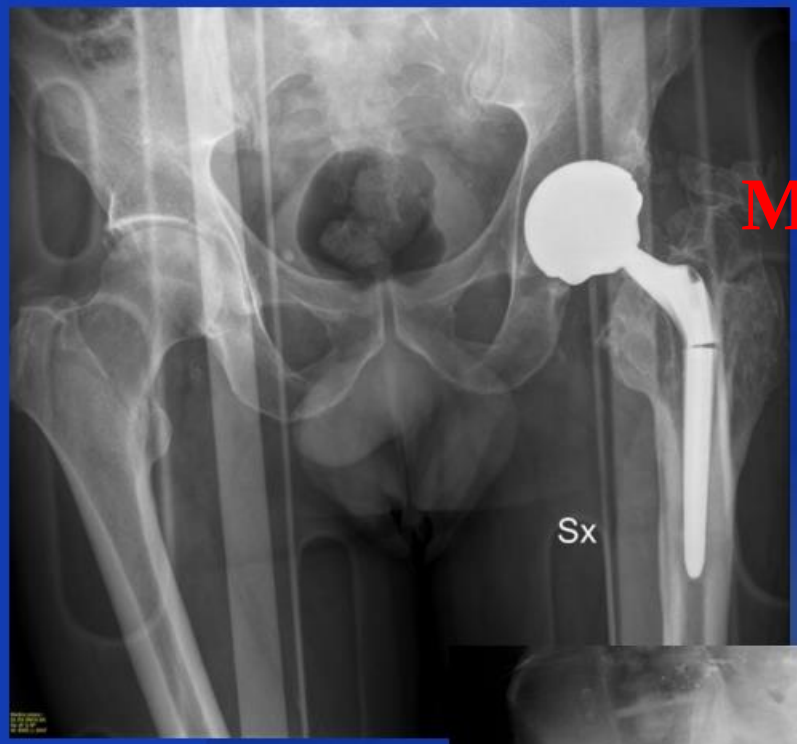


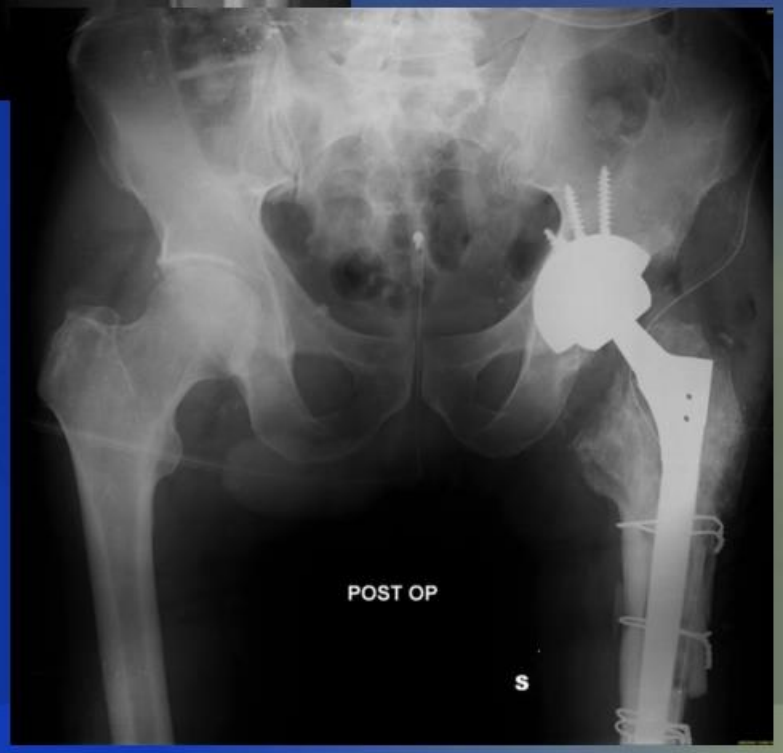
B1(2)



MOM?

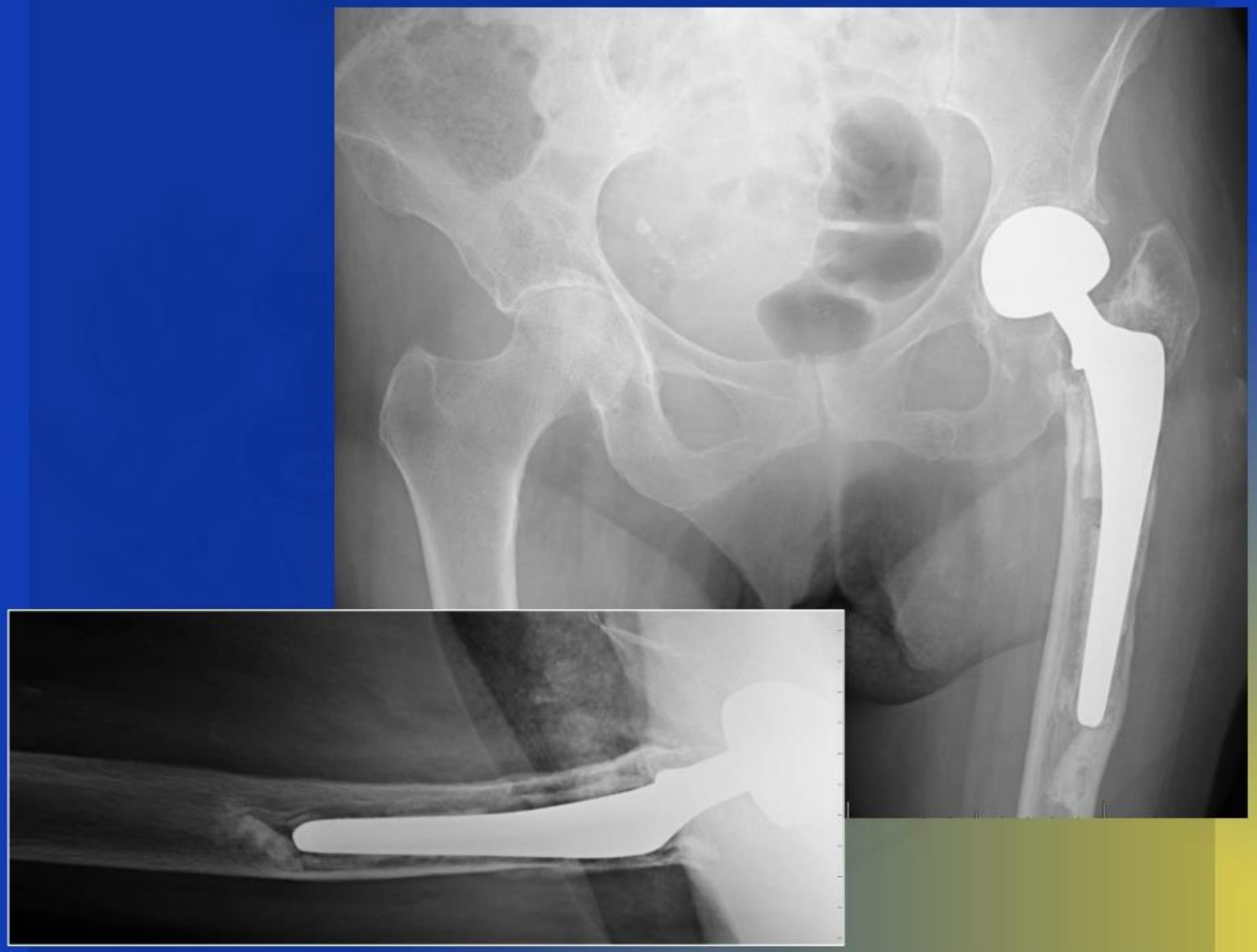
MOM

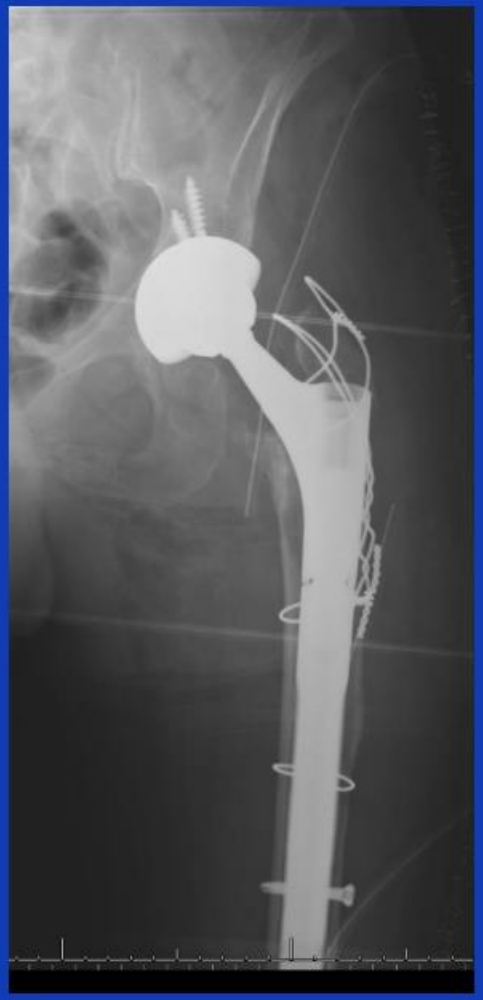






CONVERSIONE ENDO/ARTRO

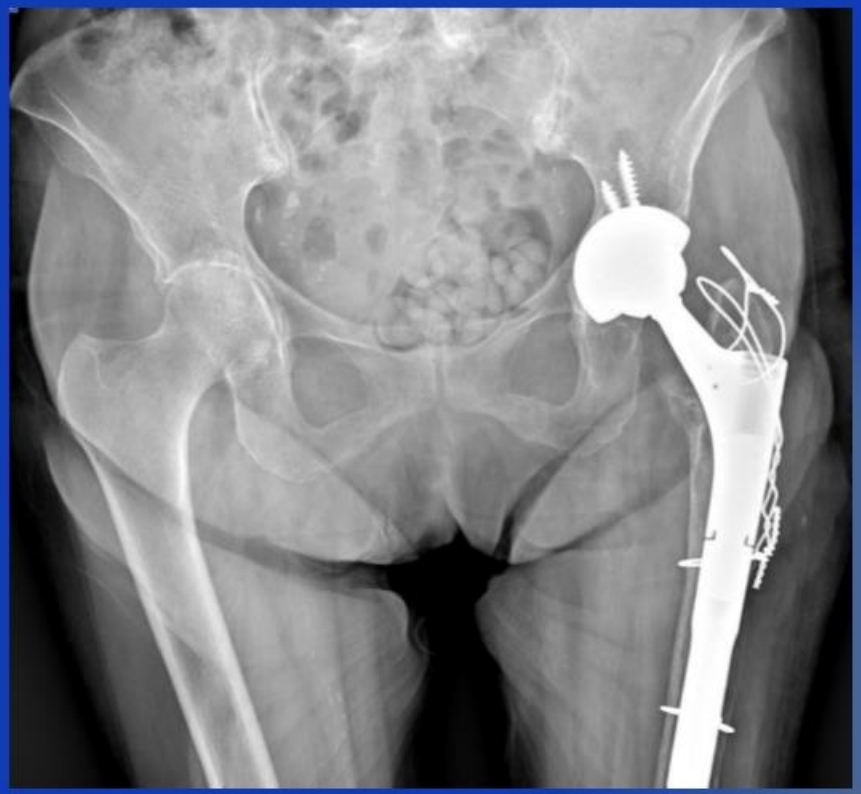













SINISTRO







Contents lists available at ScienceDirect

The Journal of Arthroplasty

journal homepage: www.arthroplastyjournal.org

Revision Arthroplasty

Cementless, Fluted, Long-Stem Hemiarthroplasty for Vancouver B2 and B3 Periprosthetic Fractures Around Hip Hemiarthroplasty

Alejandro Lizaur-Utrilla, PhD, MD [a, b, *], Santiago Gonzalez-Parreño, MD [a], Francisco A. Miralles-Muñoz, MD [a], Fernando A. Lopez-Prats, PhD, MD [b]

[a] Department of Orthopaedic Surgery, Elda University Hospital, Elda, Alicante, Spain
[b] Department of Traumatology and Orthopaedics, Miguel Hernandez University, San Juan de Alicante, Alicante, Spain

In conclusion, the management of Vancouver B2 and B3 PFF around hemiarthroplasties with a long-stem revision cementless bipolar hemiarthroplasty, supplemented with wire cerclages and cancellous allograft, was an effective option in terms of fracture healing and stability of the implant with a low rate of complications. Nevertheless, a significant functional impairment was also observed in either group.

ANCORAGGIO NUOVO IMPIANTO

- STELI LUNGHI CEMENTATI
- STELI LUNGHI RIVESTITI PROSSIMALMENTE NON CEMENTATI
- STELI LUNGHI CILINDRICI COMPLETAMENTE RIVESTITI N. C.
- STELI MONOBLOCCO AFFUSOLATI/CONICI N. C.
- STELI MODULARI LUNGHI CILINDRICI/CONICI N. C.
- IMPACTION GRAFTING
- MEGAPROTESI
- STELI COMPOSITI

STELI A PRESA DISTALE







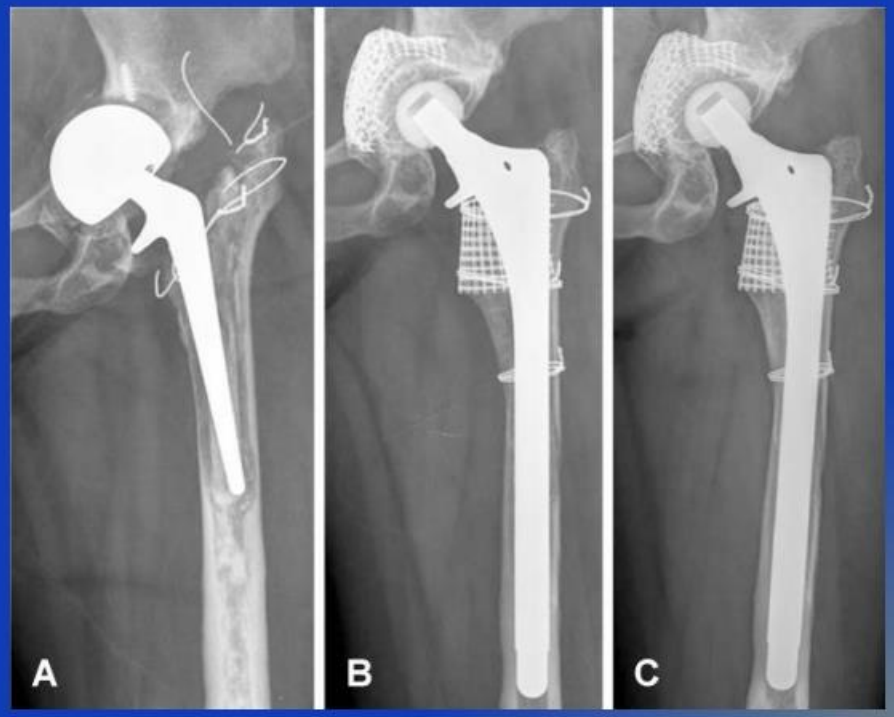






Sopravvivenza del 95% di 170 impianti ad almeno 10 anni
Paprosky WG et Al. 1999

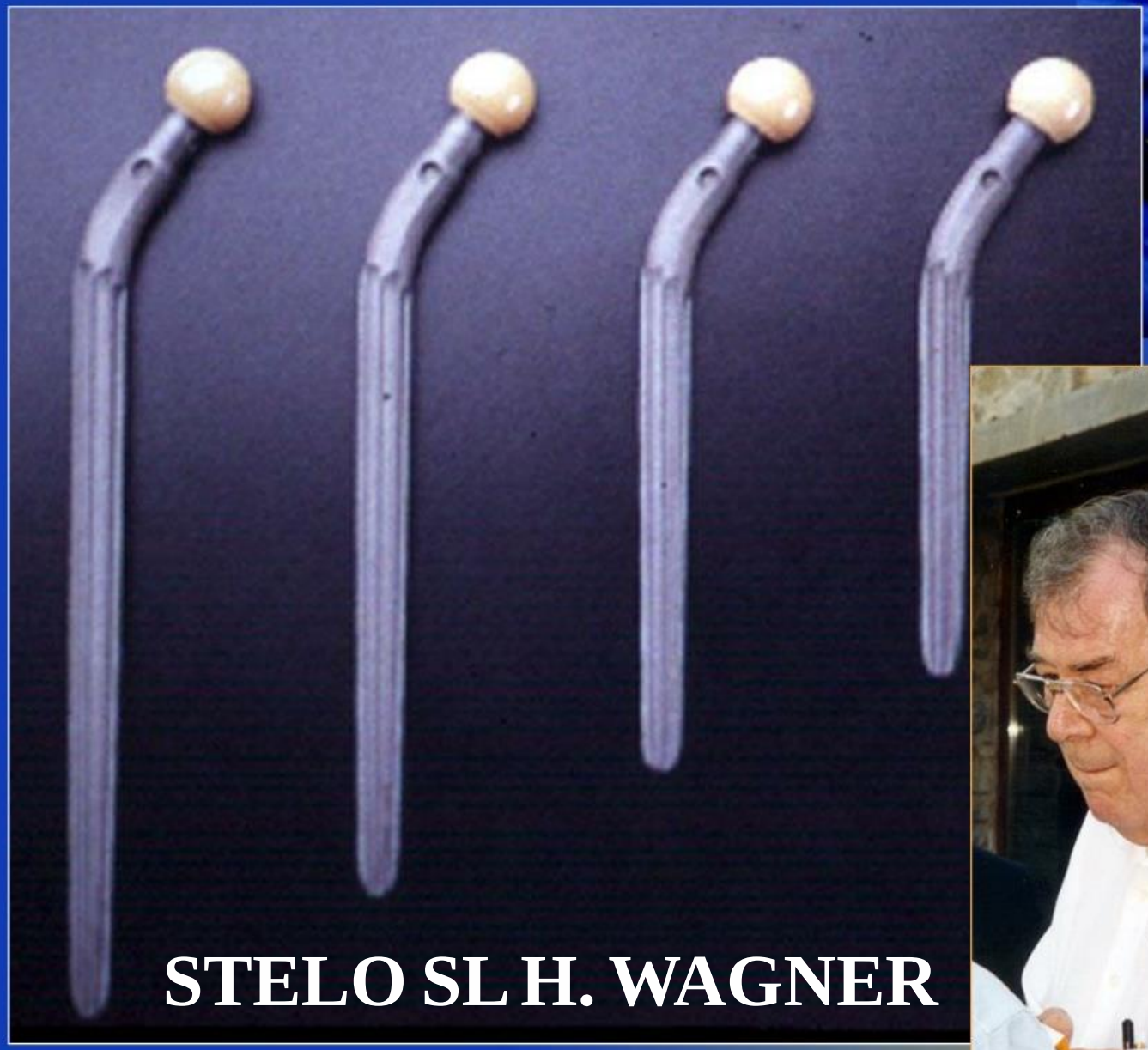
GOLD STANDARD IN PAPROSKI I III





- PEGGIORI RISULTATI IN PAPROSKI IIIA-B
- STRESS SHIELDING E DOLORE DI COSCIA
- DIFFICOLTA' CON STELI PIU' LUNGHI
- STELI CURVI..VERSIONE CONDIZIONATA

INDICATO IN I/II/IIIA CON CANALE < 19 mm



STELO SL H. WAGNER









92% STABILI A 10 A. FU **BOHM B. , BISCHEL O. 2004**

STELI MODULARI A PRESA MEDIO-DIAFISARIA



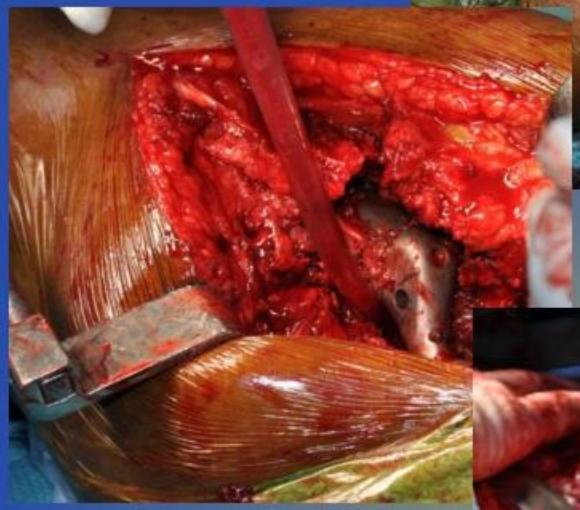







SINISTRA

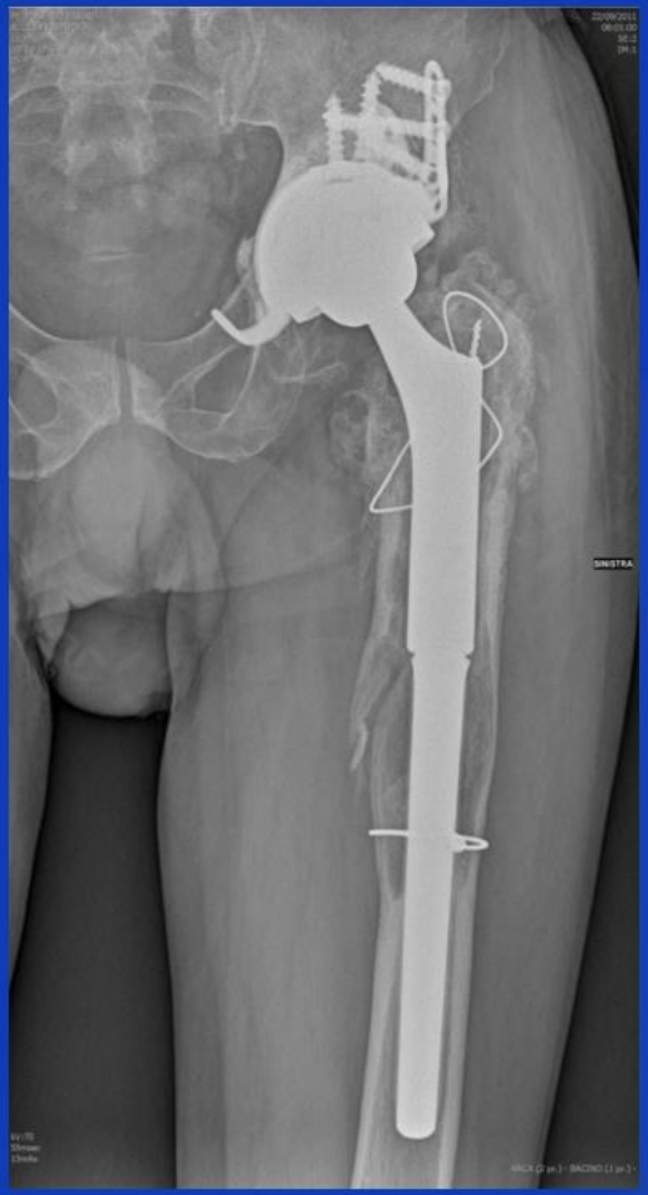







S


S


SINISTRA


SINISTRA

AFFONDAMENTO!

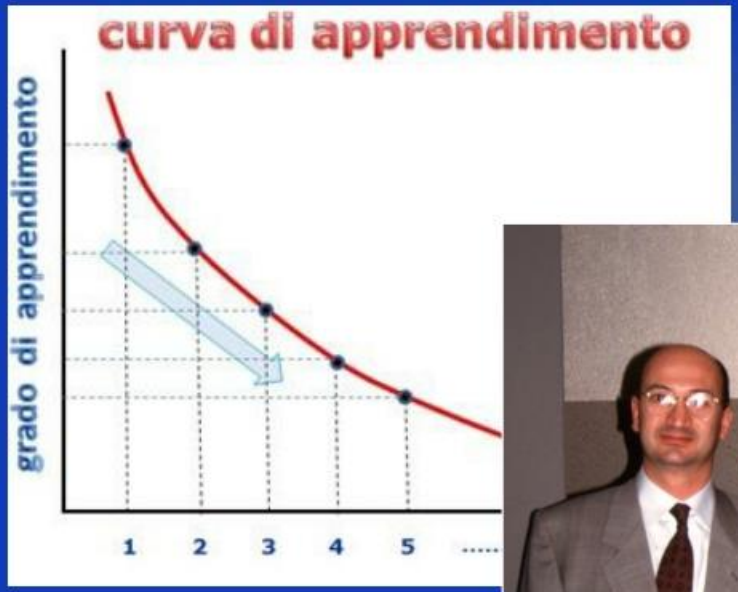






FINO AL 12-16%

CURVA DI APPRENDIMENTO!







ALMENO 5 CM DI CONTATTO CORTICALE

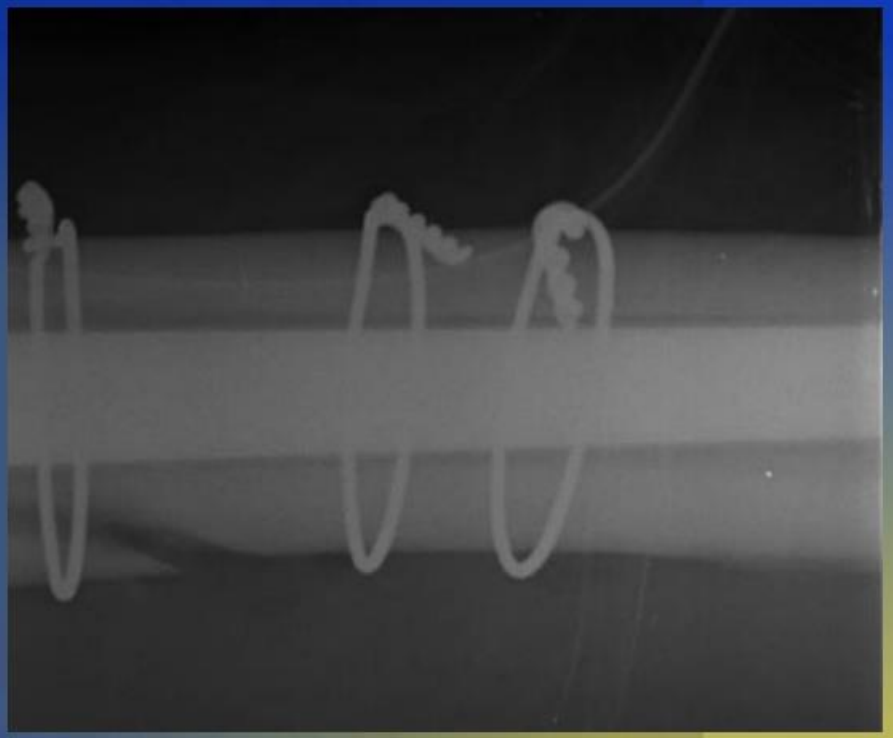




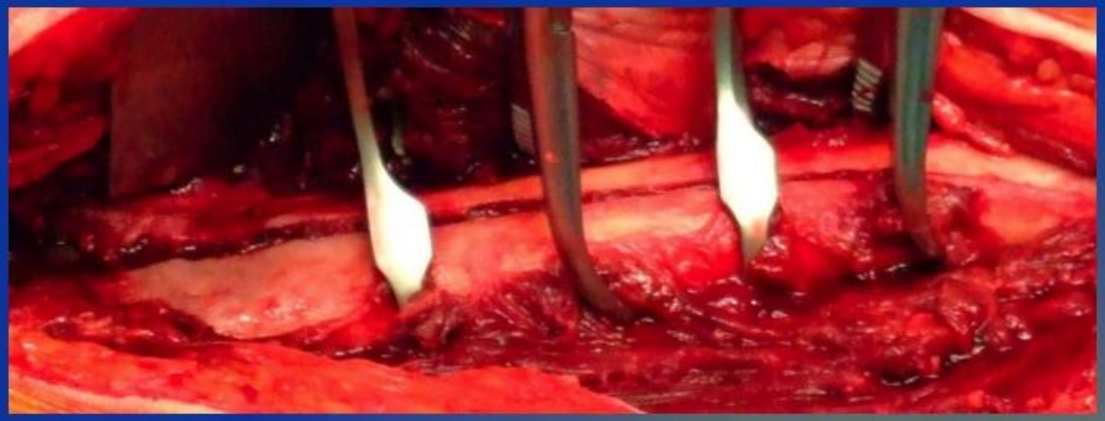
EVITARE PROPAGAZIONE DELLA FRATTURA!

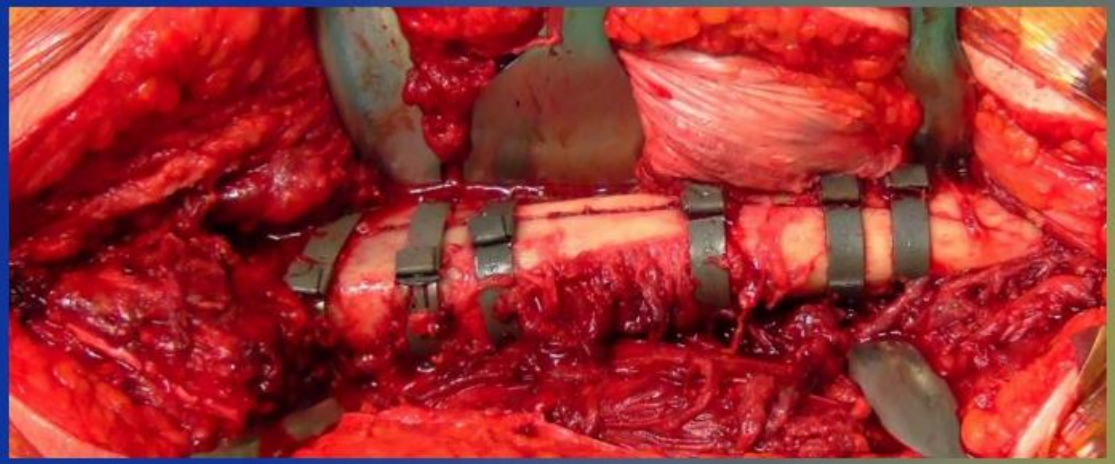
- **CERCHIARE SUBITO DOPO L'INIZIO DELLA DIAFISI SANA**
- **ALESARE IL CANALE AFFERRANDO LA DIAFISI CON UNA LAMBOTTE**

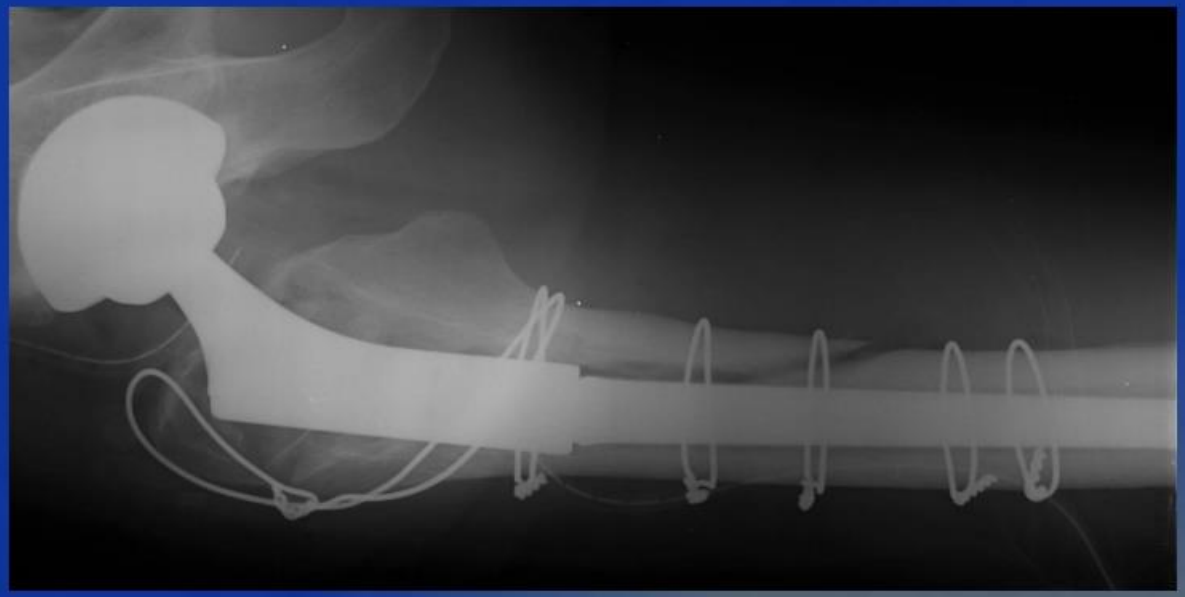




RISPARMIARE OSSO E
CERCARE DI RITUBULIZZARE LA DIAFISI

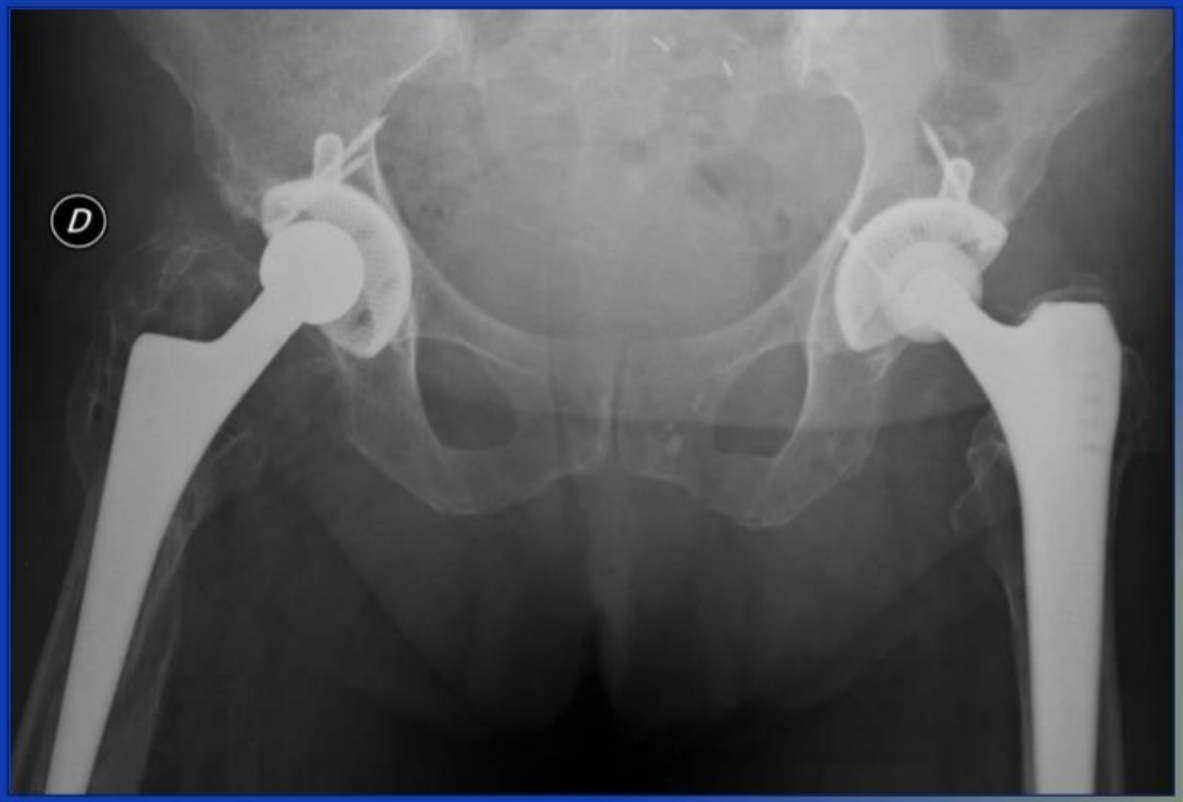






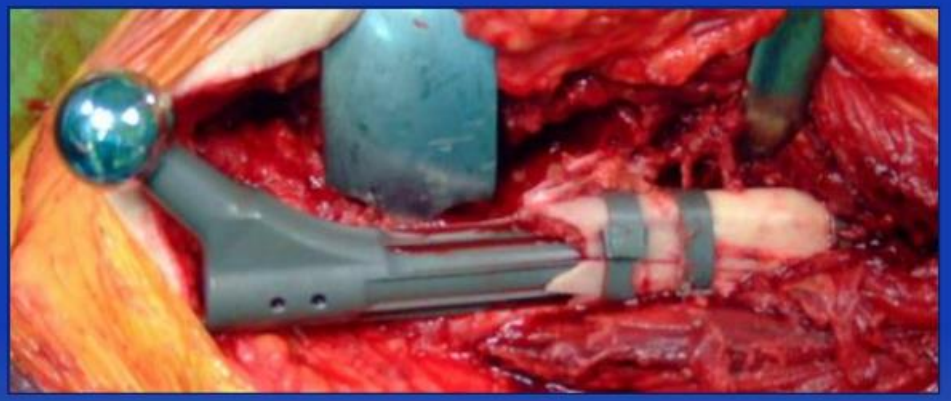


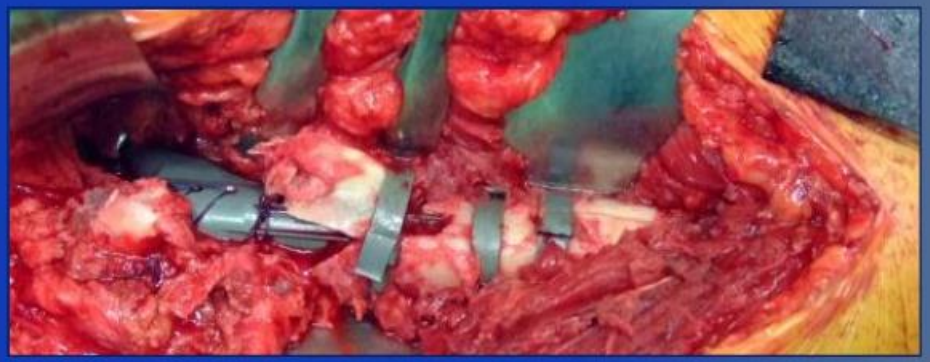
INNESTI OSSEI







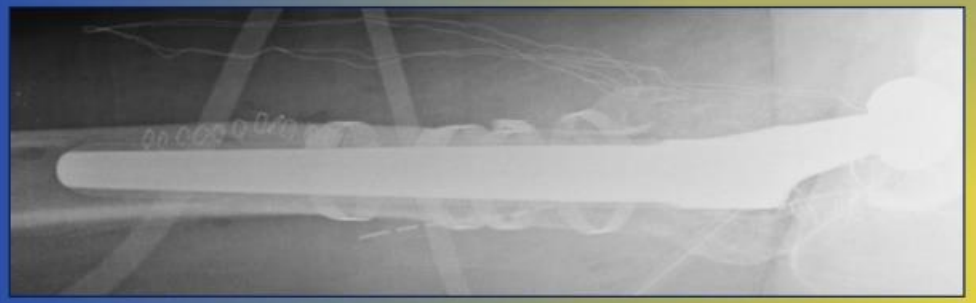


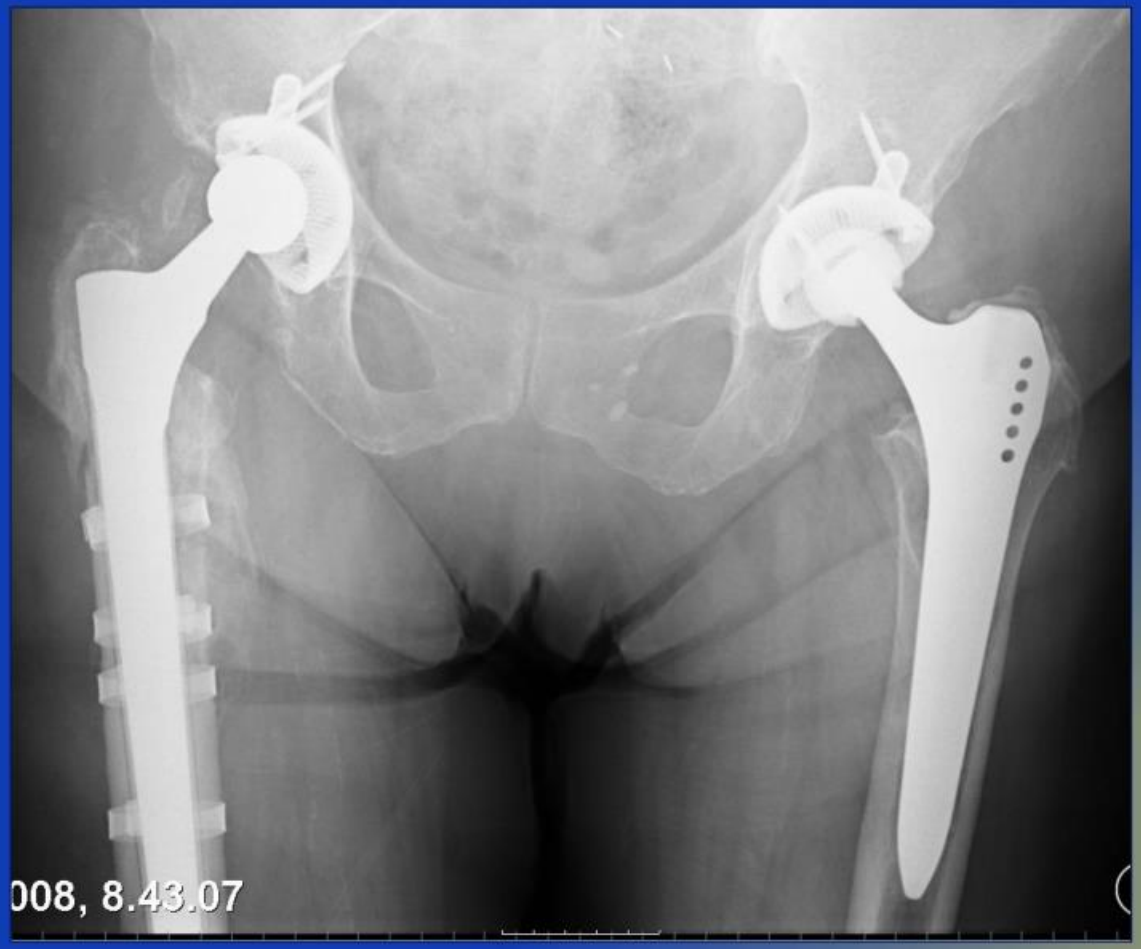








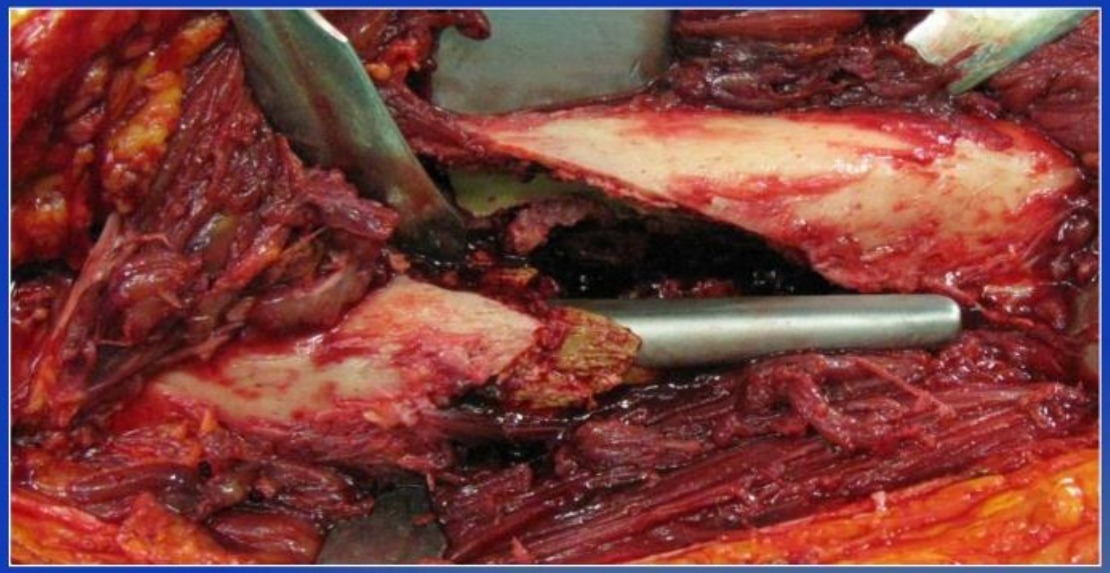



008, 8.43.07

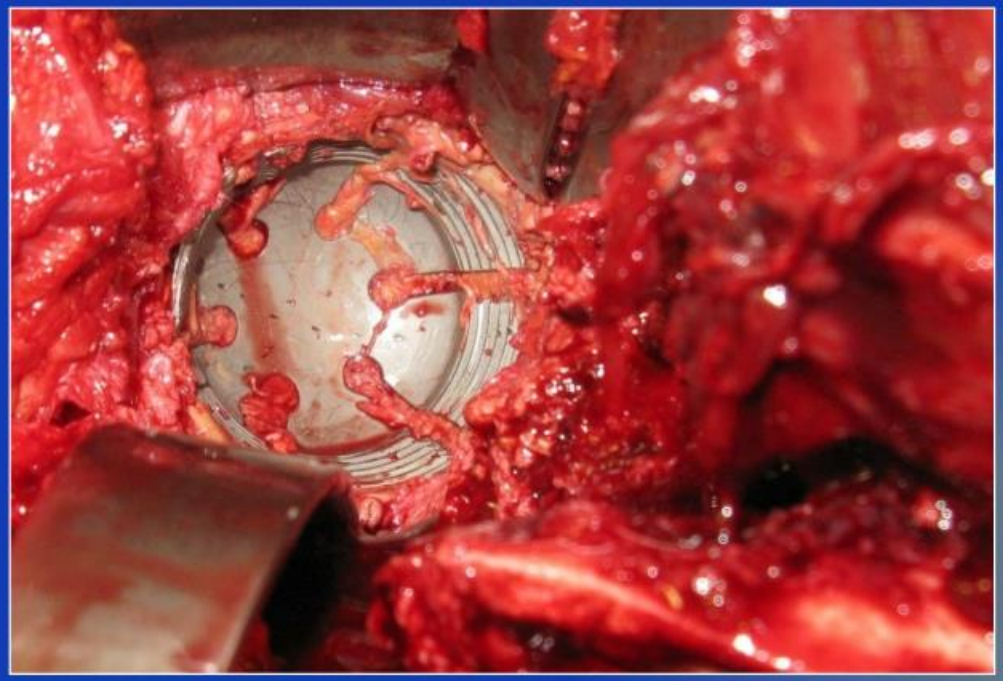




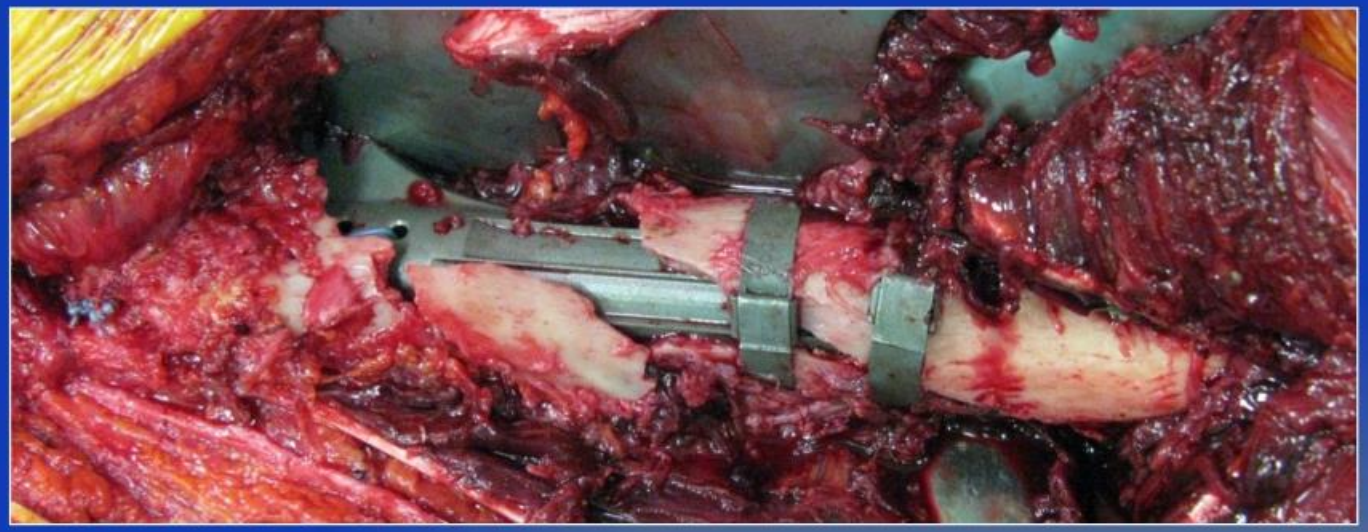






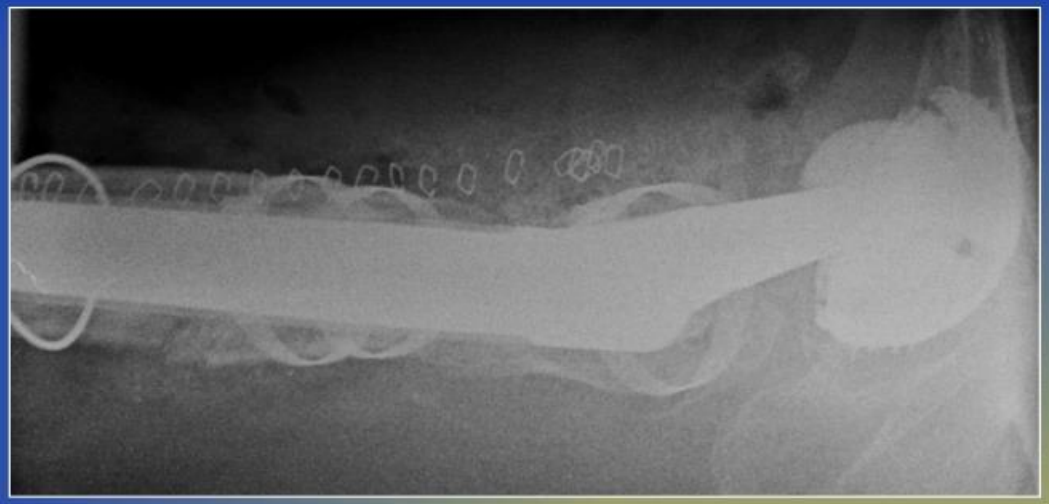



Servizitalia





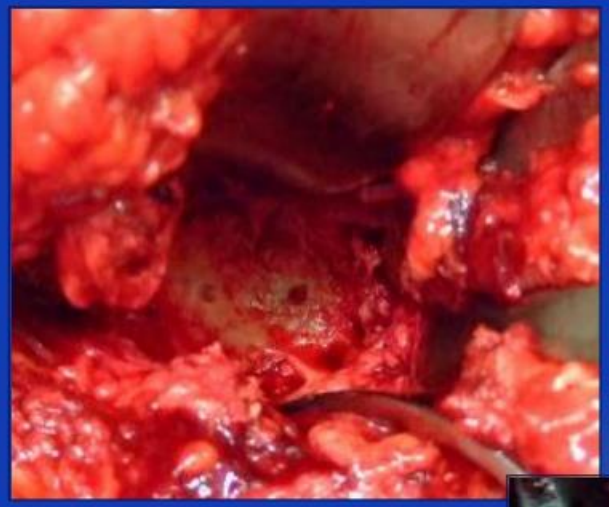


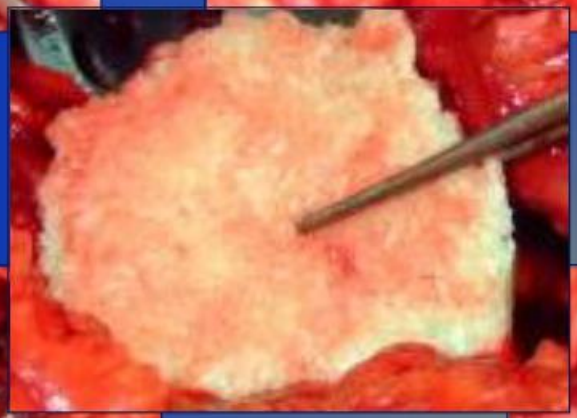
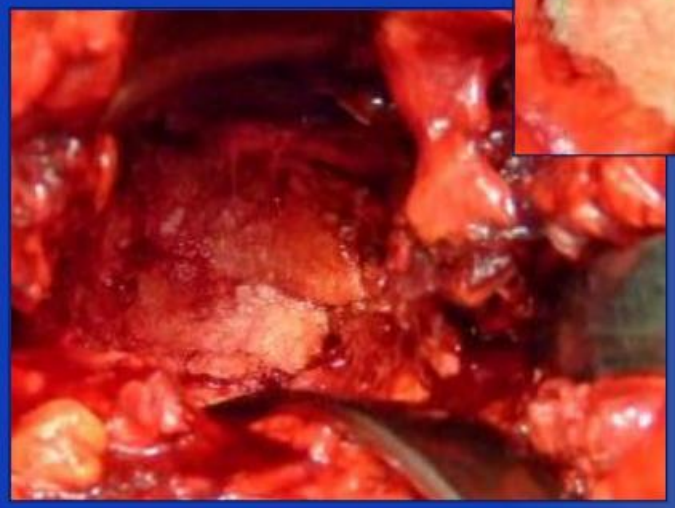
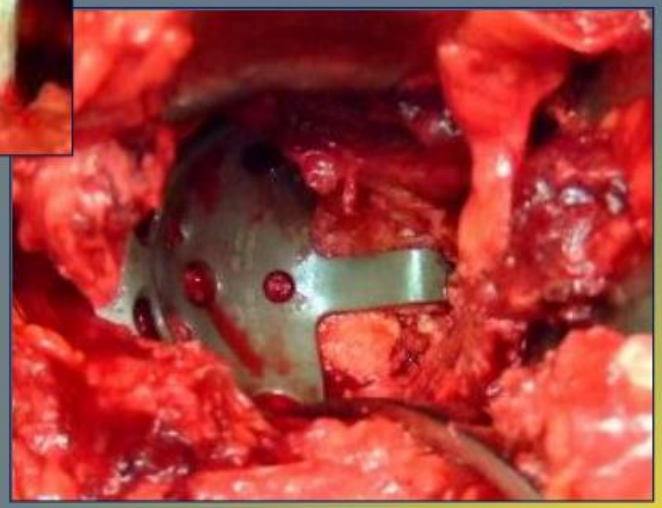






E.V.



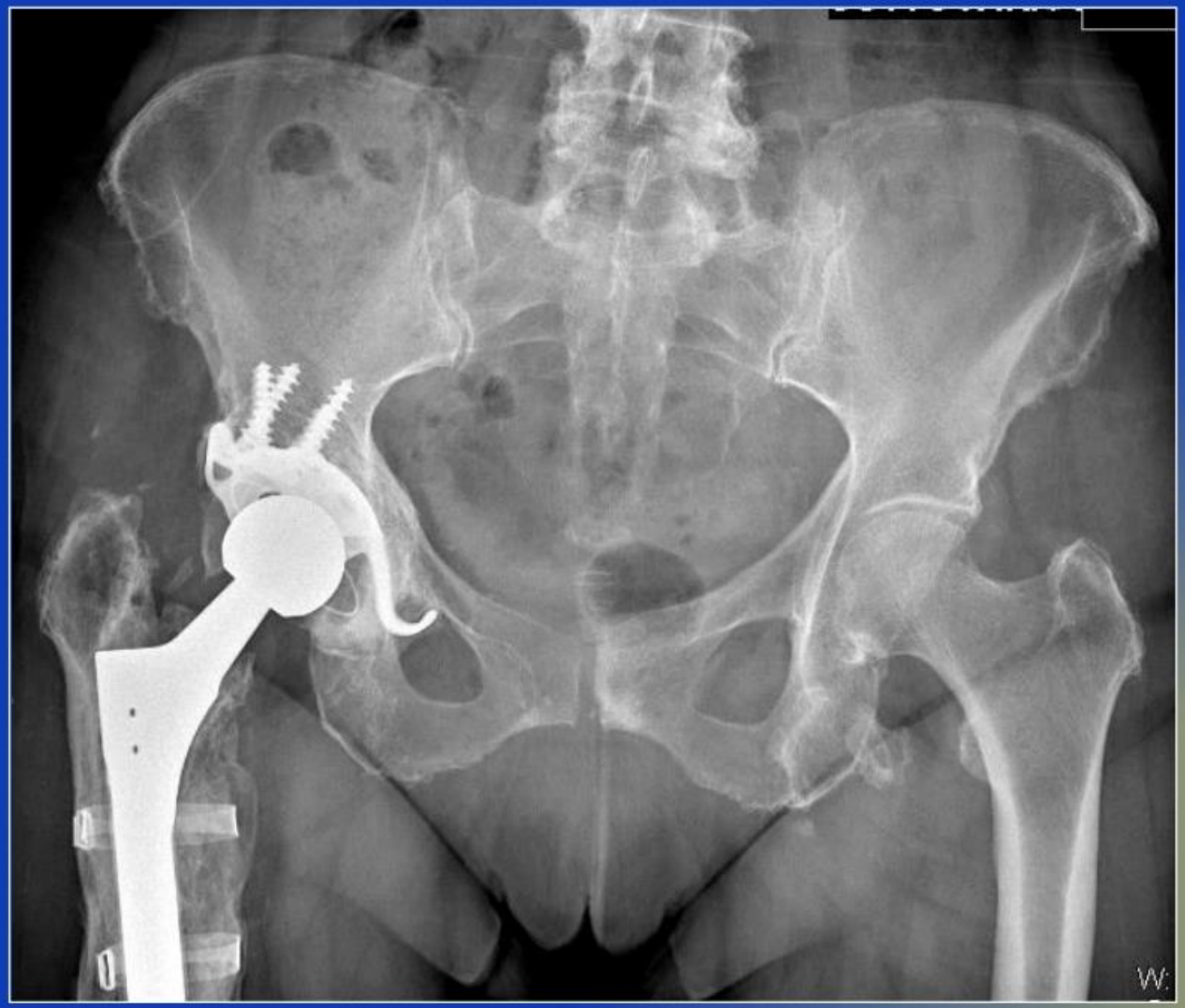








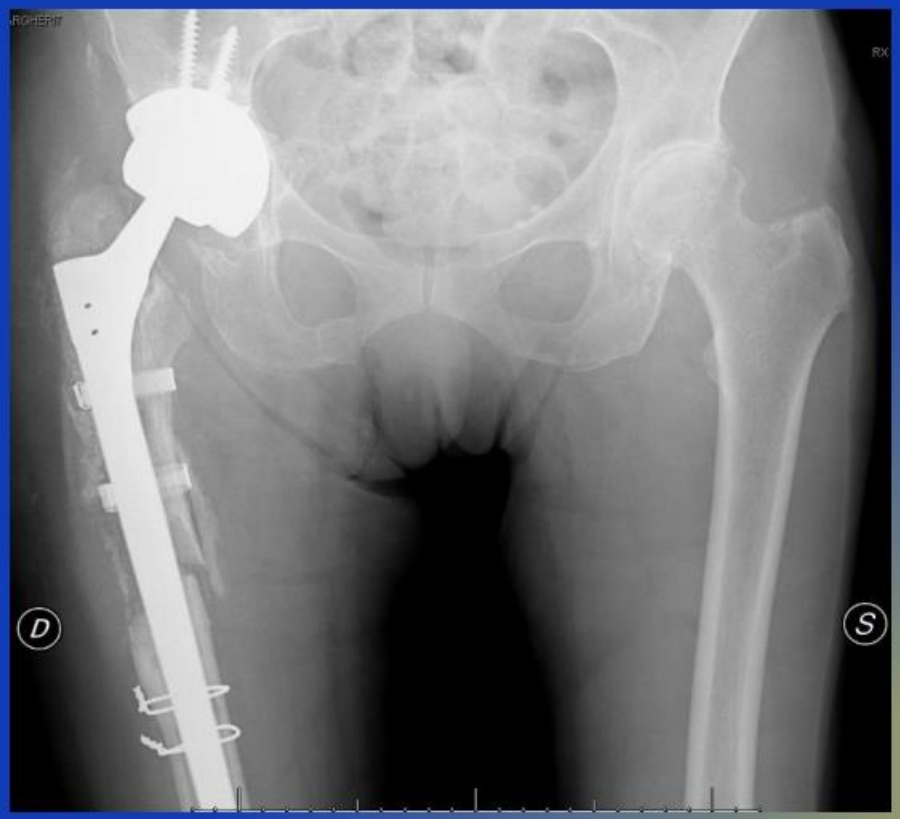






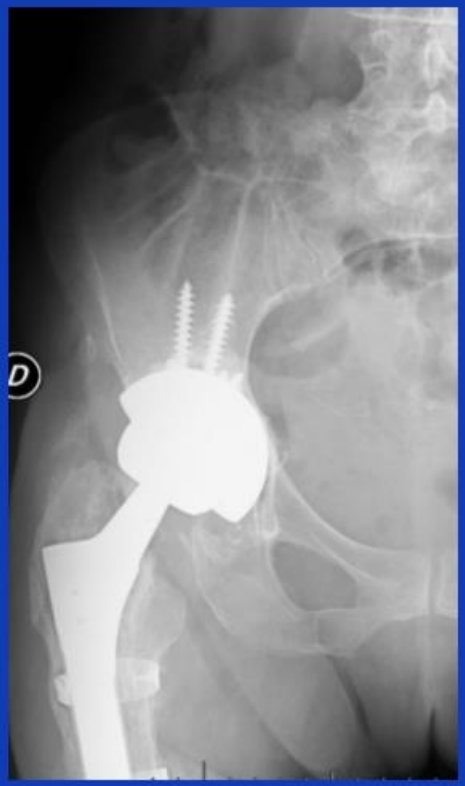





D
S

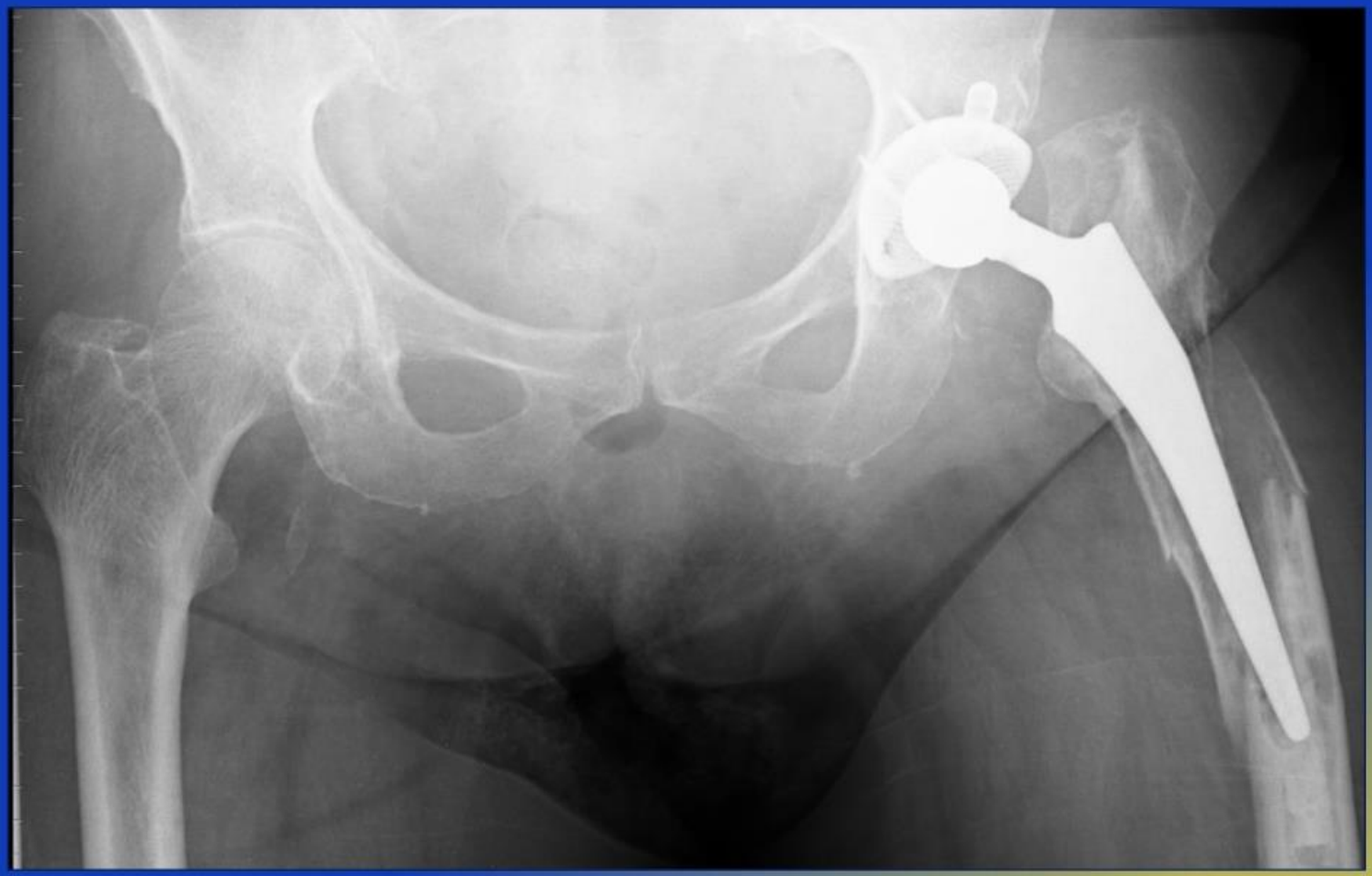

D

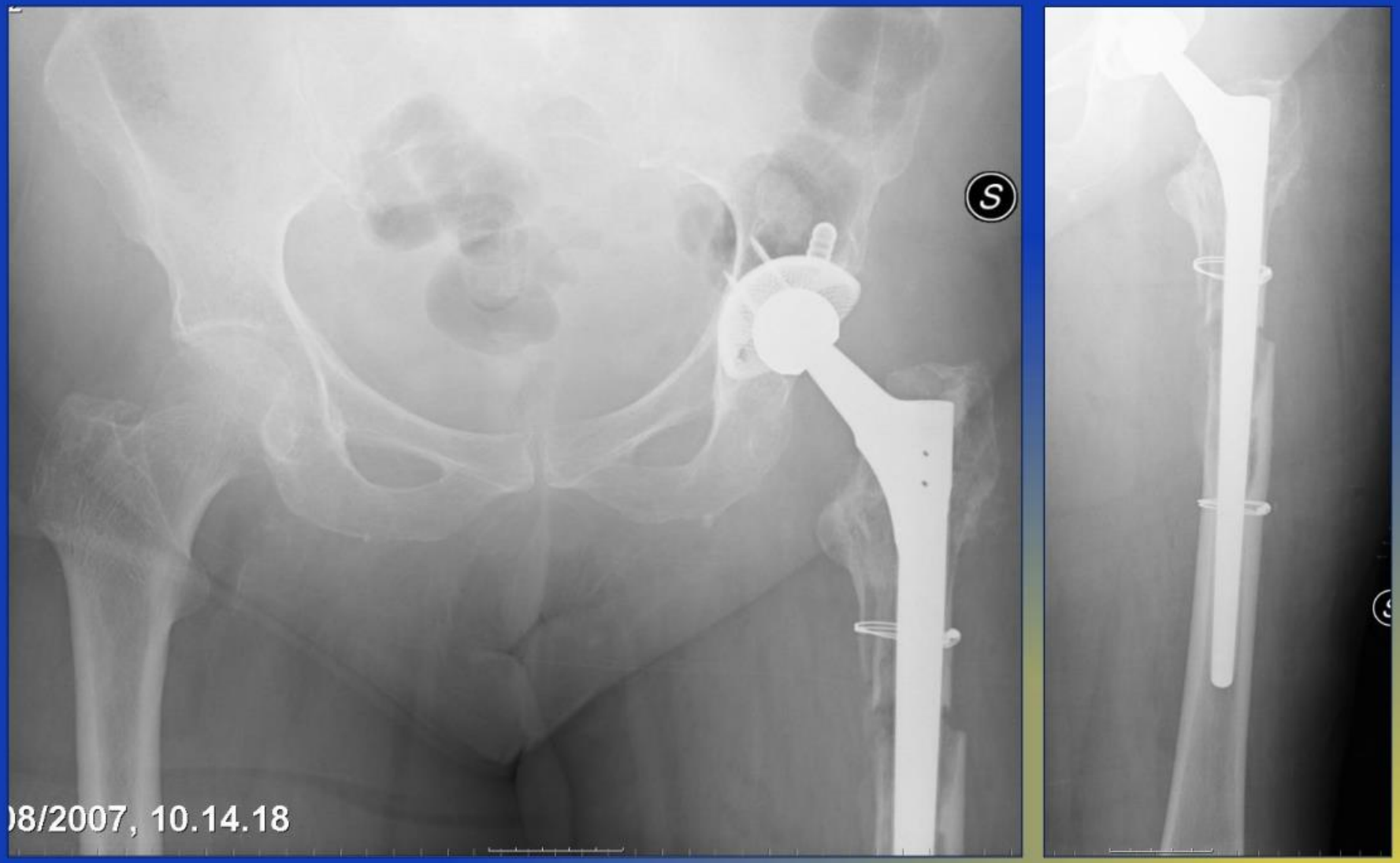

D


D




D



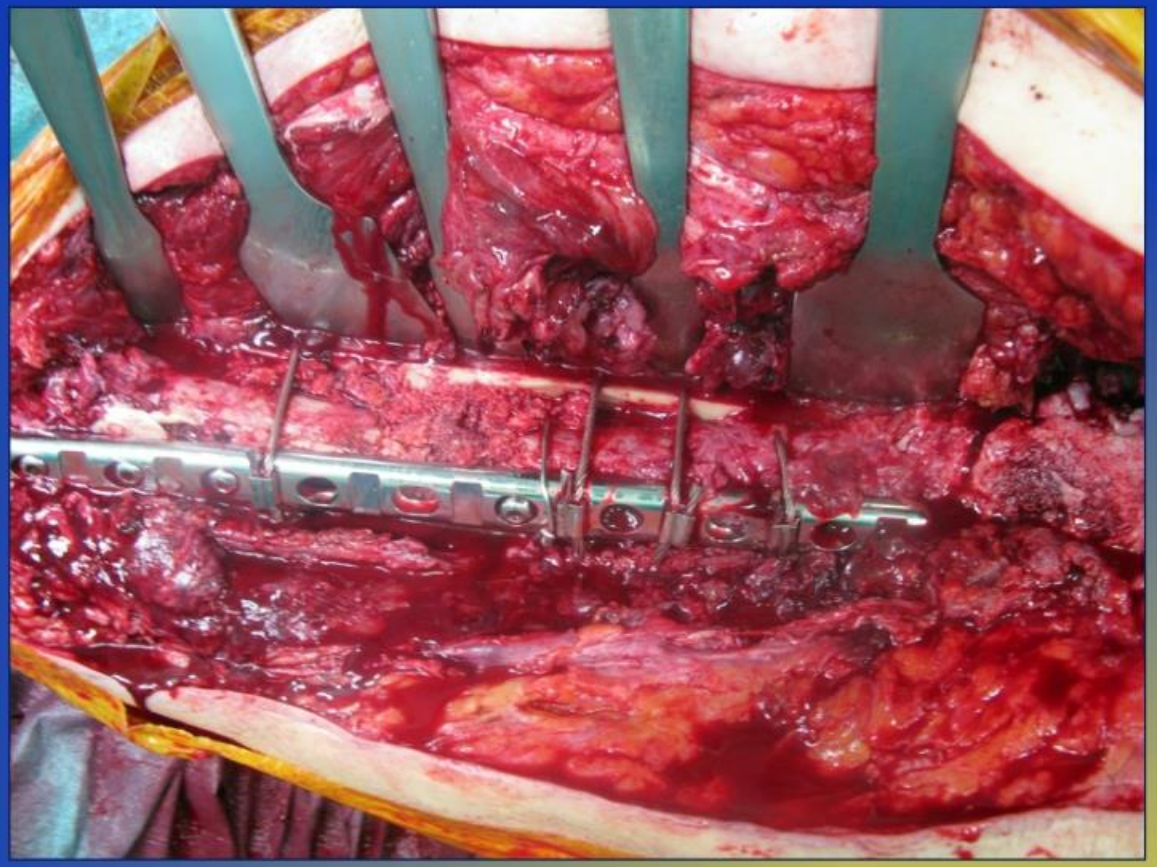

S
08/2007, 10.14.18




1



STECCHE CORTICALI



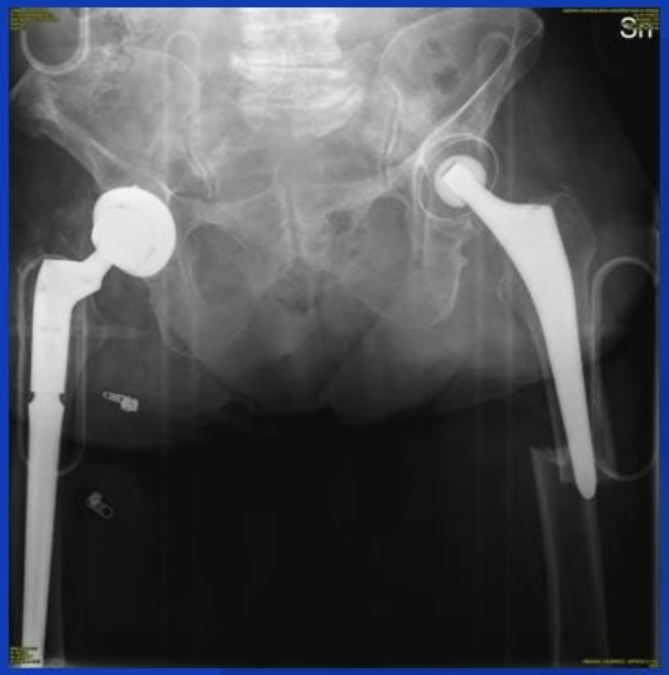

.21


33







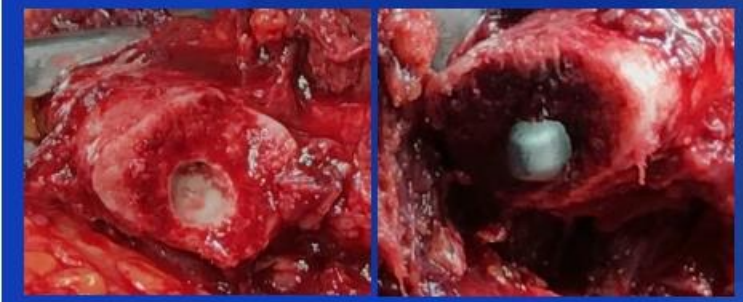

Sn

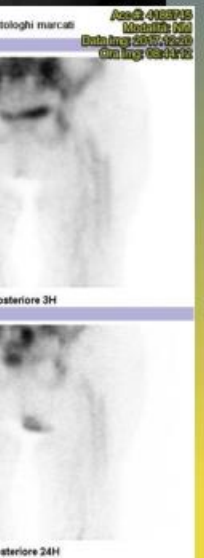







Sn




Patient ID: ASLTRAS000076079
Study Name: Scintigrafia con Leucociti autologhi marcati
Leucociti 3H 19/12/2017
Anteriore 3H
Posteriore 3H
Leucociti 24H 20/12/2017
Leucociti 24H 20/12/2017
Anteriore 24H
Posteriore 24H

LE LUSSAZIONI SONO PIU' FREQUENTI!

- **RIPRISTINARE GEOMETRIA**
- **ANCORARE I TROCANTERI**
- **TESTINE GRANDE DIAMETRO**
- **DOPPIAMOBILITA'**





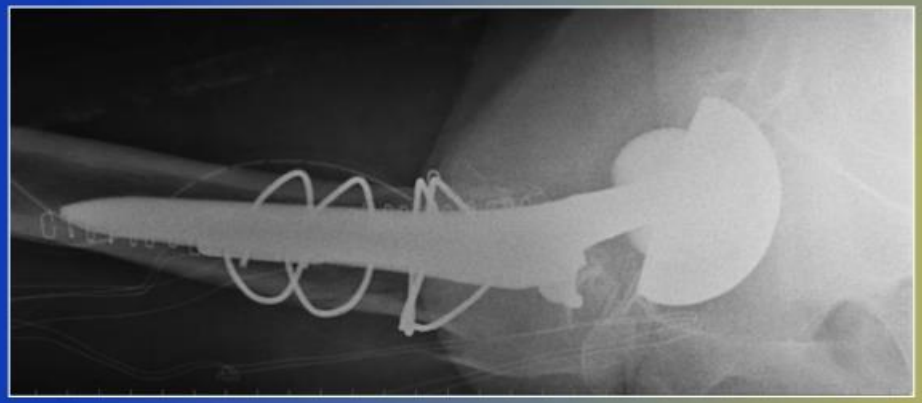

008, 15.42.14

B1 (2)




DESTRO
SINISTRO


SINISTRO



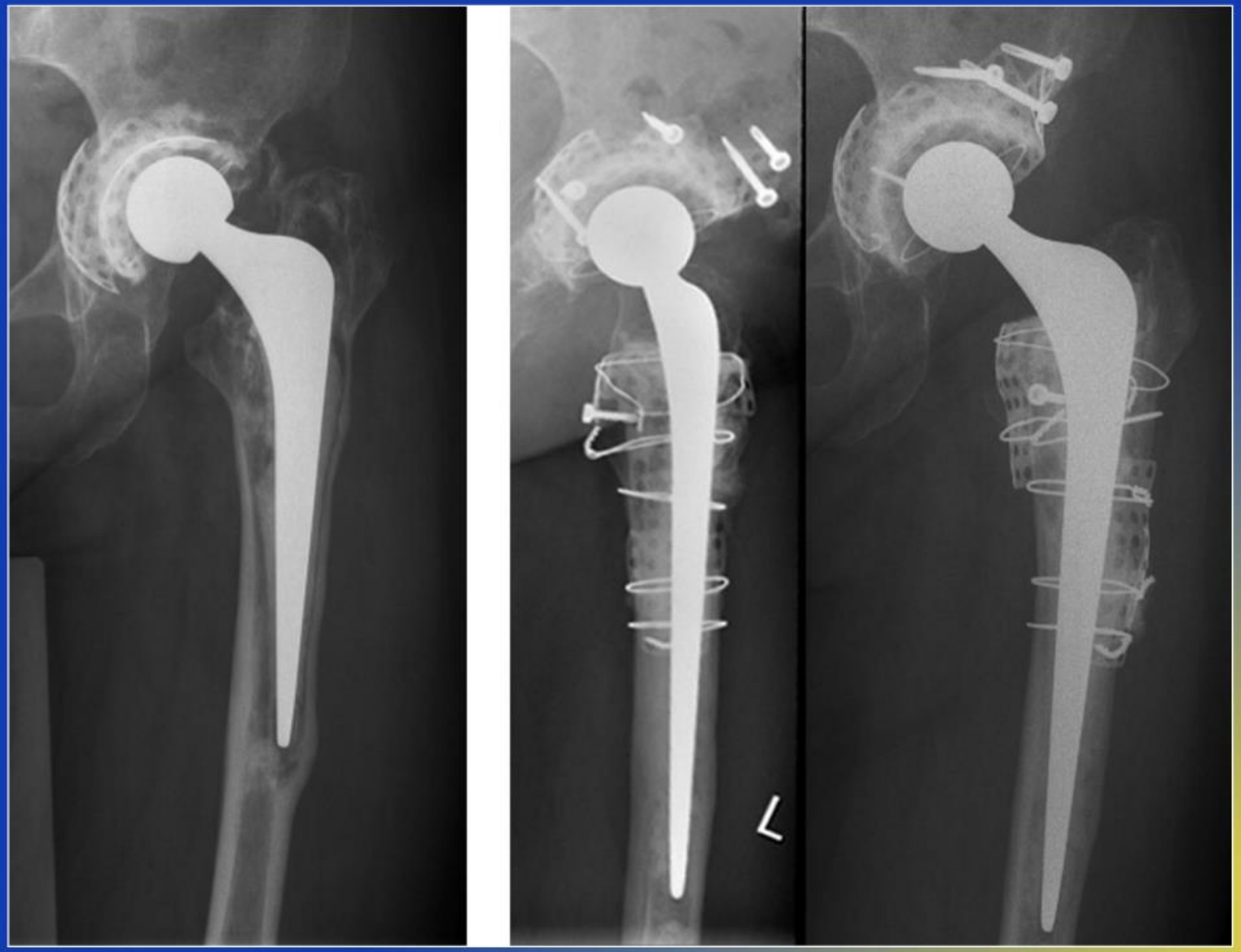








IMPACTION GRAFTING?



PROTESI COMPOSITE (INNESTO OMOLOGO MASSIVO)







PROTESI “TUMORALI”





THM

- CHIRURGIA DIFFICILE
- SEMPRE SOLUZIONE “B”
- TERAPIA INTENSIVA
- RADIOLOGIA-CHIRURGIA VASCOLARE
- PIANIFICAZIONE
- AMPIA DISPONIBILITA’ DI MATERIALE





19-20
settembre 2019
BERGAMO

CONGRESSO NAZIONALE DELLA
SOCIETÀ ITALIANA DELL'ANCA

SALA B

08.00 **CORSO DI ISTRUZIONE 6**
08.45 **TRAUMA: FRATTURE ACETABOLARI**
Moderatore: **Alberto Belluati** (Ravenna)

08.00 Una classificazione radiologica utile : vediamo quello che cerchiamo e cerchiamo quello che conosciamo
Antonio Panella (Bari)

08.10 La via di accesso
Vincenzo Zottola (San Fermo della Battaglia)

08.20 Principi della sintesi
Federico Bove (Milano)

UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO
Policlinico di Bari

Dipartimento di Scienze Mediche di Base, Neuroscienze ed Organi di Senso

U.O. ORTOPEDIA E TRAUMATOLOGIA

Direttore: Prof. B. Moretti



Una classificazione radiologica utile: vediamo quello che cerchiamo e cerchiamo quello che conosciamo

A. Panella

IMAGING

RX

AP

OTTURATORIA

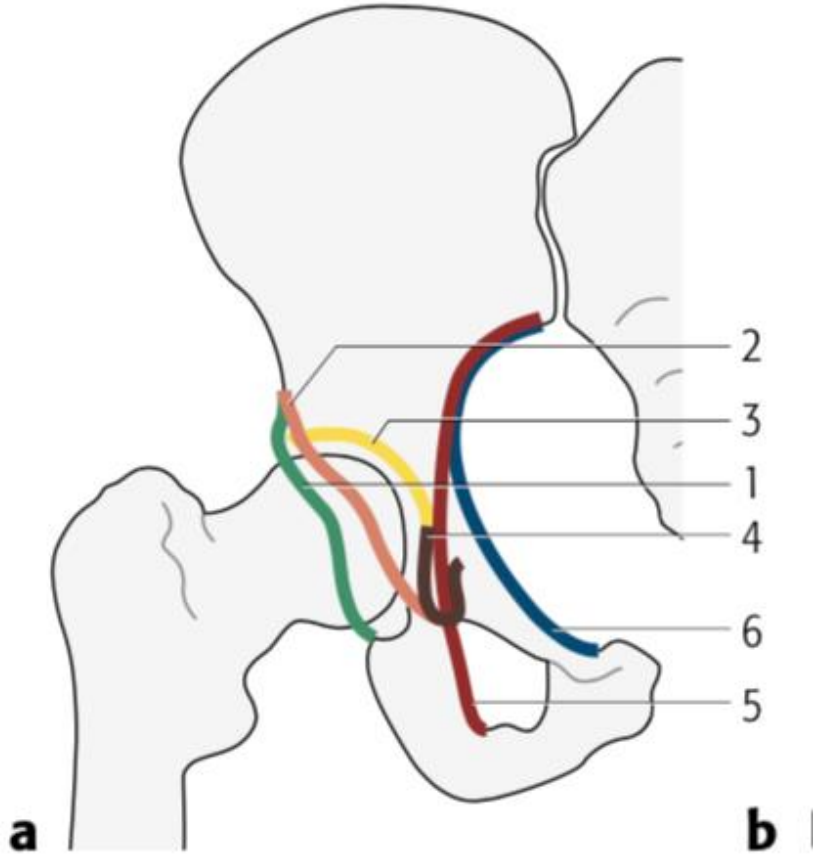
ALARE

Fractures of the Pelvis and Acetabulum—Principles and Methods of Management Marvin Tile, David L Helfet, James F Kellam, Mark Vrahas

RX

IMAGING

- AP: consente di indentificare le 6 principali linee di riferimento



1)Parete posteriore

2)Parete anteriore

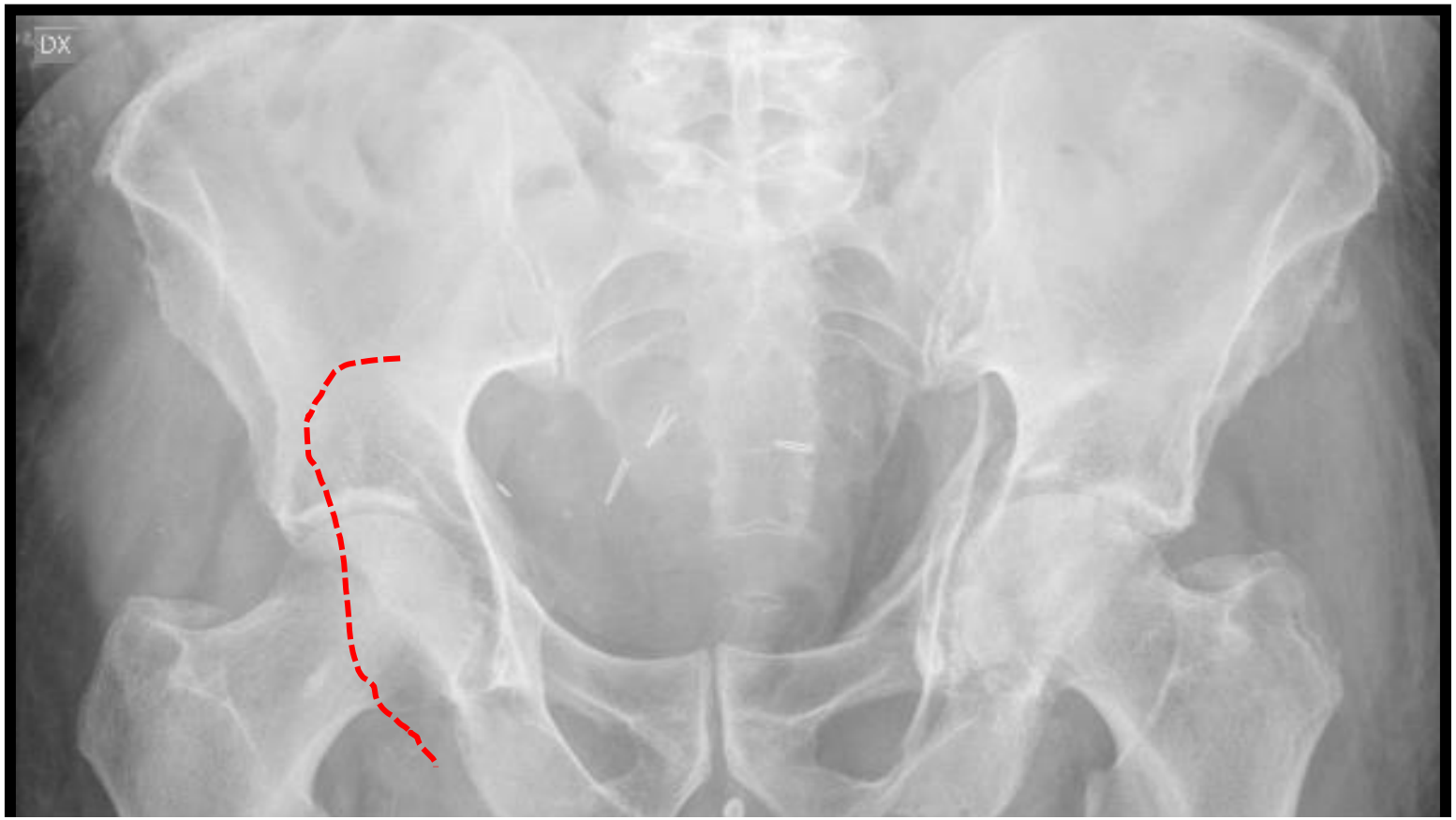
3)Tetto acetabolare

4)Goccia a lacrima

5)Linea ilioischiatica

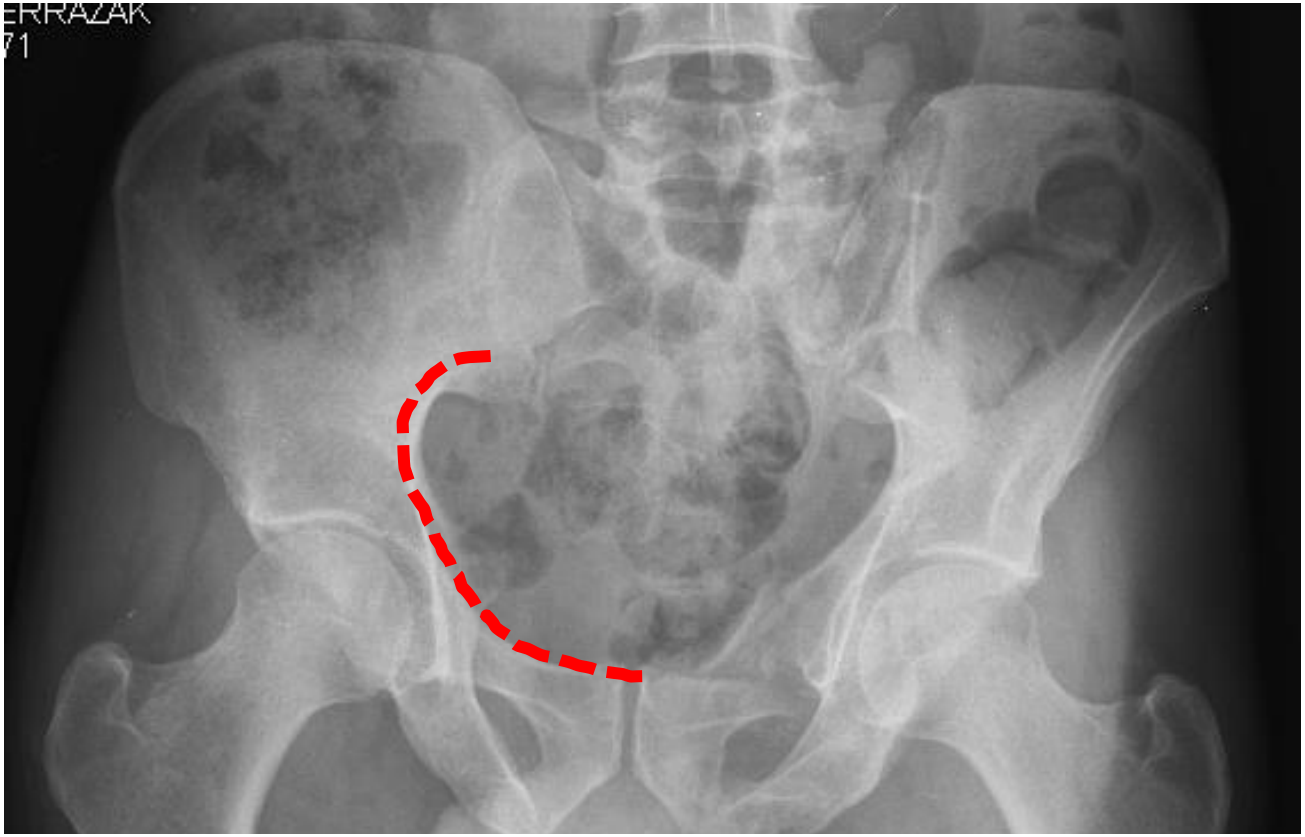
6)Linea iliopettinea

Fractures of the Pelvis and Acetabulum—Principles and Methods of Management Marvin Tile, David L Helfet, James F Kellam, Mark Vrahas



Se la linea ileoischiatica è interrotta

La colonna posteriore è fratturata

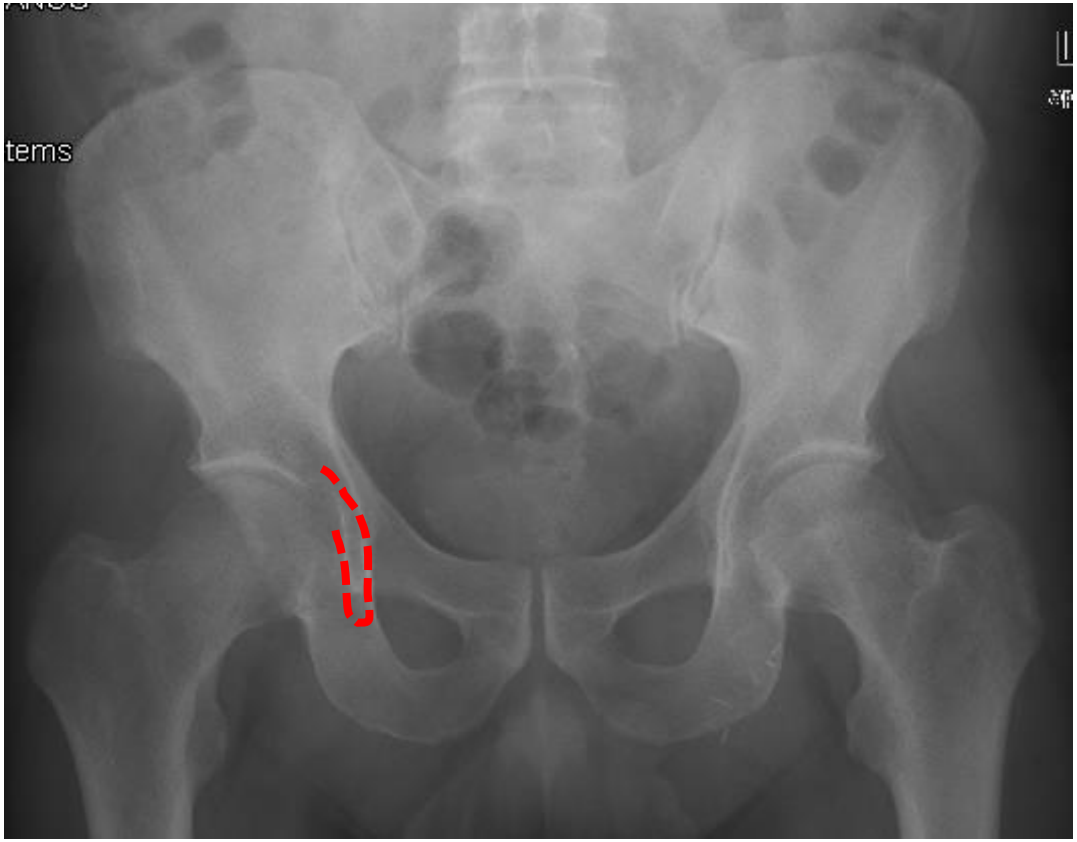


Se la linea ileopubica è interrotta

La colonna anteriore è fratturata

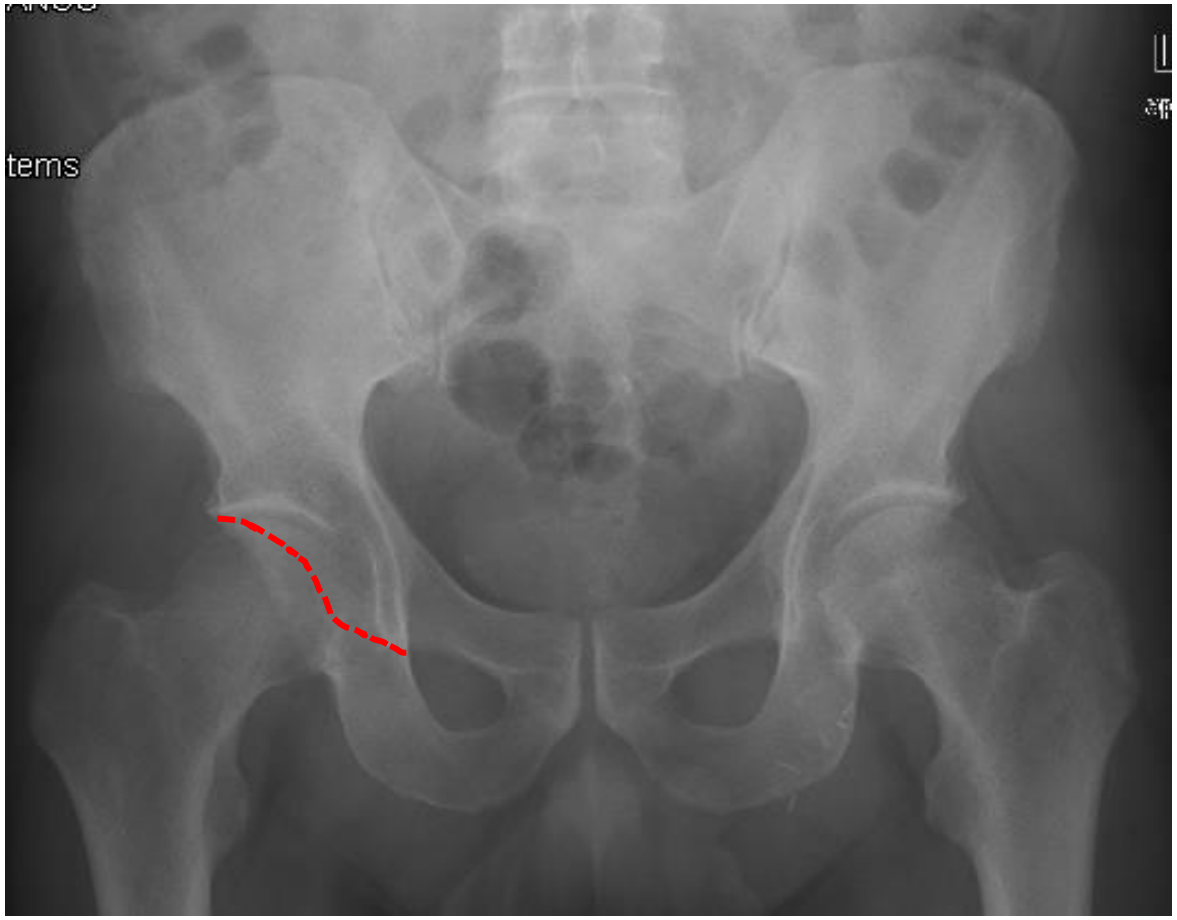
U radiografica

Separa la colonna anteriore dalla colonna posteriore
La sua branca interna corrisponde all'orifizio del canale sottopubico
La sua parte esterna corrisponde alla parte anteriore del retrofondo



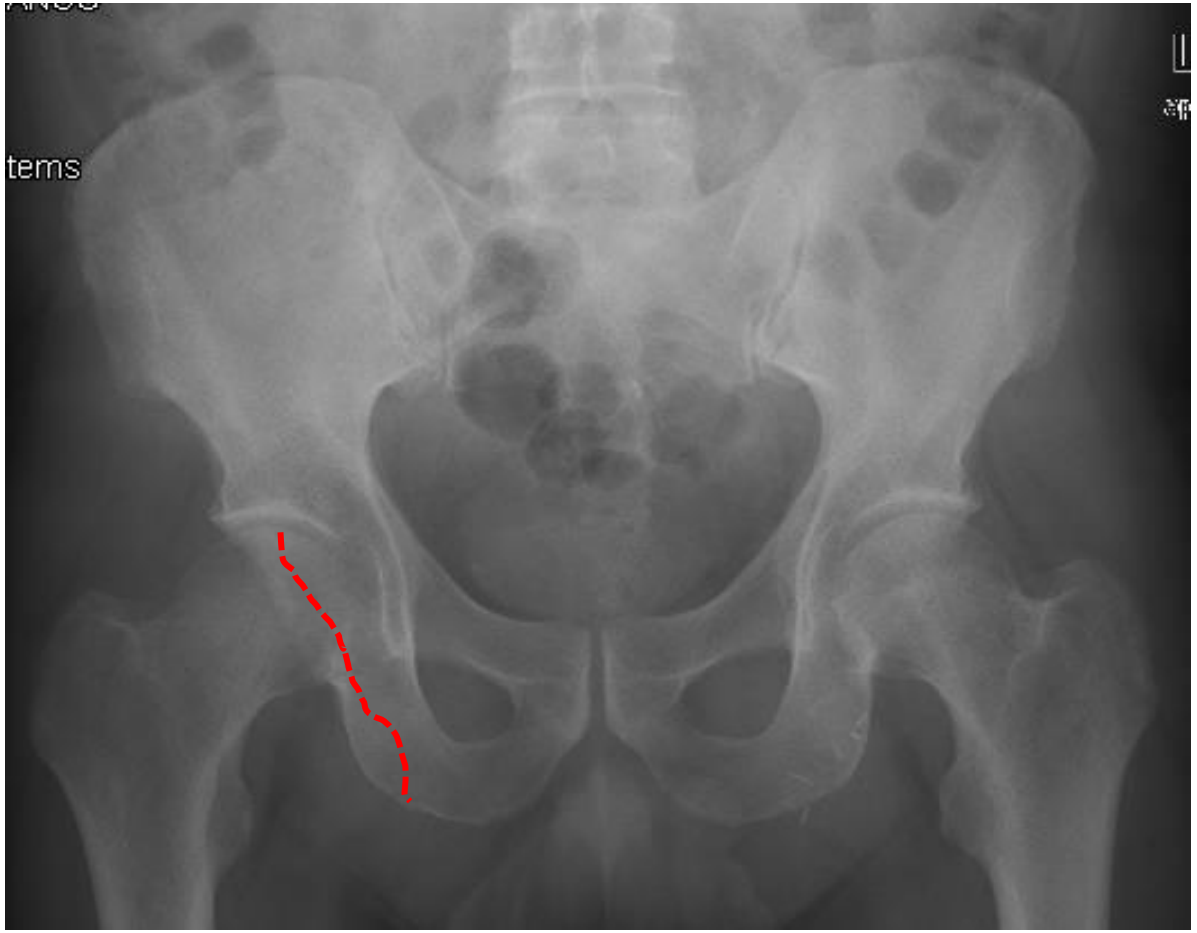
Parete acetabolare anteriore

Ha origine tra tetto e tratto sovracotiloideo dell'ileo, ha un decorso sinuoso sfiora la U e converge nel margine superiore del forame otturatorio



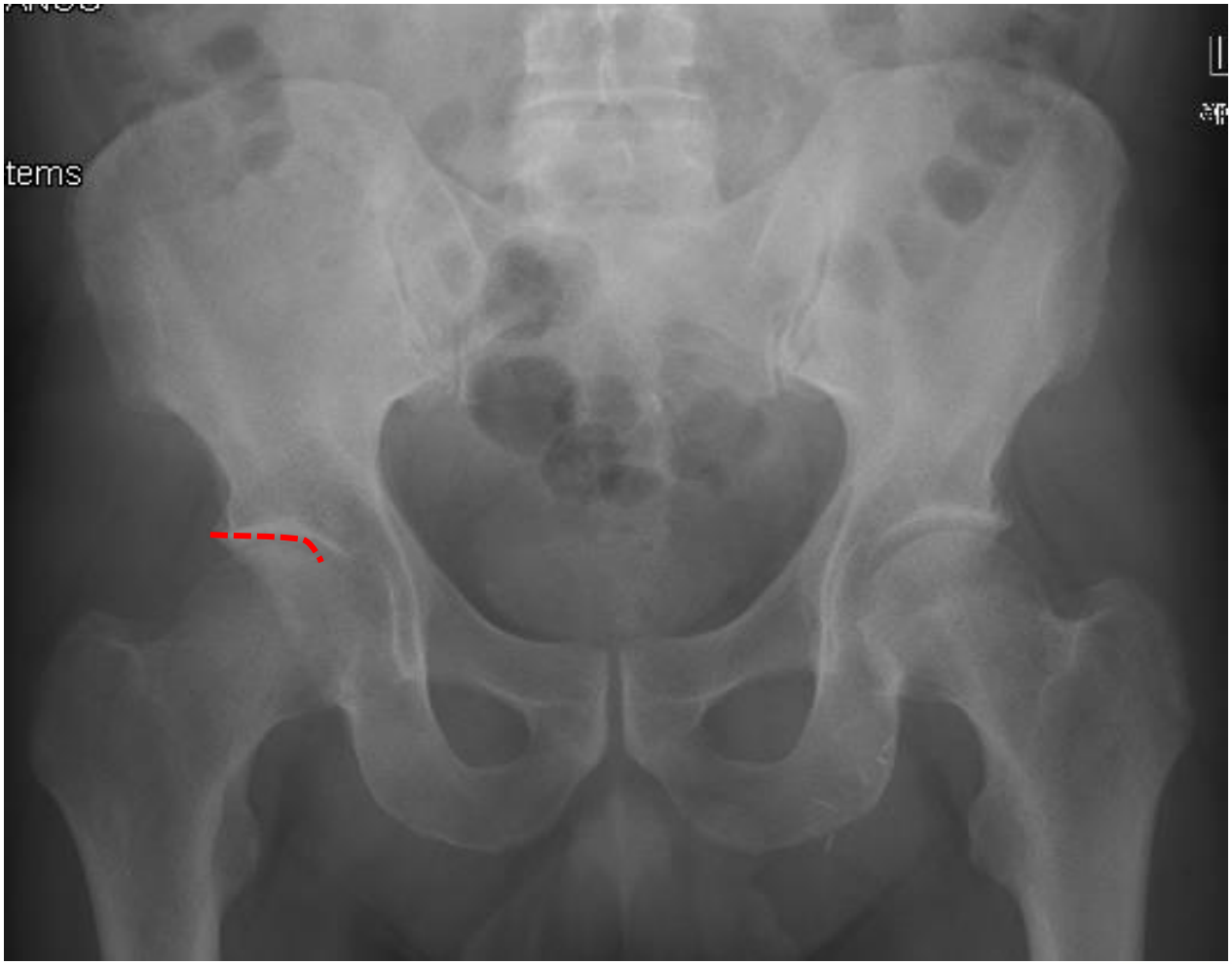
Parete acetabolare posteriore

Ha origine tra tetto e tratto sovracotiloideo dell'ileo, ha un decorso meno obliquo del precedente e riproduce il bordo posteriore dell'acetabolo



Il tetto

Rappresenta la parte culminante e portante del cotile



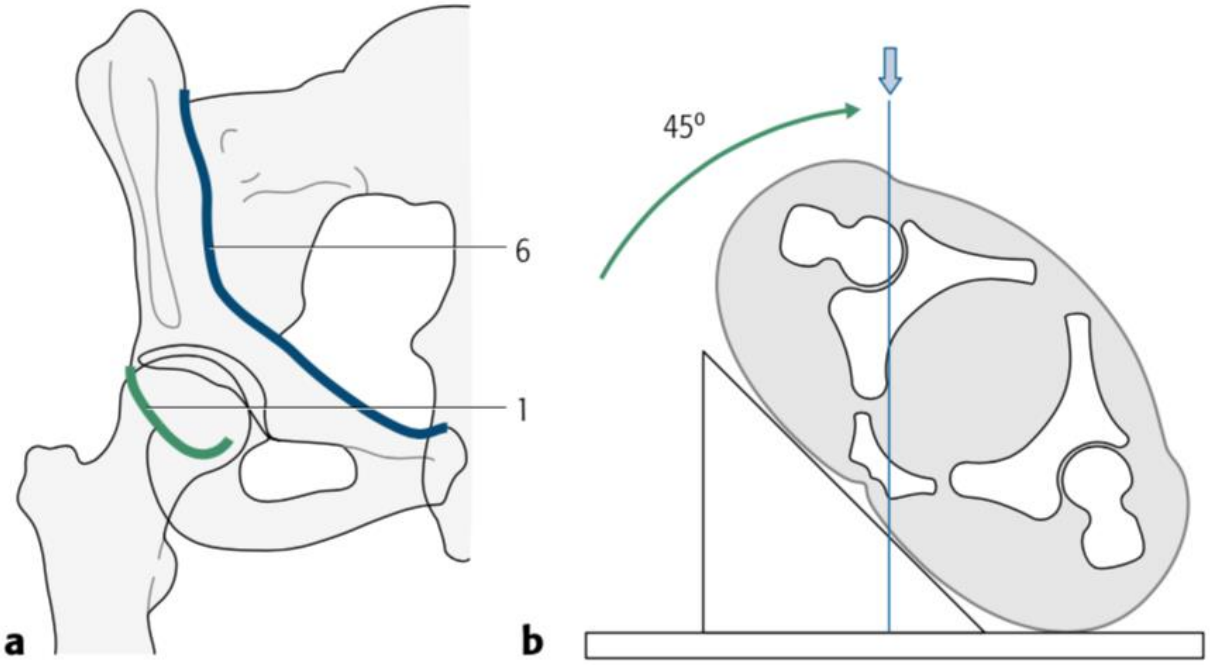
IMAGING

RX

- OTTURATORIA: elevando il lato affetto di 45°

1)Parete posteriore

6)Linea iliopettinea



Fractures of the Pelvis and Acetabulum—Principles and Methods of Management Marvin Tile, David L Helfet, James F Kellam, Mark Vrahas

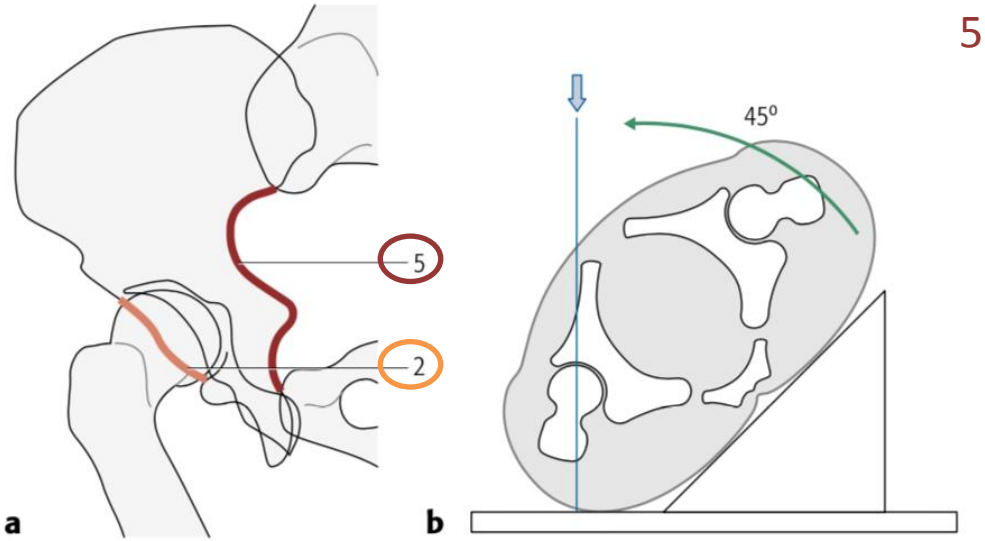
IMAGING

RX

- ILIACA: elevando il lato opposto di 45°

2)Parete anteriore

5)Linea ilioischiatica

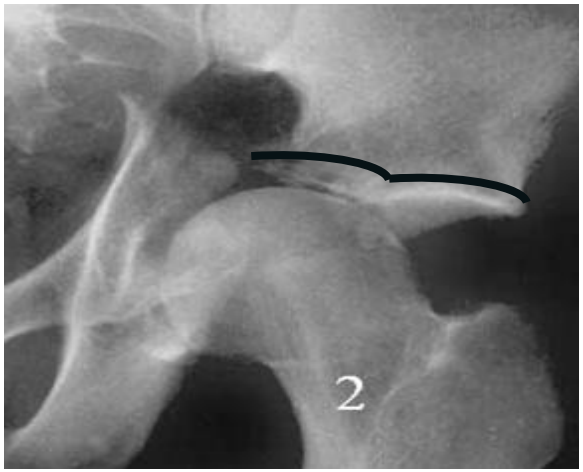


Fractures of the Pelvis and Acetabulum—Principles and Methods of Management Marvin Tile, David L Helfet, James F Kellam, Mark Vrahas

SEGNI RADIOLOGICI SPECIFICI

- Segno dell'artiglio
- Segno dello spicchio d'aglio
- Segno del gabbiano
- Segno dello sperone





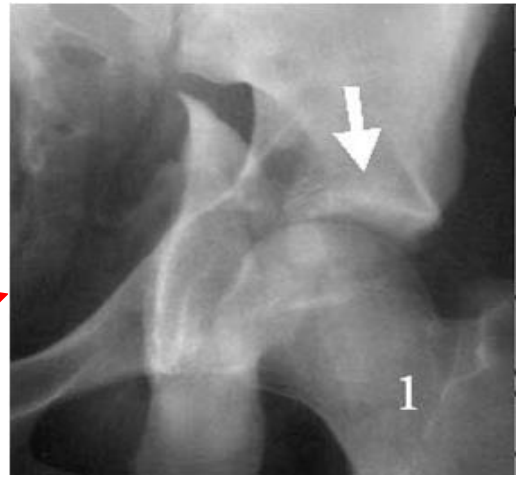
The "Gull Sign"

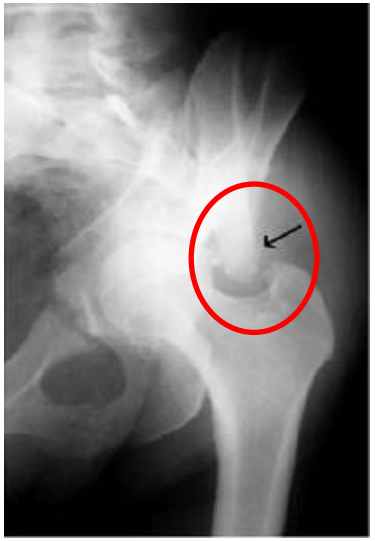
A Harbinger of Failure for Internal Fixation of Geriatric Acetabular Fractures

Jeffrey O. Anglen, MD, Timothy A. Burd, MD, Kelly J. Hendricks, MD, and Paula Harrison, RN

SEGNI RADIOLOGICI SPECIFICI

- Segno dell'artiglio
- Segno dello spicchio d'aglio
- Segno del gabbiano
- Segno dello sperone





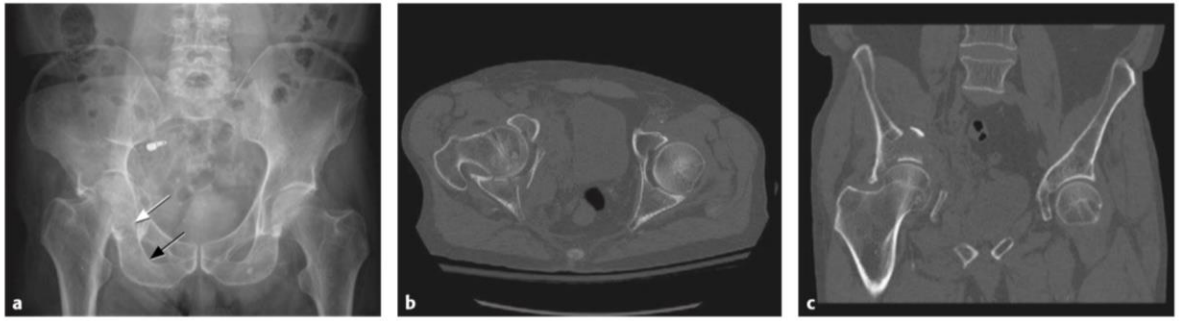
The "Gull Sign"

A Harbinger of Failure for Internal Fixation of Geriatric Acetabular Fractures

Jeffrey O. Anglen, MD, Timothy A. Burd, MD, Kelly J. Hendricks, MD, and Paula Harrison, RN

IMAGING

CT



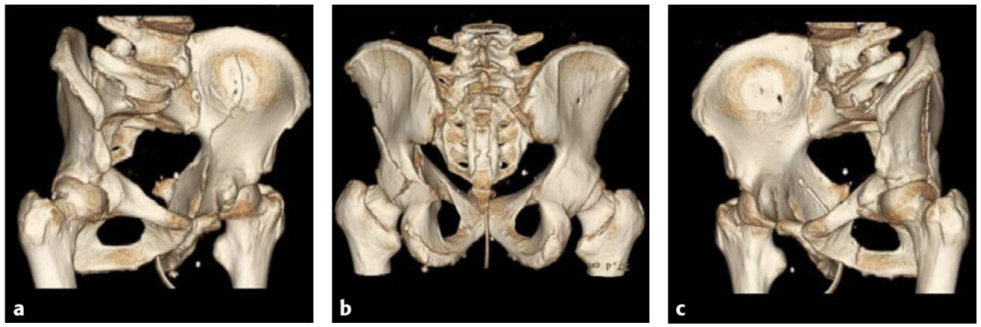
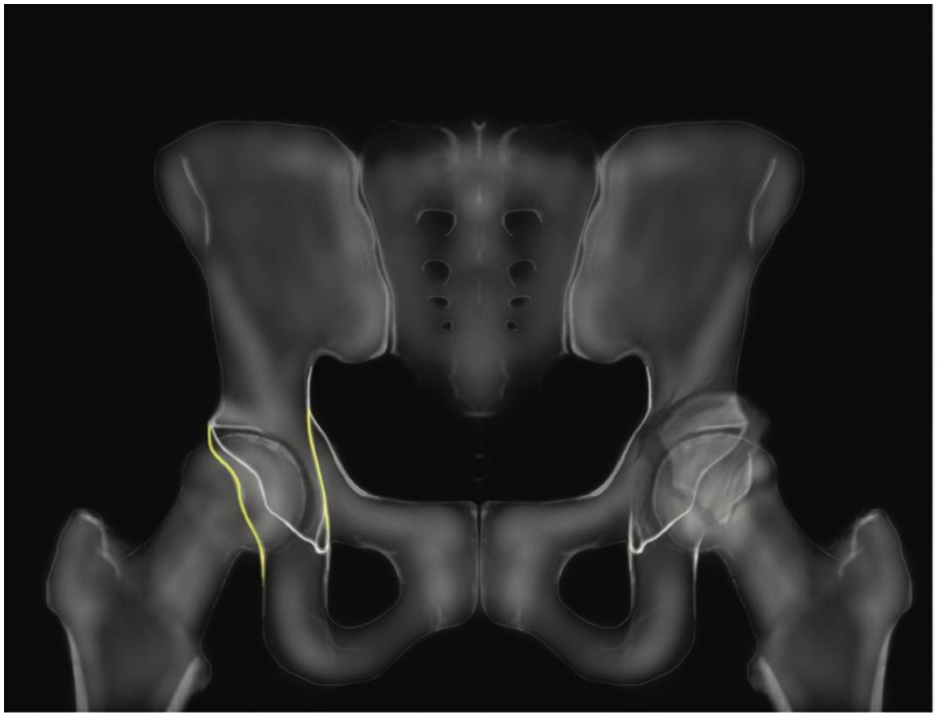


Fig 2.4-12a–c The 3-D computed tomographic reconstructions provide multiple views of this complex associated both-column fracture with posterior wall involvement.
a Modified iliac oblique view.
b Modified posterior view.
c Modified obturator oblique view.

Fractures of the Pelvis and Acetabulum—Principles and Methods of Management Marvin Tile, David L Helfet, James F Kellam, Mark Vrahas







Review Article

Radiographic Evaluation of Acetabular Fractures: Review and Update on Methodology

Cyril Mauffrey, MD, FRCS, FACS
Stephen Stacey, MD
Philip J. York, MD
Bruce H. Ziran, MD, FACS
Michael T. Archdeacon, MD

GOAL

- Recupero della superficie articolare
- Recupero della congruenza della testa femorale con l'acetabolo
- Precoce mobilizzazione
- Ripristino della funzionalità dell'anca in assenza di dolore

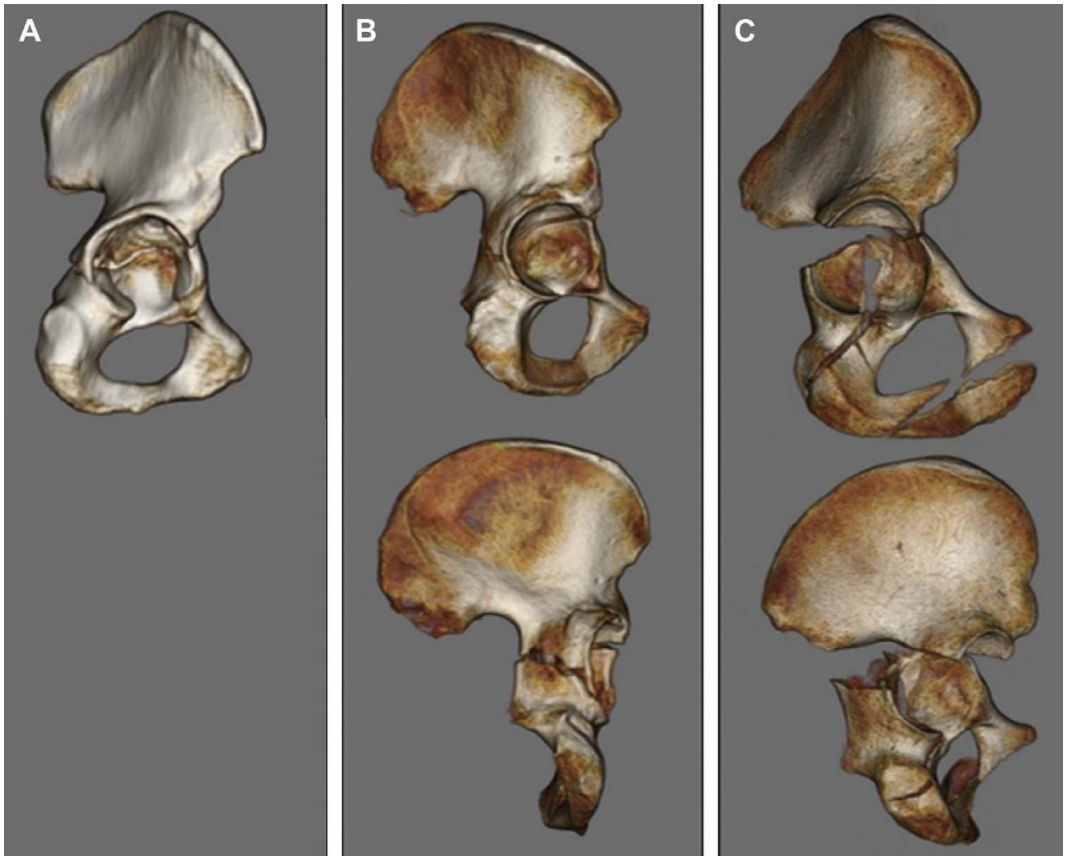
Evaluation of Acetabular Fractures with Two- and Three-dimensional CT[1]

Carlos R. Martinez, MD
Thomas G. Di Pasquale, DO
David L. Helfet, MD
Angus W. Graham, MD
Roy W. Sanders, MD
Lisa D. Ray, RT

ARTICLE IN PRESS

Imaging Acetabular Fractures

David Dreizin, MD[a,*], Christina A. LeBedis, MD[b], Jason W. Nascone, MD[c]



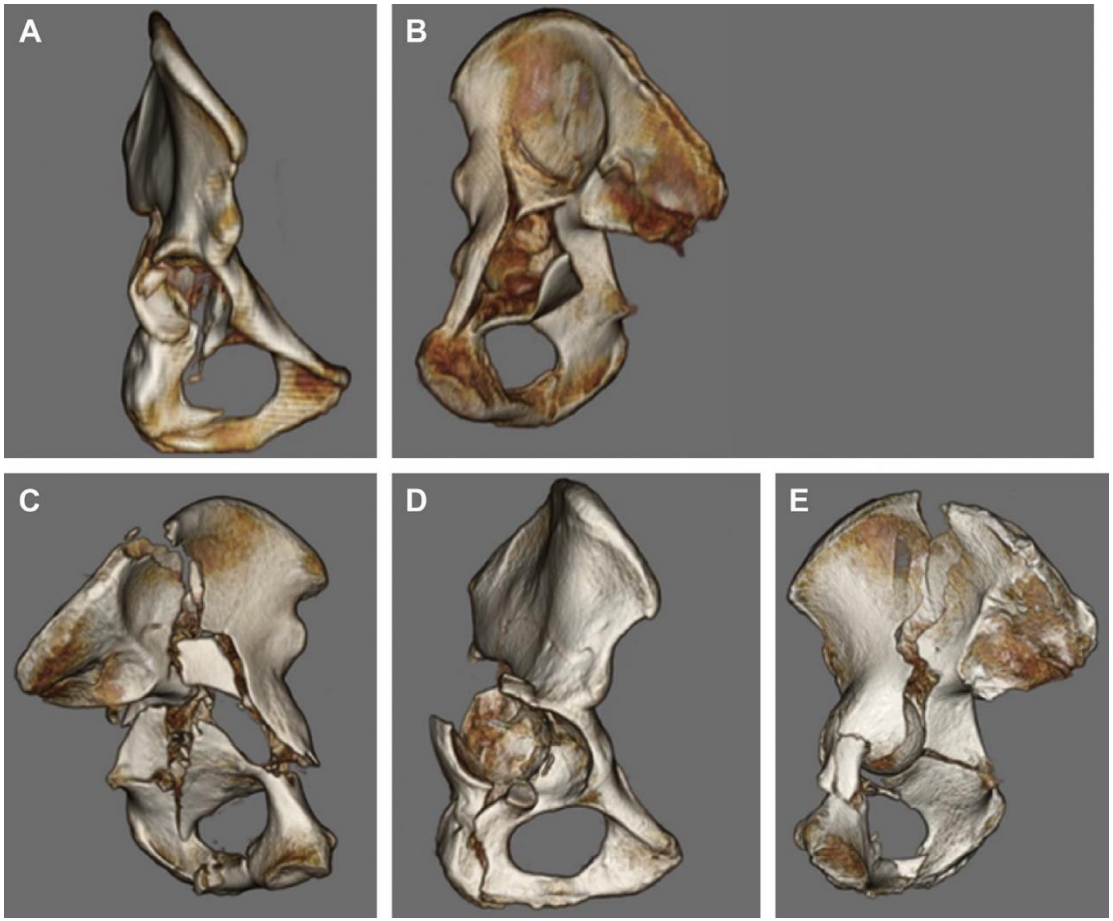
Transverse family fractures:

- elemental transverse (A)
- TPW(transversa con muro posteriore) (B)
- T type (C)

ARTICLE IN PRESS

Imaging Acetabular Fractures

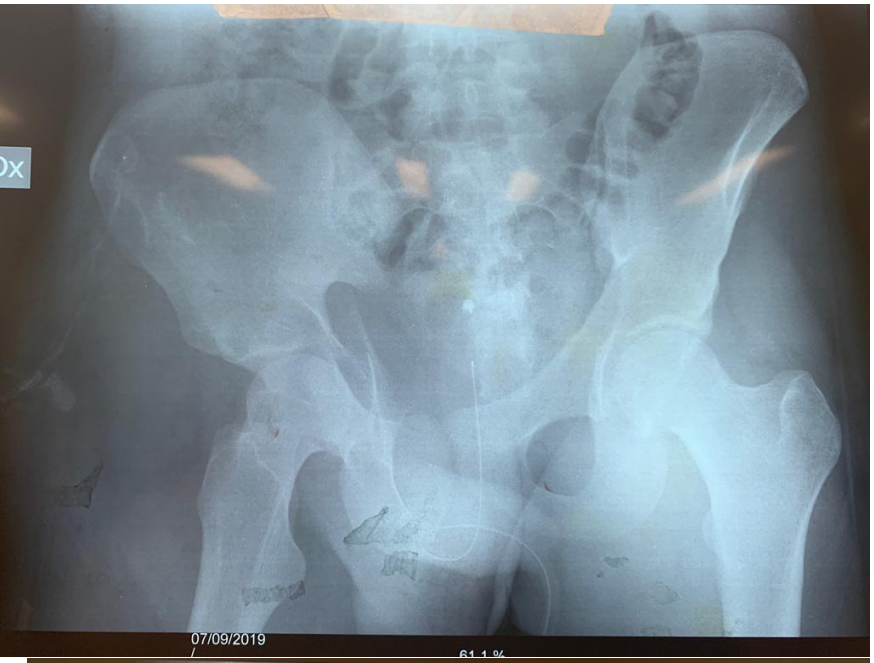
David Dreizin, MD[a,*], Christina A. LeBedis, MD[b], Jason W. Nascone, MD[c]



Column family fractures include:

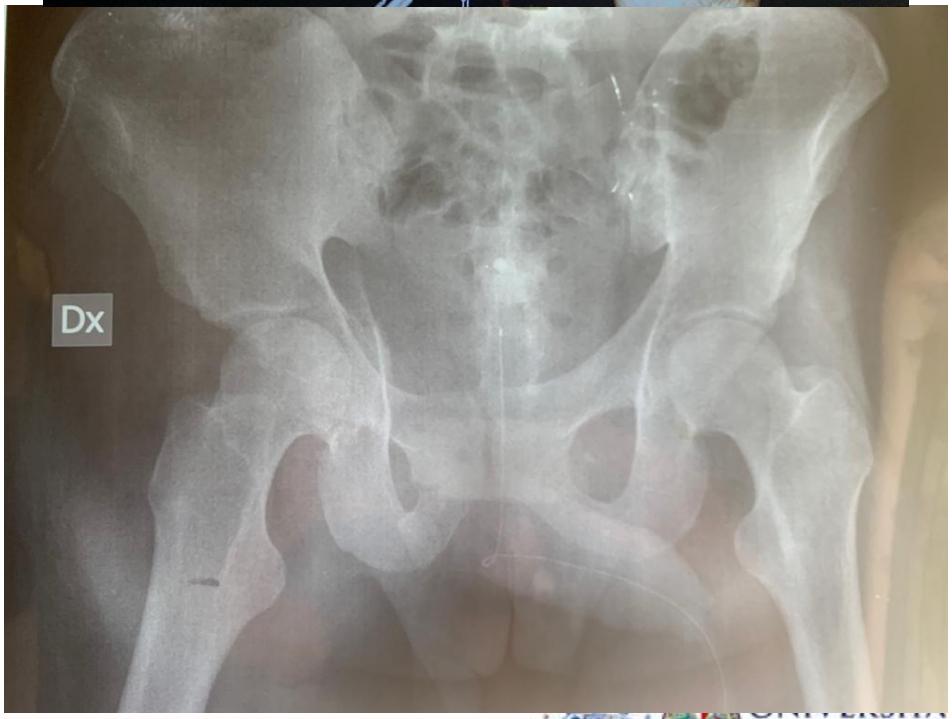
- elemental posterior (A),
- elemental anterior (B)
- ABC(bicolonnare) fractures (C)
- PCPW(colonna post. Muro post.) fractures (D)
- ACHT(colonna ant ed emitrasversa) fractures (E)

Casi clinici

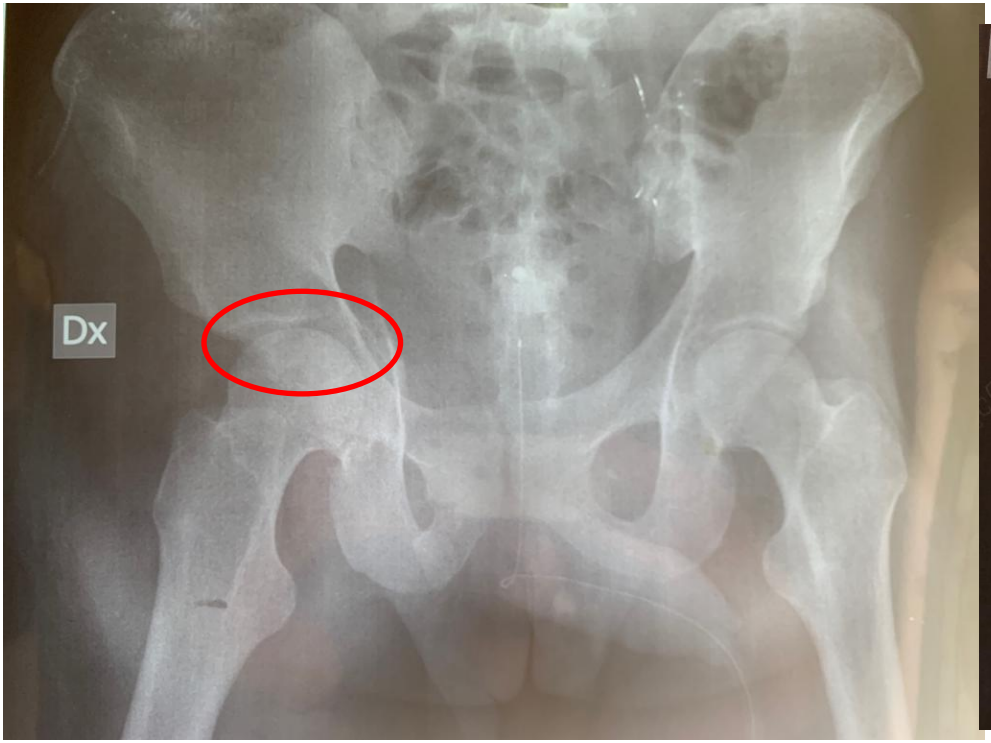

Dx
07/09/2019
/

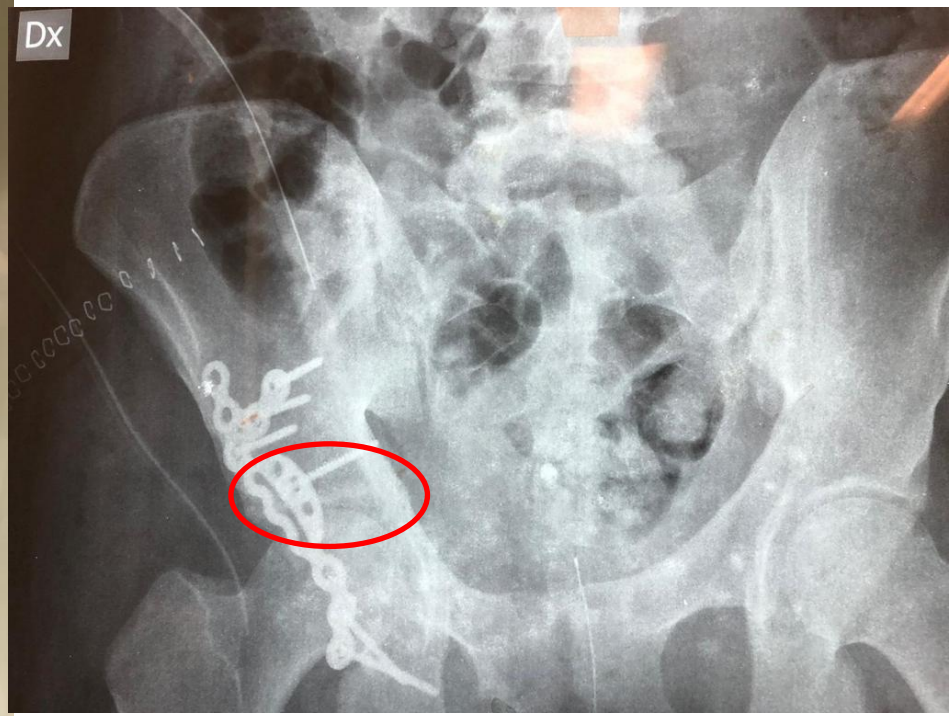

SR
Cut inside
Cut outside
Clear area


07/09/2019
/
ORA ESAME 11.53.40
60,9 %

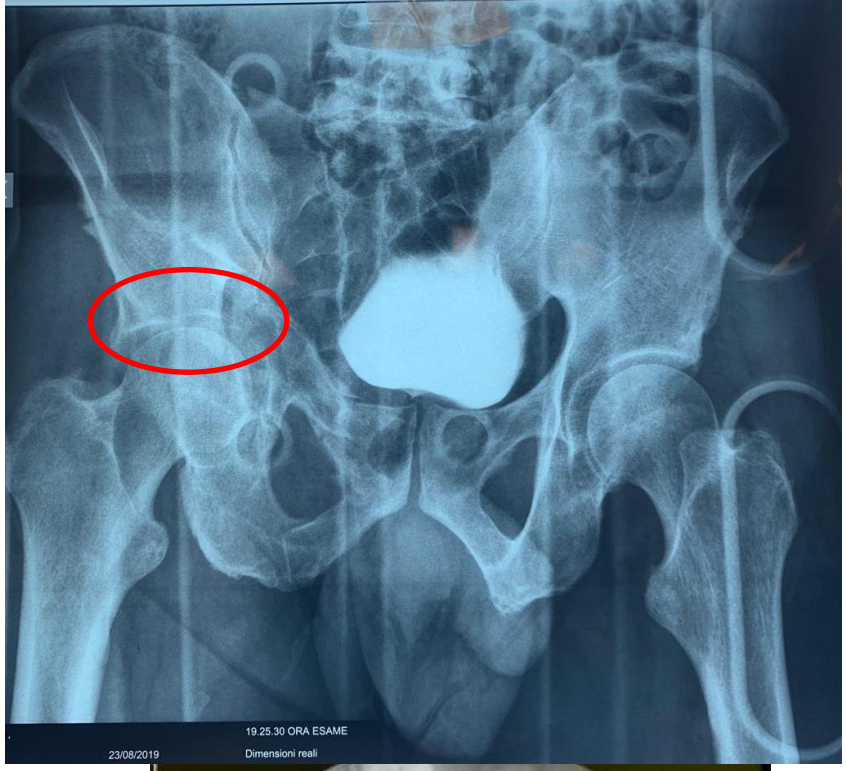

Dx

Maschio 25 anni

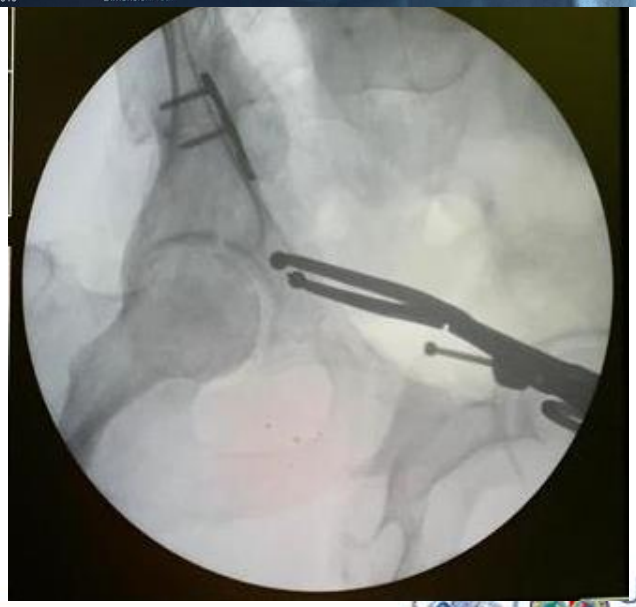




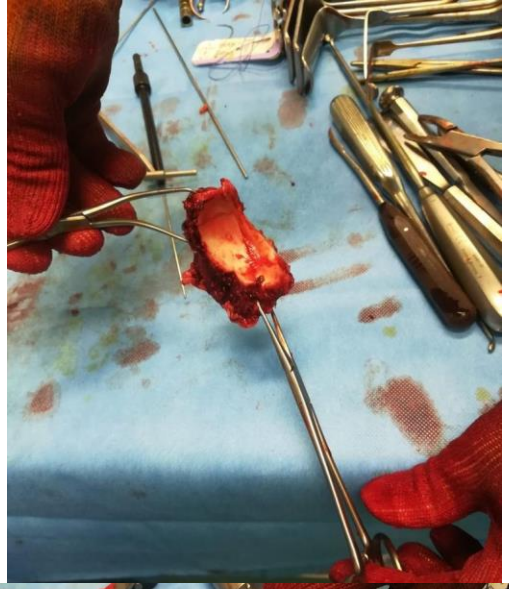


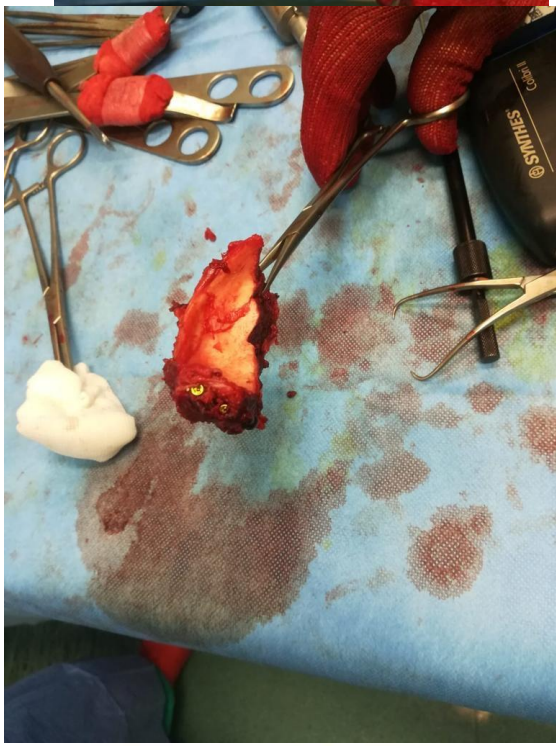

19.25.30 ORA ESAME
23/08/2019
Dimensioni reali


Dx



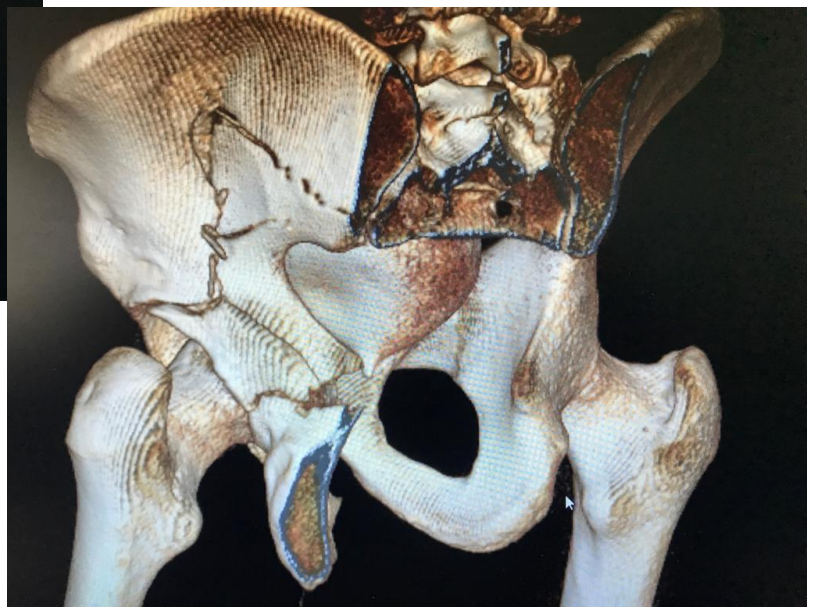

D
Dx
ORA ESAME 16.29.29
14/08/2019
Dimensioni reali

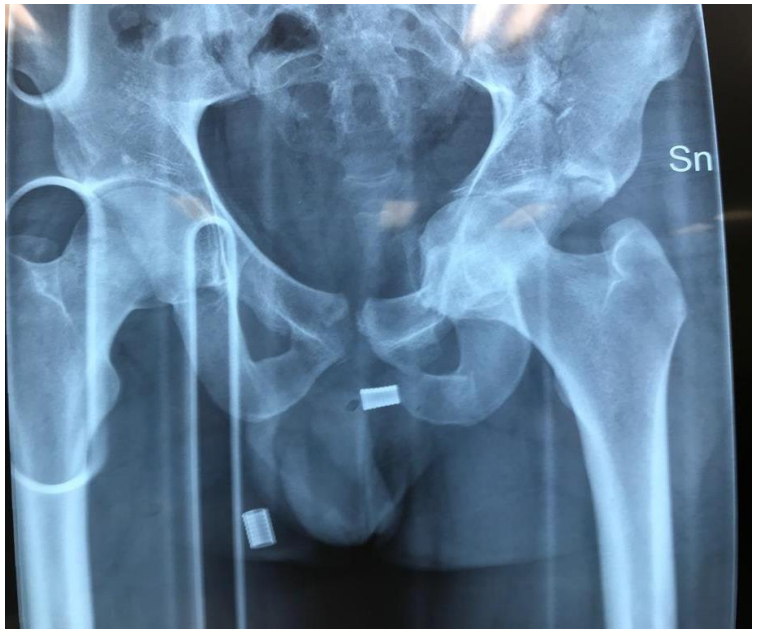


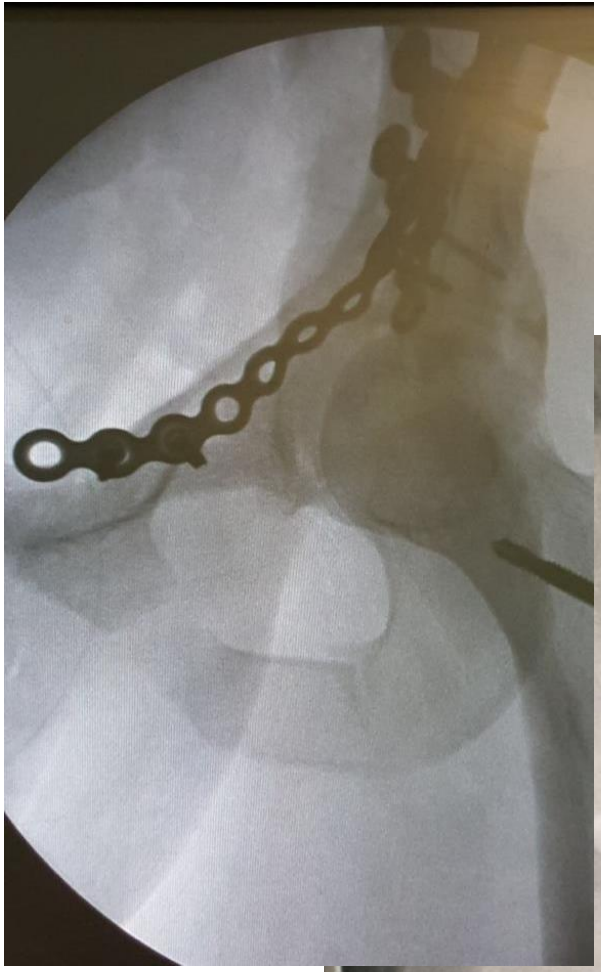

SYNTHES

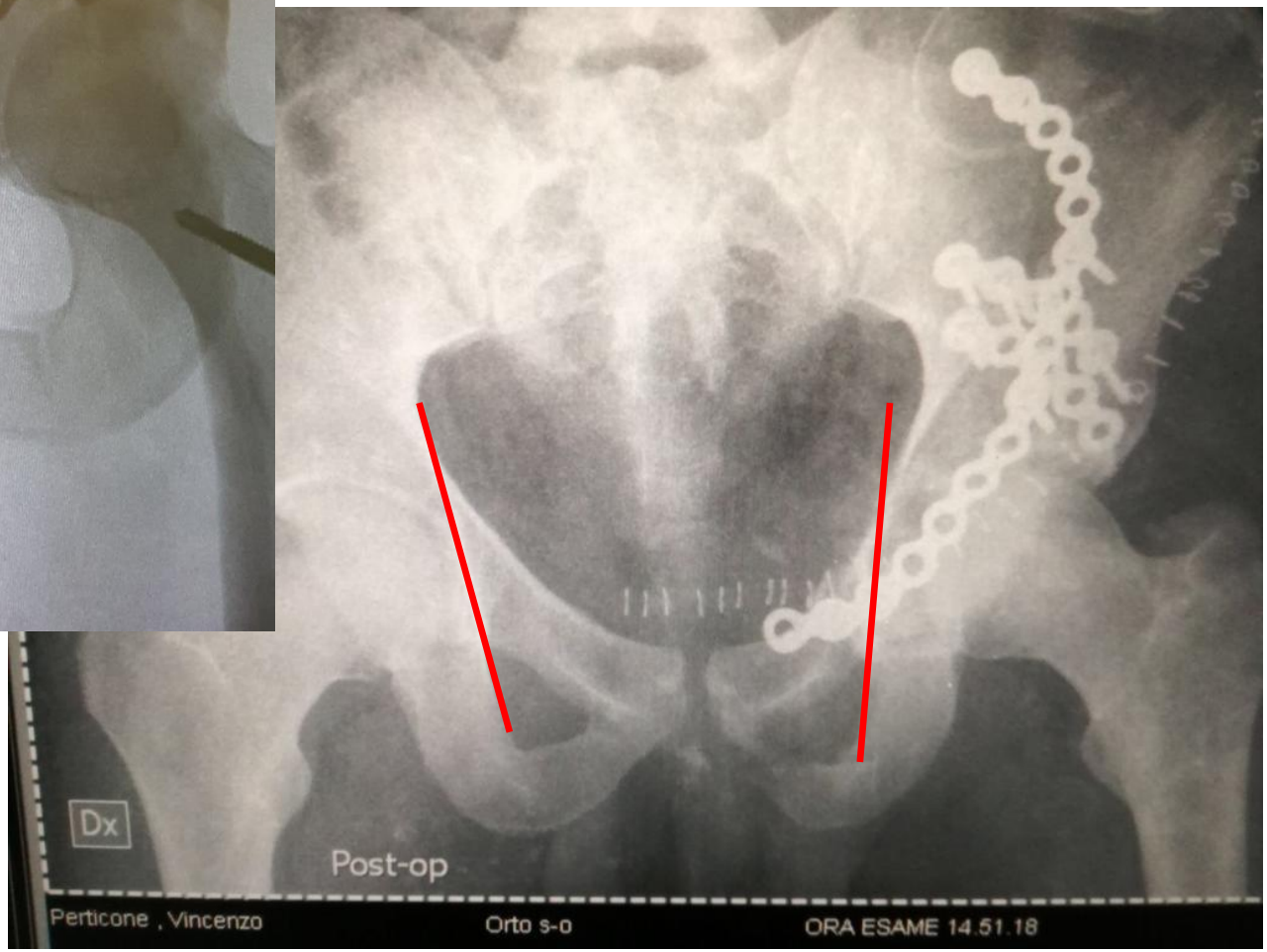

POST





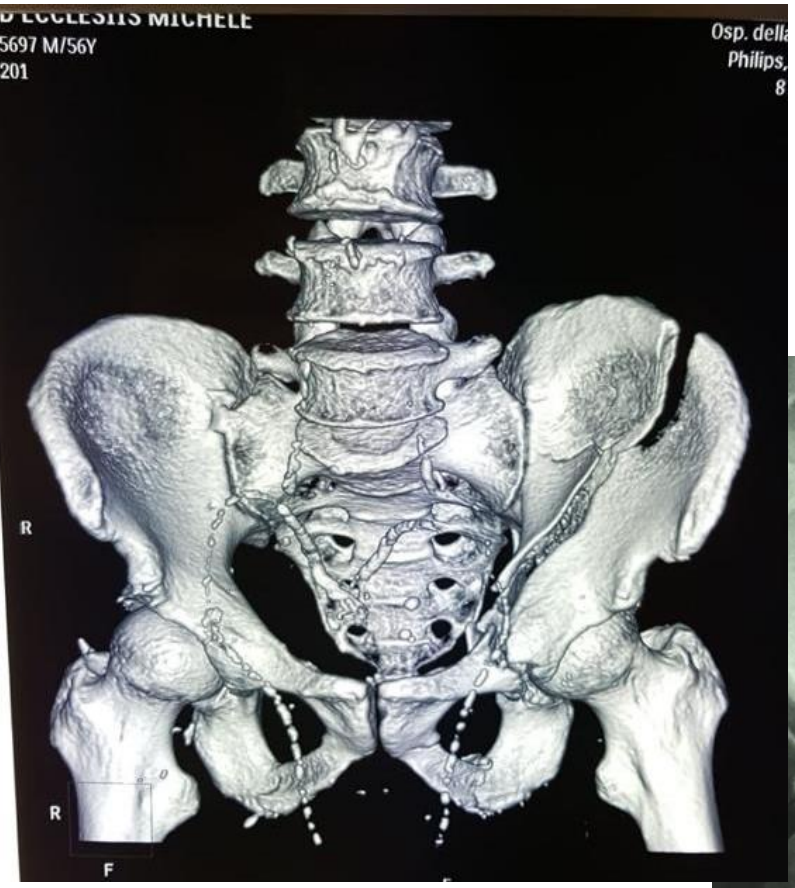

Sn




Dx
Post-op
Perticone , Vincenzo
Orto s-o
ORA ESAME 14.51.18


Sn


24-lug-2019 17.03.4

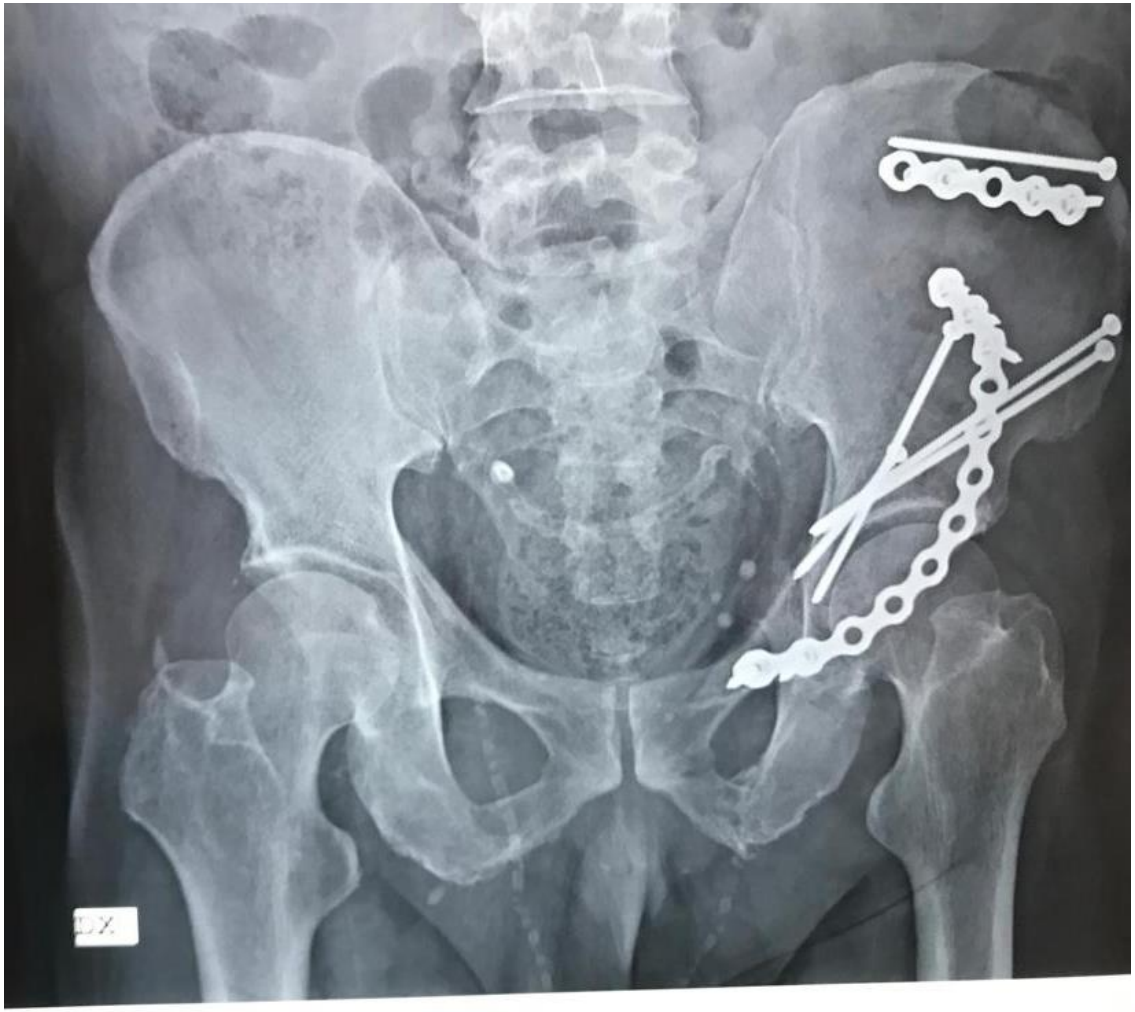

5697 M/56Y
201
Osp. della
Philips,
8
R
R
F



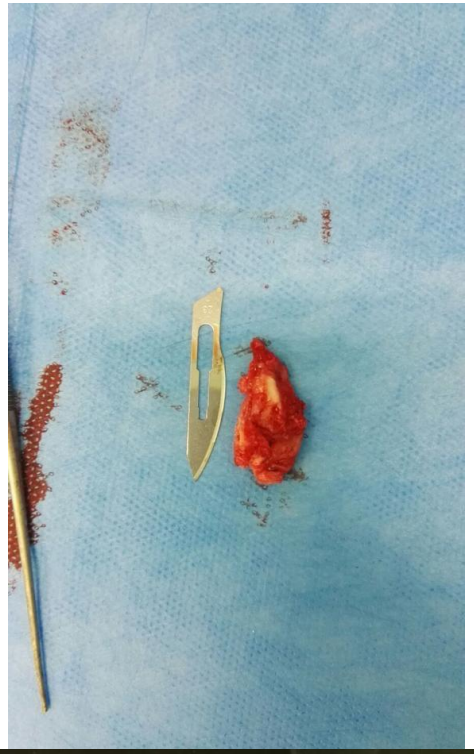


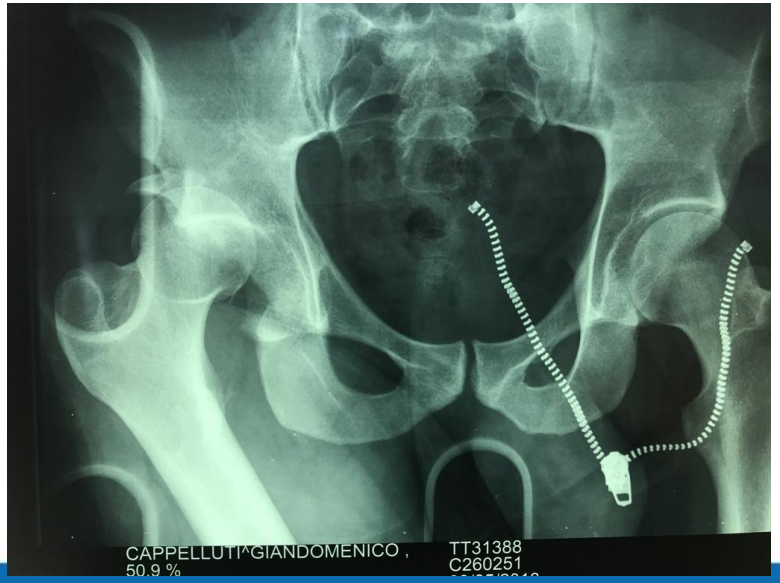

Dx

Maschio 70 anni








CAPPELLUTI^GIANDOMENICO ,
50.9 %
TT31388
C260251



TAKE-HOME MESSAGE

- **Identificare il pattern fratturativo secondo Judet-Letournel**
- **RX AP ILIACA OTTURATORIA, completare con TC**
- **Ridurre i tempi della chirurgia**
- **Riduzione anatomica**
- **Centri specializzati**



Vincenzo Zottola
U.O. complessa di ortopedia e traumatologia Asst - Lariana

CONGRESSO NAZIONALE DELLA
SOCIETÀ ITALIANA DELL'ANCA

www.societaitalianadellanca.eu



19-20
settembre 2019
BERGAMO

Presidente Onorario
Paolo Cherubino

Presidente
Claudio Carlo Castelli

MAIN TOPICS

- IL PROGRAMMA NAZIONALE ESITI (PNE) E LA CHIRURGIA DELL'ANCA
- LE VIE DI ACCESSO: FATTI, IPOTESI, ILLUSIONI
- LE REVISIONI CONSERVATIVE
- LE NUOVE TECNOLOGIE: FATTI, IPOTESI, ILLUSIONI
- IMPINGEMENT FEMORO ACETABOLARE: ARTROSCOPIA E CHIRURGIA APERTA
- OBIETTIVO RISCHIO ZERO IN CHIRURGIA ELETTIVA MAGGIORE- ERAS

PROGRAMMA SCIENTIFICO



19-20
settembre 2019
BERGAMO

CONGRESSO NAZIONALE DELLA
SOCIETÀ ITALIANA DELL'ANCA

SALA B

08.00 CORSO DI ISTRUZIONE 6
08.45 TRAUMA: FRATTURE ACETABOLARI
Moderatore: **Alberto Belluati** (Ravenna)

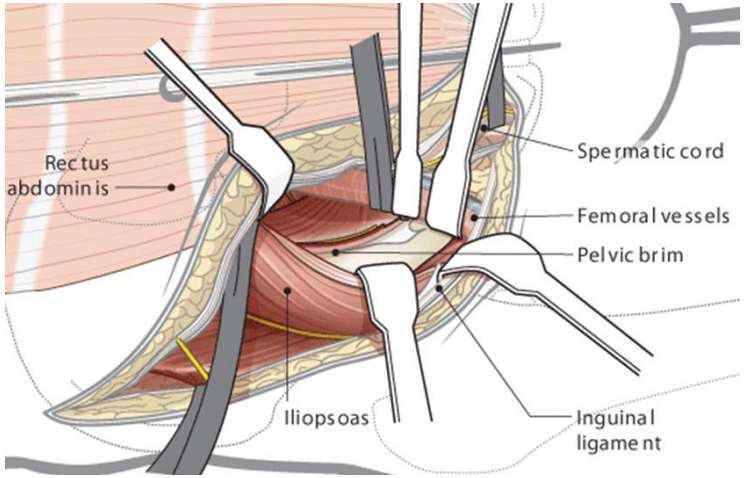
08.00 Una classificazione radiologica utile : vediamo quello che cerchiamo e cerchiamo quello che conosciamo
Antonio Panella (Bari)

08.10 La via di accesso
Vincenzo Zottola (San Fermo della Battaglia)

08.20 Principi della sintesi
Federico Bove (Milano)

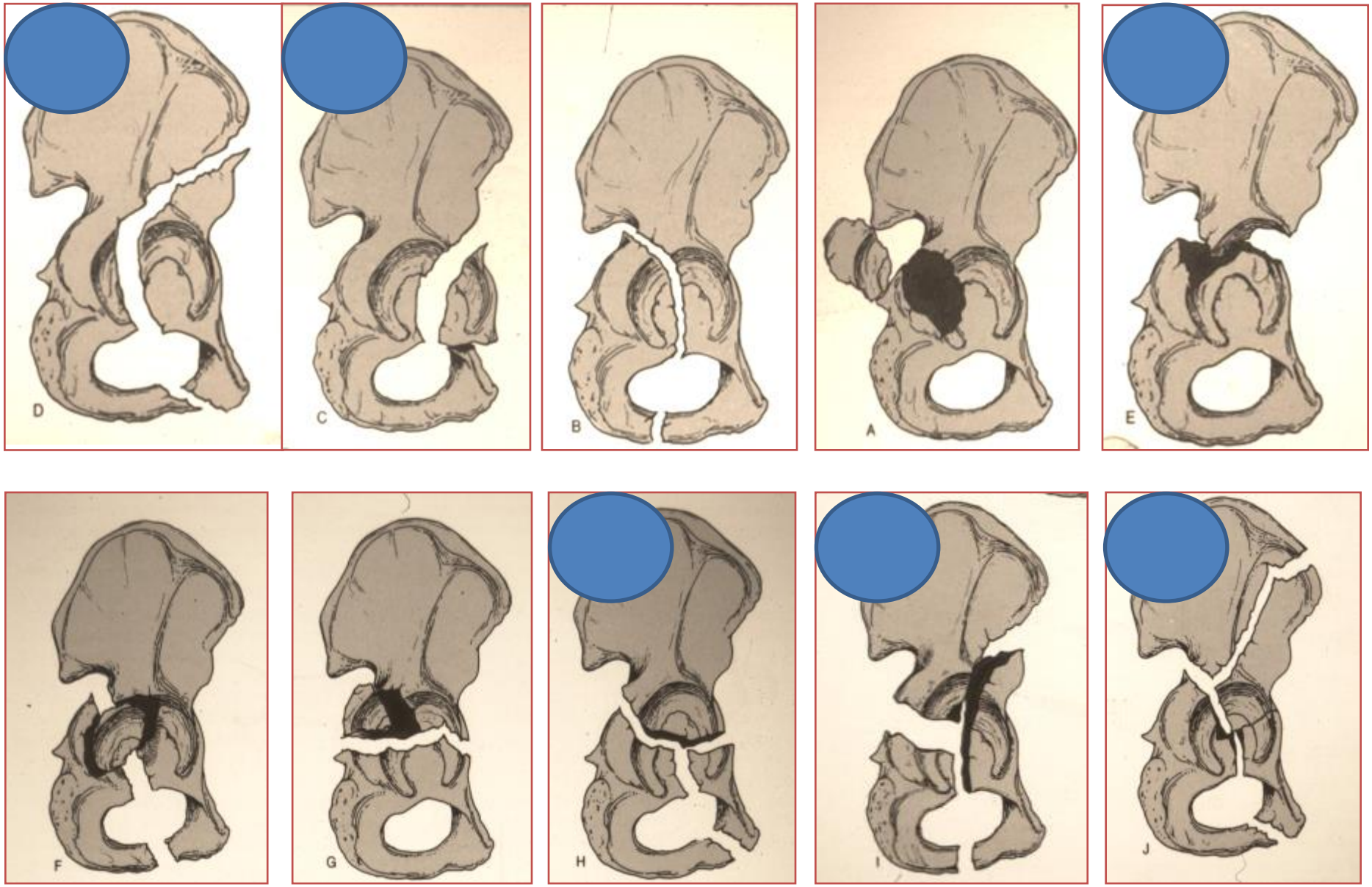
08.30 Discussione

Vie anteriori





Colonna ant | Parete ant | Colonna post | Parete post | Trasversa

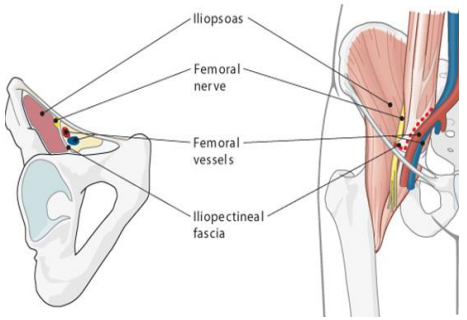


Colonna post + parete post. | Trasversa + parete post | Trasversa a T | Colonna ant + emitrasv post. | 2 Colonne

Tipo di Frattura	Letournel (N = 567)	Matta (N = 255)	Dakin et al (N = 85)	Rocca (N =434)
Due Colonne	**27.9**	**33.3**	**14.1**	**20.0**
Trasversa con Parete Posteriore	20.6	23.5	35.3	10.8
Colonna Anteriore + Emitrasversa Post	**8.8**	**5.9**	**3.5**	**9.2**
Trasversa a T	5.3	12.2	3.5	2.4
Trasversa	3.[illegible]	[illegible]	8.2	14.6
Colonna Anteriore	**3.9**	**4.7**	**1.2**	**9.2**
Parete Posteriore	22.4	8.6	12.9	14.6
Colonna Posteriore con Parete Post	3.5	3.9	18.8	10.8
Colonna Posteriore	2.3	3.1	1.2	6.1
Parete Anteriore	1.6	1.2	1.2	2.3

40 %

Visibilità accesso Ileo-inguinale

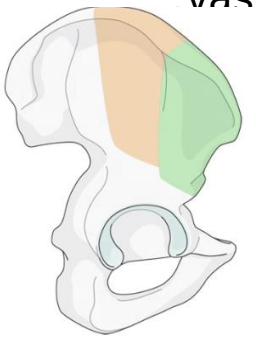


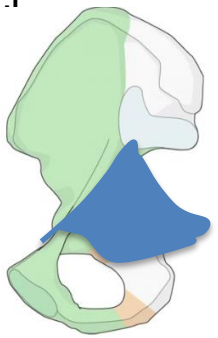
1

2

Ileo-psoas e nervo femorale

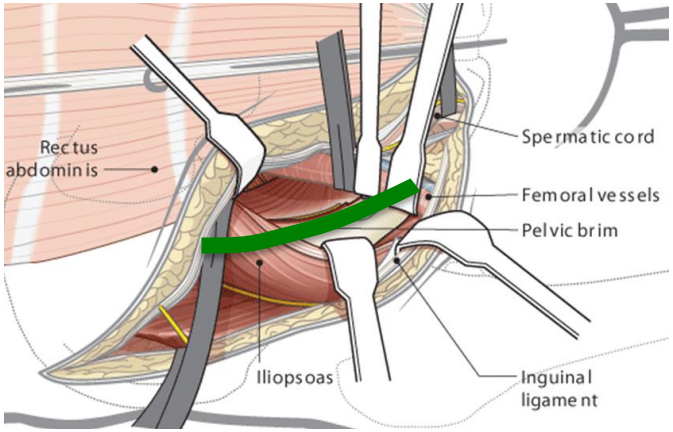
vasi iliaci



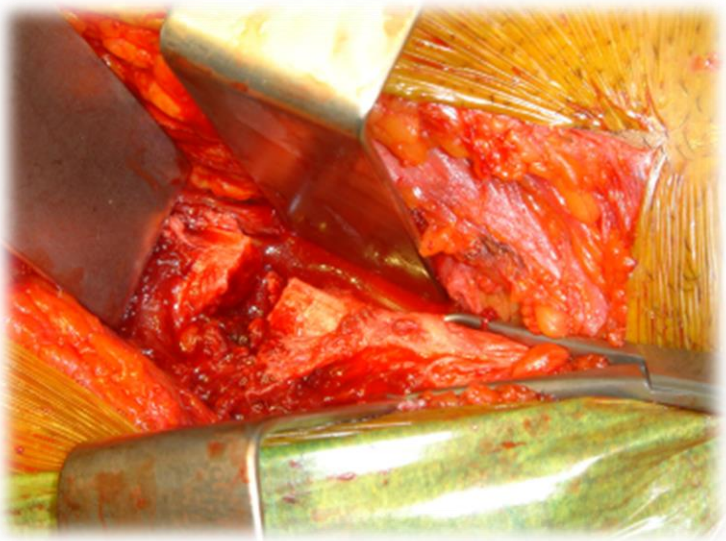


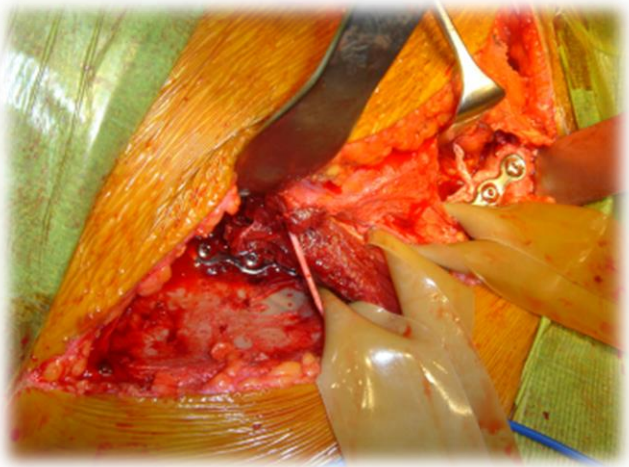
1- buona visibilità dell'ala iliaca → *fx colonna anteriore alta*

2 -scarsa-nulla visibilità endopelvica → *fx lamina quadrilatera*


Rectus abdominis
Spermatic cord
Femoral vessels
Pelvic brim
Iliopsoas
Inguinal ligament







fx sulla linea innominata



fx sotto la linea innominata

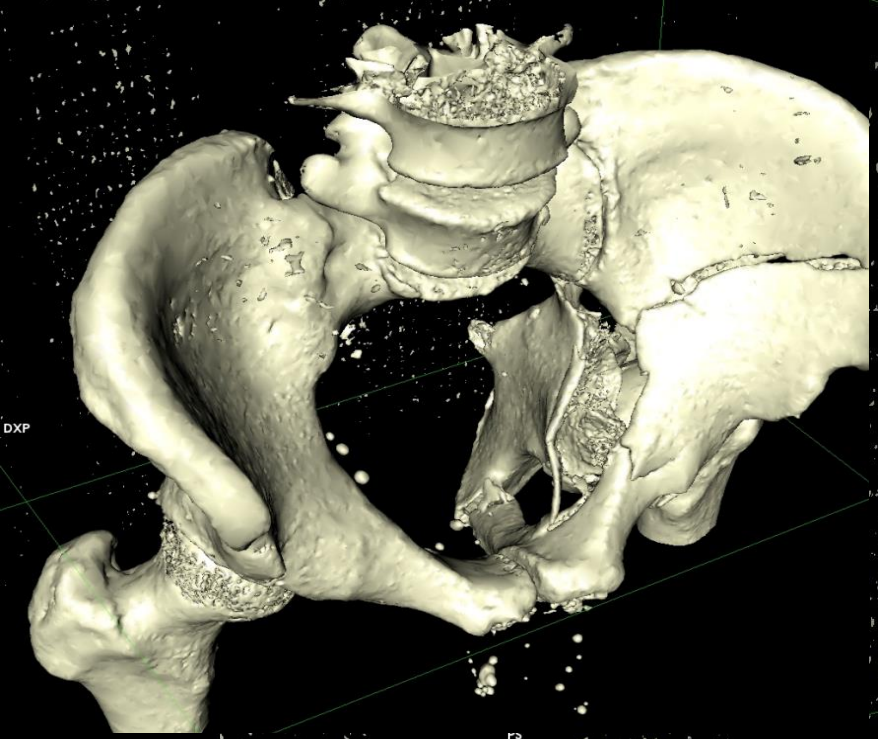


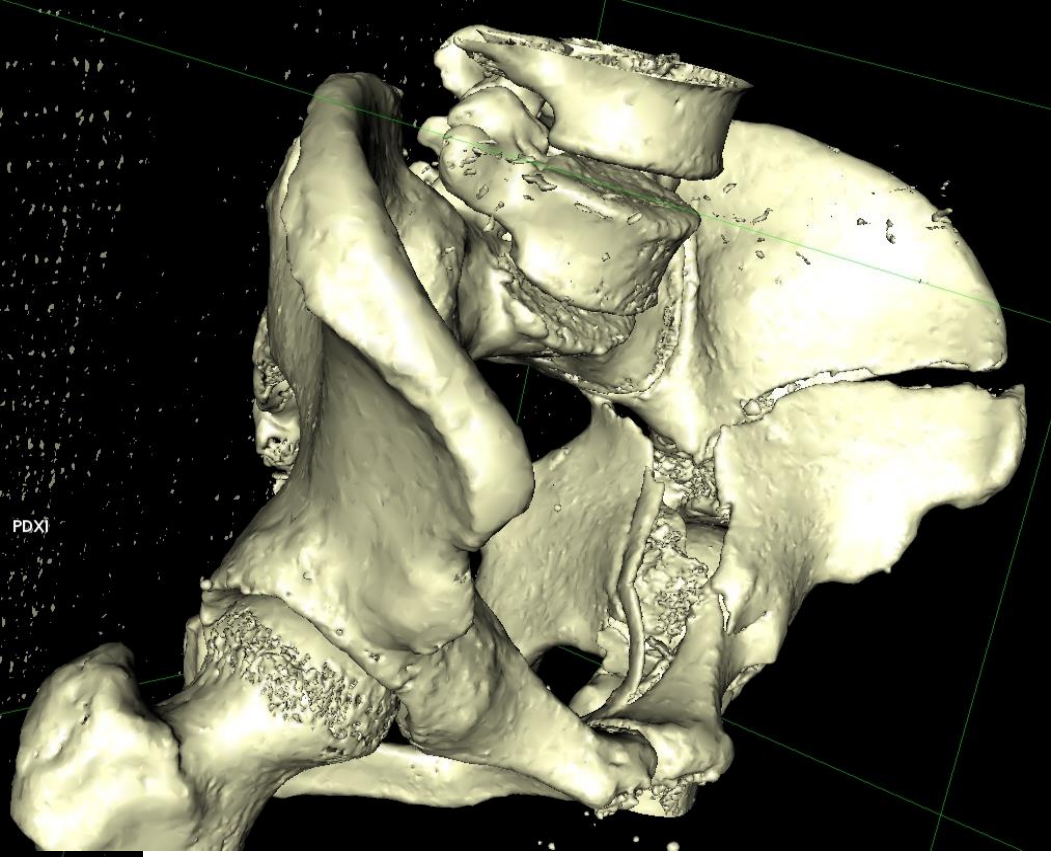
fx taglia la linea innominata

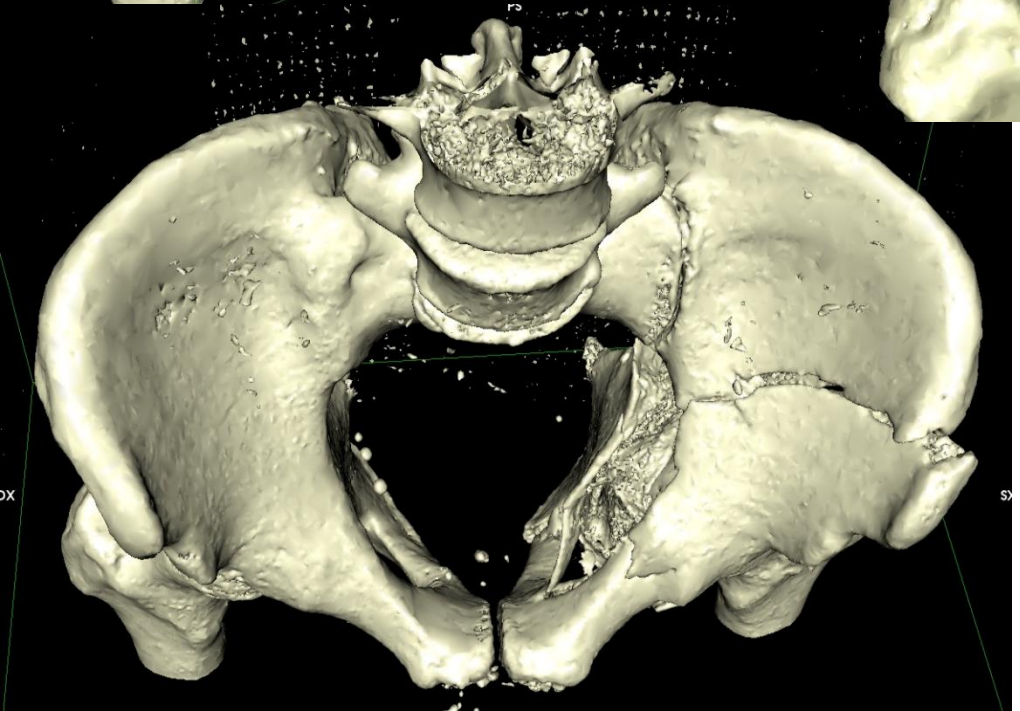


fx alta Energia



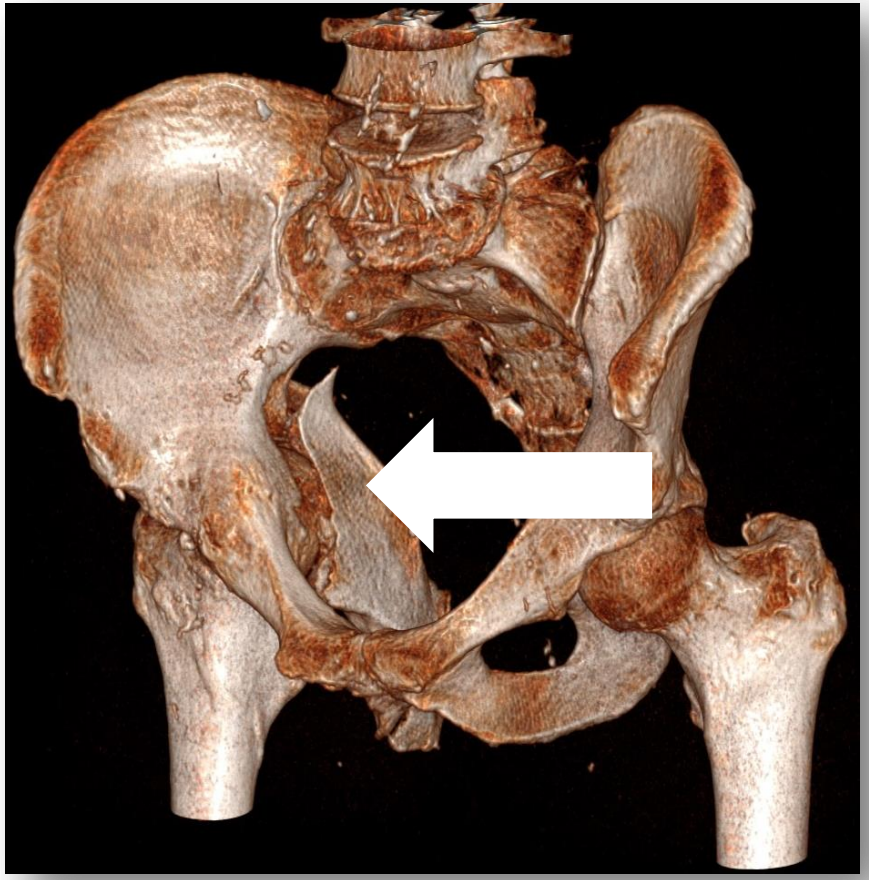




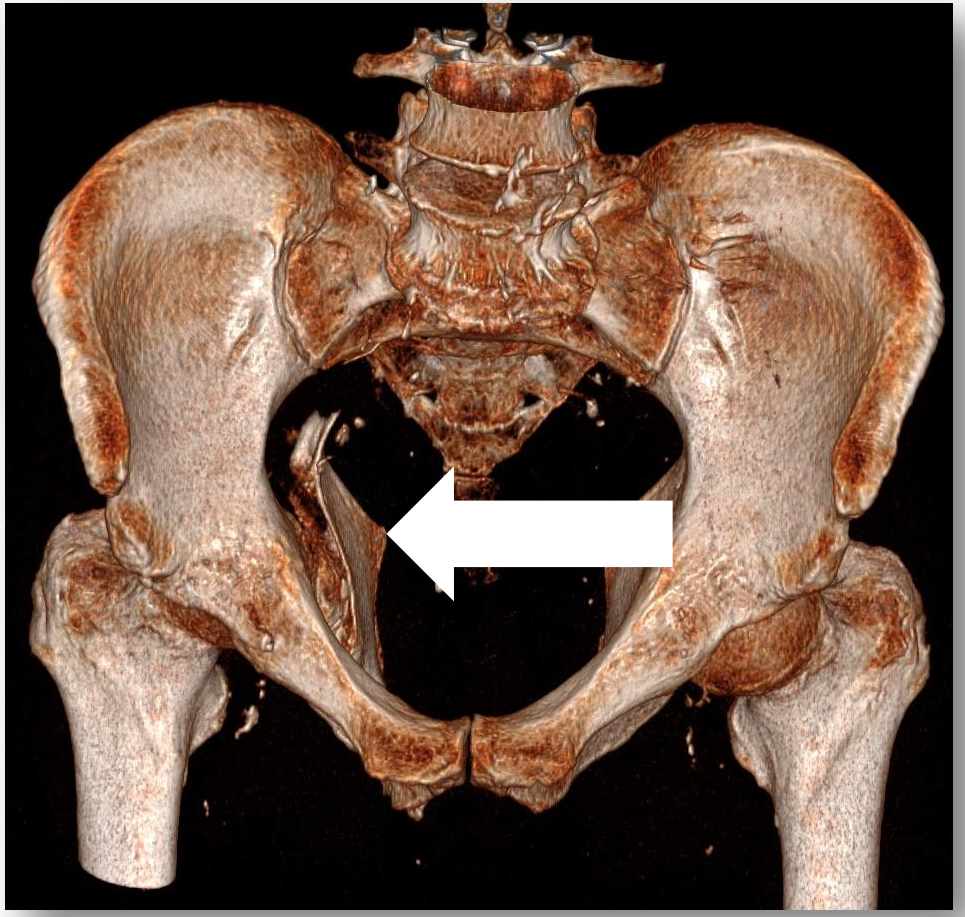


PROBLEMA

La lamina quadrilatera migra posteriormente e medialmente



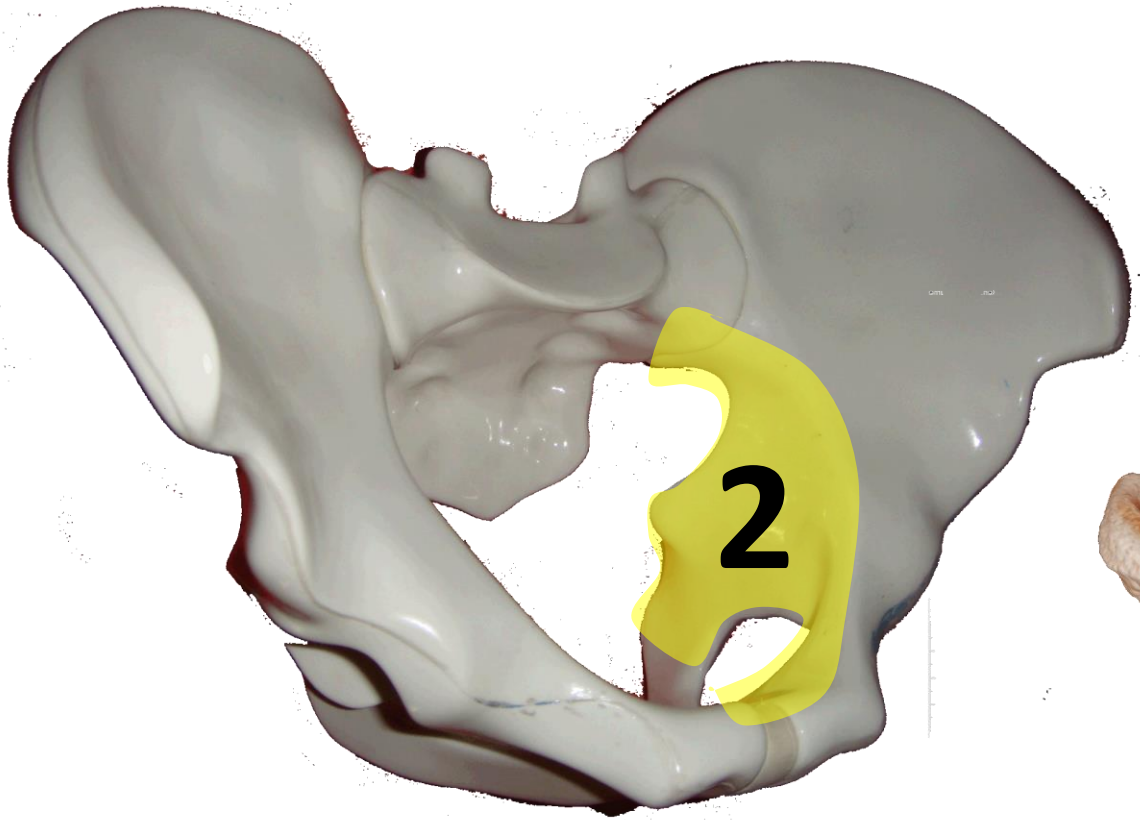
Chiave di riduzione è mediale

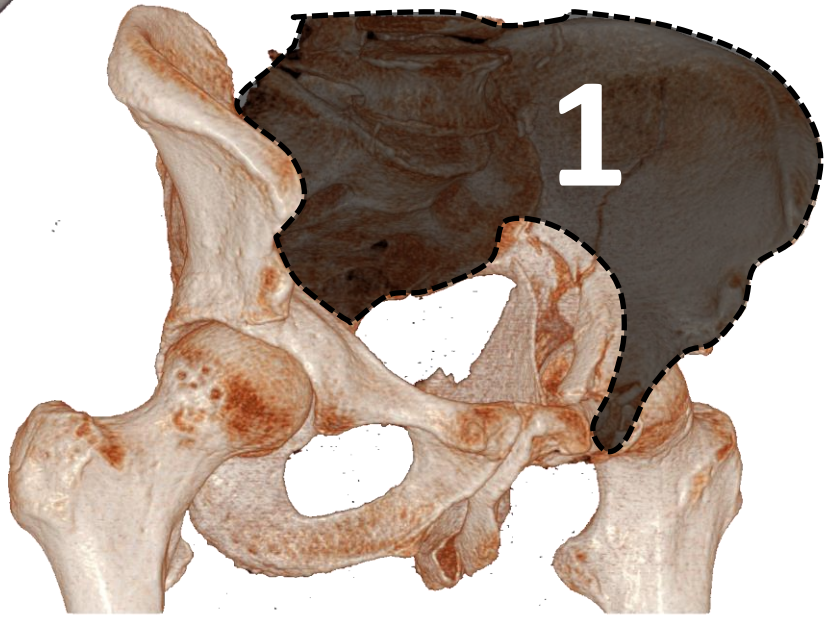


Accesso mediale

Endopelvico

Visibilità dell' accesso di Stoppa





•***Cole JD, Bolhofner BR:*** *Acetabular fracture fixation via a modified Stoppa limited intrapelvic approach: Description of operative technique and preliminary treatment results. Clin Orthop 1994;305:112-123.*

•***Hirvensalo E, Lindahl J, Kiljunen V****: Modified and new approaches for pelvic and acetabular surgery. Department of Orthopaedics and Traumatology, Helsinki University Hospital, Topeliuksenkatu 5, HUS-00029 Helsinki, Finland*

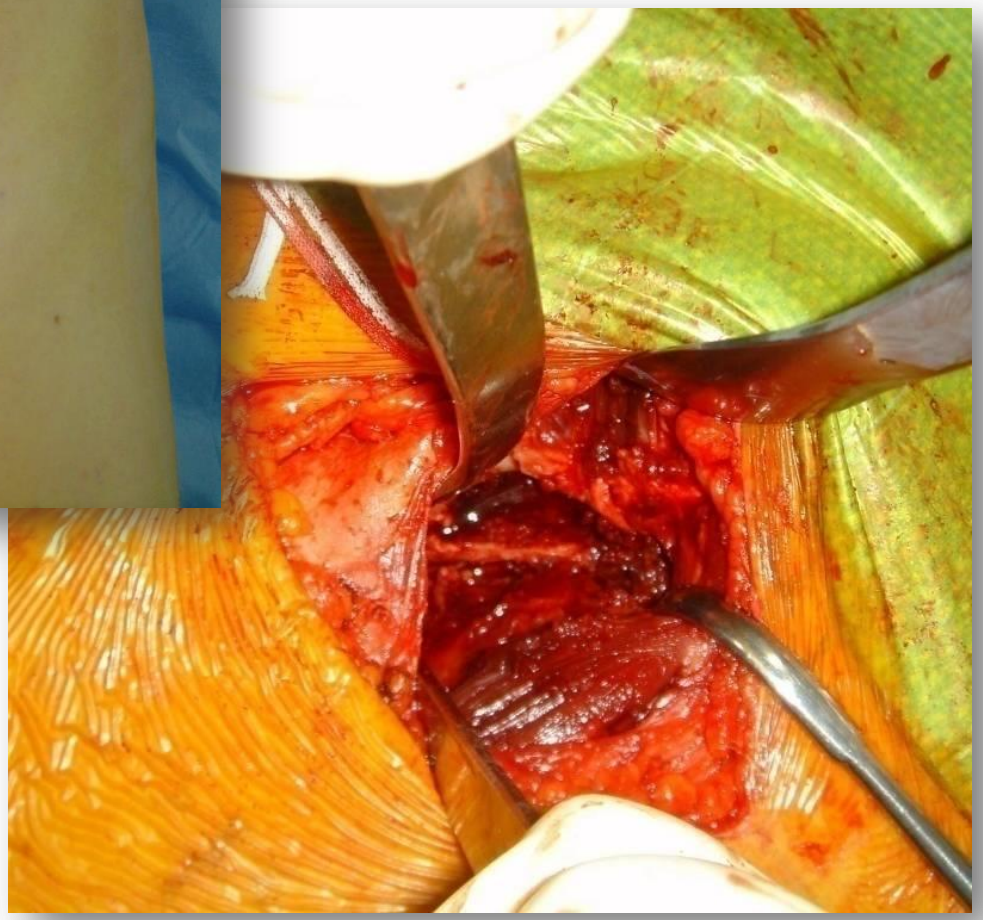
1- visibilità dell'ala iliaca nulla → *fx colonna anteriore alta*

2 buona visibilità endopelvica → *fx lamina quadrilatera*

Approccio di Stoppa







DIFFICOLTA’

Stiramento Retto addominale omolaterale

Forte tensione sull’eminenza ilieo-pettinea

Rischio ghigliottinamento vasi iliaci

Anterior Modifications

- Addition of Smith Peterson interval
  - Improved access to anterior/lateral wall, joint

Kloen JOT 2002

- Intra Pelvic Extension (Stoppa/AIP)
  - Access to Quadrilateral surface

Cole D CORR 1994

Sagi H JOT 2010

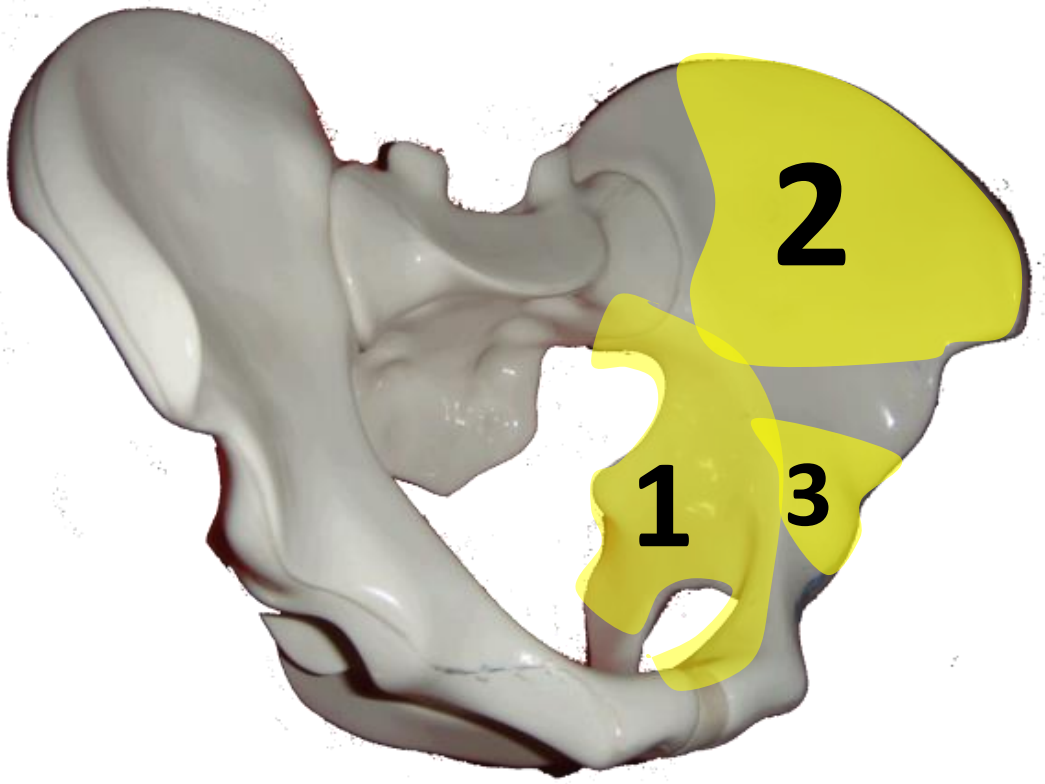
- Smith Peterson, Iliofemoral

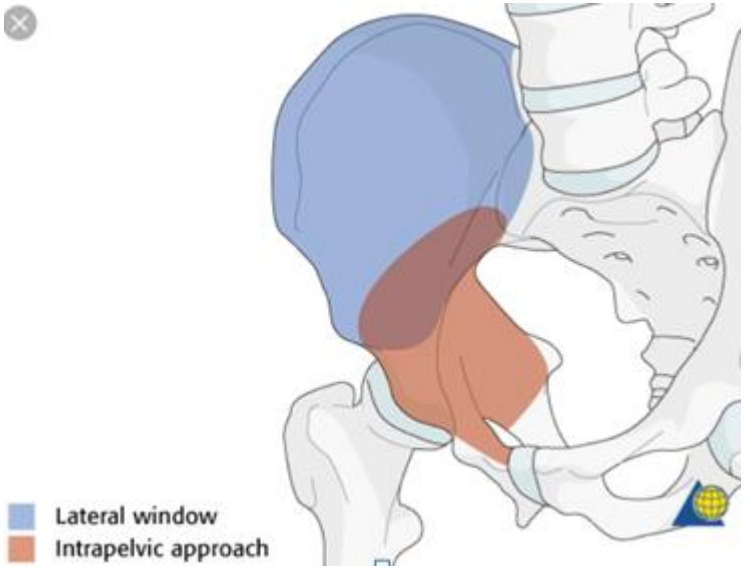
Anterior Combined Endopelvic approach

Anterior Combined Endopelvic (ACE) approach for the treatment of acetabular and pelvic ring fractures: A new proposal

G. Rocca *, M. Spina, M. Mazzi

Injury 45S (2014) S9 – S15



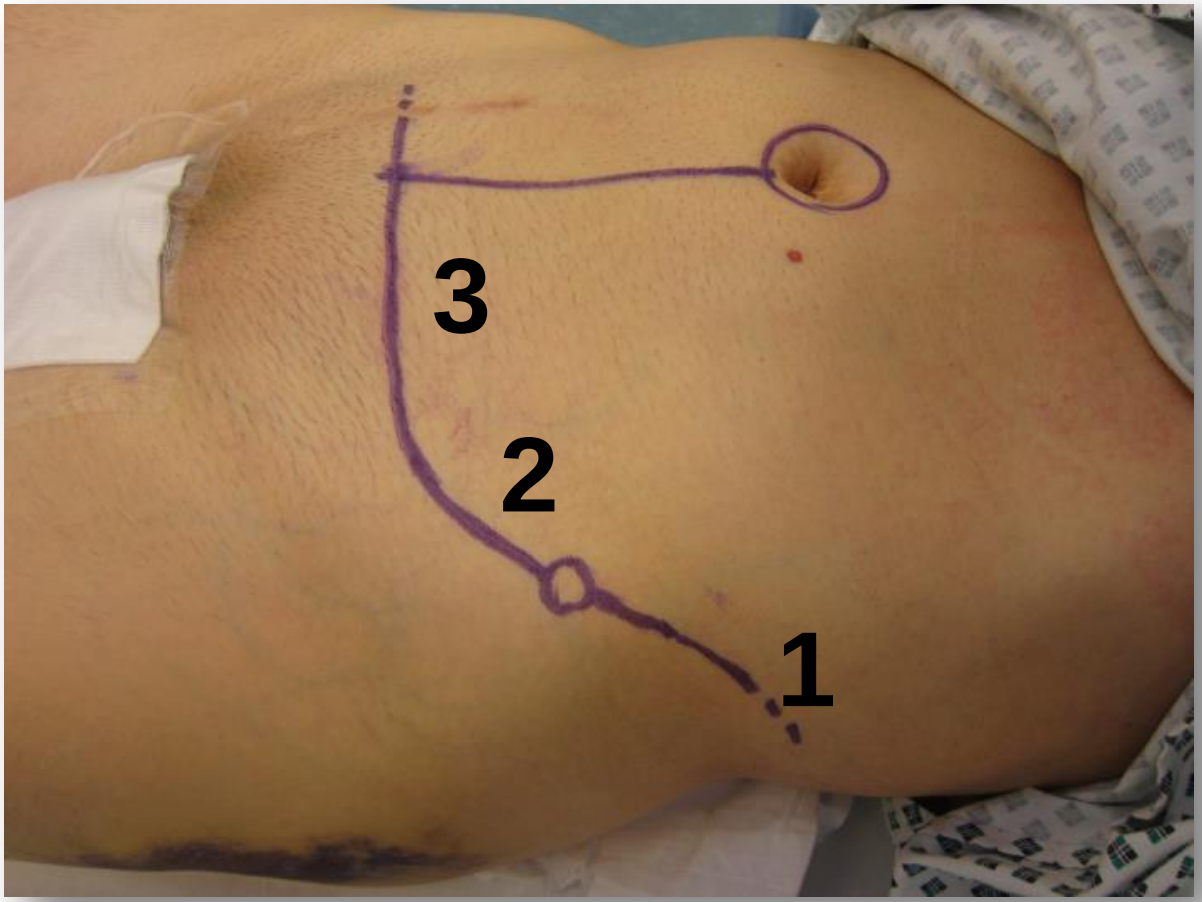


1- buona visibilità endopelvica→ *visione diretta della lamina quadrilatera*

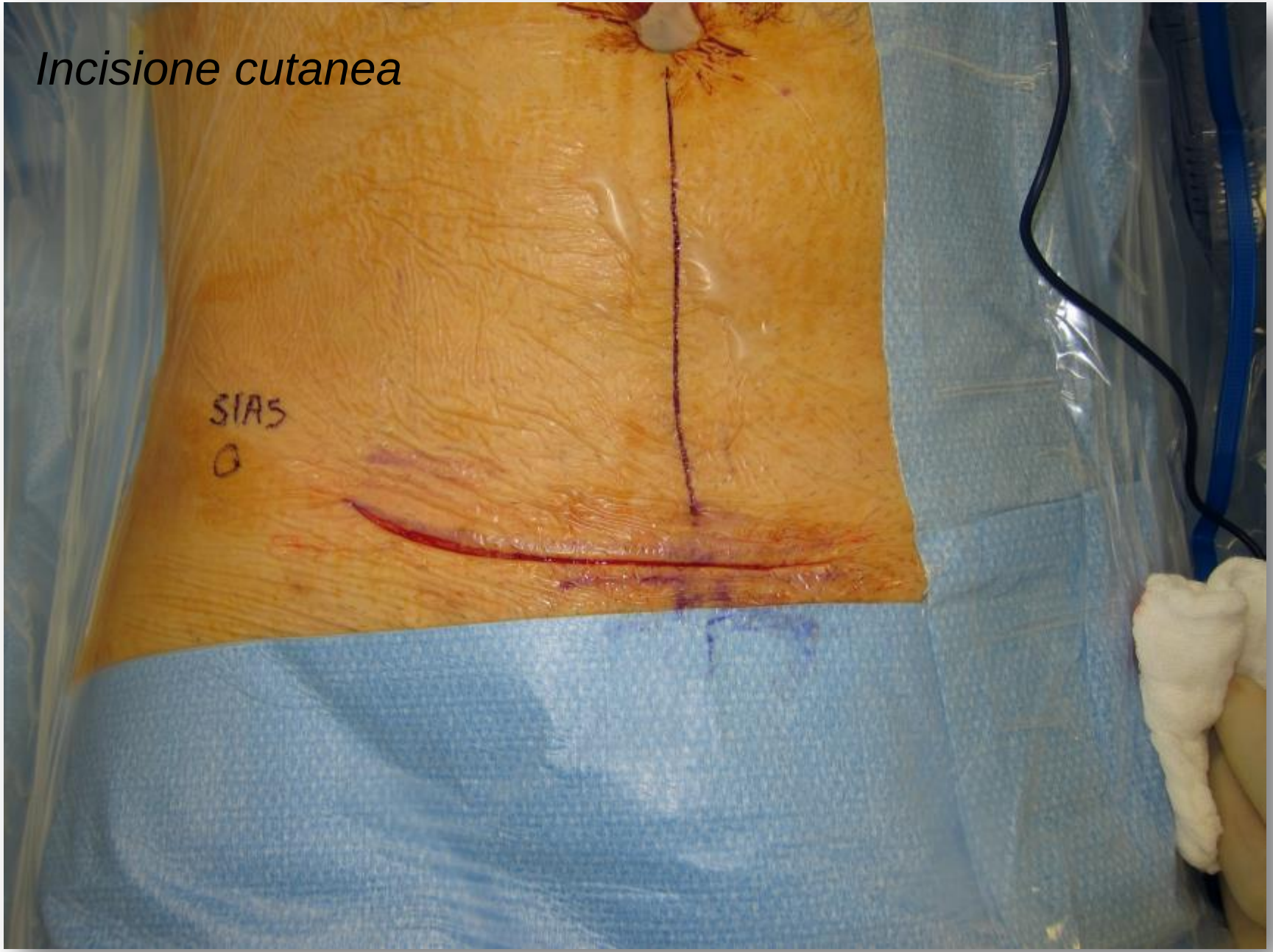
2 - buona visibilità dell'ala iliaca → *visione diretta dell'intera colonna anteriore (alta)*

3 – assente/scarsa tensione sui vasi → *NO complicanze trombotiche*

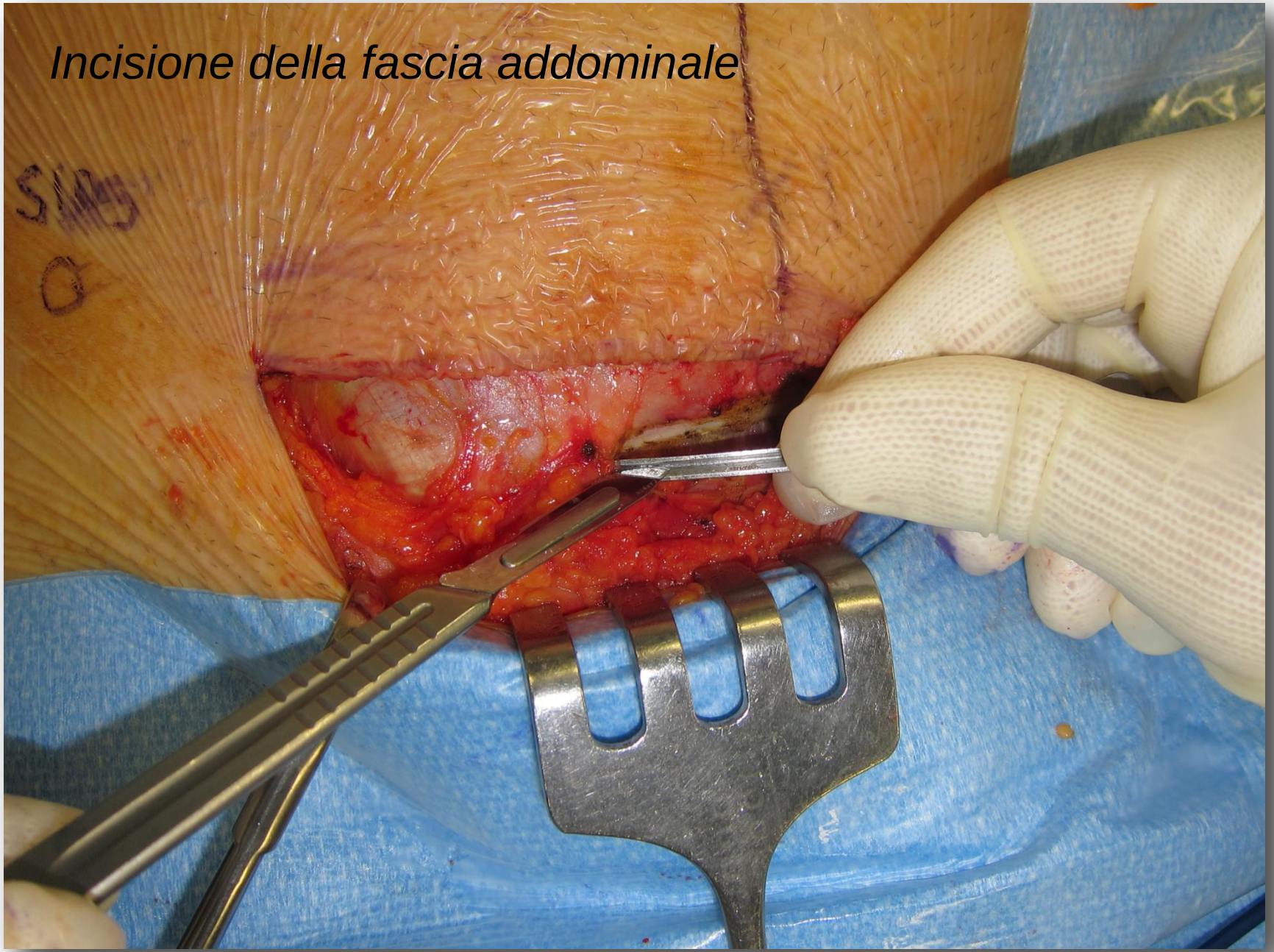
Anterior Combined Endopelvic approach



Anterior Combined Endopelvic approach



Anterior Combined Endopelvic approach



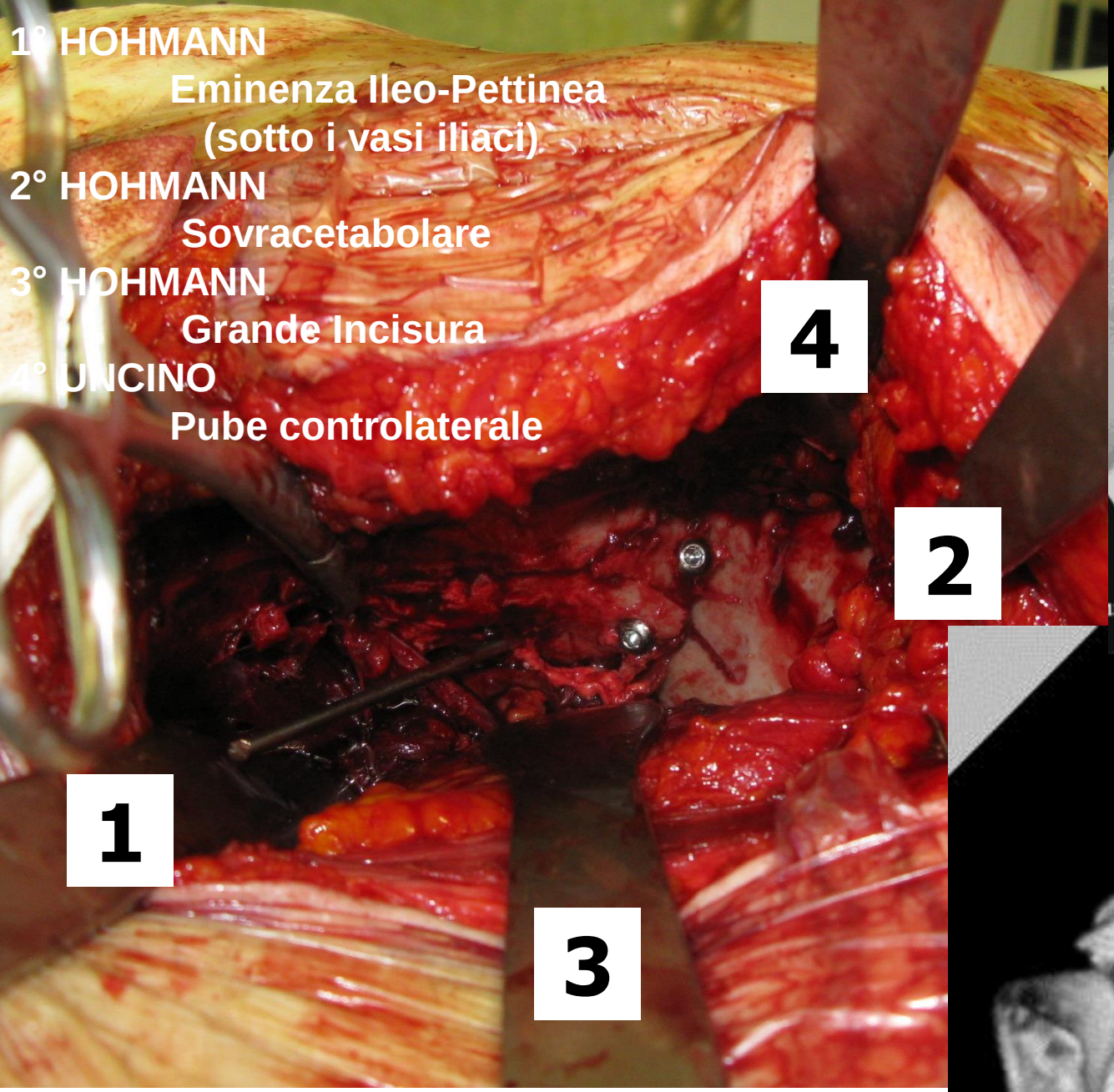
Anterior Combined Endopelvic approach



Divaricazione del muscolo retto omo late*rale*

Anterior Combined Endopelvic approach




1° HOHMANN
Eminenza Ileo-Pettinea
(sotto i vasi iliaci)
2° HOHMANN
Sovracetabolare
3° HOHMANN
Grande Incisura
4° UNCINO
Pube controlaterale
4
2
1
3

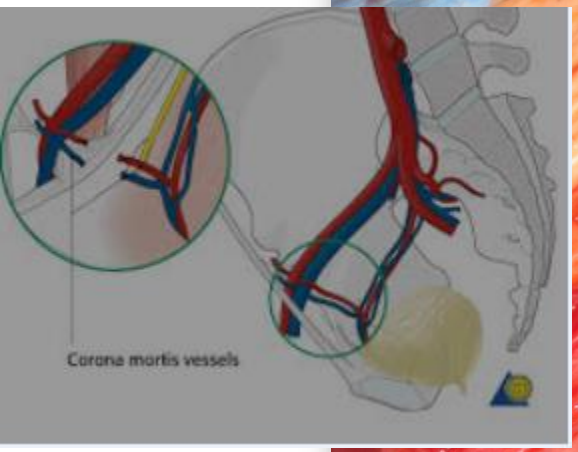

2
4
3
1


4
2
3
1

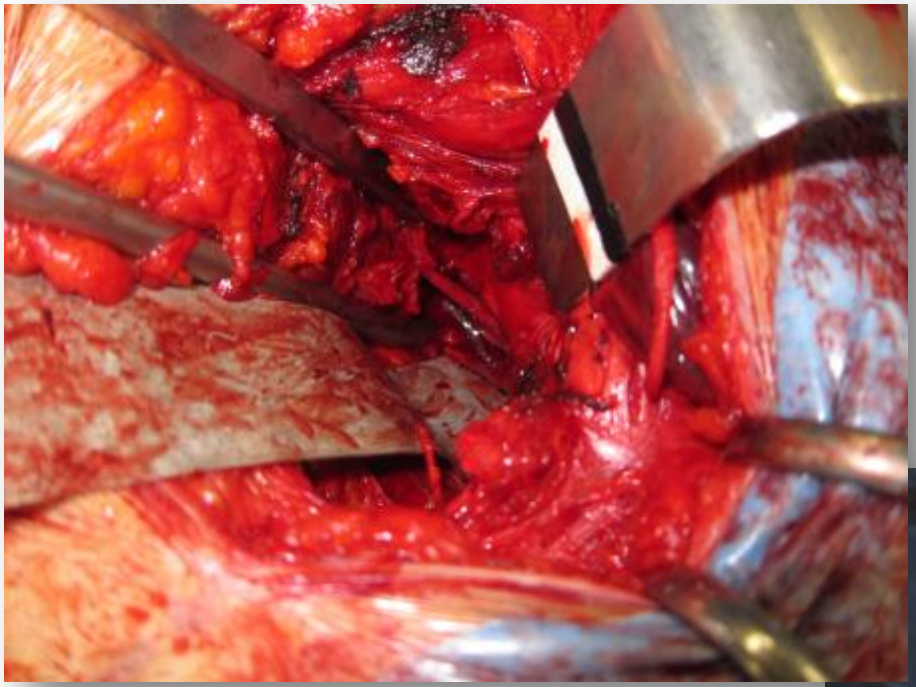
I 4 Homan

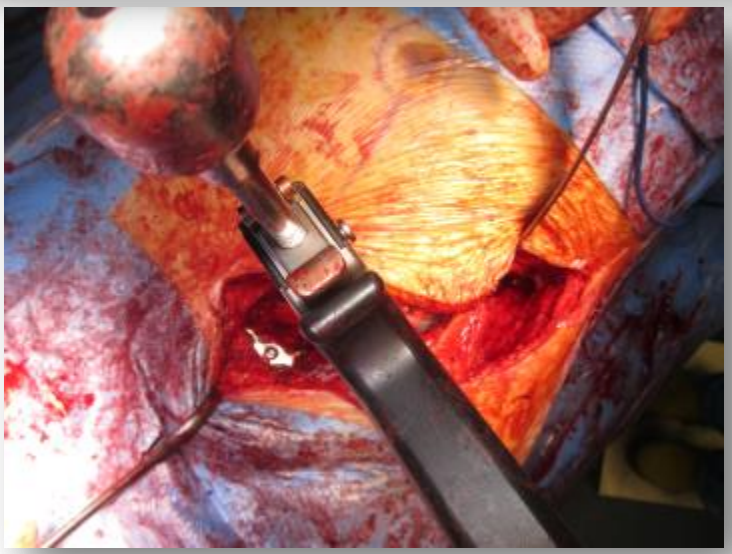
Anterior Combined Endopelvic approach

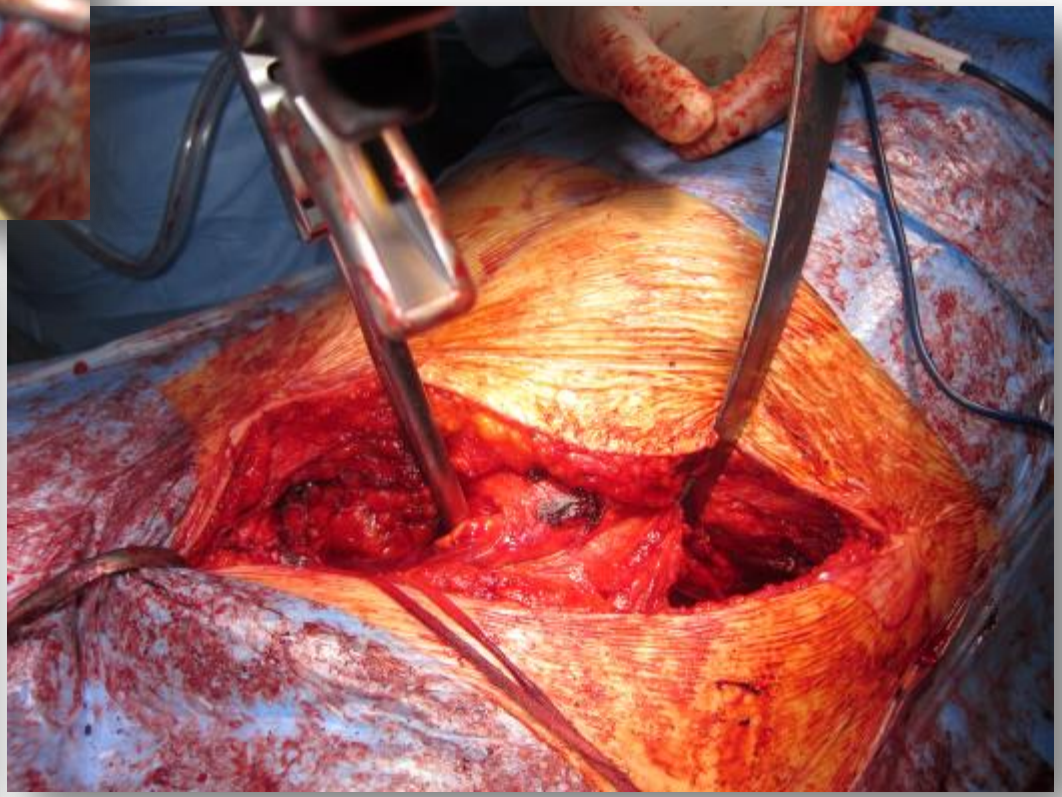
Scheletrizzazione del piano osseo attorno alla frattura



Anterior Combined Endopelvic approach





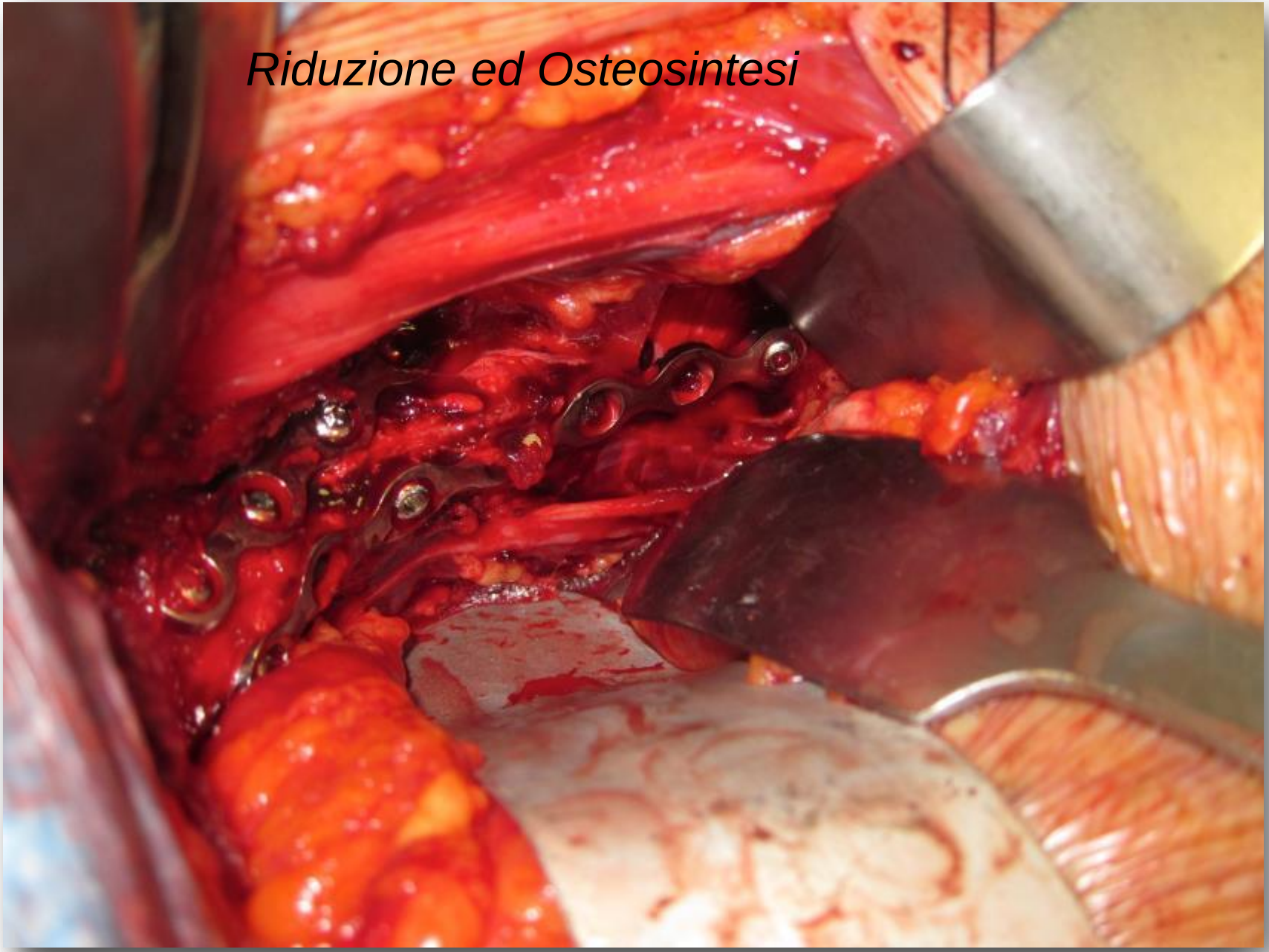


La Pinza Collineare

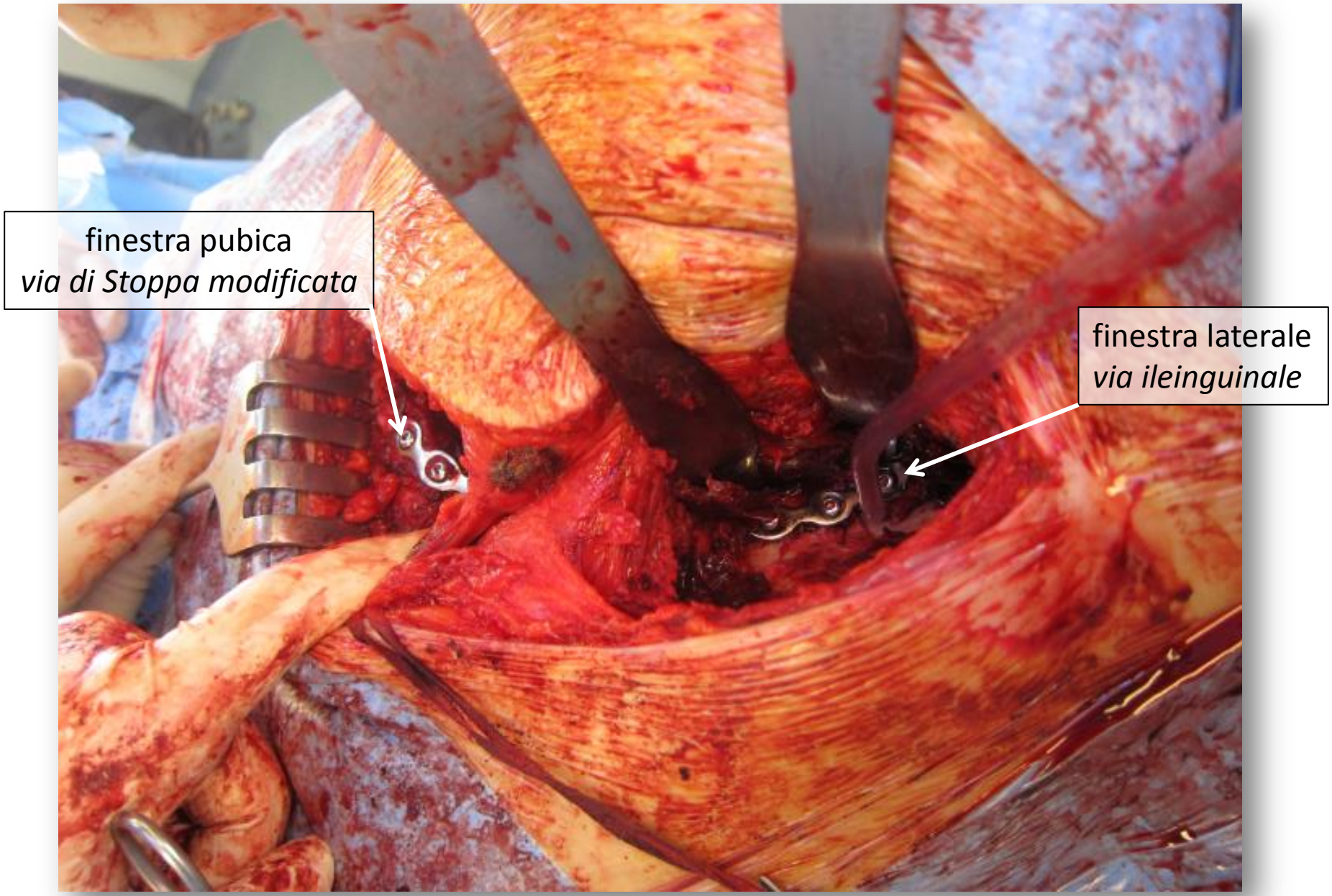
preziosa, indispensabile!



Anterior Combined Endopelvic approach



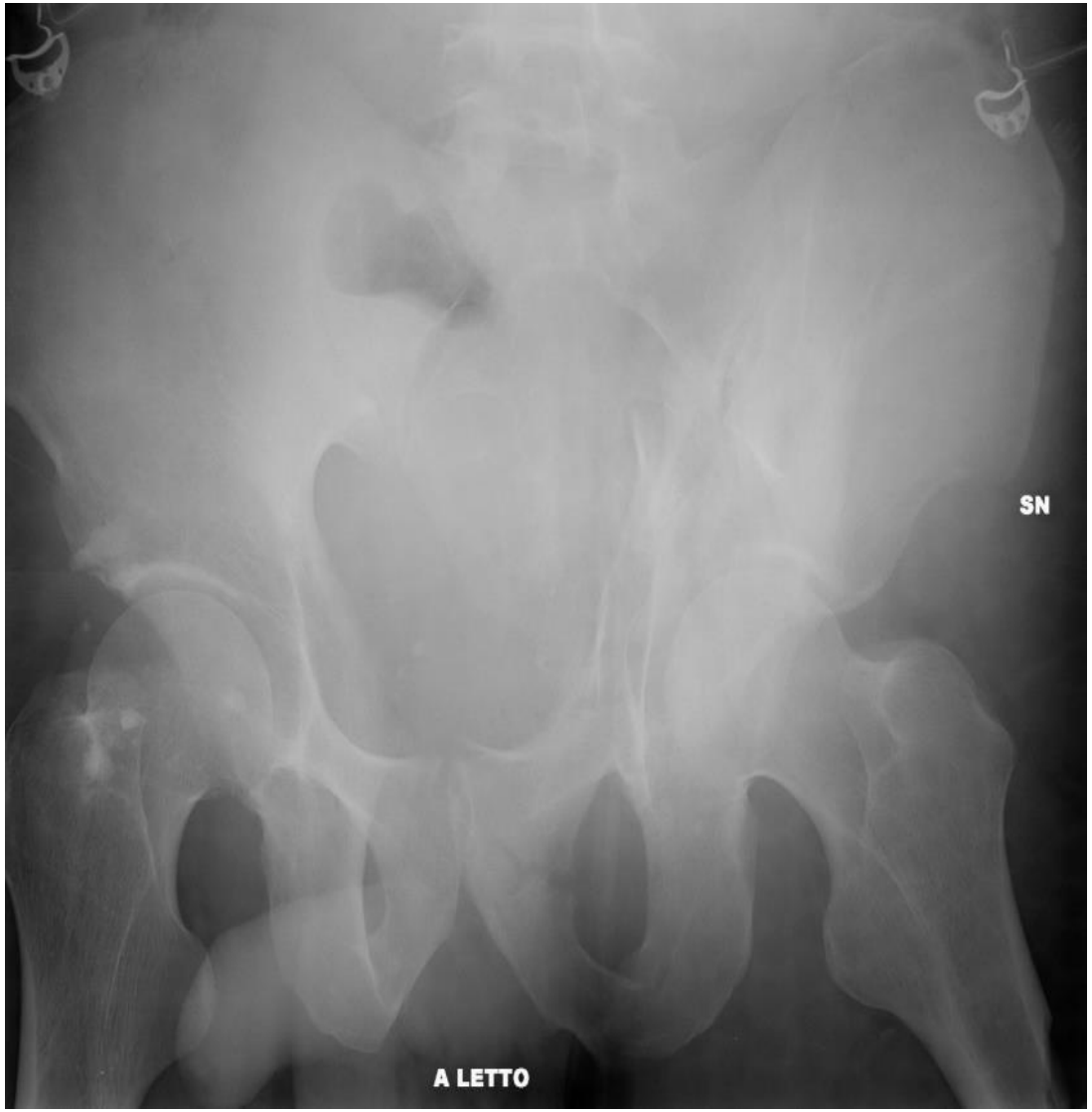
Anterior Combined Endopelvic approach



R.P.C. m. aa 37

Trauma della strada – auto contro moto (motociclista sbalzato)

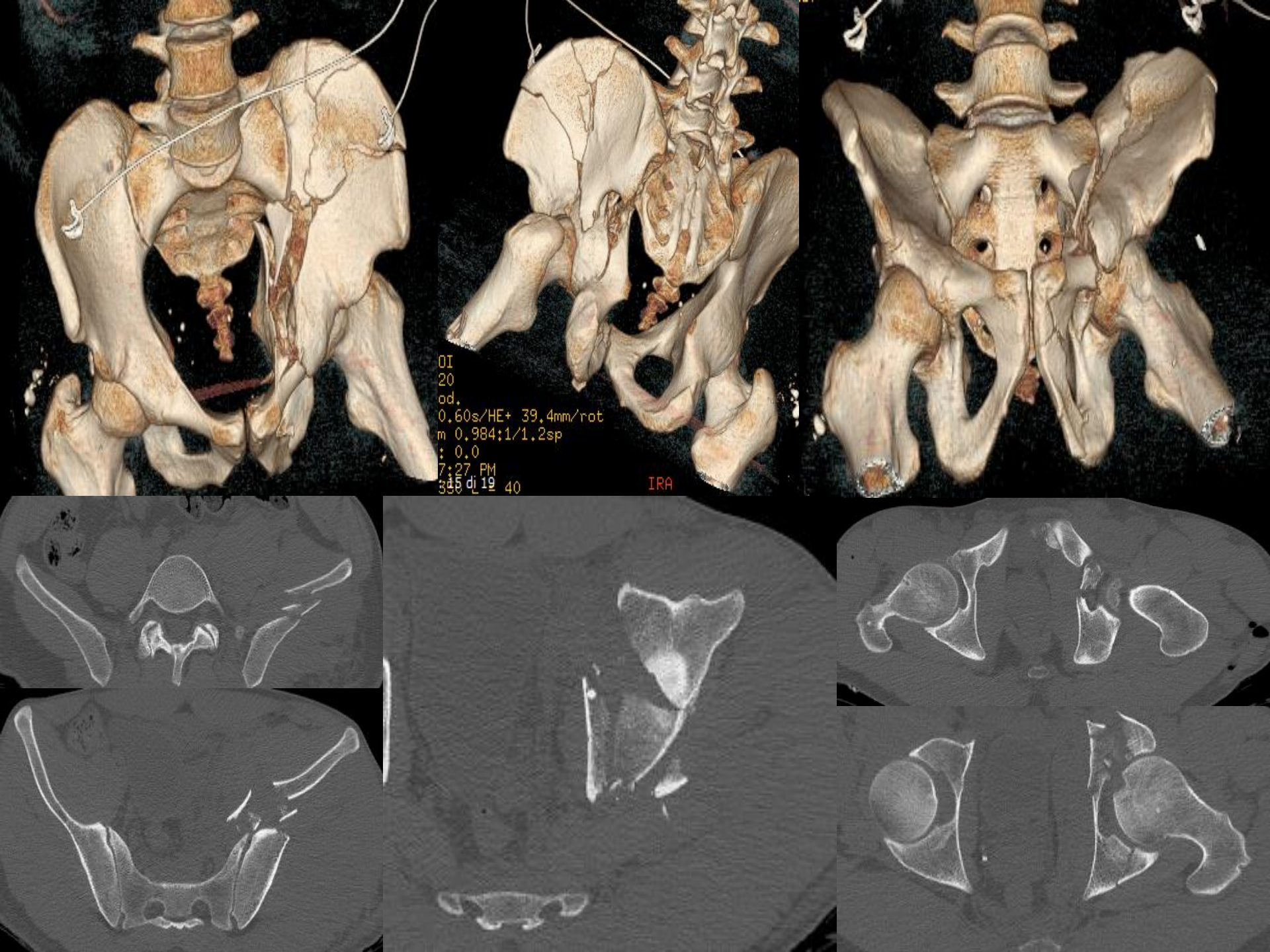
A.P.R. muta

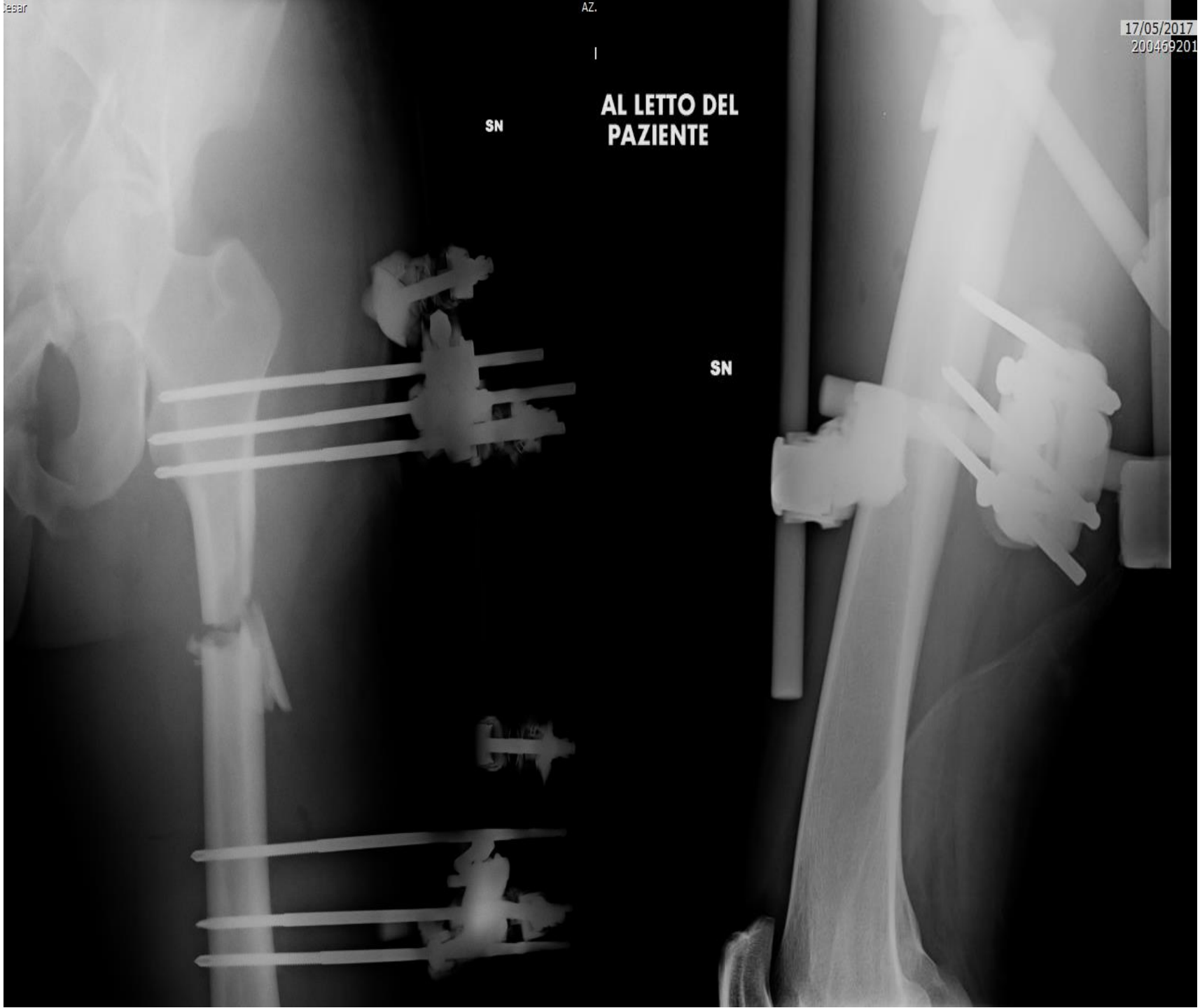


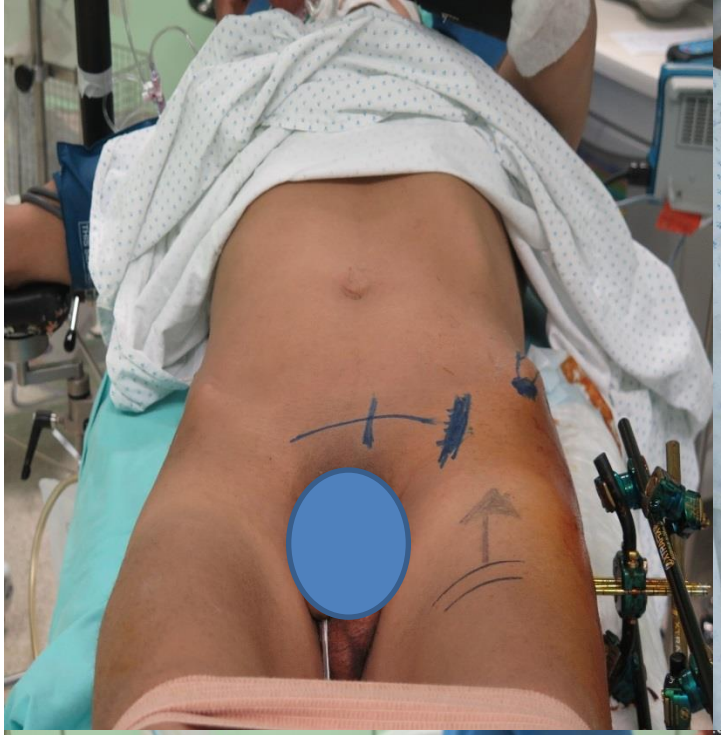
Frattura delle 2 colonne

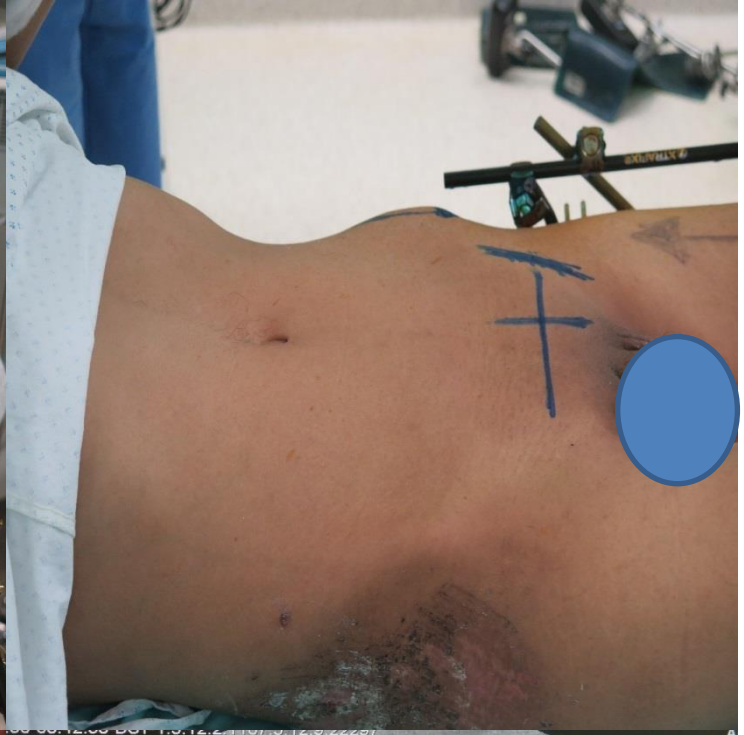
+

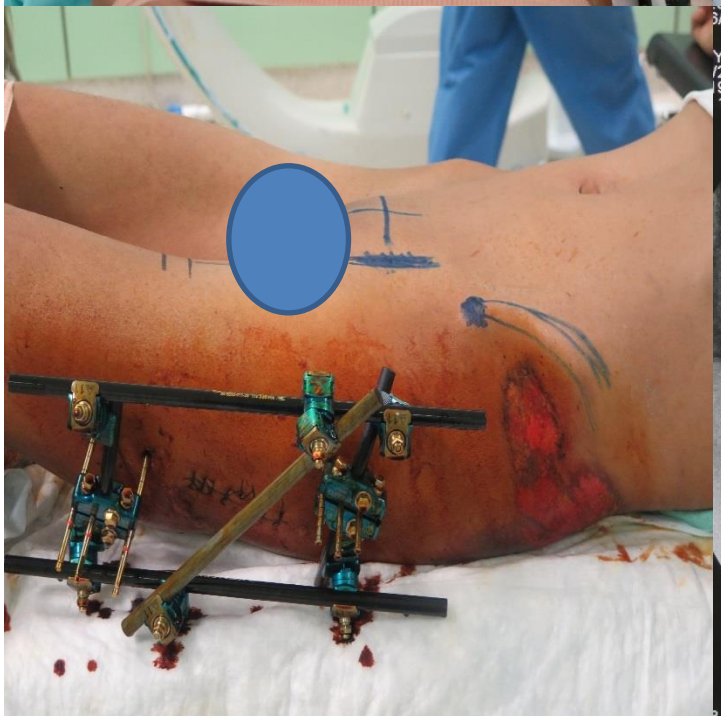
Frattura esposta femore prossimale

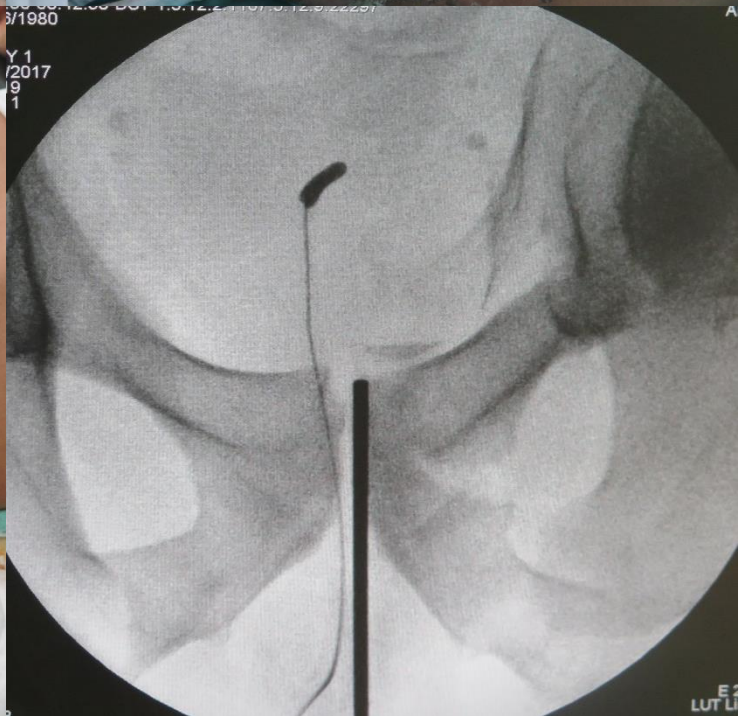

OI
20
od.
0.60s/HE+ 39.4mm/rot
m 0.984;1/1.2sp
: 0.0
7:27 PM
IRA


Cesar
AZ.
17/05/2017
200469201
AL LETTO DEL
PAZIENTE
SN
SN

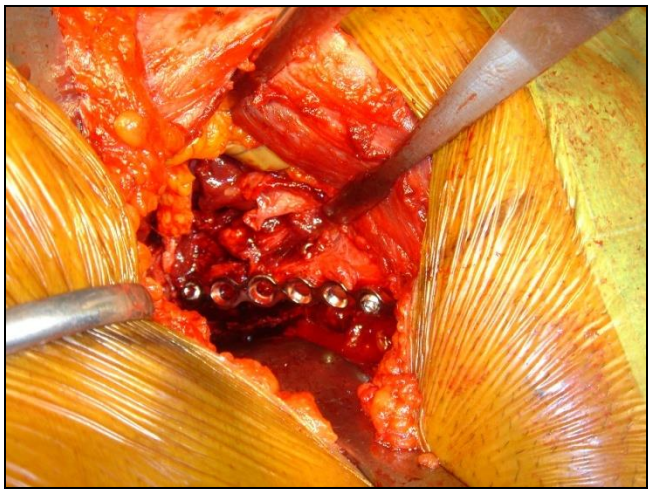






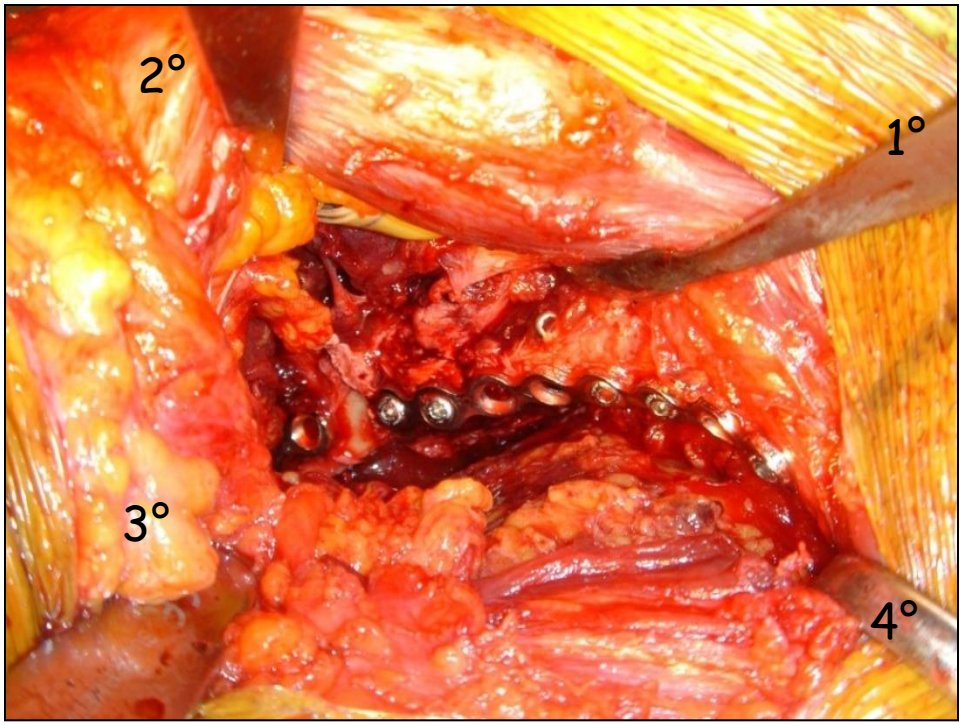


Approccio di Stoppa modificato

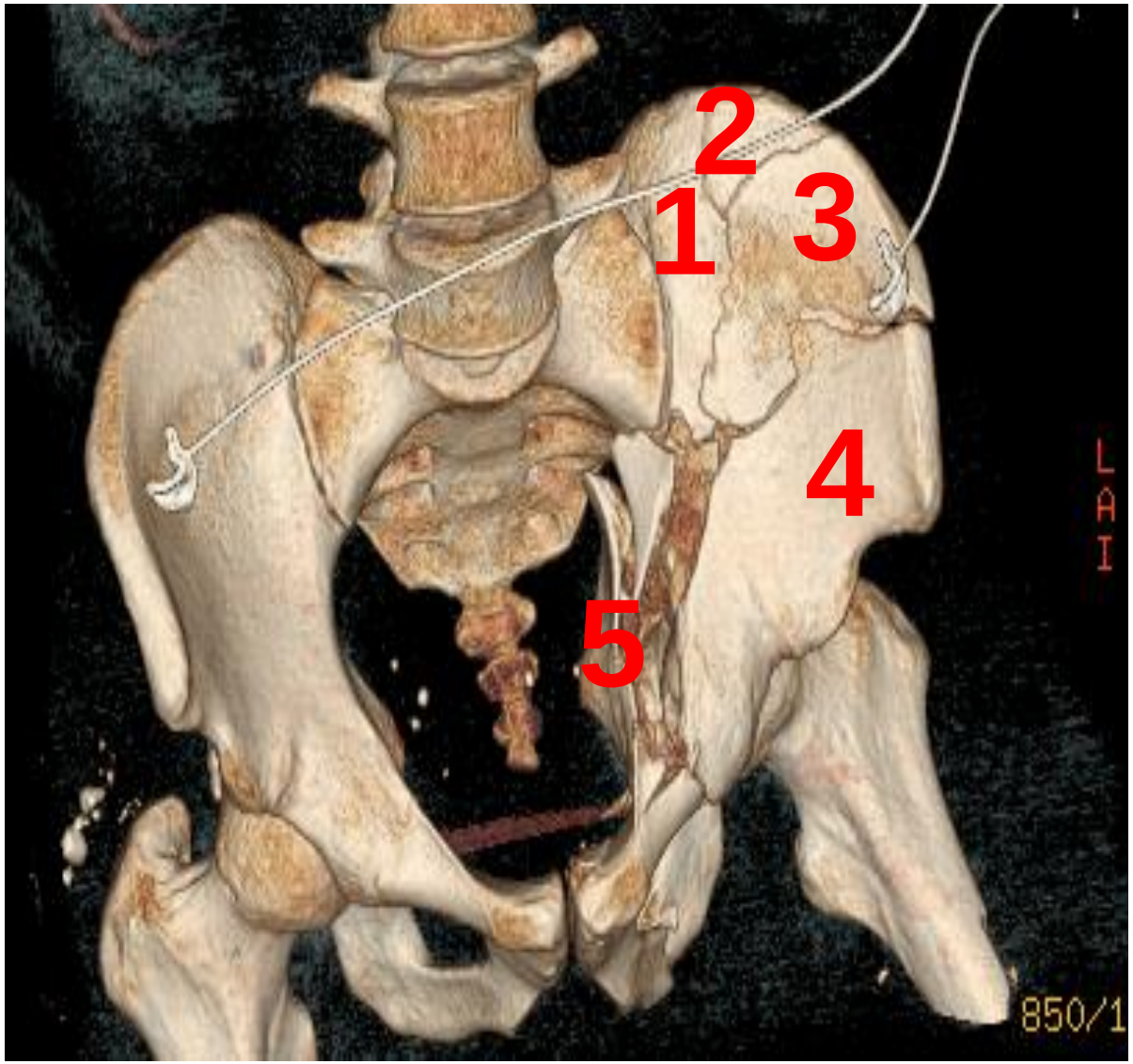








1° HOHMANN
Eminenza Ileo-Pettinea
(sotto i vasi iliaci)
2° HOHMANN
Sovracetabolare
3° HOHMANN
Grande Incisura
UNCINO
Pube controlaterale



(1+2) + (3+4)

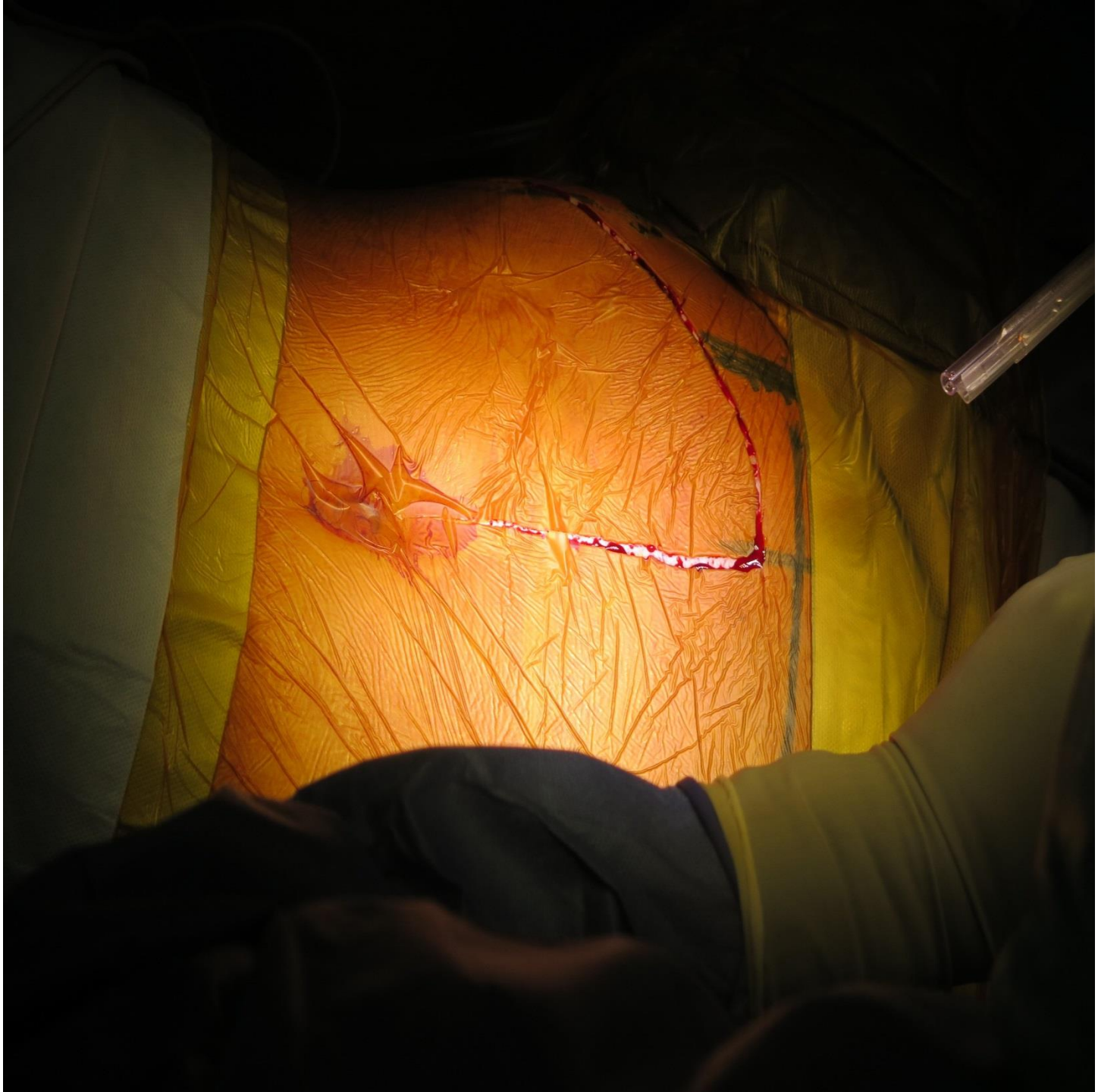
Via ileoinguinale

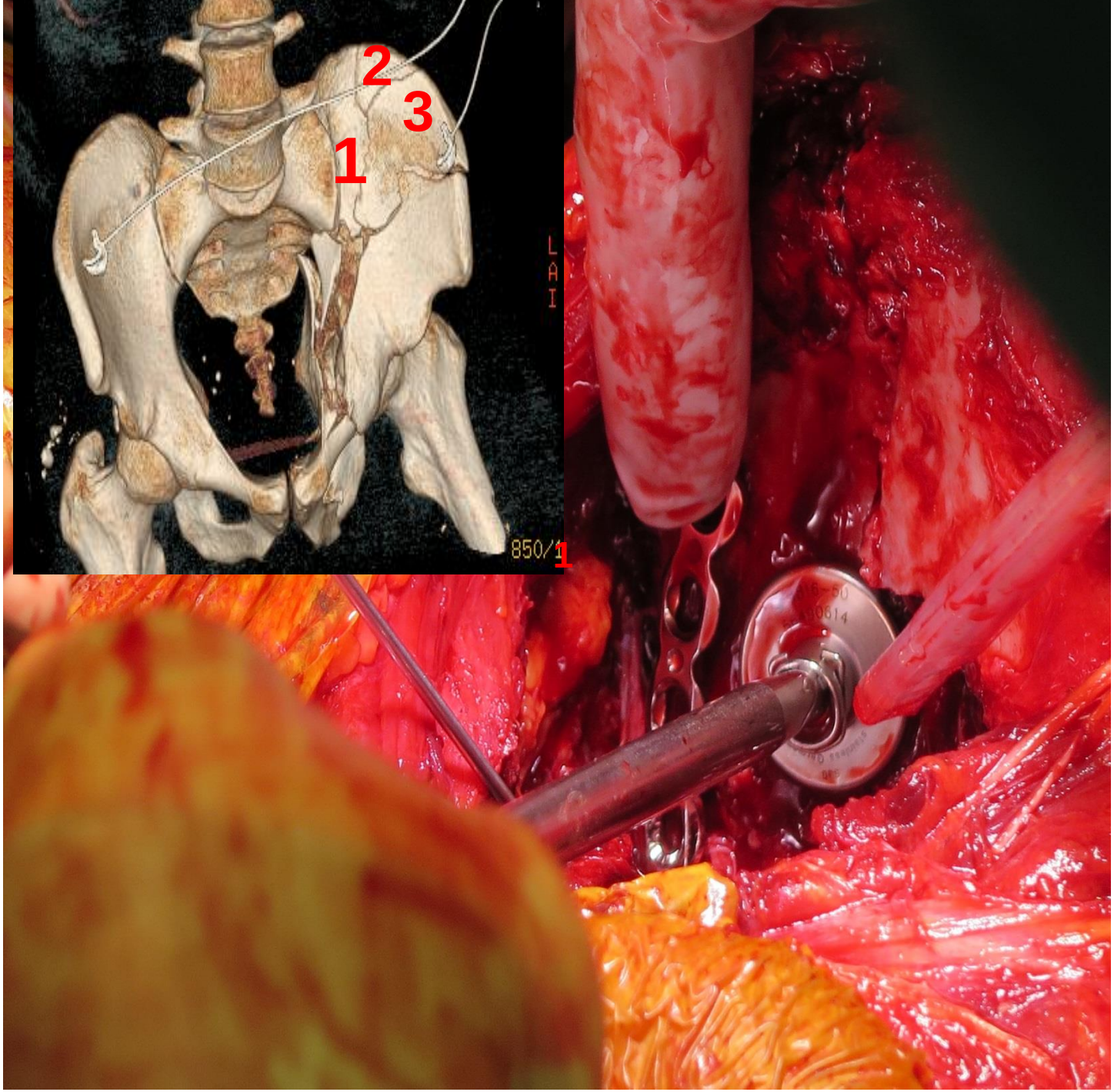
5

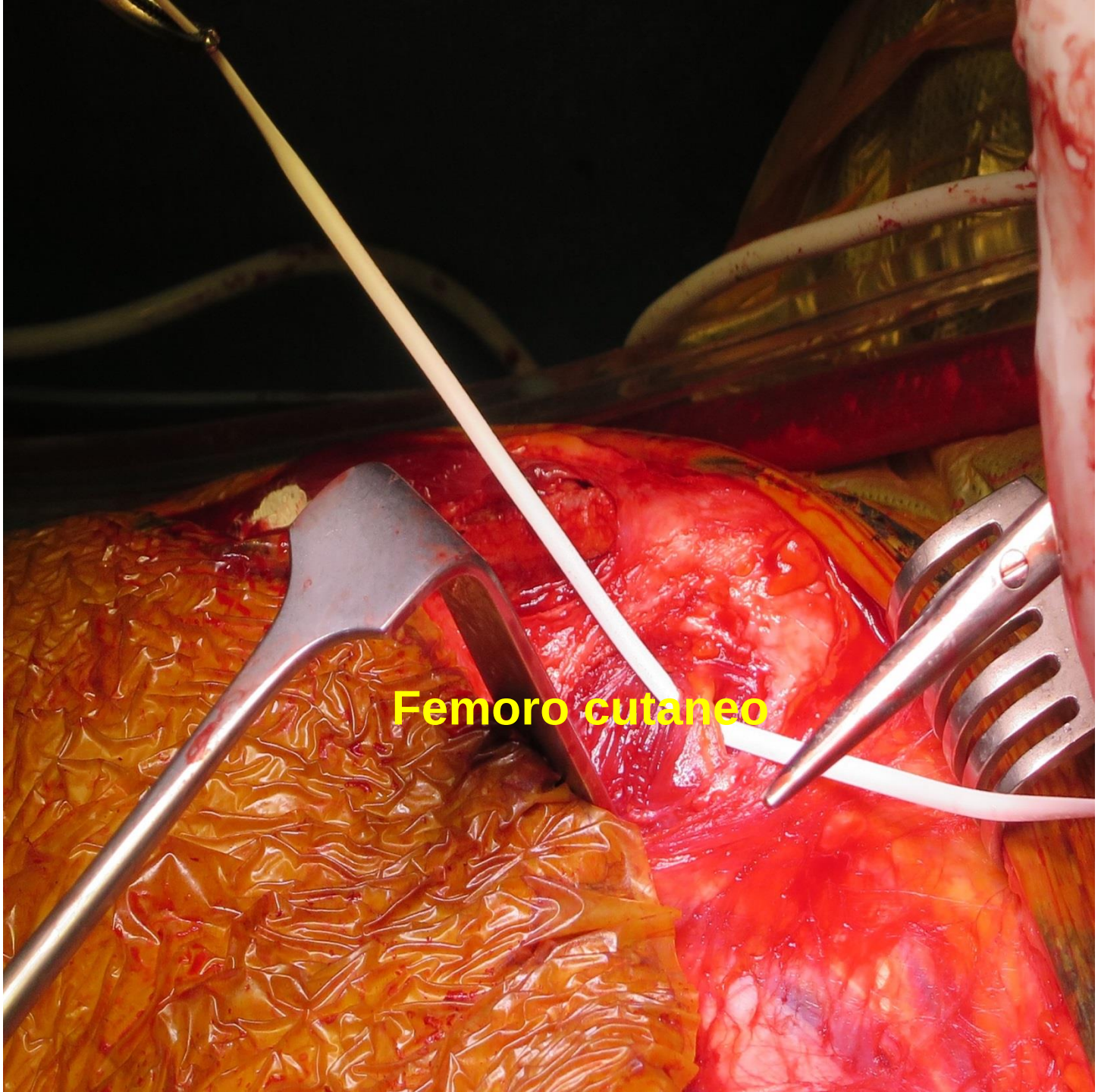
Via di Stoppa

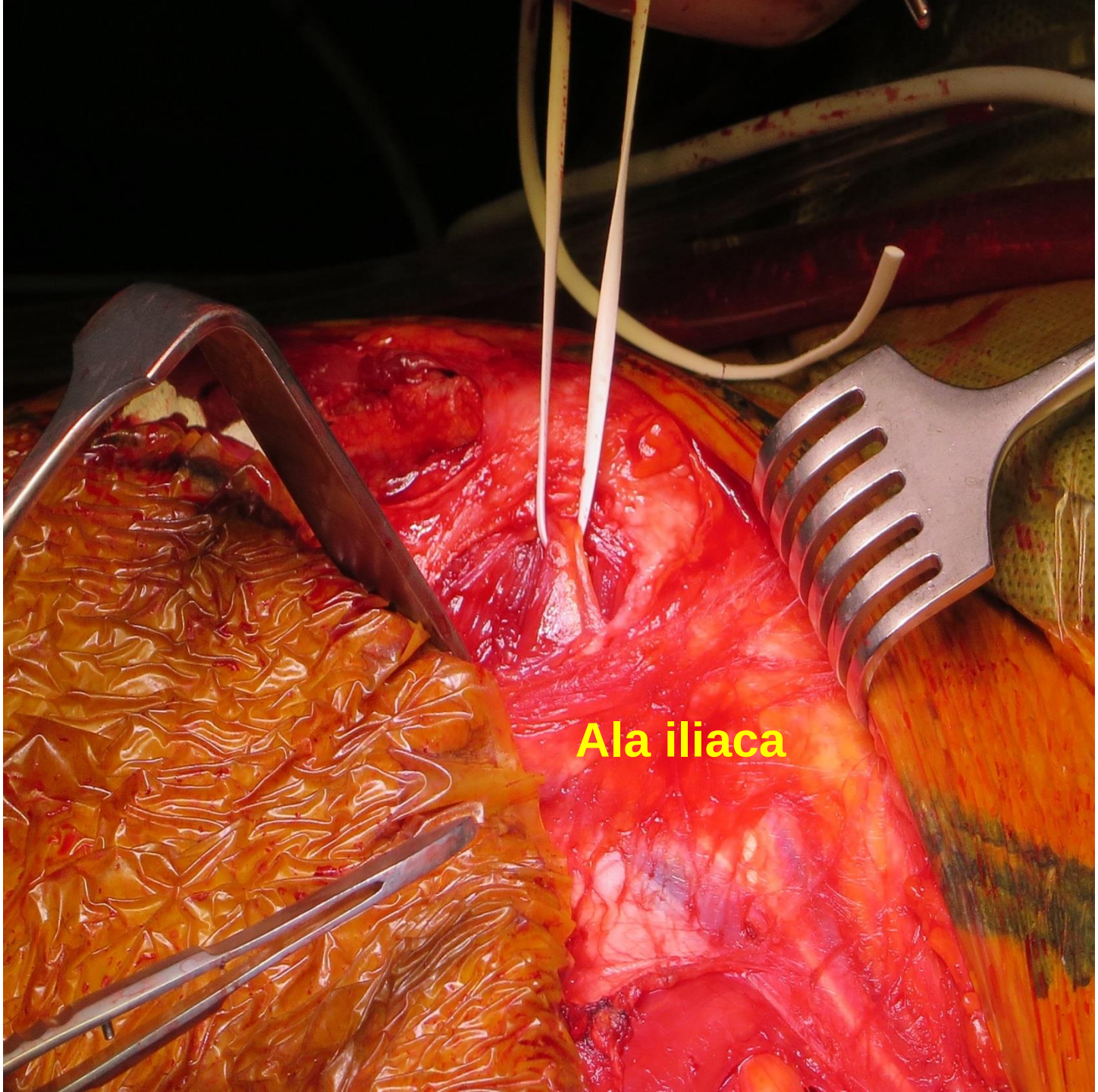
+

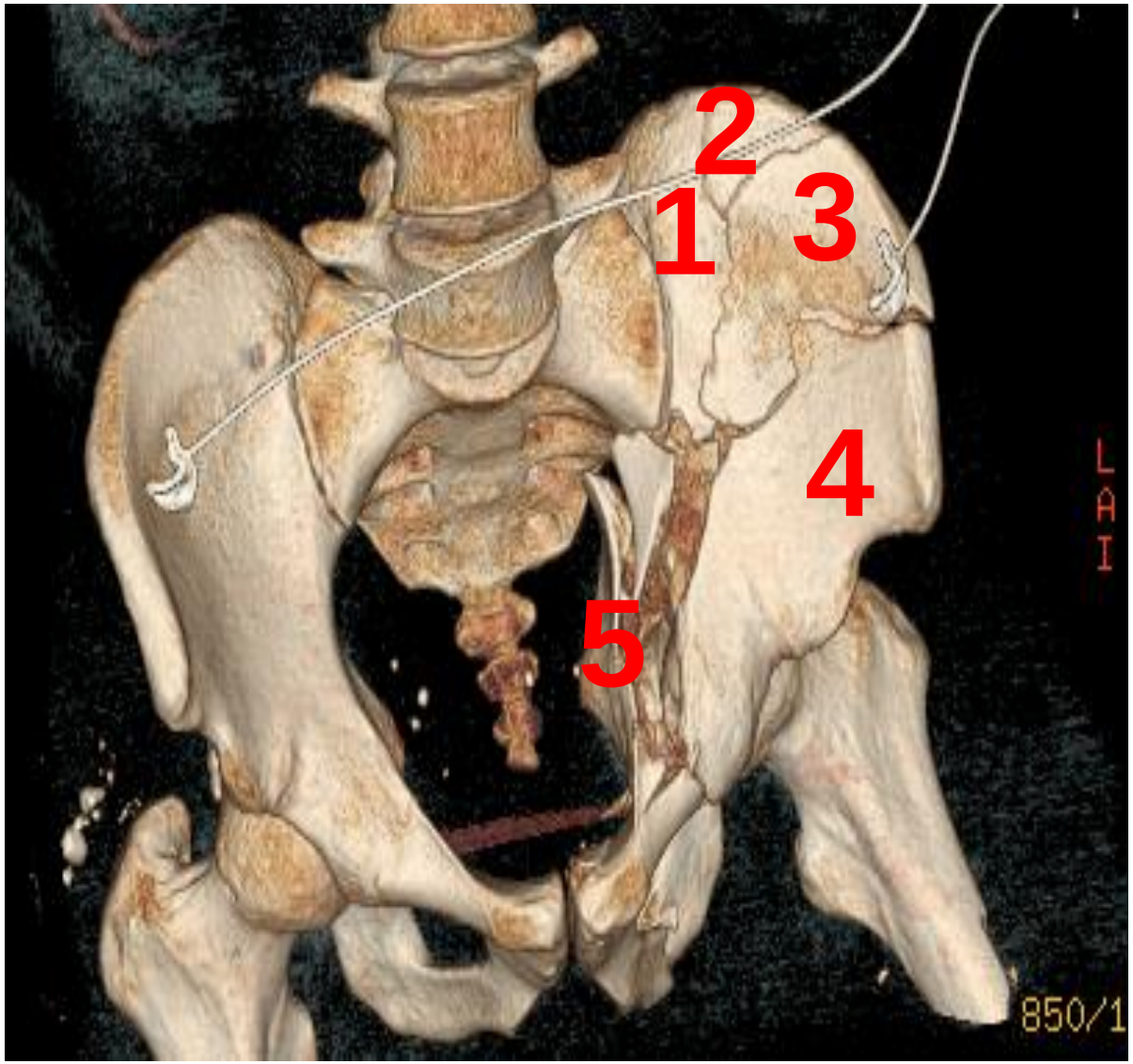
Inchiodamento femore




2
3
1
LAI
850/1


Femoro cutaneo


Ala iliaca



(1+2) + (3+4)

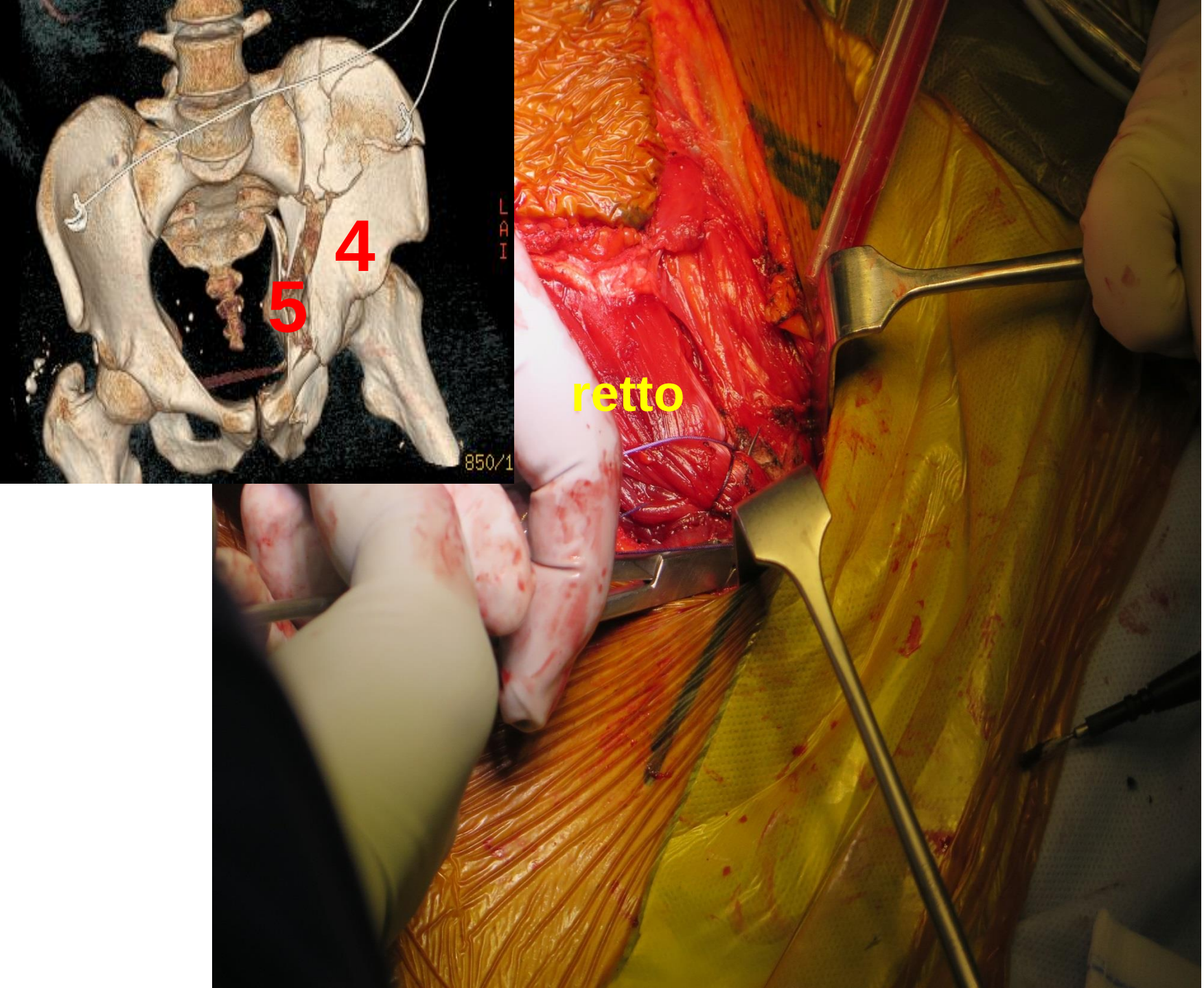
Via ileoinguinale

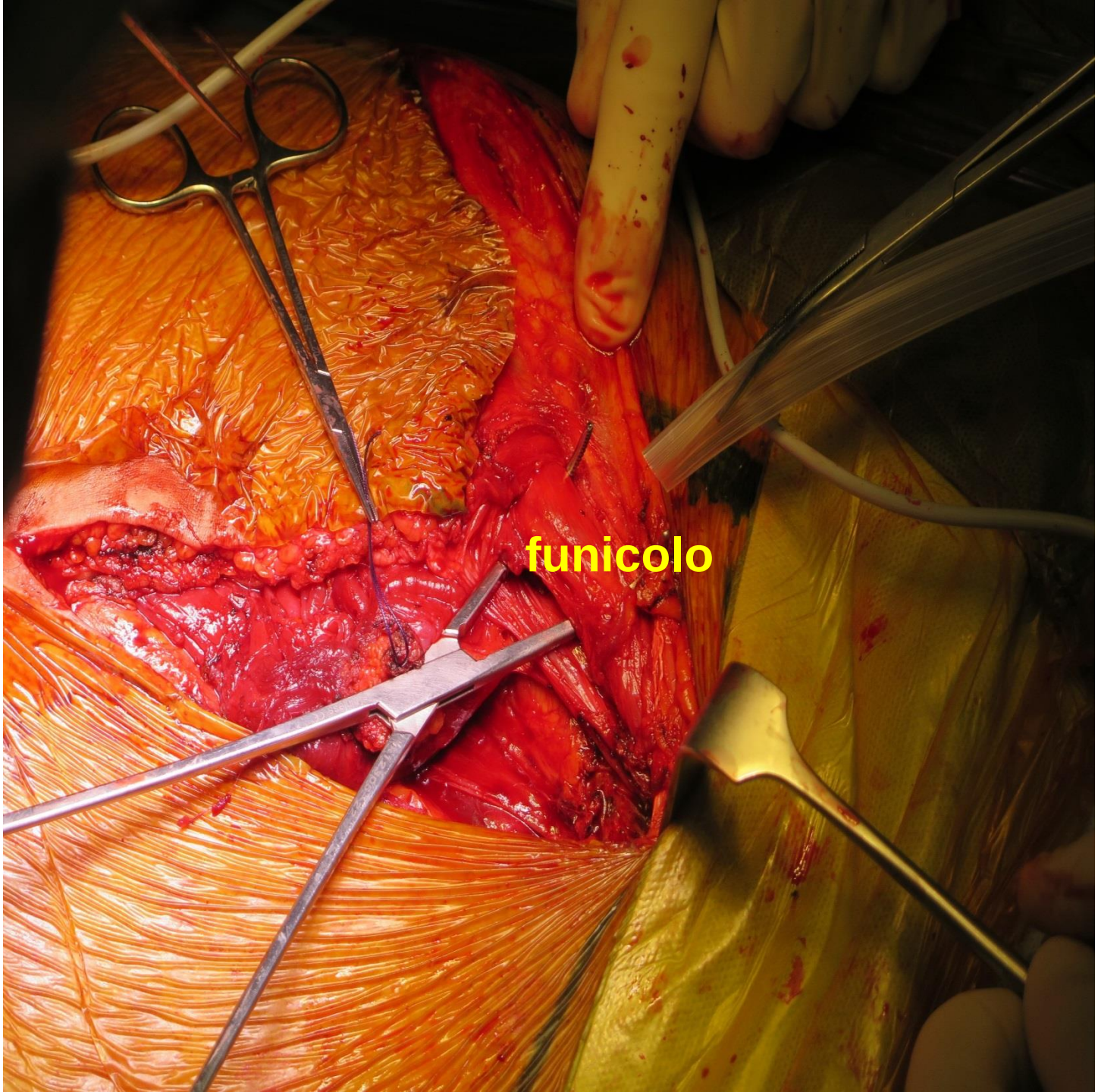
5

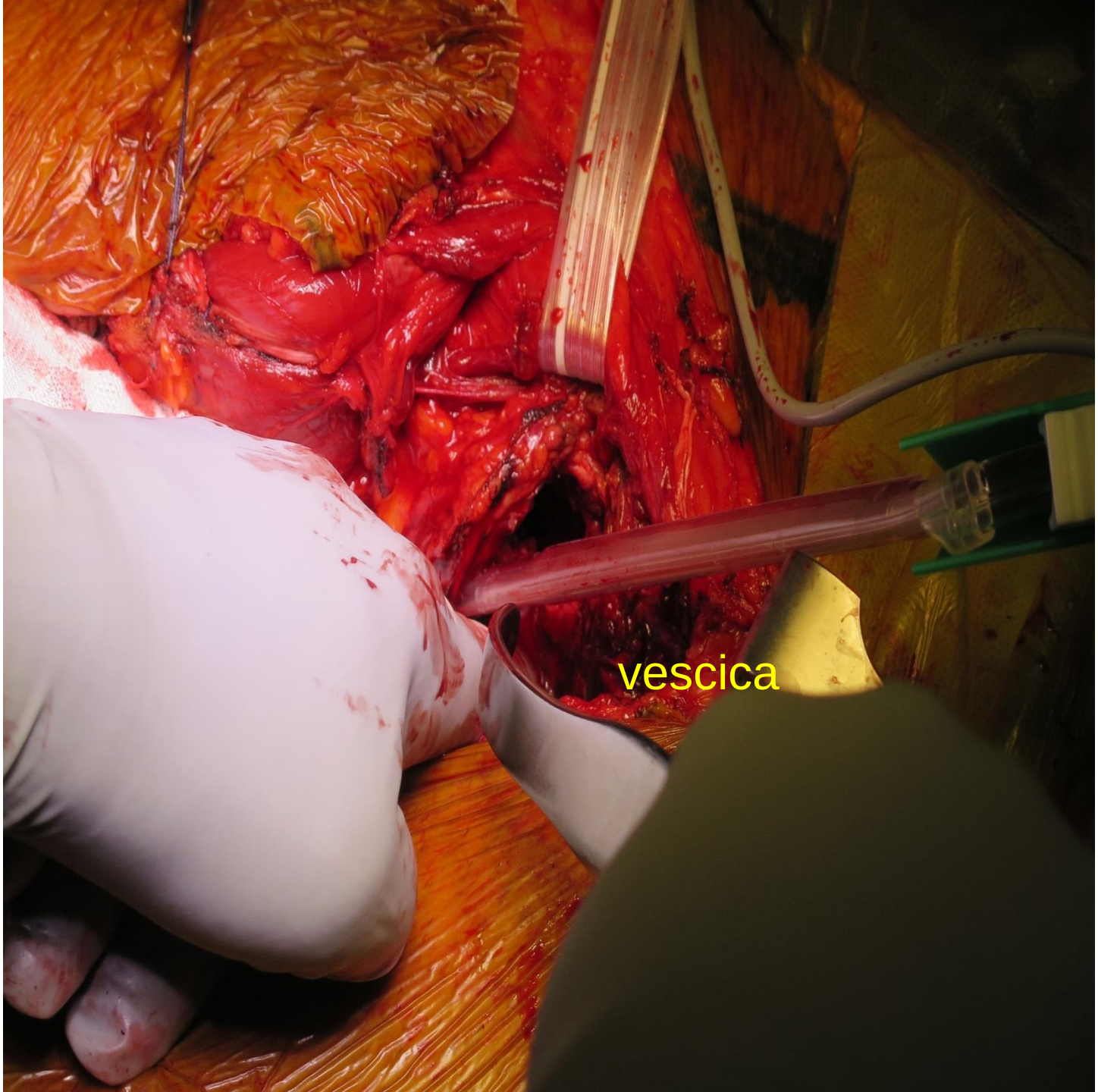
Via di Stoppa

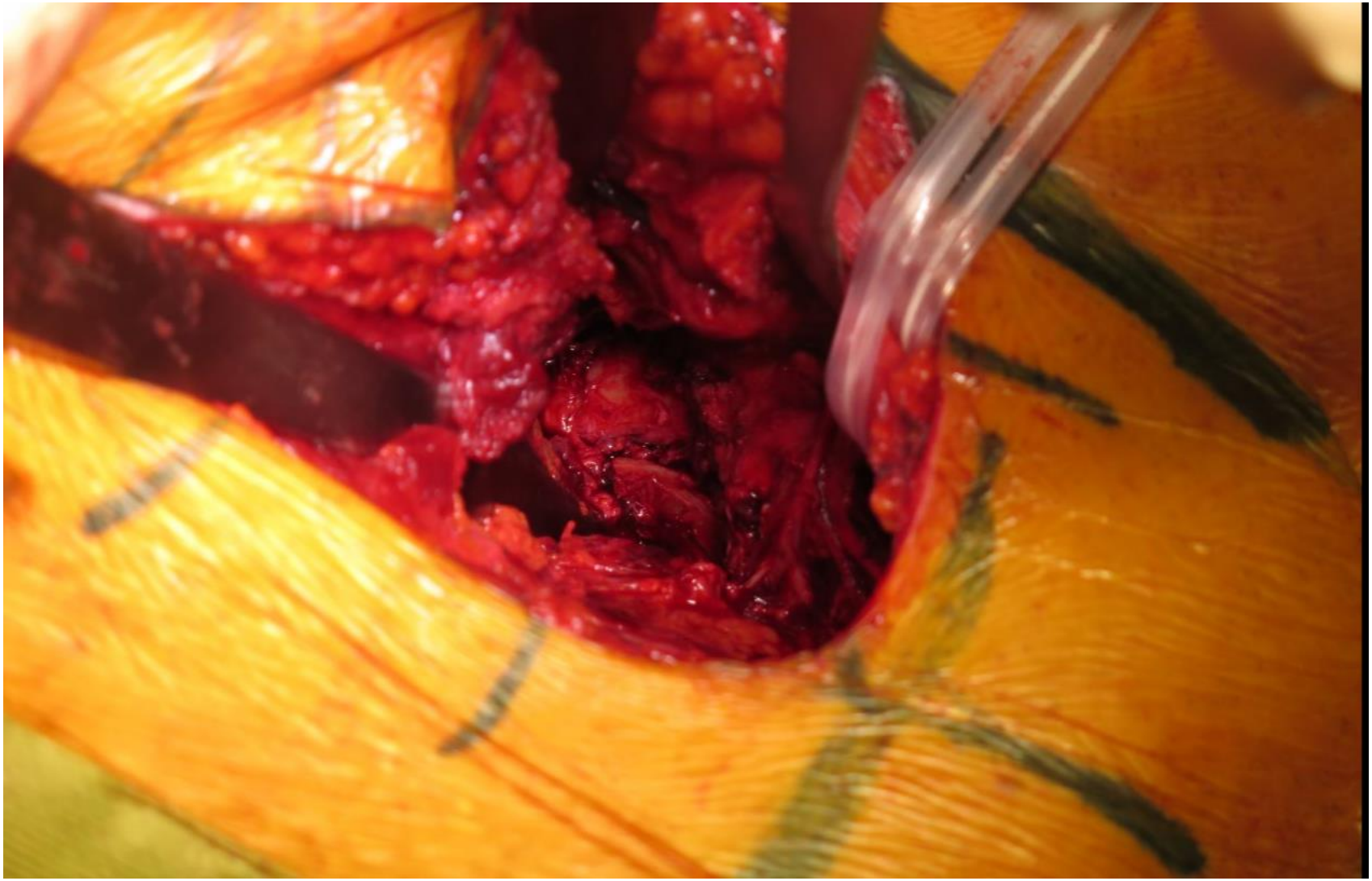
+

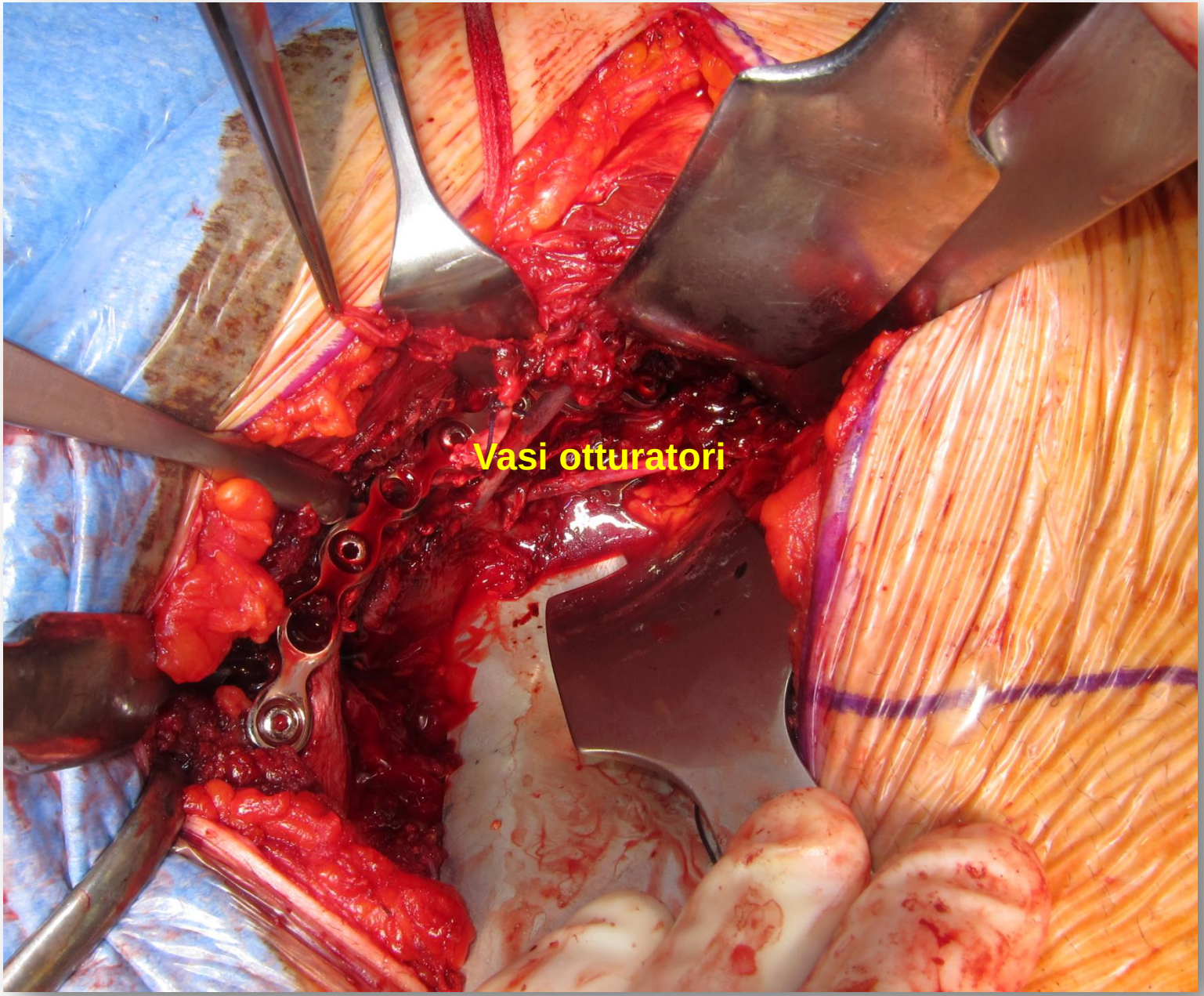
Inchiodamento femore

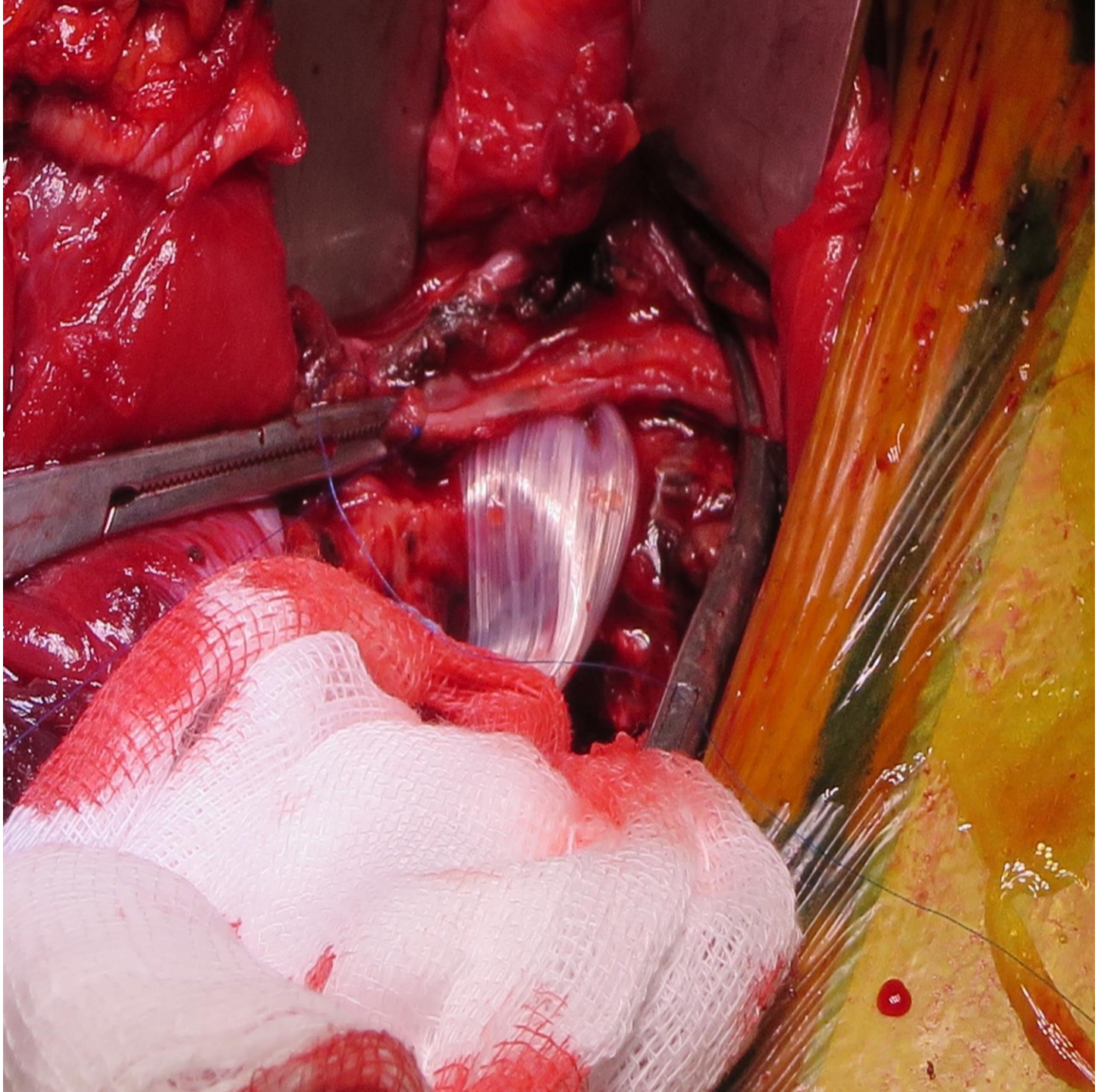

4
5
retto

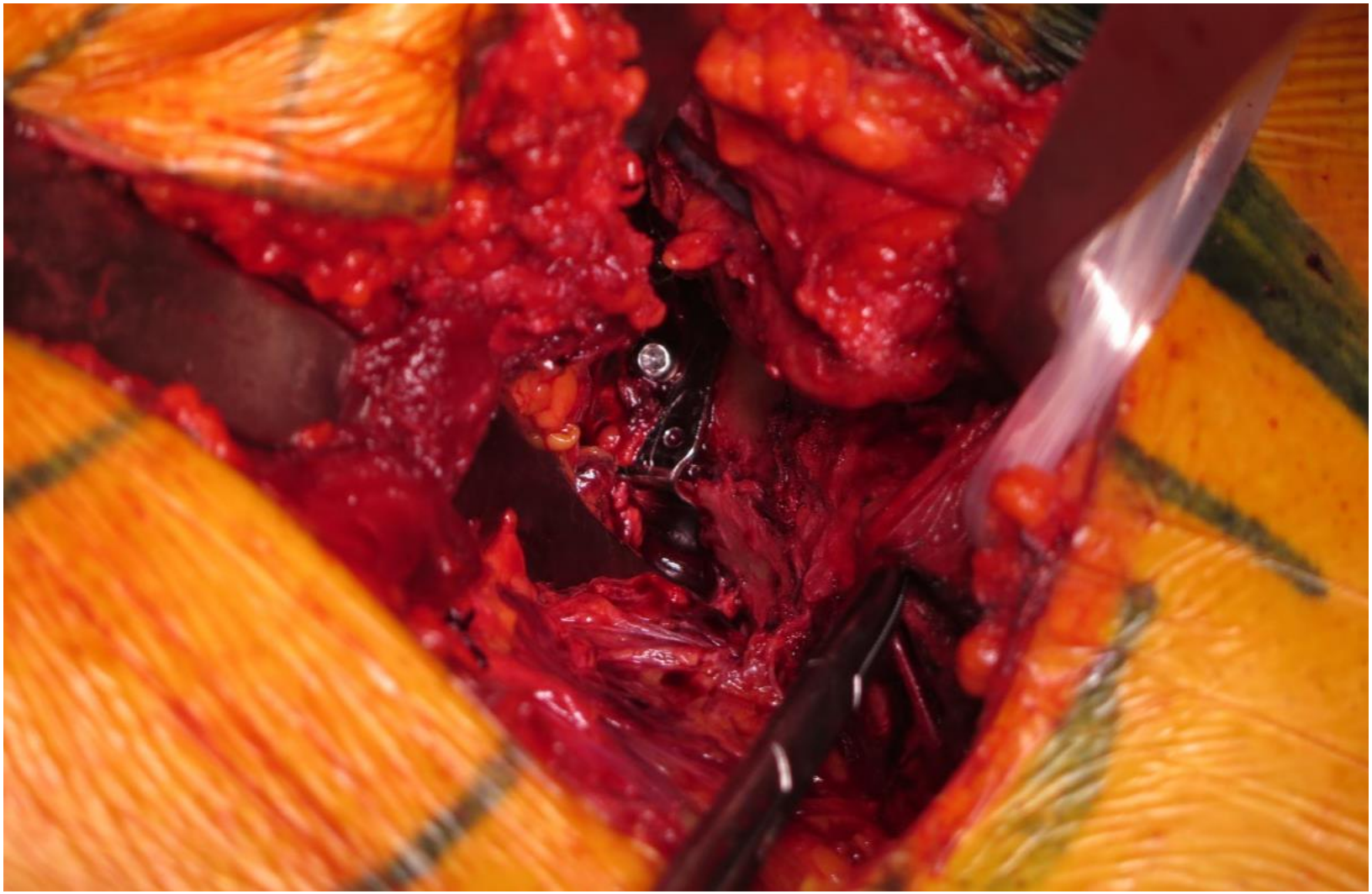

funicolo

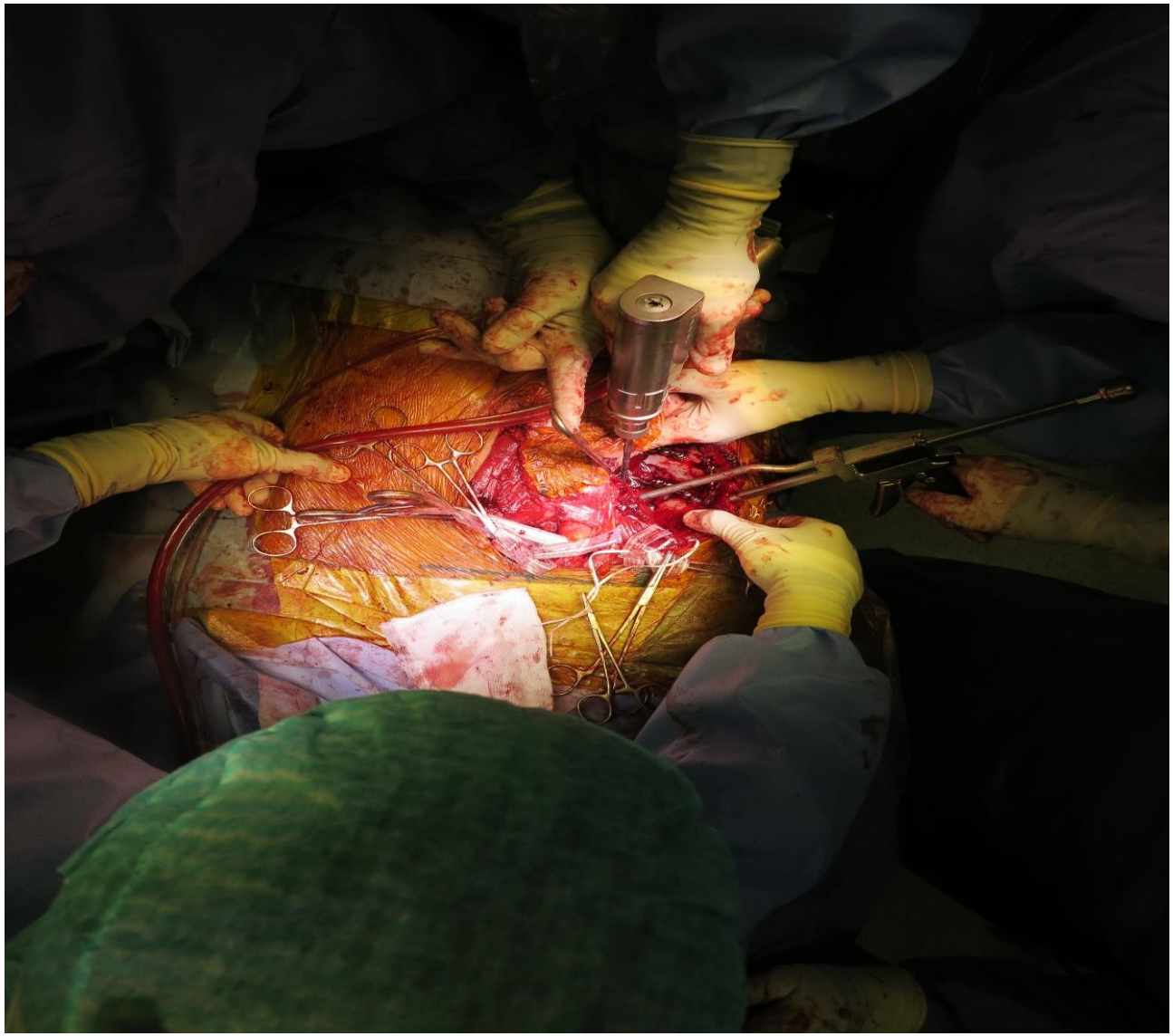

vescica




Vasi otturatori

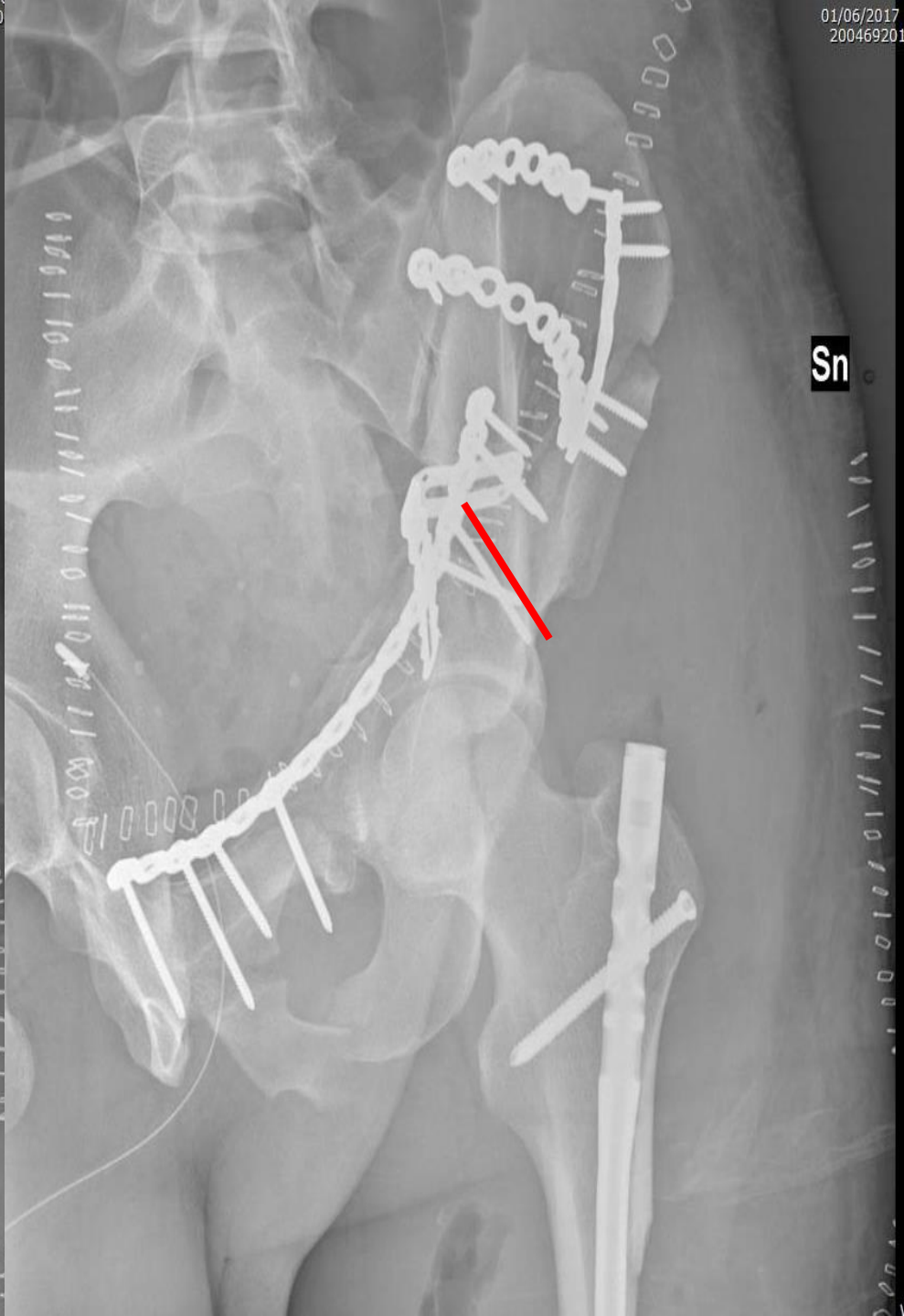


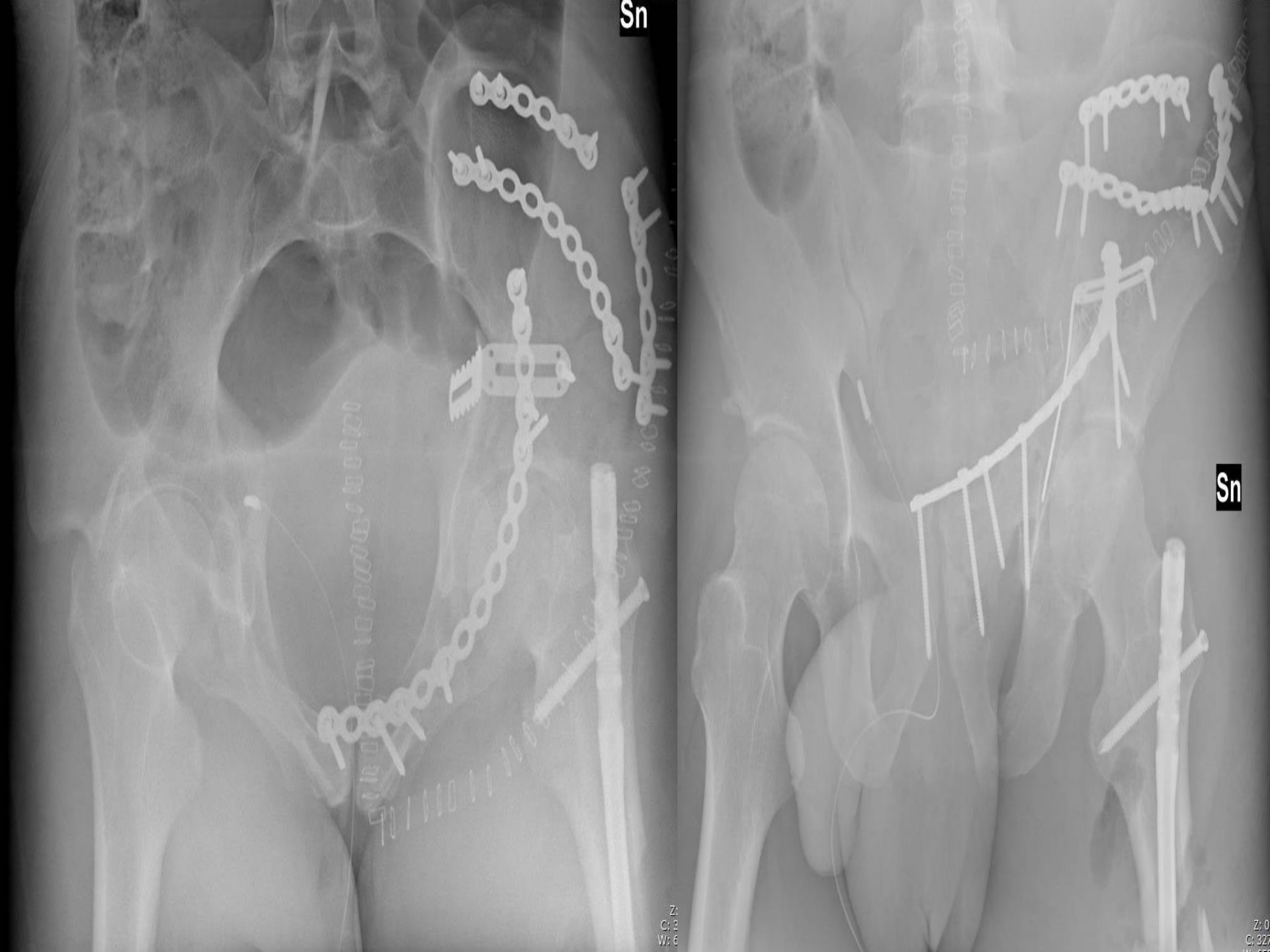


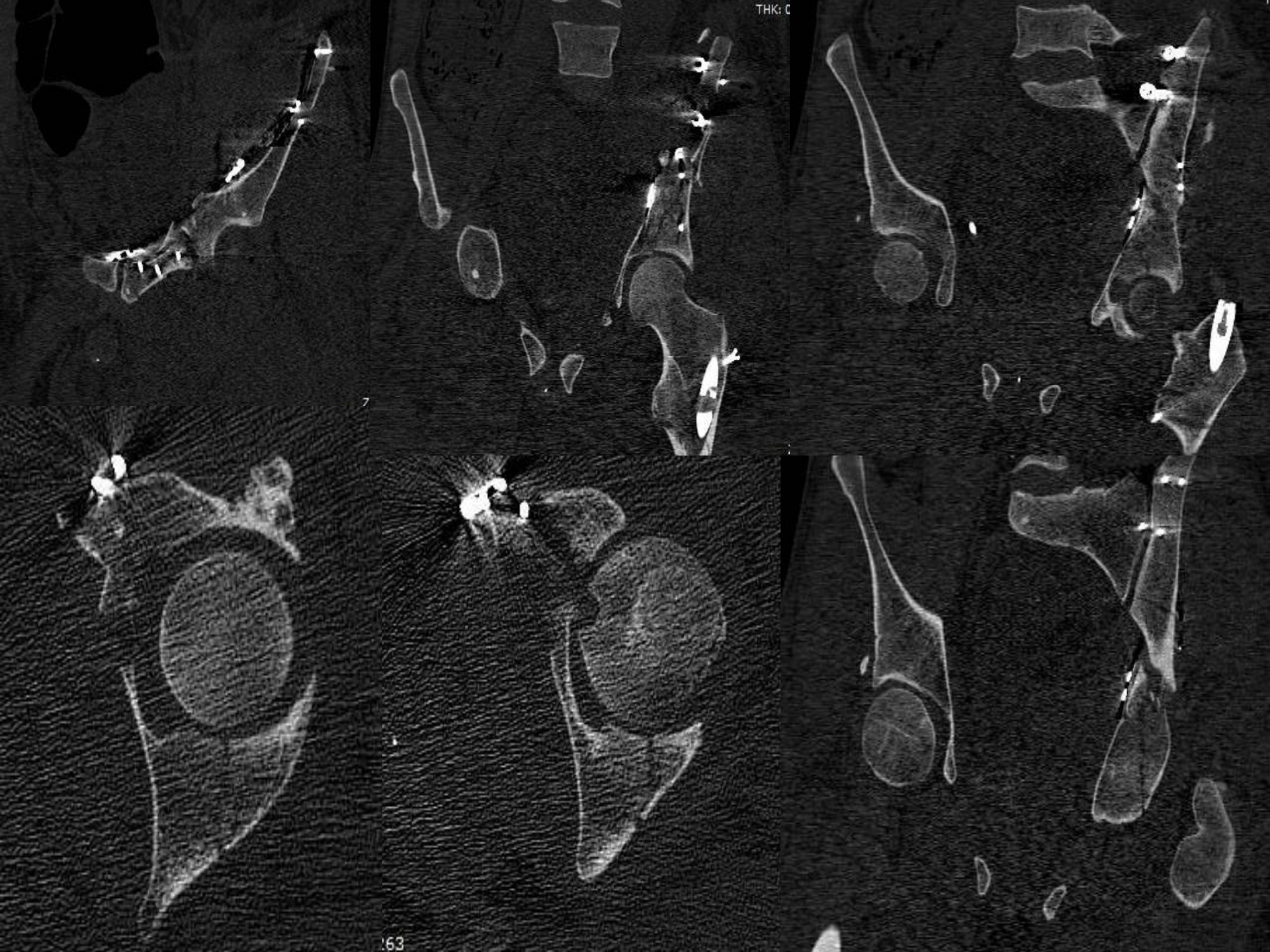


Sn

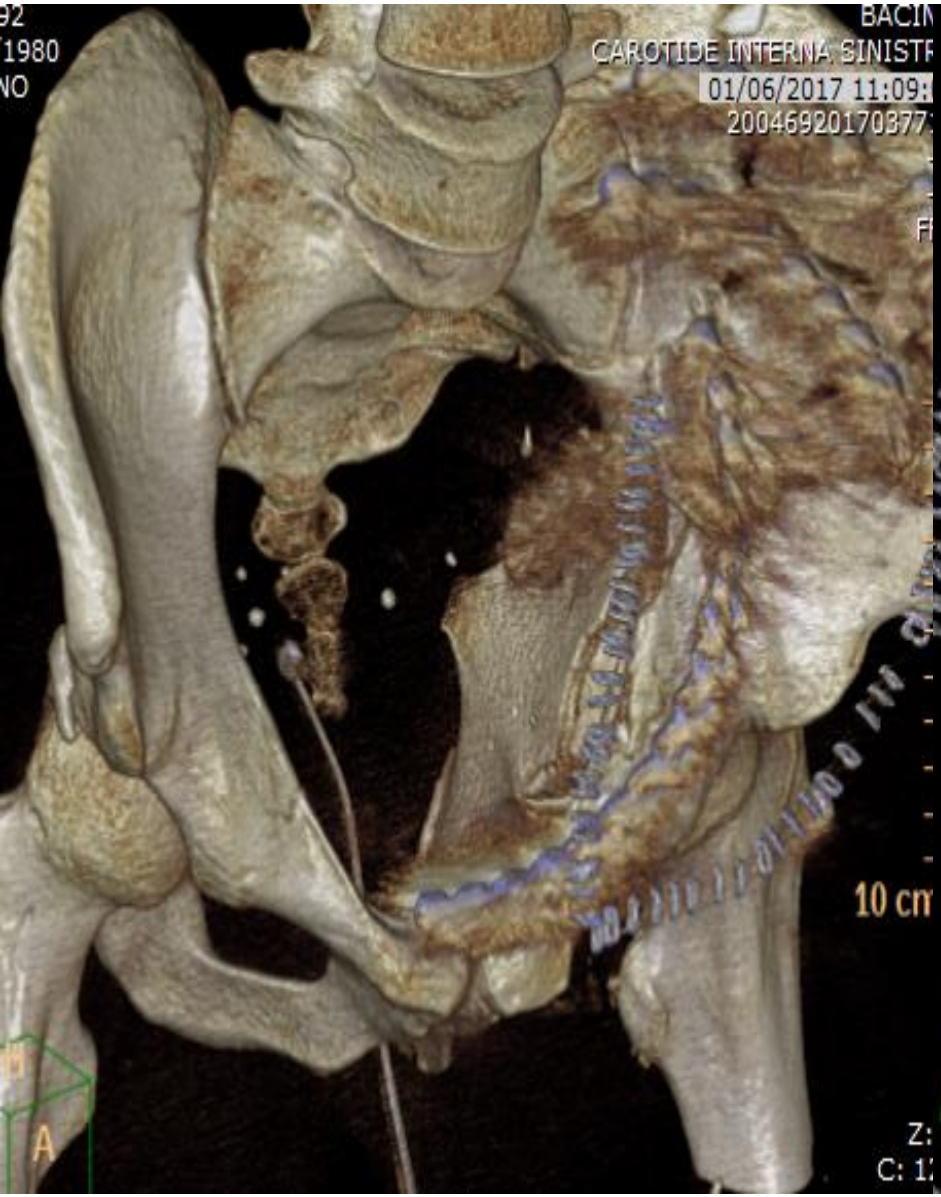

Sn


01/06/2017
Sn


Sn
Sn




ANNO
01/06/2017 11:09:0
20046920170377
FF
F
10 cm
A
L
F
H
L
P
Z:
C: 12
W: 25
10 cm


92
1980
NO
BACIN
CAROTIDE INTERNA SINISTR
01/06/2017 11:09:
10 cm
A
Z:
C: 1


L
F
F


6 Mesi

6 Mesi

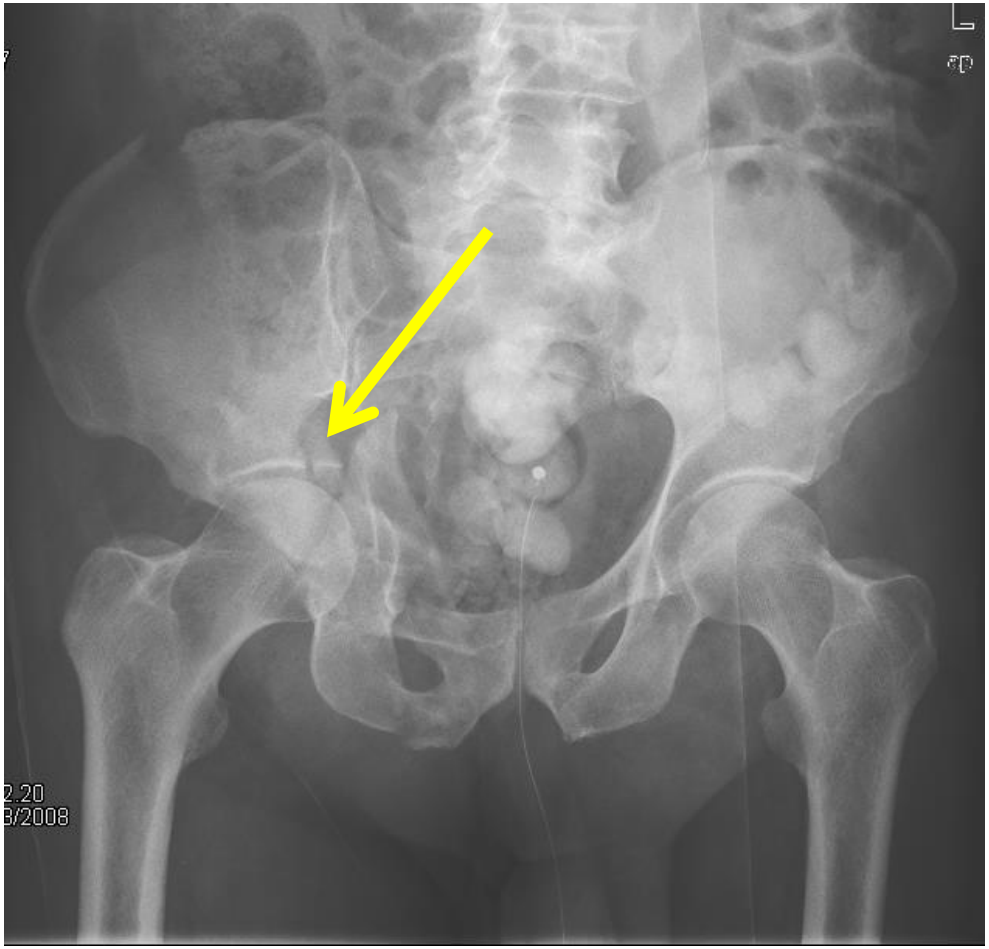


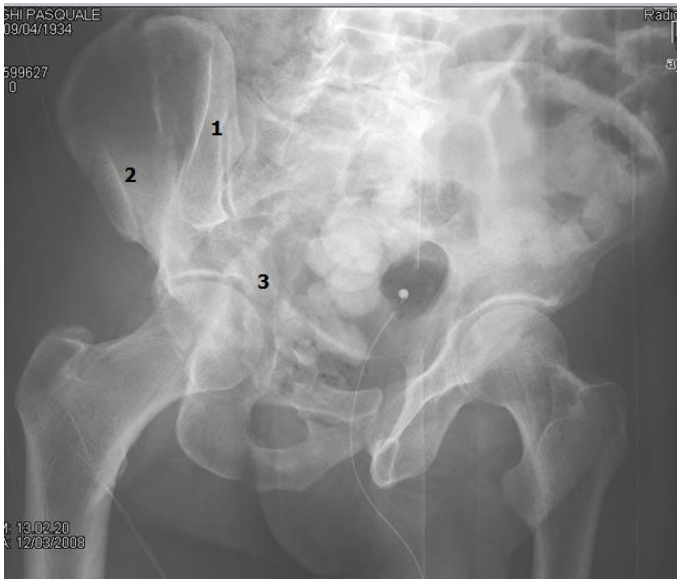


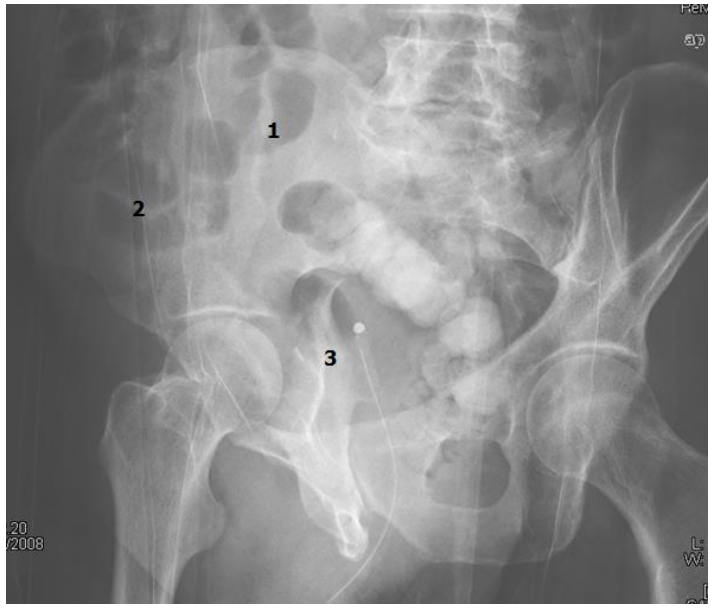
Maschio aa 73

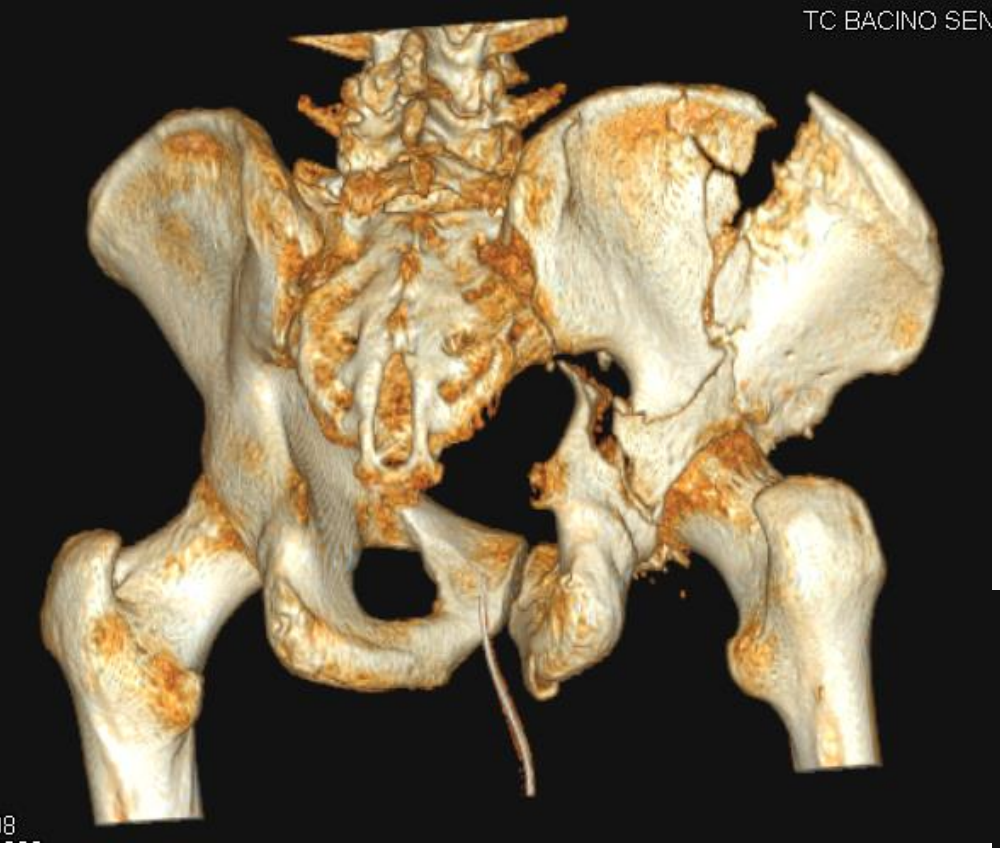
Trauma diretto da caduta di albero

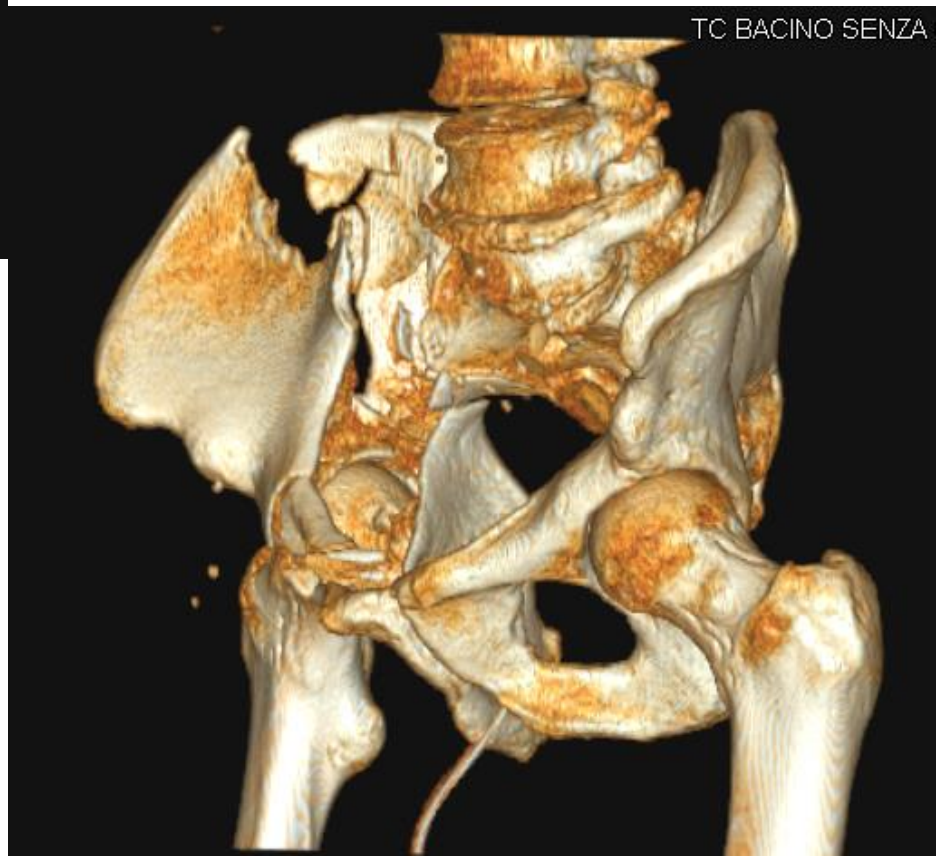
Frattura delle 2 colonne

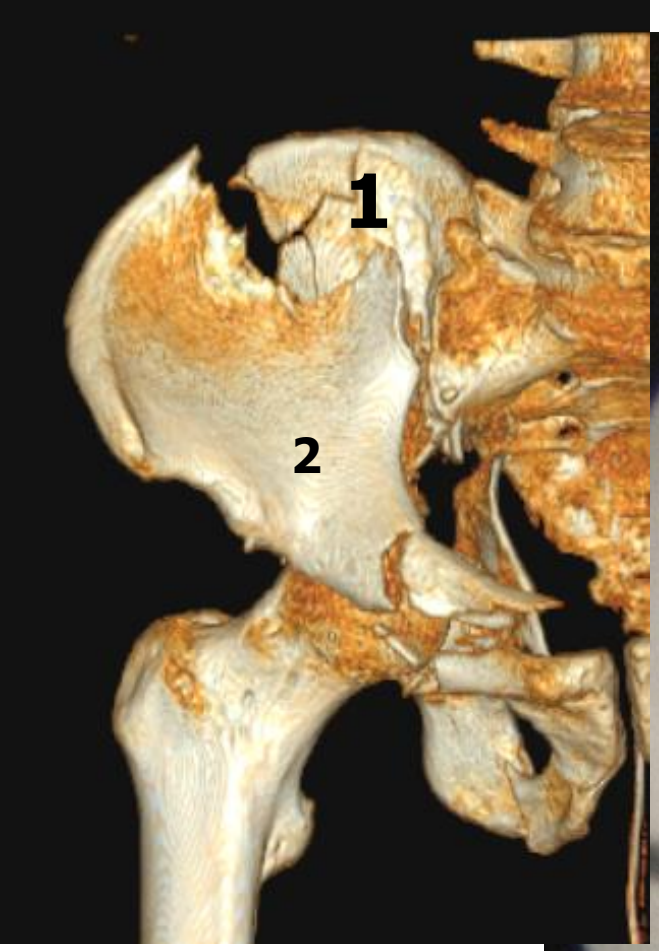


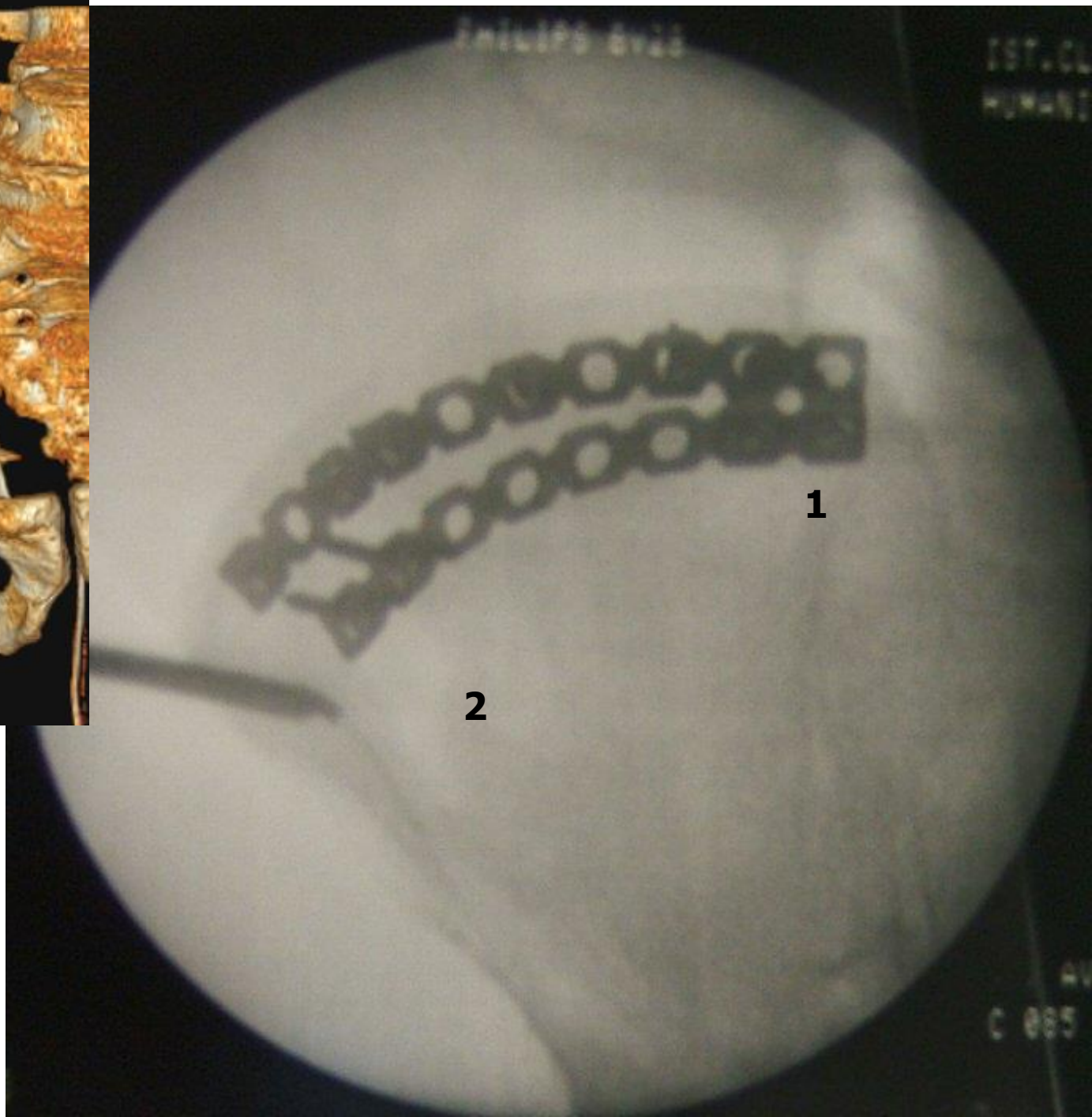





TC BACINO SEN

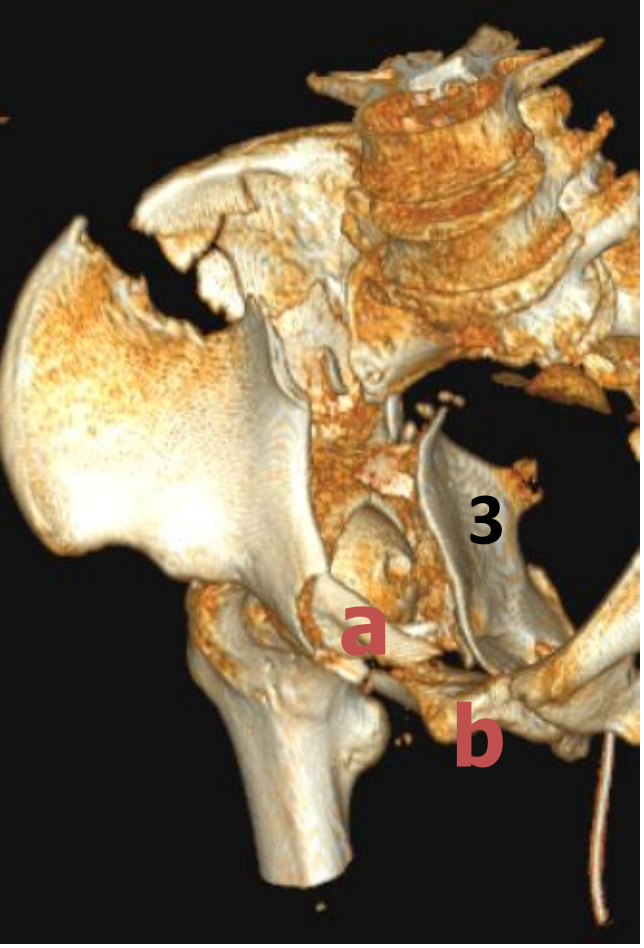

TC BACINO SENZA

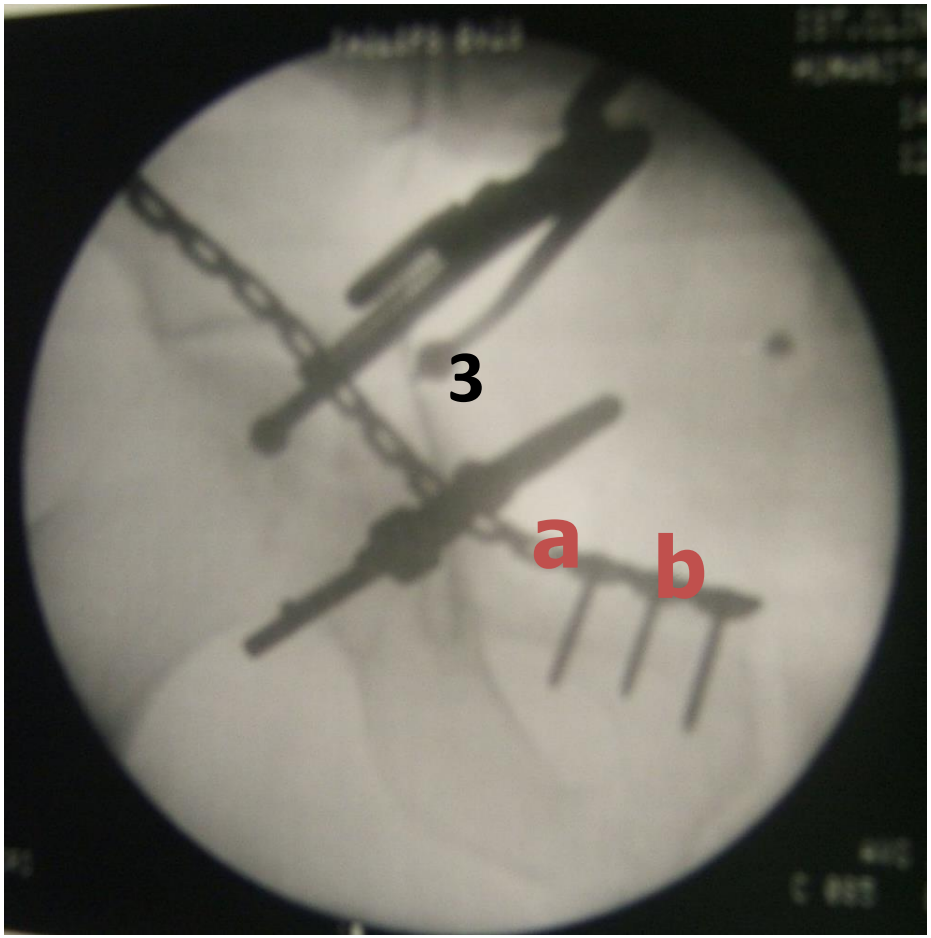




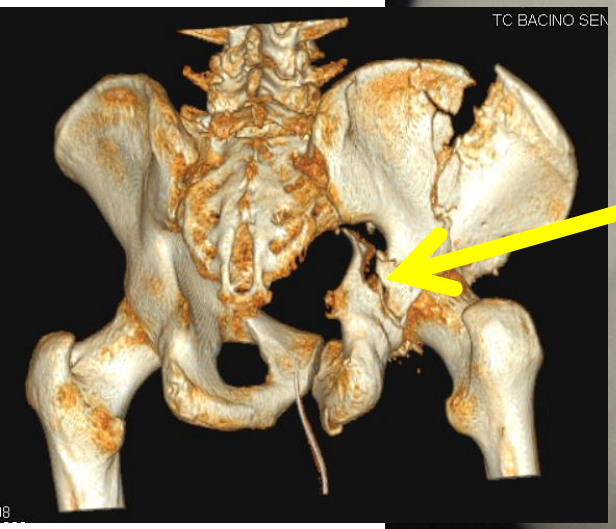
Finestra laterale

1+2





Tentativo di fare tutto per singola via di Stoppa

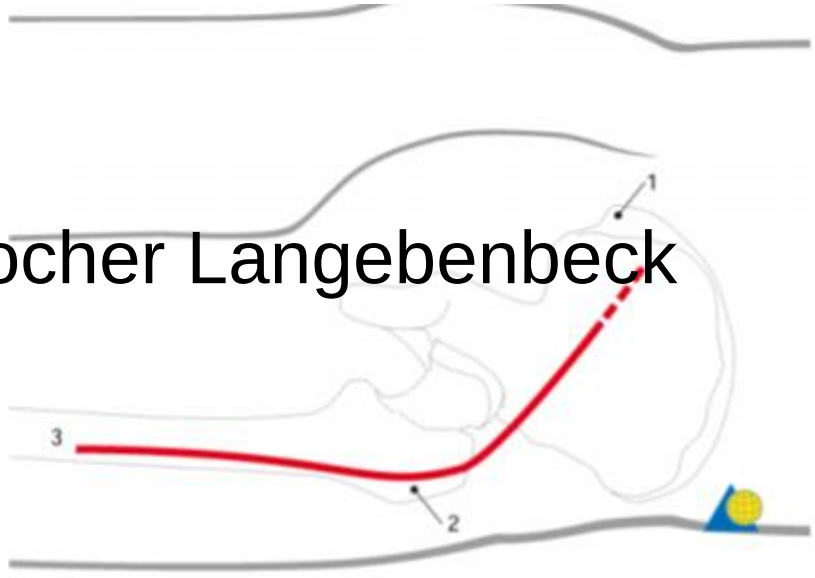


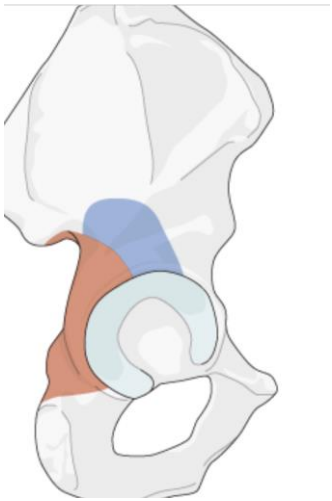
Non basta la singola via

Vie posteriori

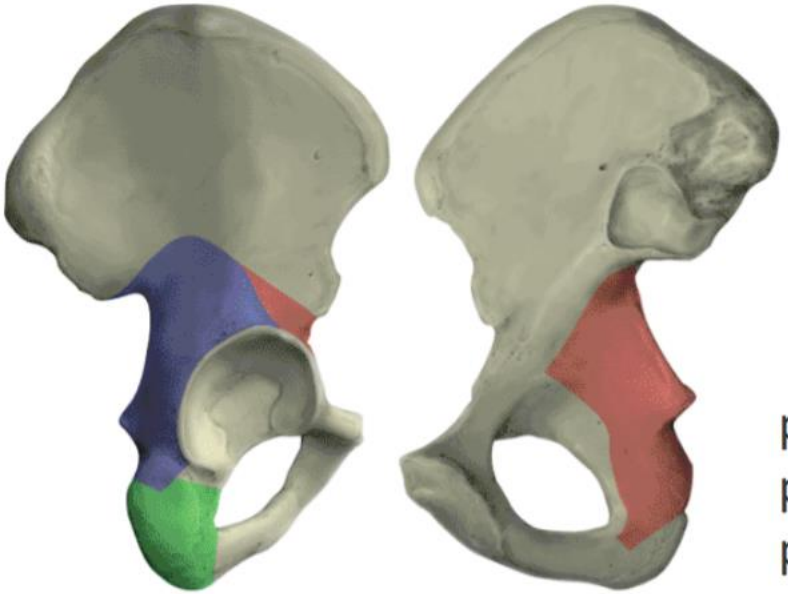


Kocher Langebenbeck





Indications



Direct visualization

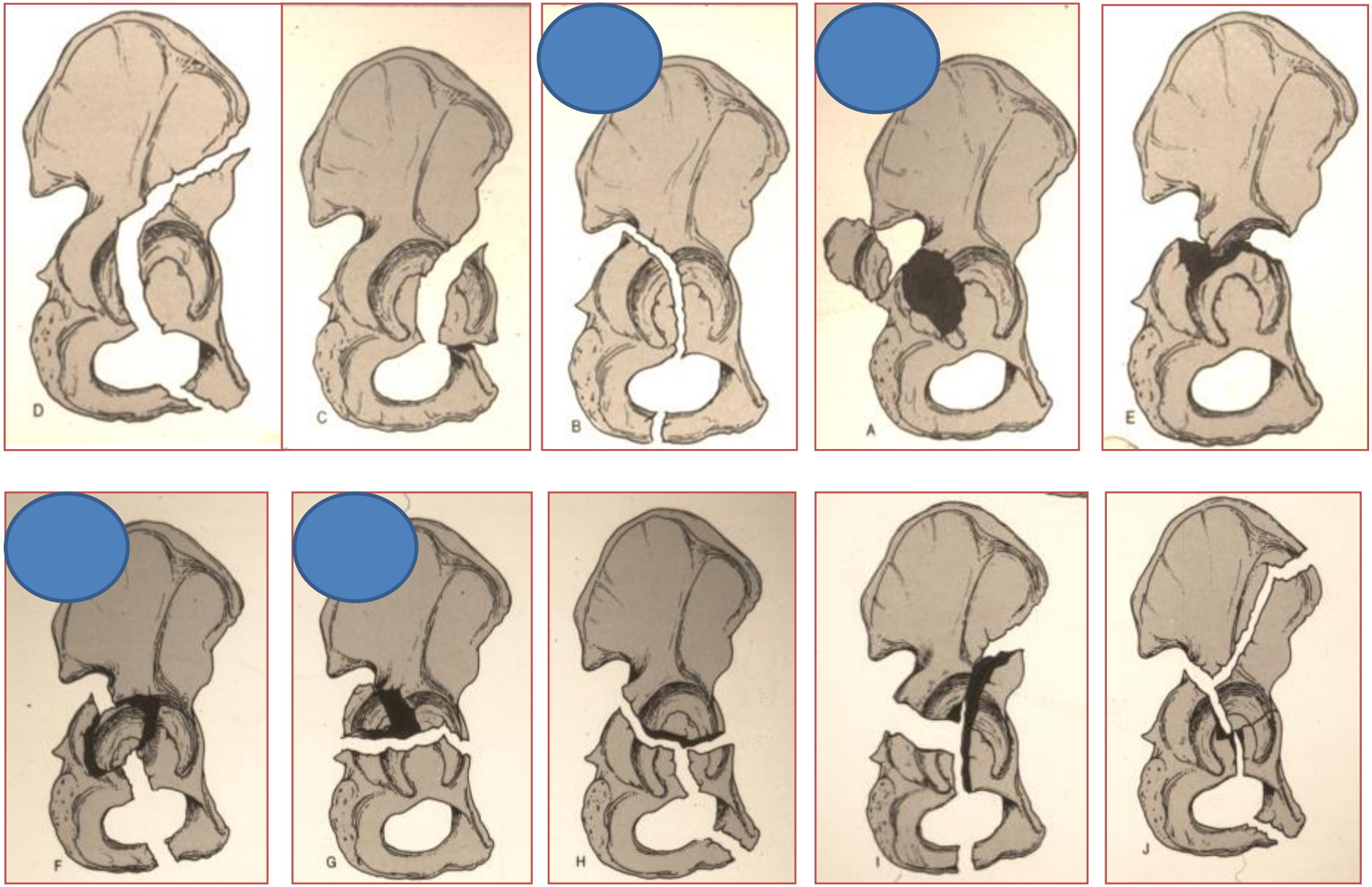
Indirect visualization

Visualization after quadratus femoris origin release

posterior wall
posterior column
posterior column & wall

transverse,
transverse & posterior wall
T-shaped

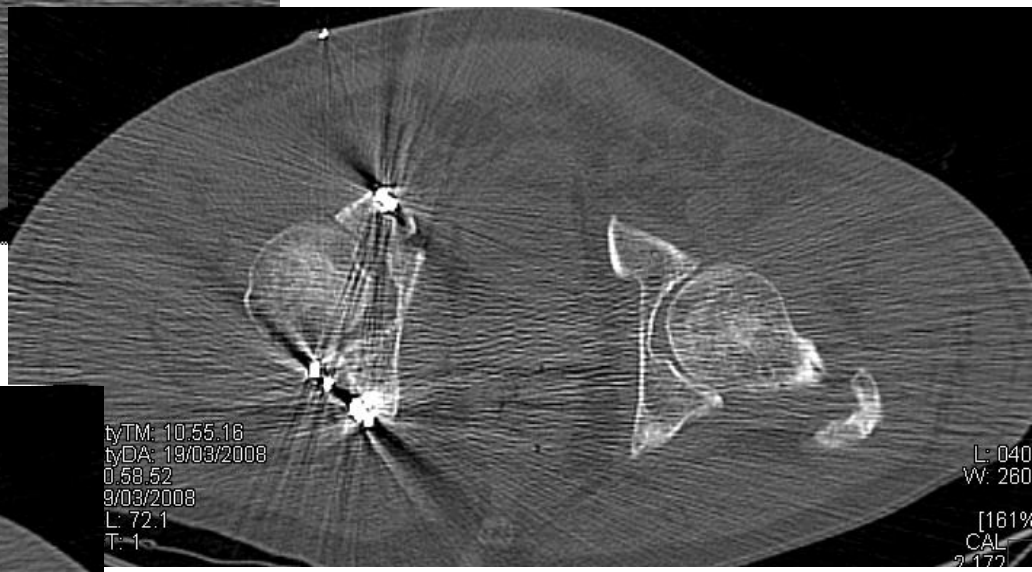
Colonna ant | Parete ant | Colonna post | Parete post | Trasversa

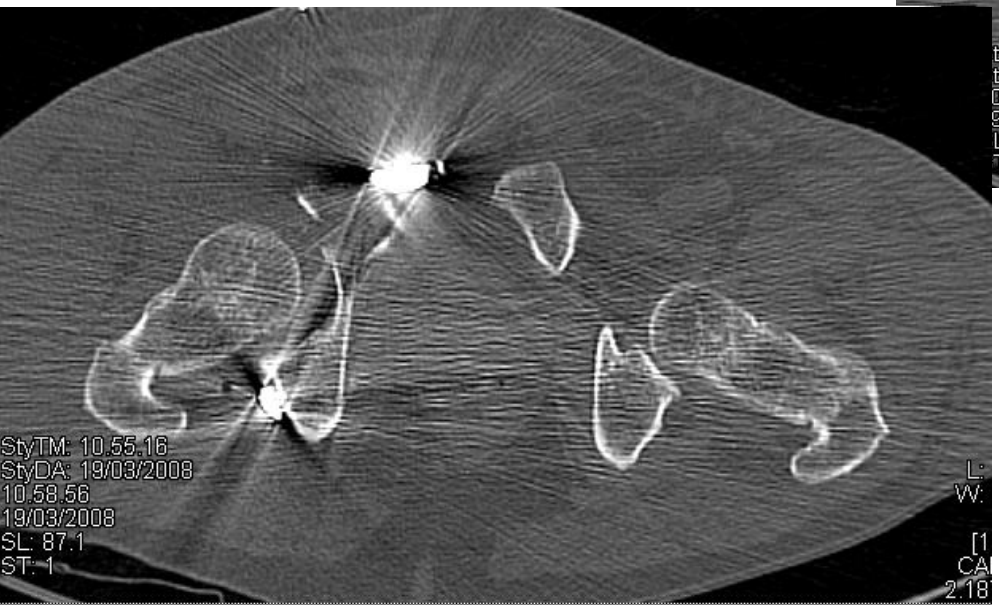


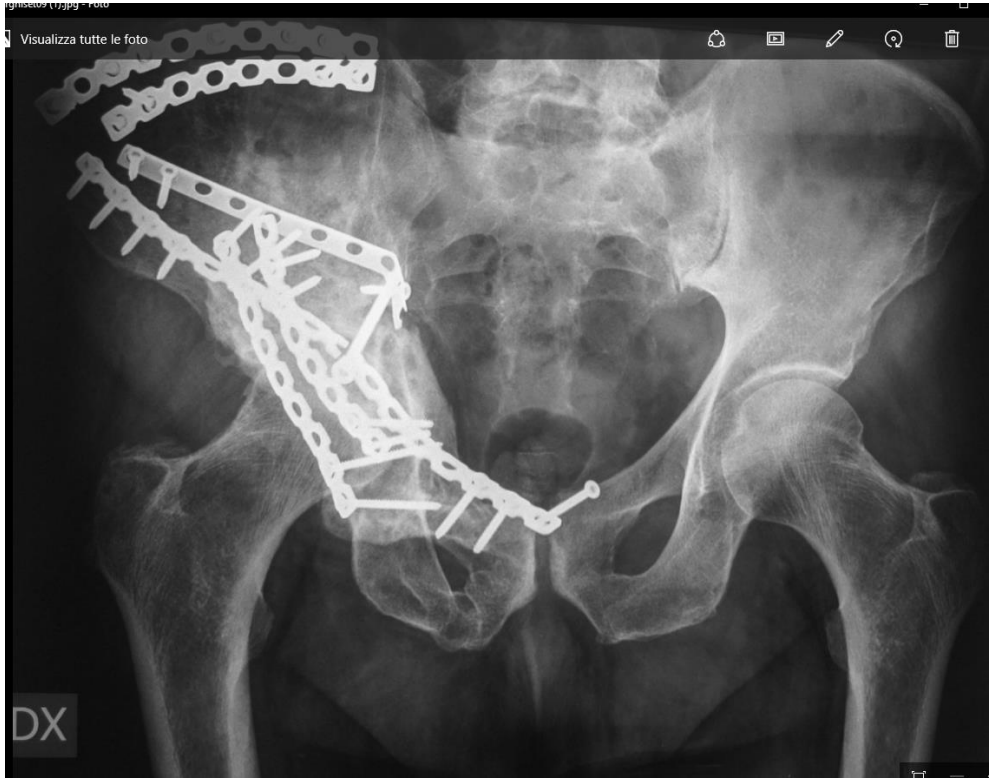
Colonna post + parete post. | Trasversa + parete post | Trasversa a T | Colonna ant + emitrasv post. | 2 Colonne

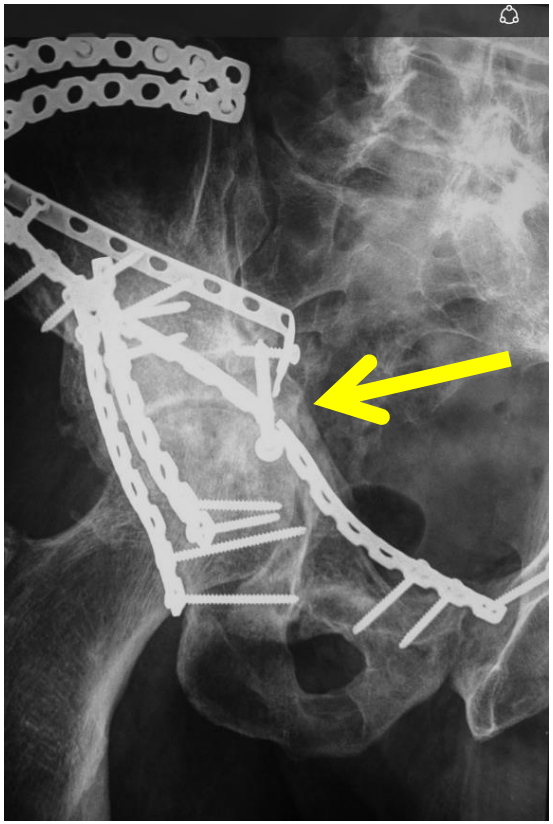

PHILIPS BV29
K-L
14.
14.
AVG


StyTM: 10.55.16
StyDA: 19/03/2008
10.58.49
19/03/2008
SL: 61.1
ST: 1


tyTM: 10.55.16
tyDA: 19/03/2008
0.58.52
9/03/2008
L: 72.1
T: 1
L: 040
W: 260
[161%
CAL


StyTM: 10.55.16
StyDA: 19/03/2008
10.58.56
19/03/2008
SL: 87.1
ST: 1
L:
W:
[1
CA
2.18


Visualizza tutte le foto
DX



AO Foundation

Executive Editor: Peter Trafton **General Editor:** Piet de Boer
Authors: Keith Mayo, Michel Oransky, Pol Rommens, Carlos Sancineto

Acetabulum - Transverse

Diagnosis | Indication | Preparation | Approach | Reduction & Fixation | Aftercare

Treatment options 1

Nonoperative treatment
indication

Operative treatment
indication
select this option

Approach 2

Kocher-Langenbeck
indication
select this option

Extended iliofemoral
indication

Trochanter flip extension
indication

Ilioinguinal
indication

Trasverse, MP, CP

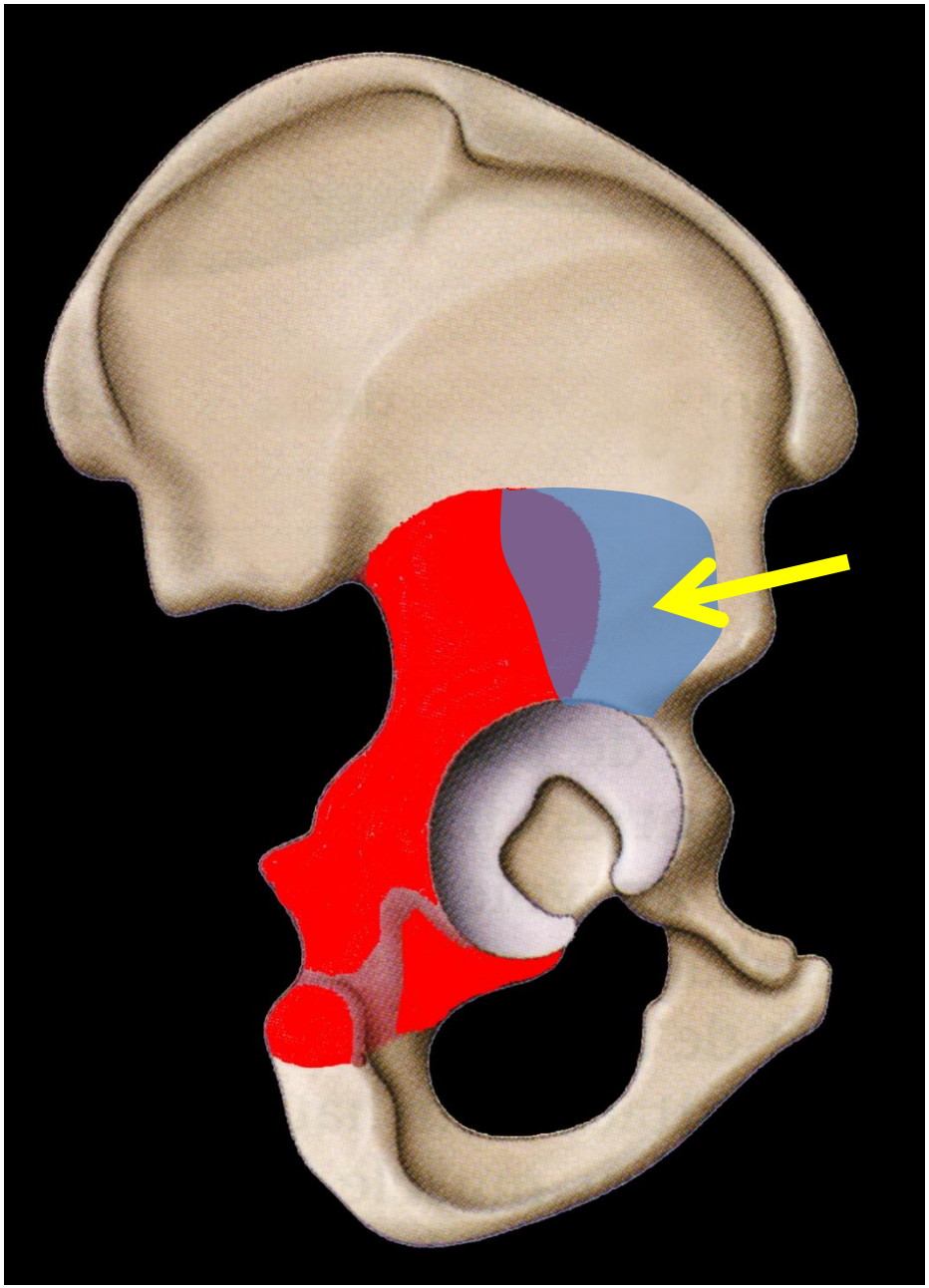
Transverse fractures Trochanter Flip extension

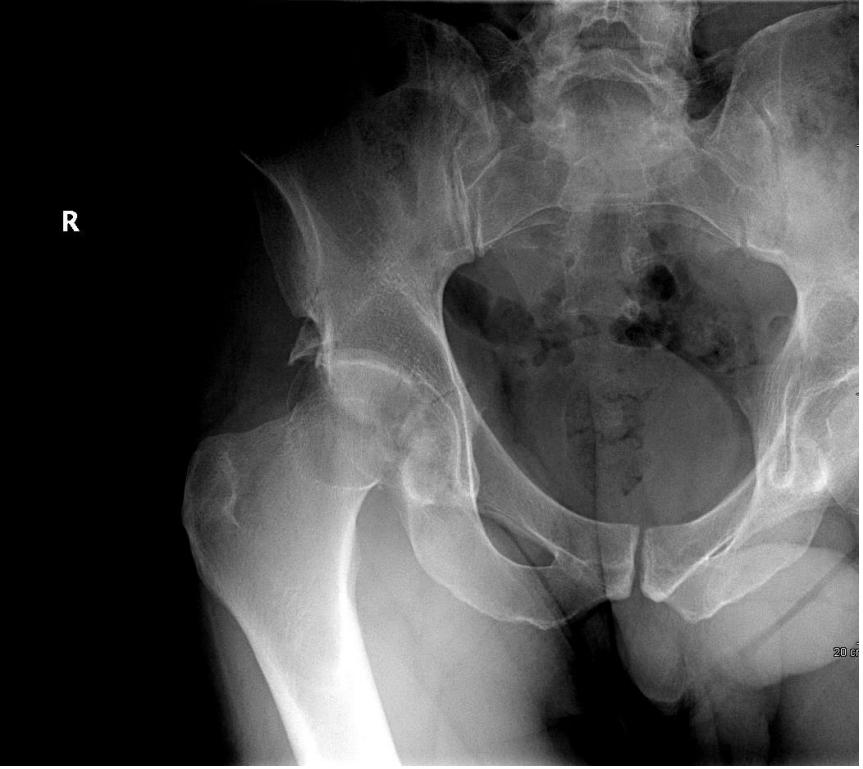
print | back to overview | select & proceed

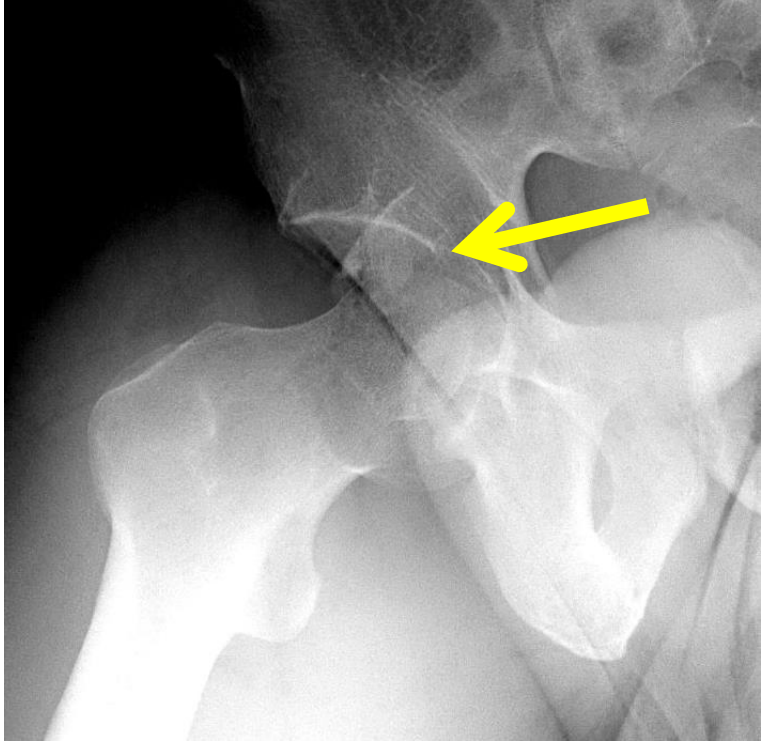
The trochanter flip (digastric trochanteric osteotomy) can be used to extend the exposure of the Kocher-Langenbeck approach superiorly and anteriorly.
This exposure can be combined with a surgical dislocation of the hip in more complex injury patterns.



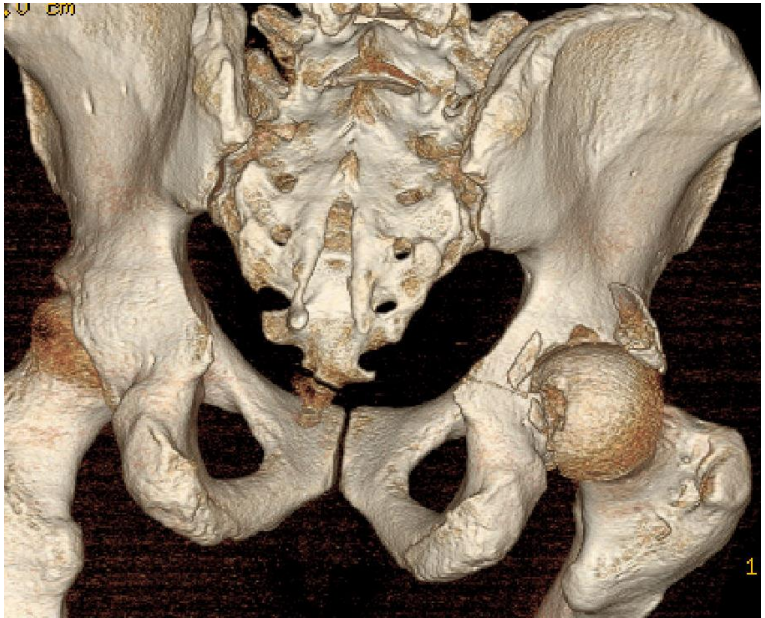
print | back to overview | select & proceed

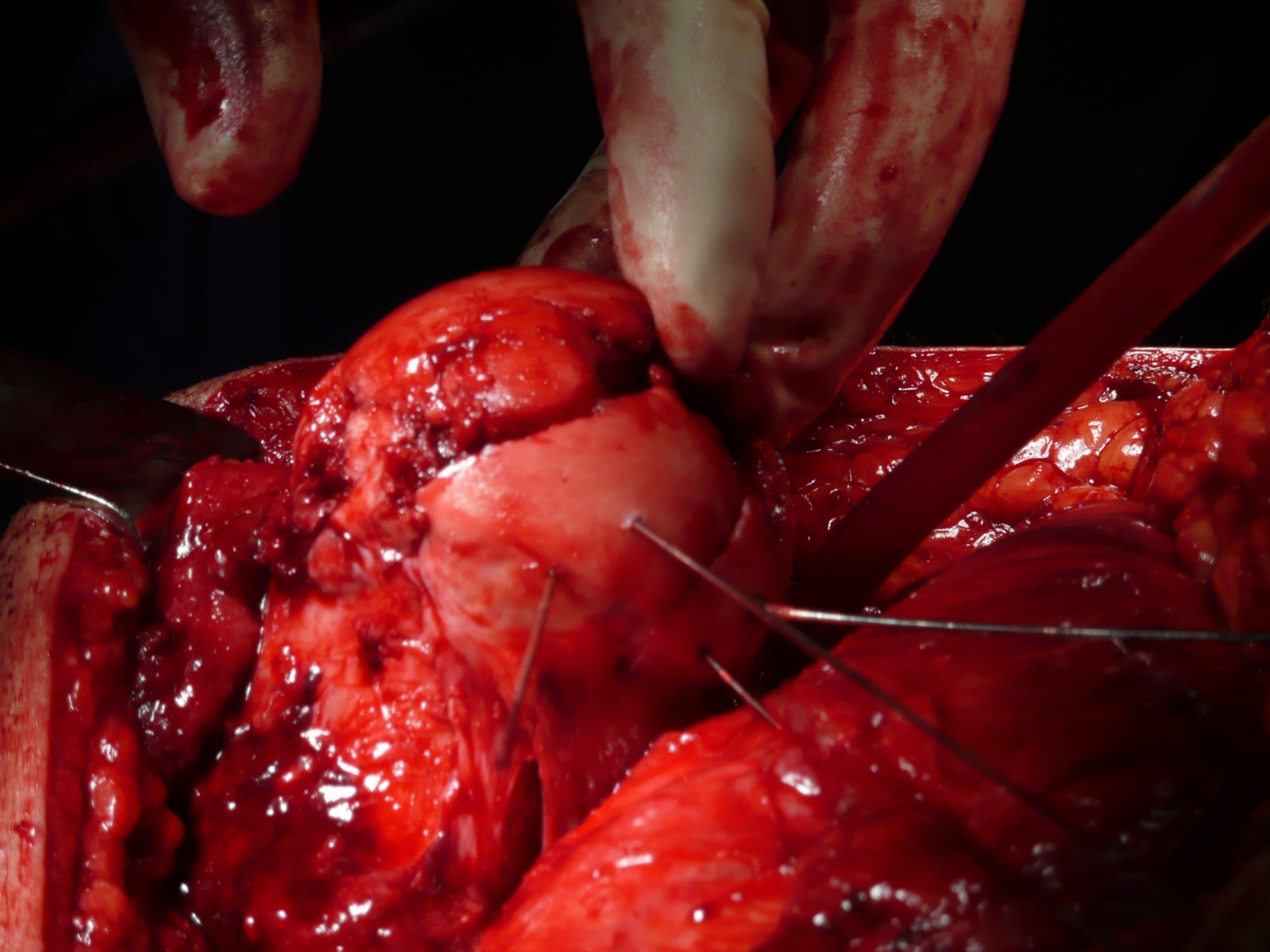


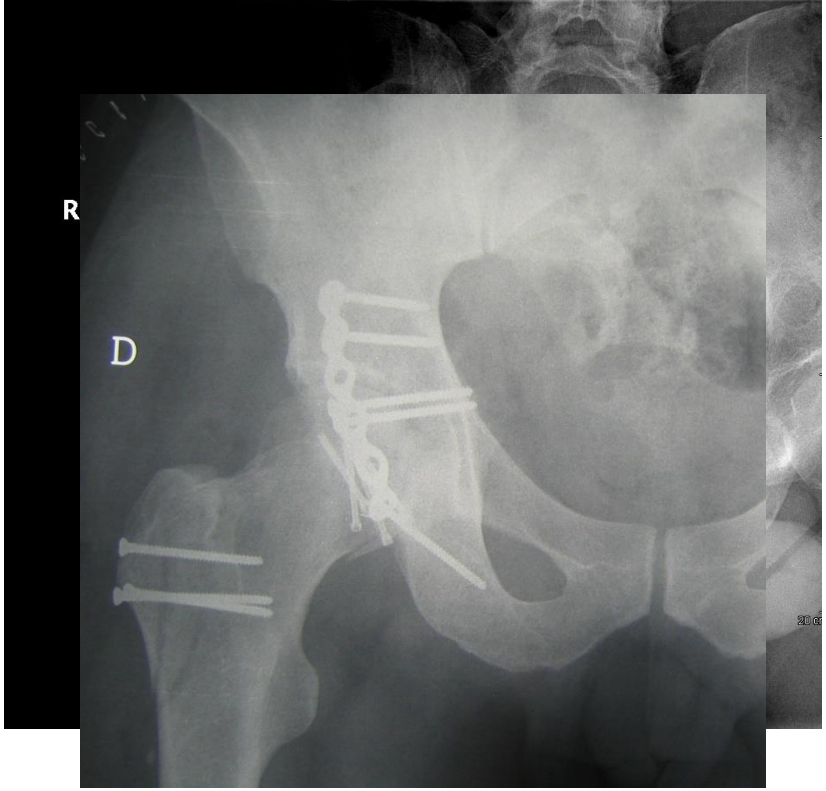




J.Z. 27 aa; Pipkin 4






R
D





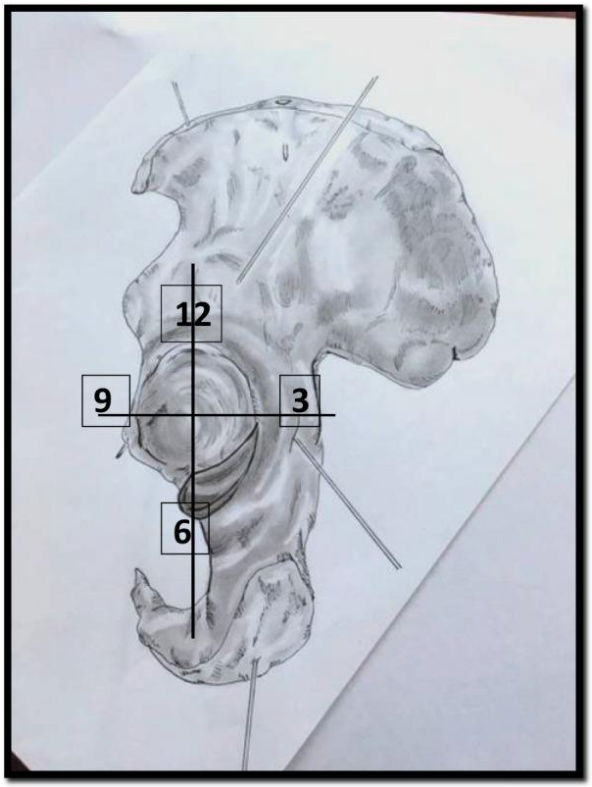
EFORT open reviews

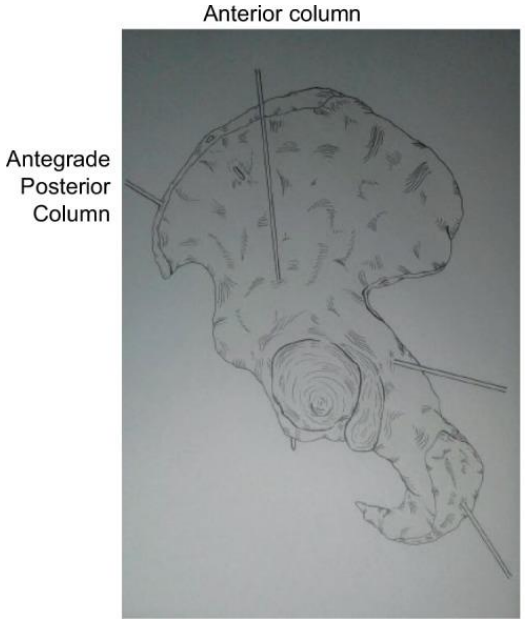
EFORT Open Rev. 2018 May; 3(5): 326–334.
Published online 2018 May 21. doi: 10.1302/2058-5241.3.170054

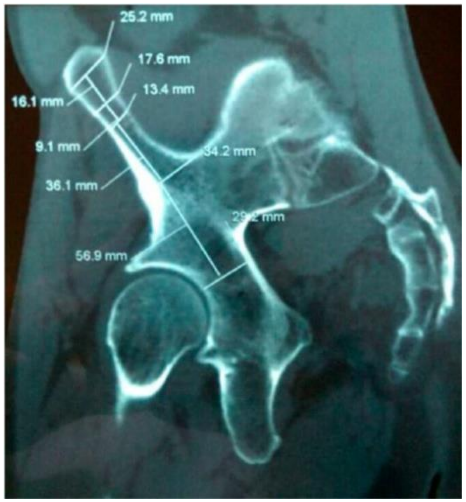
PMCID: PMC5994628
PMID: 29951272

Percutaneous fixation of acetabular fractures

Horacio Caviglia, Adrian Mejail, Maria Eulalia Landro, and Nosratolah Vatani







Factors that modify Approach

Soft tissues

-open
-Abrasions
-Morel – Lavalle

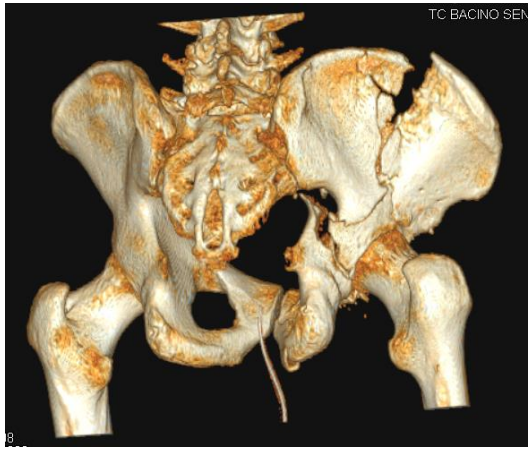
Associated injuries

-pelvic fractures
-ipsilateral femur
-bladder/bowel injury

Fracture patterns

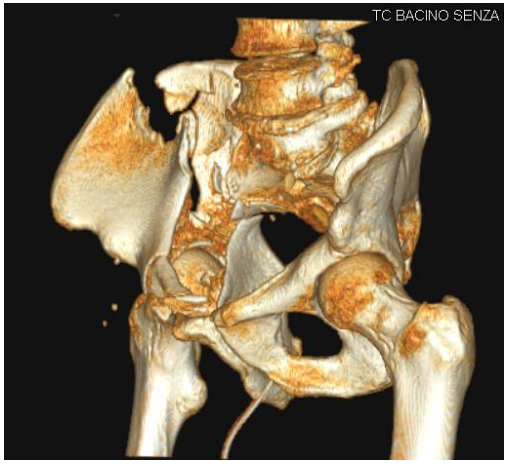
Patient Age

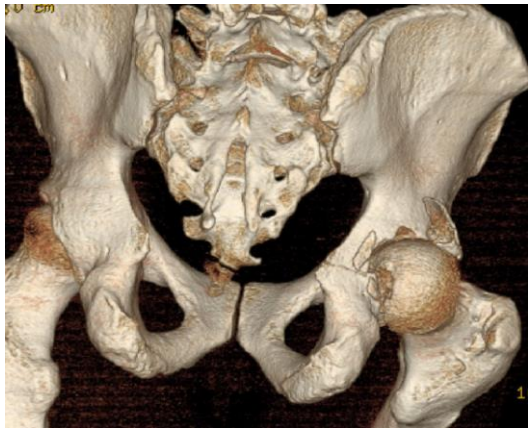
Time since Injury



Conclusioni







- Immagini
- Classificazione pattern di frattura
- Conoscenza delle vie
- Rischi e complicanze
- Fratture articolari

vincenzo.zottola@asst-lariana.it



Azienda Ospedaliera
Ospedale Niguarda Ca' Granda

ASST GOM NIGUARDA

MILANO



Bergamo, 20 settembre 2019

PRINCIPI DELLA SINTESI

Corso di istruzione 6

TRAUMA: fratture acetabolari

Federico Bove **bovefederico@yahoo.it**

OUTCOMES…

- COMPRENDERE LA FRATTURA
- VALUTARE LA STRATEGIA CHIRURGICA
- TECNICHE DI RIDUZIONE
- TECNICHE DI RICOSTRUZIONE ARTICOLARE



OBBIETTIVO DEL TRATTAMENTO

- ANCA MOBILE E NON DOLENTE

  PER IL RESTO DELLA VITA

- SPESSO PAZIENTE GIOVANE CON

  ALTE RICHIESTE FUNZIONALI





SCOPO DEL TRATTAMENTO

- RIDUZIONE ANATOMICA!
- SINTESI STABILE

Matta JM (1996)

Fracture of the acetabulum: accuracy of reduction and clinical results in patients managed operatively within three weeks after the injury

J Bone Joint Surg Am; 78(11):1632–1645.

operative complications. Based on these results, the goal of treatment for these complex fracture types should be an increased rate of anatomical reduction and a decreased rate of operative complications.

CLASSIFICARE LA FRATTURA

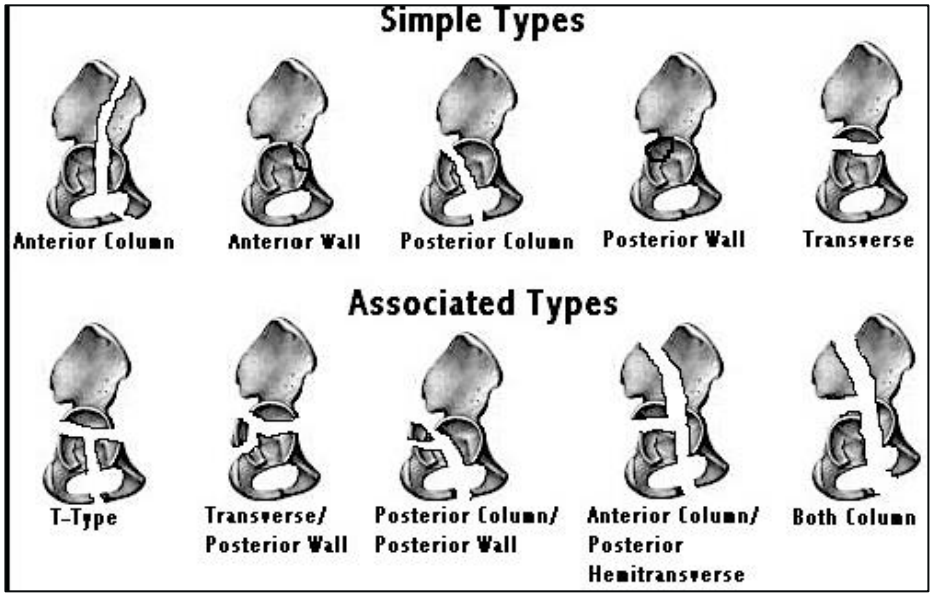
ERRORE NELLA

CLASSIFICAZIONE

=

RISULTATO SCADENTE!

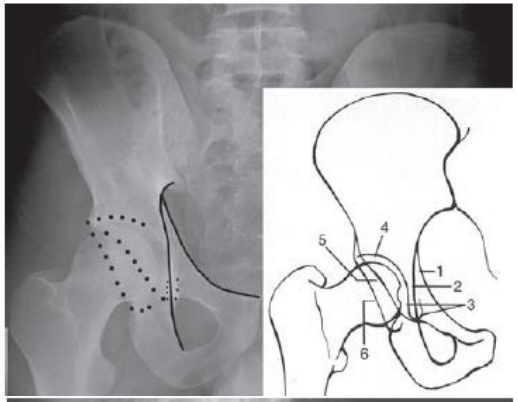
Classificazione di Judet-Letournel



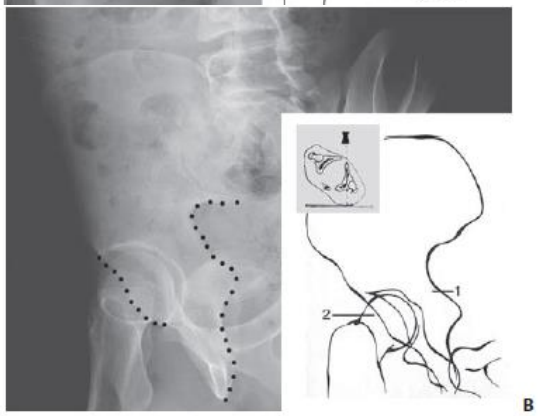
CLASSIFICARE LA FRATTURA

SEMPRE PRIMA SULLA RADIOGRAFIA

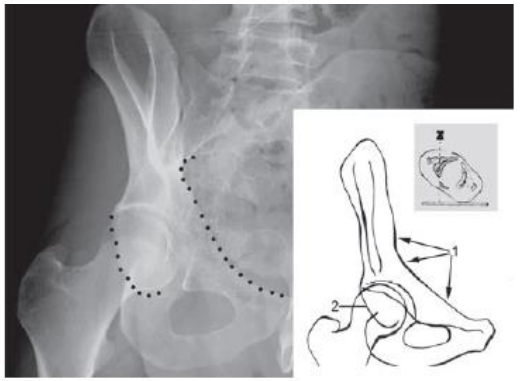
- ANTERO-POSTERIORE
- ALARE
- OTTURATORIA



AP



ALARE



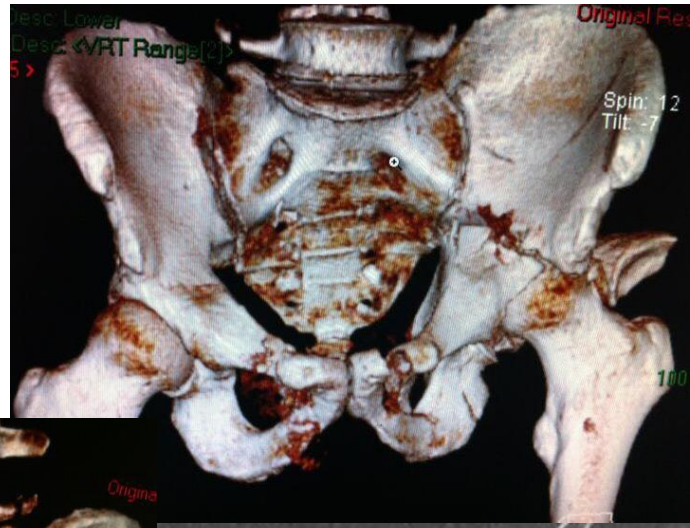
OTTURATORIA

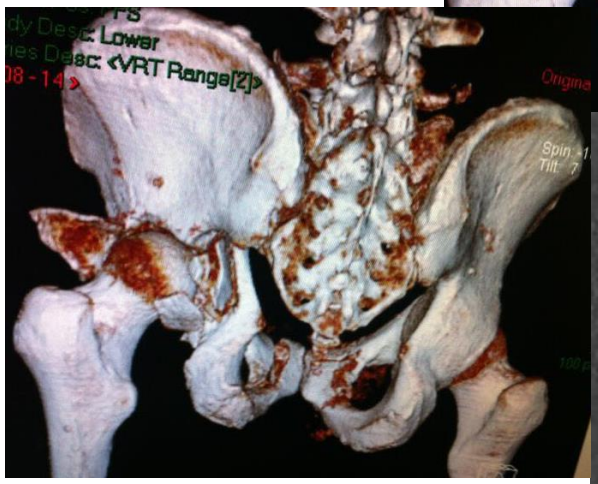
CLASSIFICARE LA FRATTURA

QUANDO LA TC-2D E LA TC-3D?

- VALUTARE LA SCOMPOSIZIONE

- VALUTARE LA SUPERFICIE ARTICOLARE



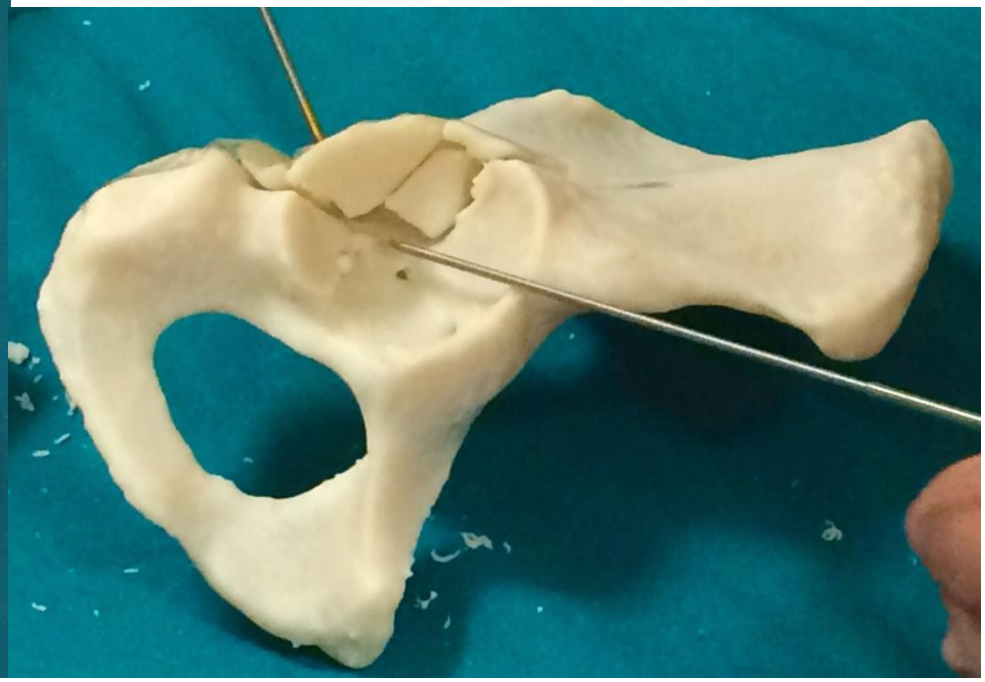




PLANNING PREOPERATORIO

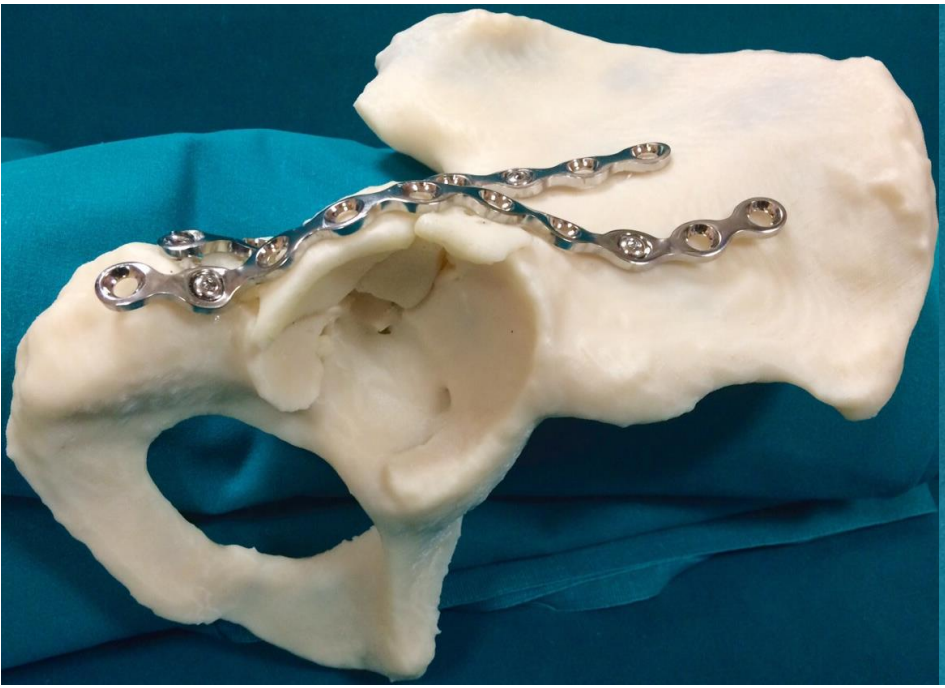


STAMPA 3D



PLANNING PREOPERATORIO

STAMPA 3D





OBBIETTIVO DEL TRATTAMENTO





NON PENSARE SUBITO ALLA SINTESI

OBBIETTIVO DEL TRATTAMENTO





OBBIETTIVO DEL TRATTAMENTO





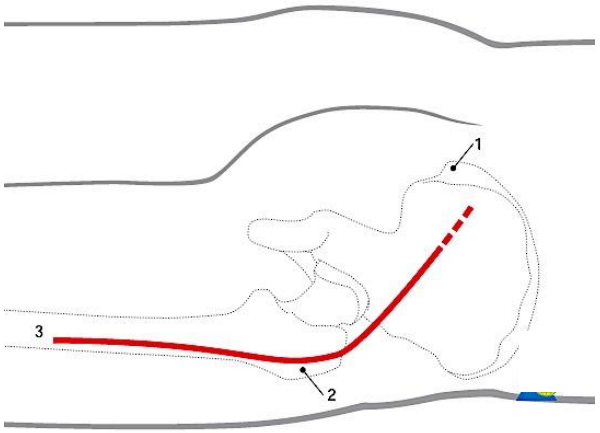
COME OTTENGO LA RIDUZIONE? CHE APPROCCIO?

ACCESSO CHIRURGICO

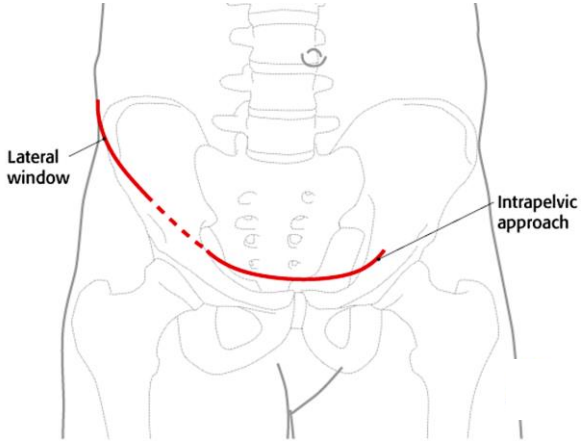
SCELTA DELL'ACCESSO

PIÙ IDONEO

PER LA RIDUZIONE



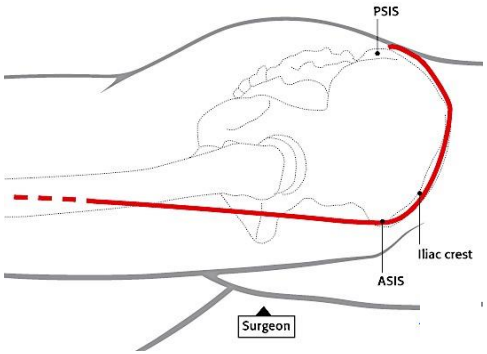
KOCHER-LANGENBECK



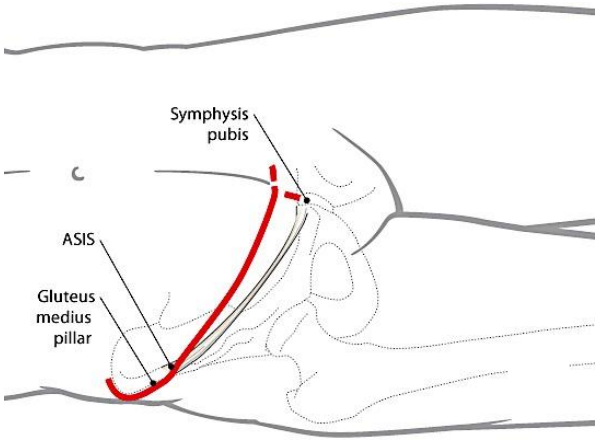
STOPPA (IPA)

+

1 FINESTRA I-I



ILEO-FEMORALE



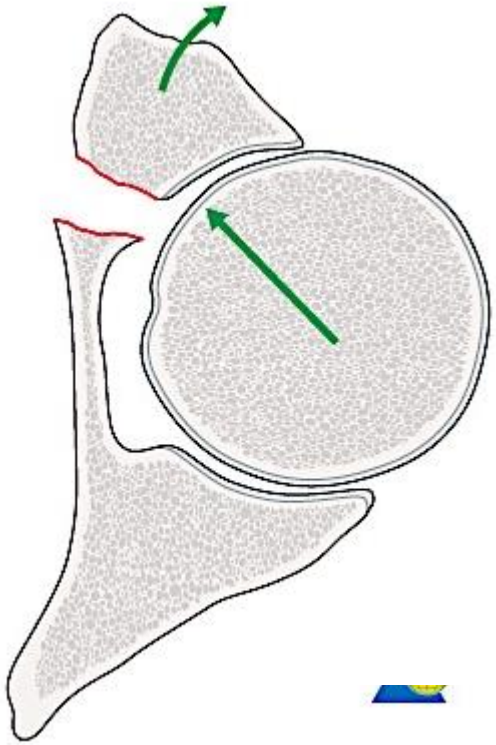
ILEO-INGUINALE

TECNICHE PER LA RIDUZIONE

ANALIZZARE LE FORZE

CHE HANNO PROVOCATO

LA FRATTURA

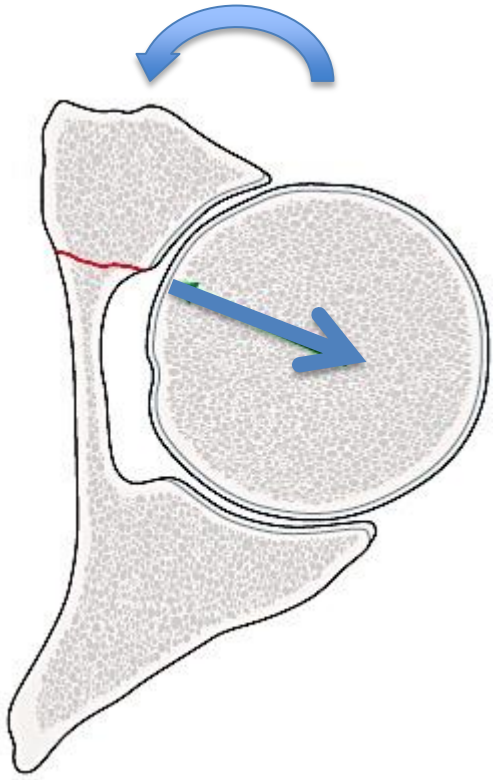


TECNICHE PER LA RIDUZIONE

ANALIZZARE LE FORZE

CHE HANNO PROVOCATO

LA FRATTURA



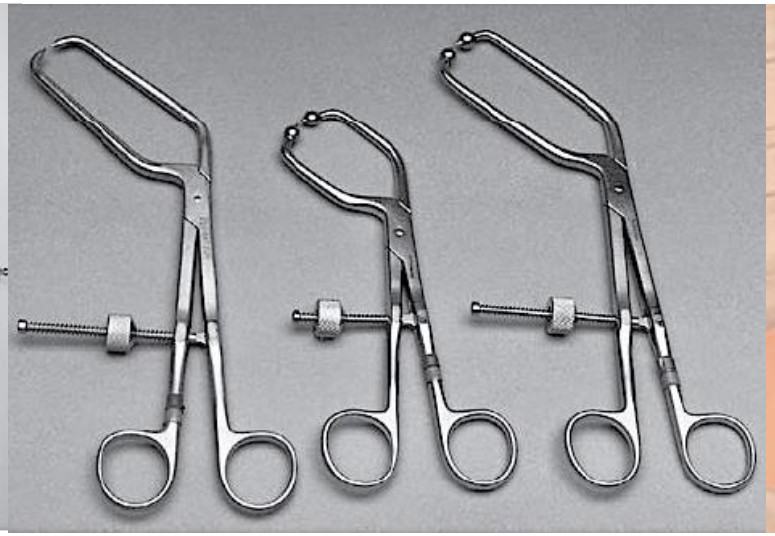
APPLICARE DELLE FORZE

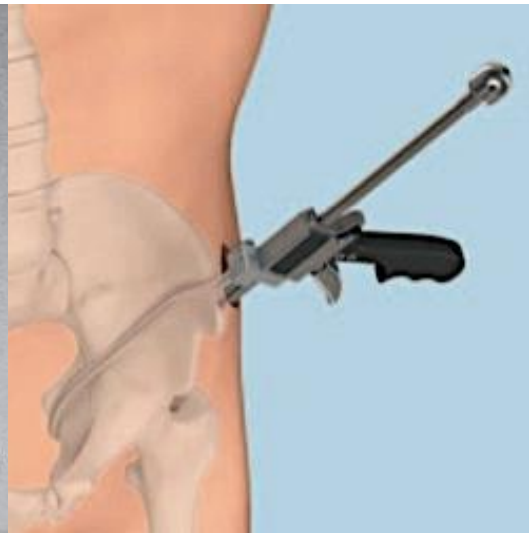
CONTRARIE ALLE FORZE

DI SCOMPOSIZIONE

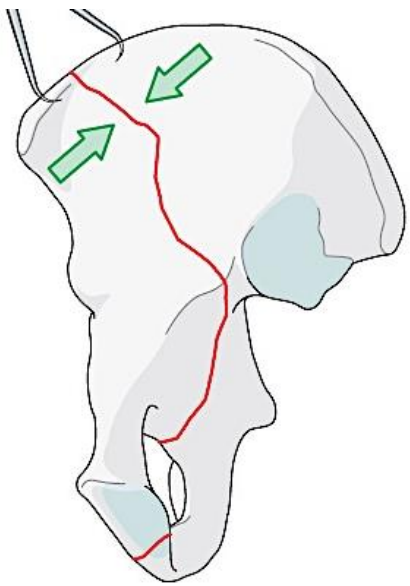
STRUMENTI PER LA RIDUZIONE

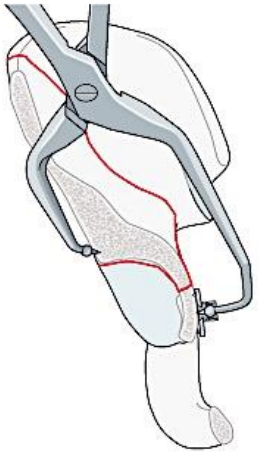


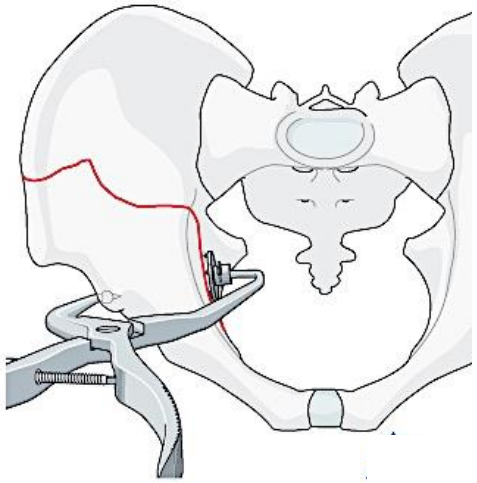


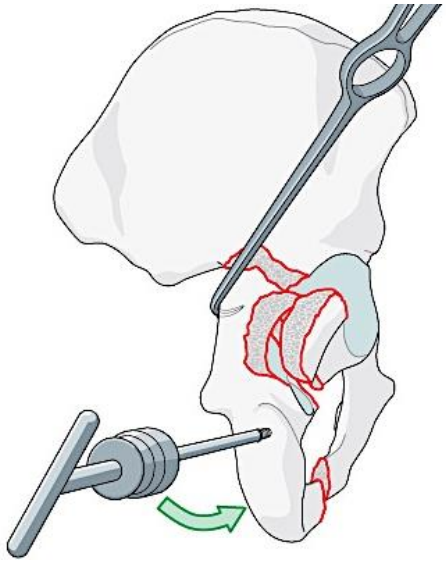


LE TECNICHE DI RIDUZIONE



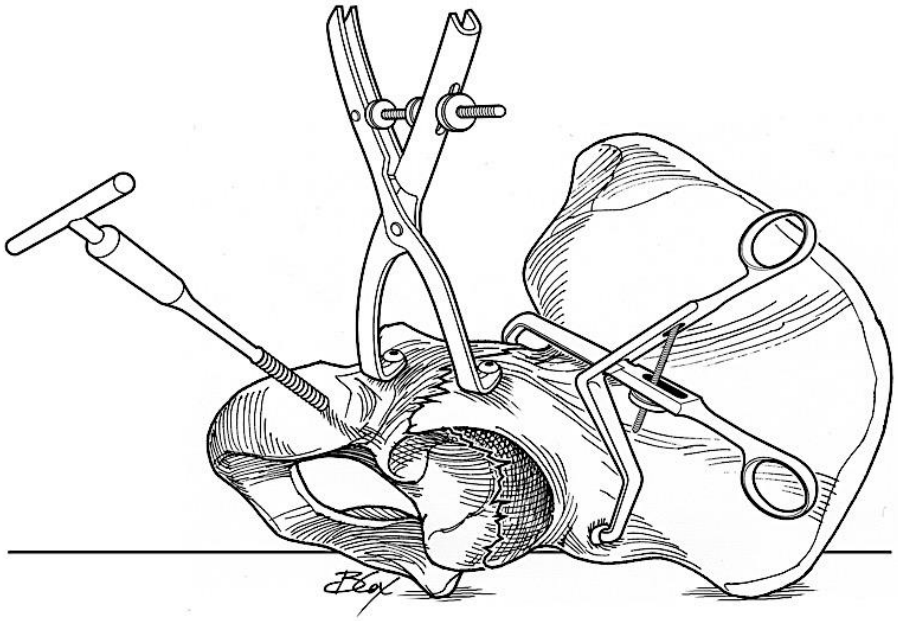


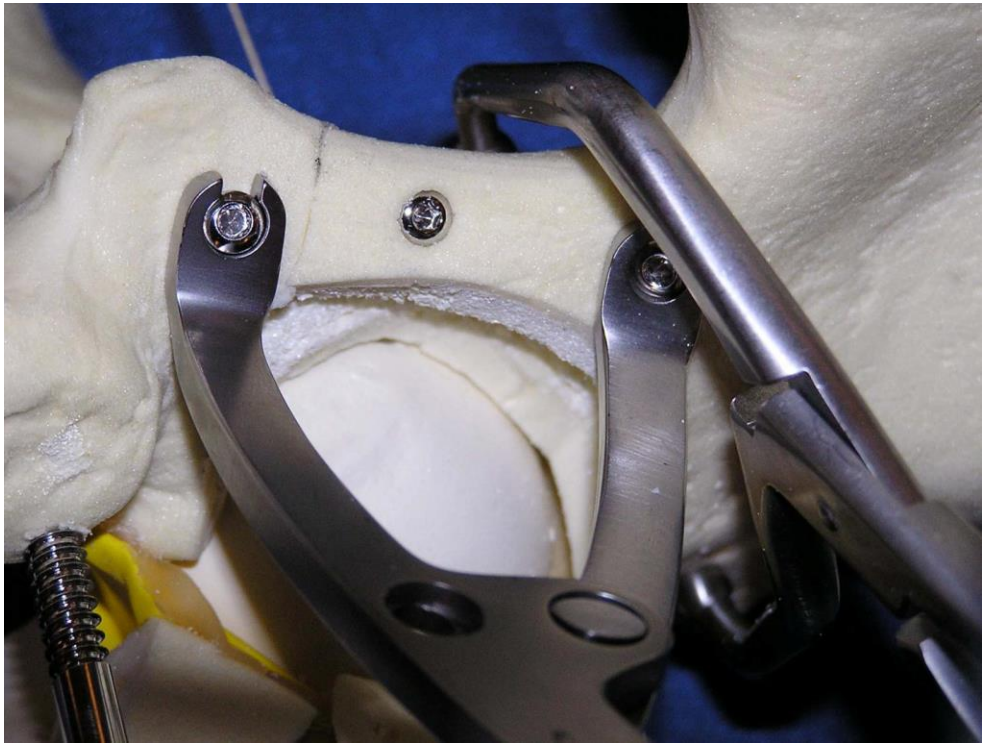




STRATEGIE PER LA RIDUZIONE

TECNICHE DI RIDUZIONE



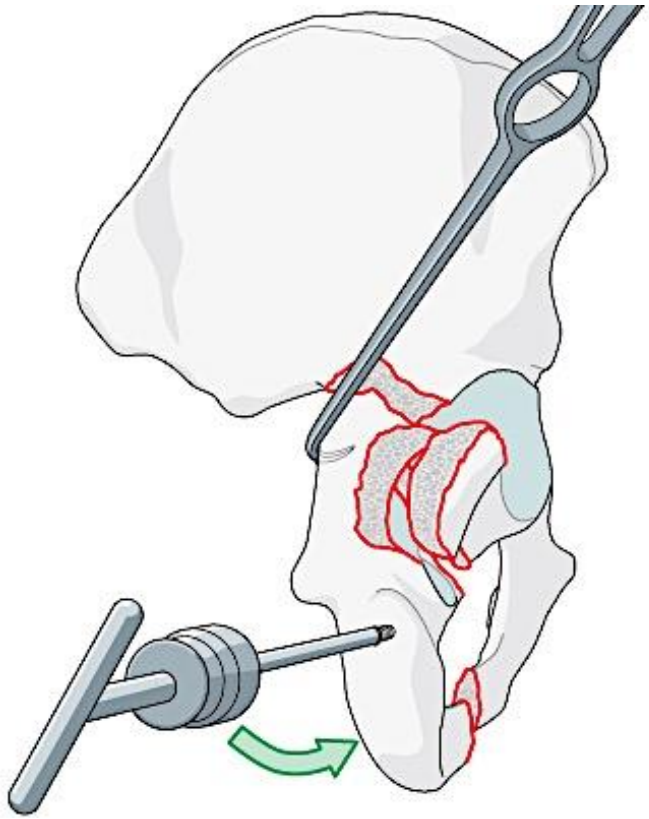


STRATEGIE PER LA RIDUZIONE

SCEGLIERE LA TECNICA

PIÙ INDICATA

PER RIDURRE LA FRATTURA



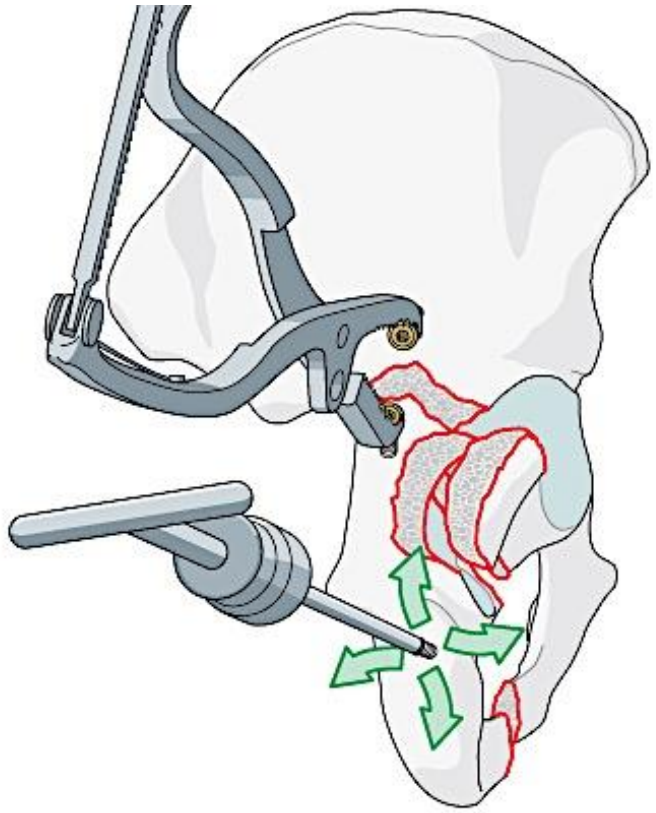
STRATEGIE PER LA RIDUZIONE

PENSARE SEMPRE

AD UN PIANO

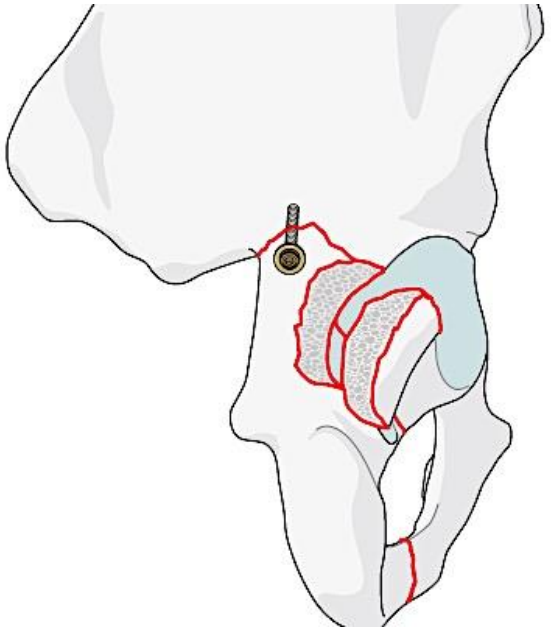
ALTERNATIVO





PATTERN «SEMPLICI»

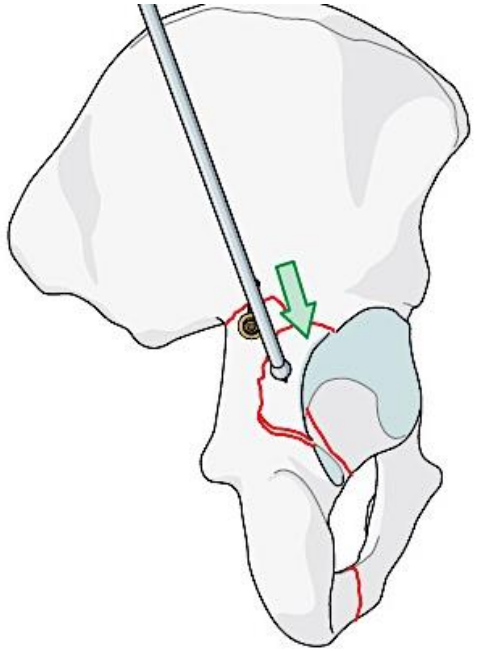
- PRIMA RIDURRE LA COLONNA



PASSI PER LA RIDUZIONE

PATTERN «SEMPLICI»

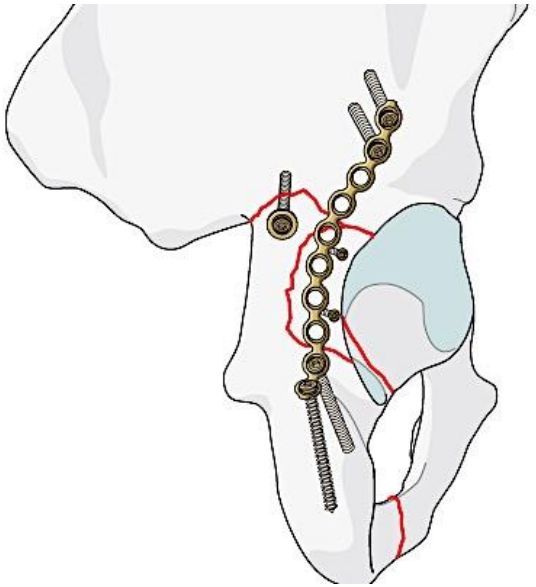
- PRIMA RIDURRE LA COLONNA
- POI LA PARETE



PASSI PER LA RIDUZIONE

PATTERN «SEMPLICI»

- PRIMA RIDURRE LA COLONNA
- POI LA PARETE
- INFINE SINTESI DEFINITIVA

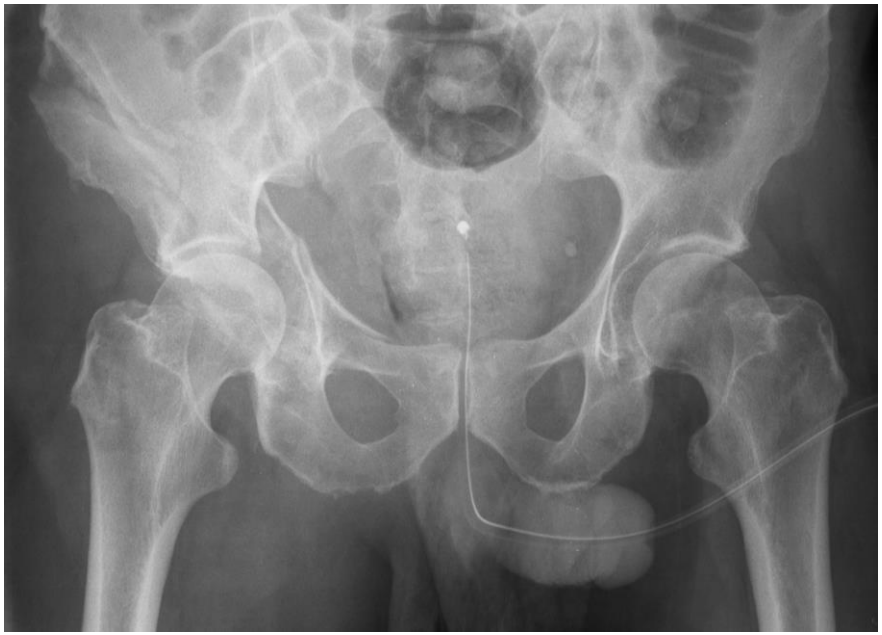


PATTERN «COMPLESSI»

RIDUCO PRIMA

LA COLONNA ANTERIORE O

COLONNA POSTERIORE?



PATTERN «COMPLESSI»

GUARDARE

L’ORIENTAMENTO

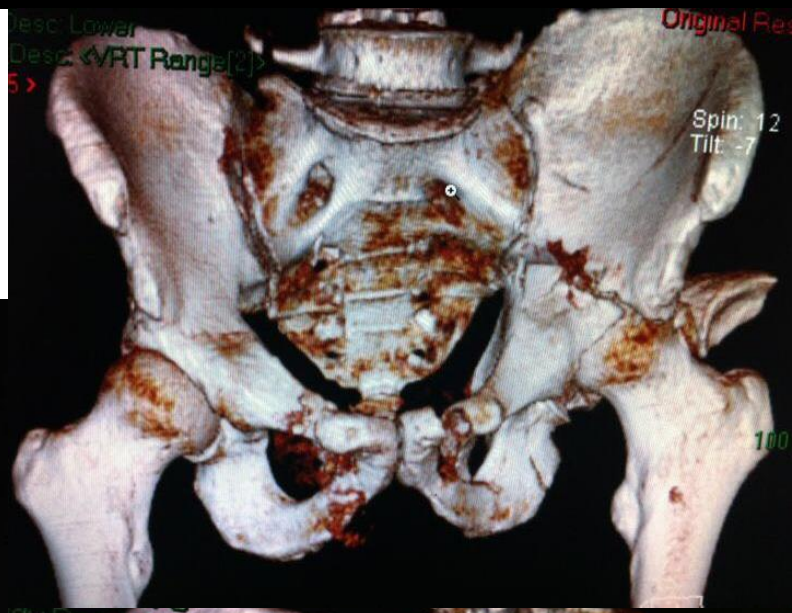
DELLA TESTA FEMORALE



L’IMPORTANZA DELLA RIDUZIONE

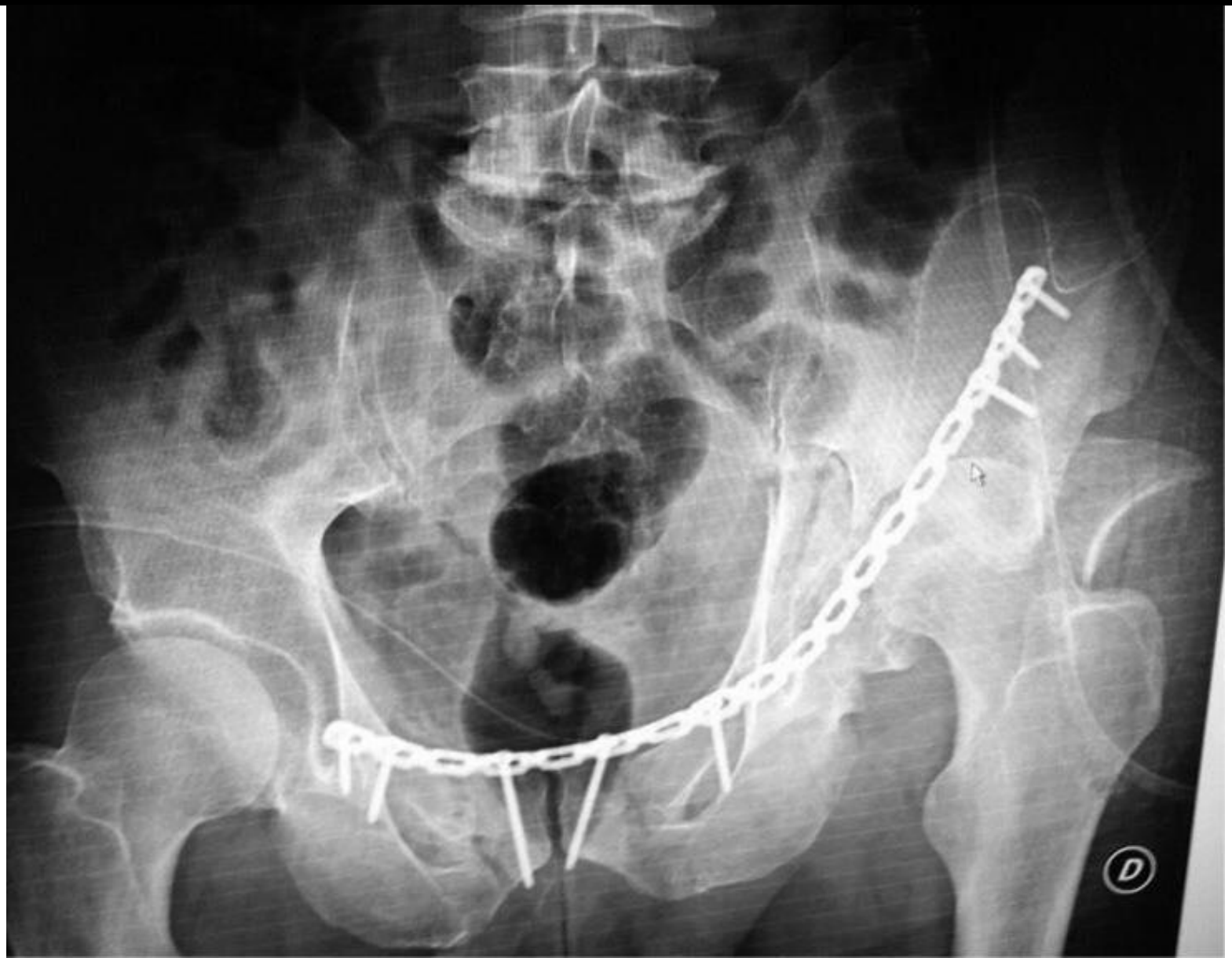
DA DOVE INIZIO?



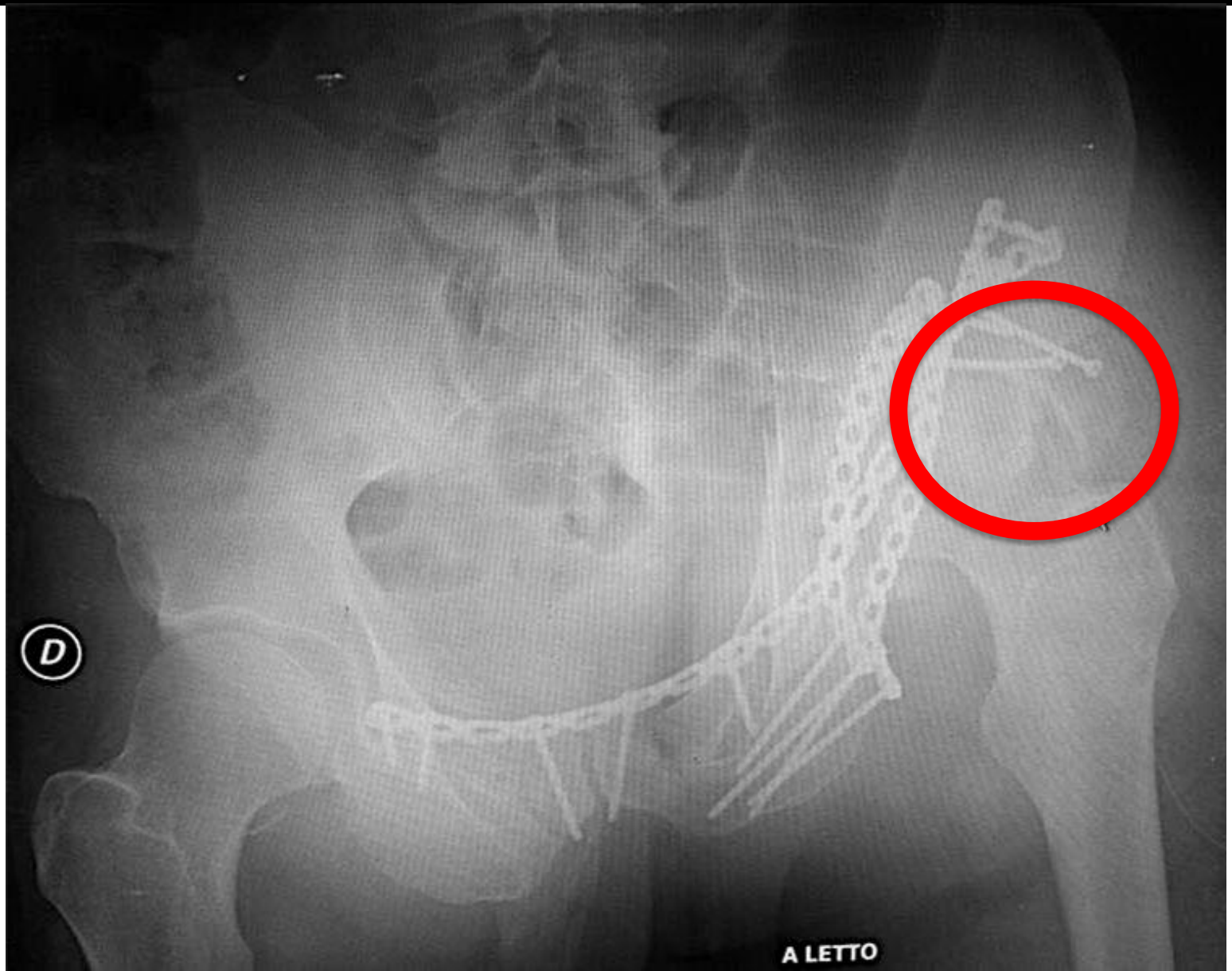




L’IMPORTANZA DELLA RIDUZIONE



L’IMPORTANZA DELLA RIDUZIONE



L’IMPORTANZA DELLA RIDUZIONE





TECNICHE PER LA SINTESI

PRIMA DI PENSARE ALLA

SINTESI DEVO OTTENERE

UNA RIDUZIONE STABILE



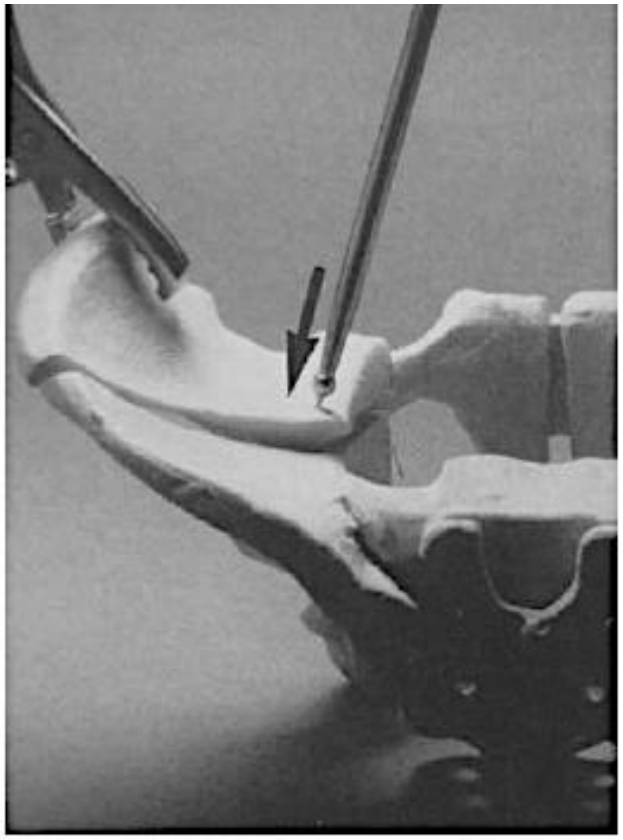
QUANDO SONO CONVINTO DELLA RIDUZIONE…

POSSO PROCEDERE ALLA SINTESI

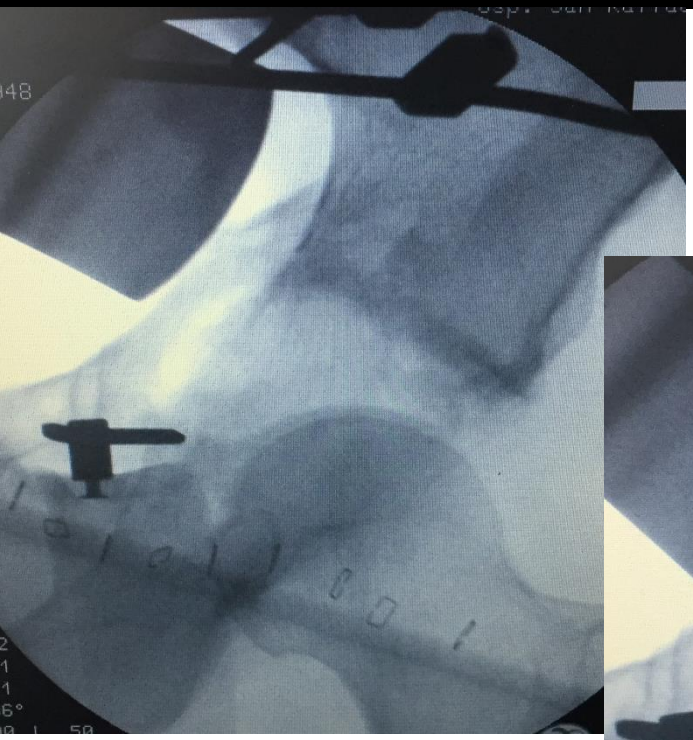
BLOCCARE LA RIDUZIONE

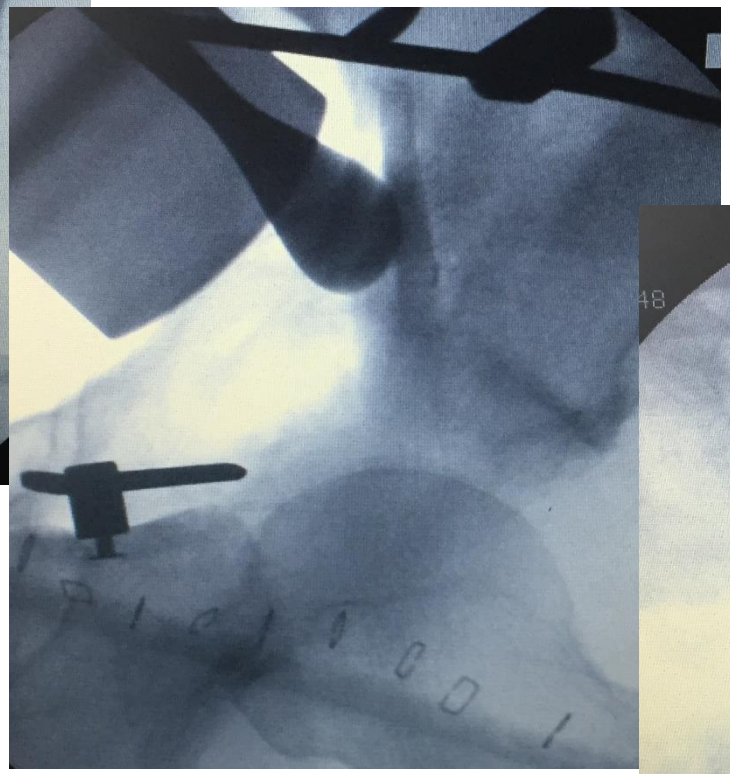
CON VITI LIBERE

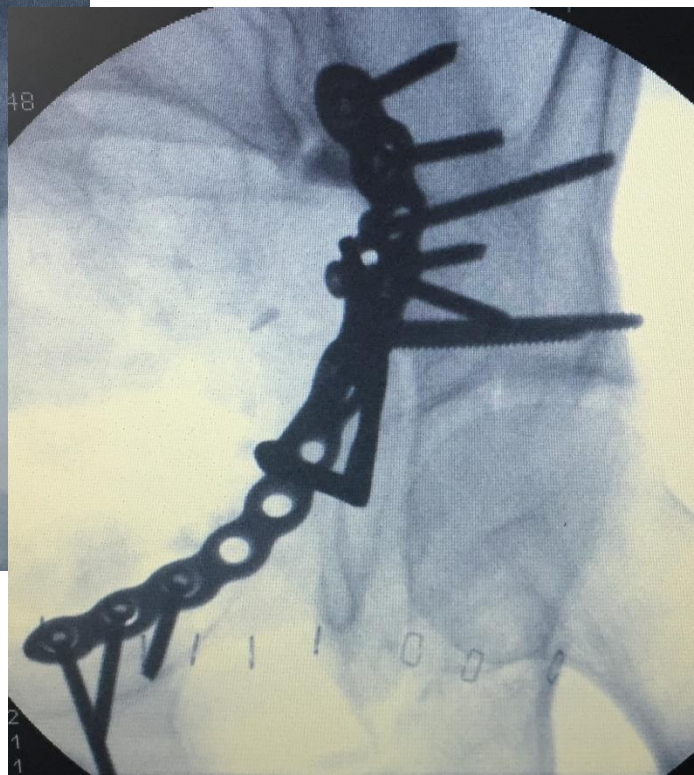
(NON UTILIZZARE FILI DI K)



TECNICA INDIRETTA

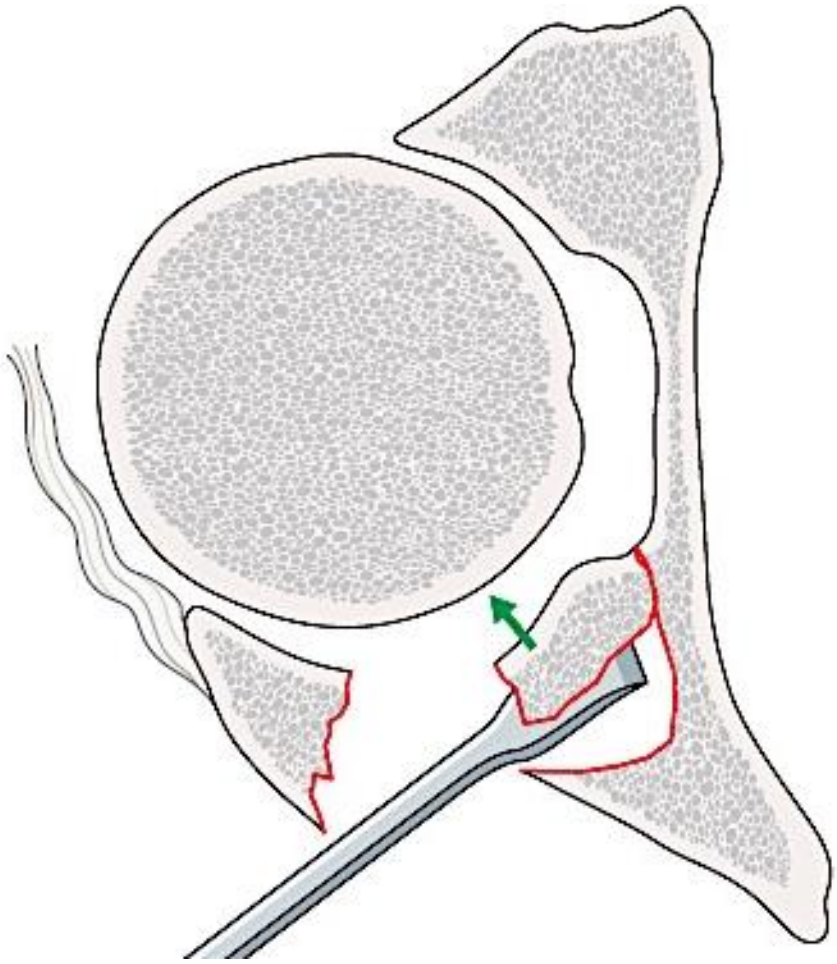


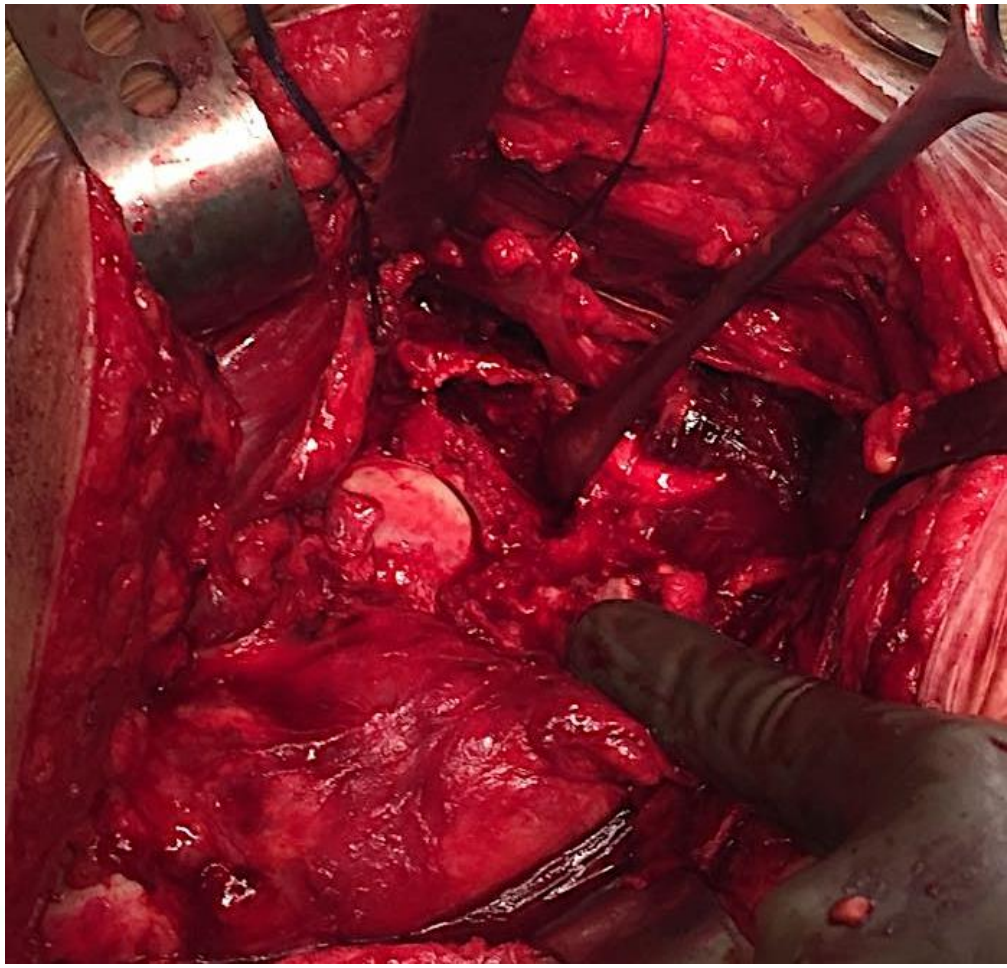




TECNICA SEMI-OPEN

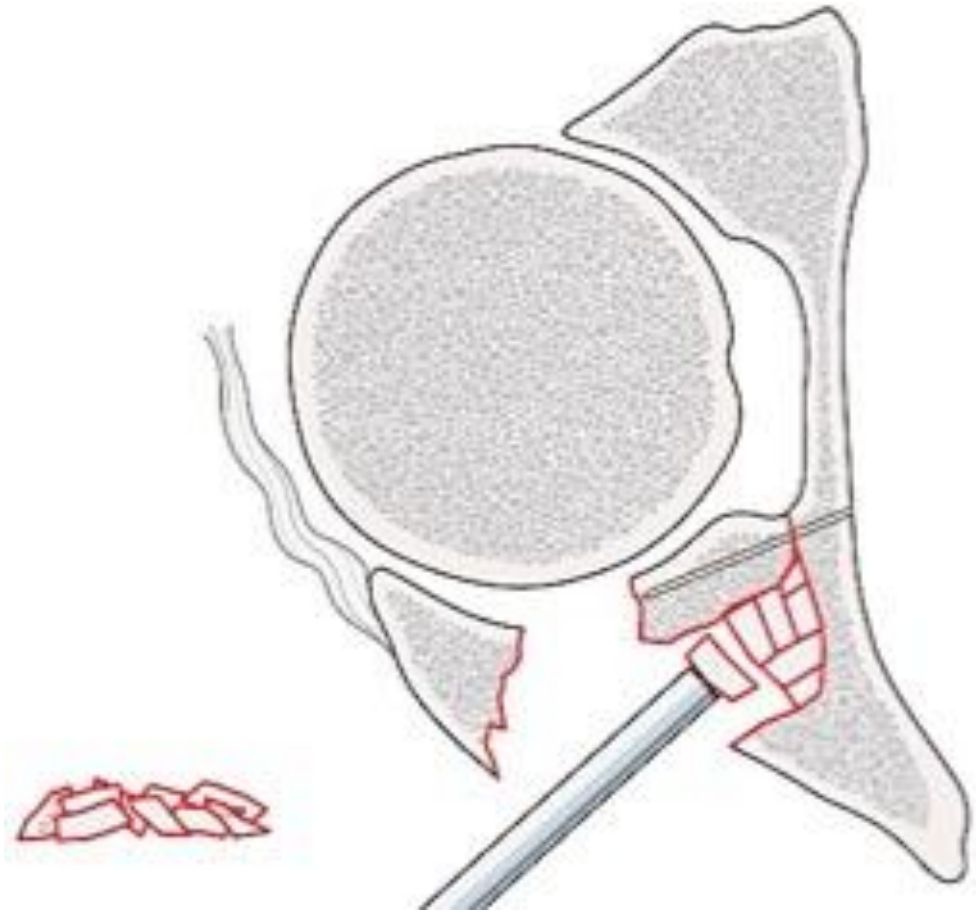
RIDUZIONE DELL'AFFONDAMENTO ATTRAVERSO LA FRATTURA

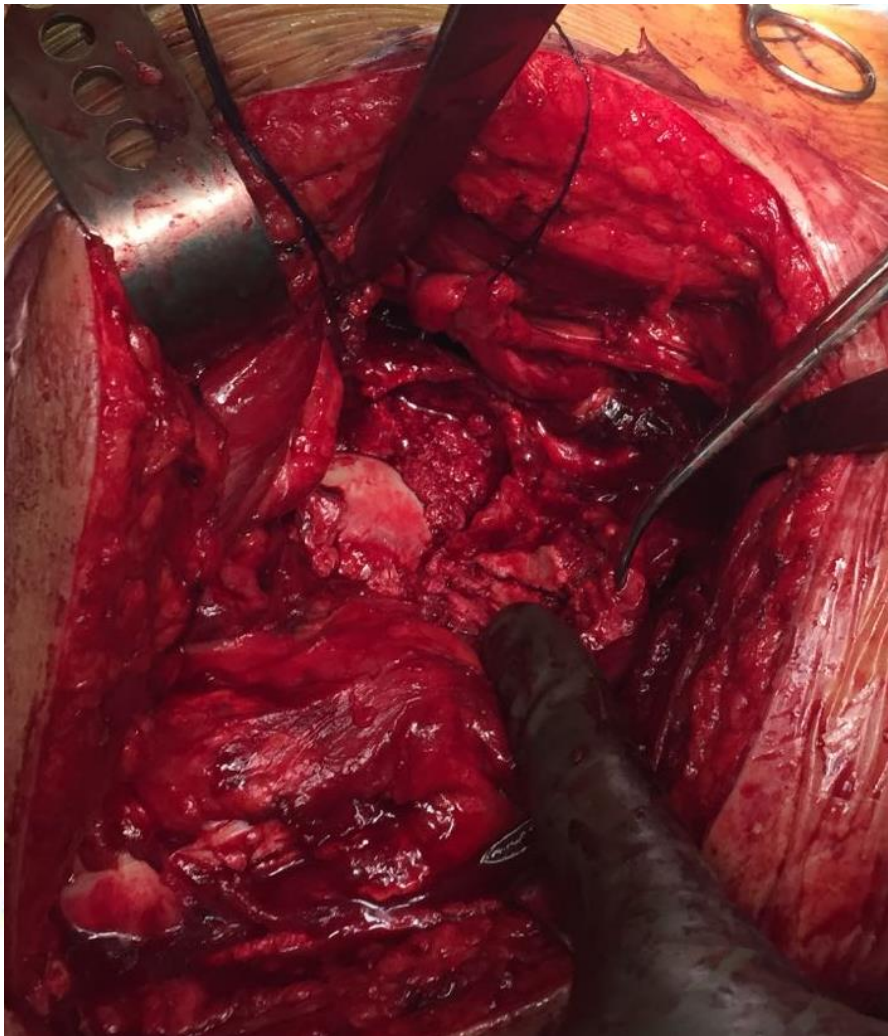




TECNICA SEMI-OPEN

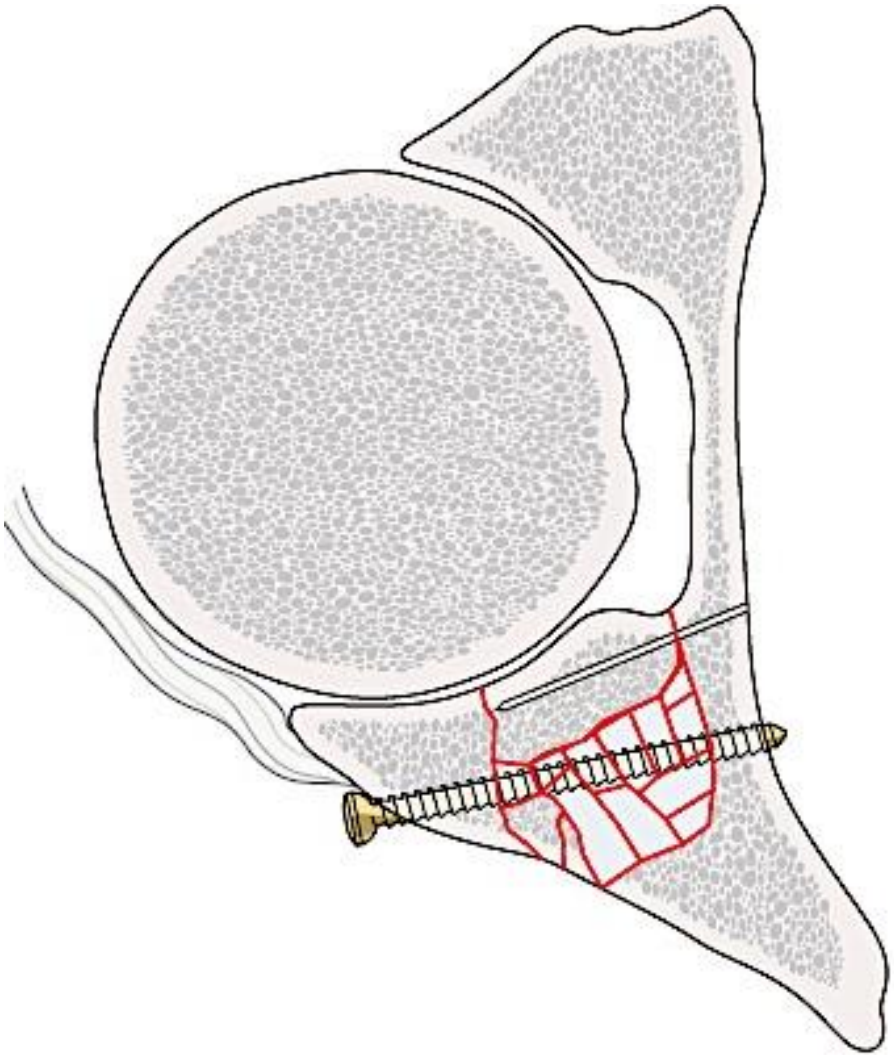
SUCCESSIVO INNESTO OSSEO

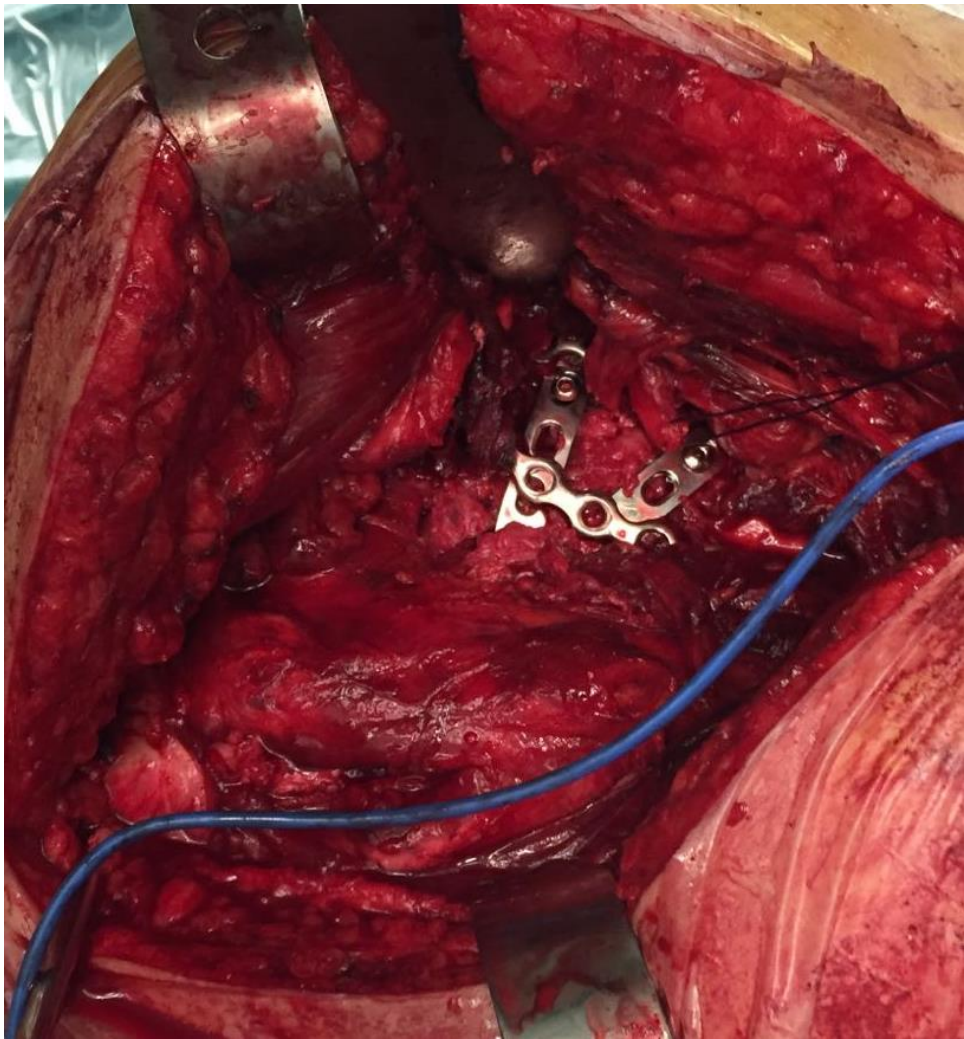




TECNICA SEMI-OPEN

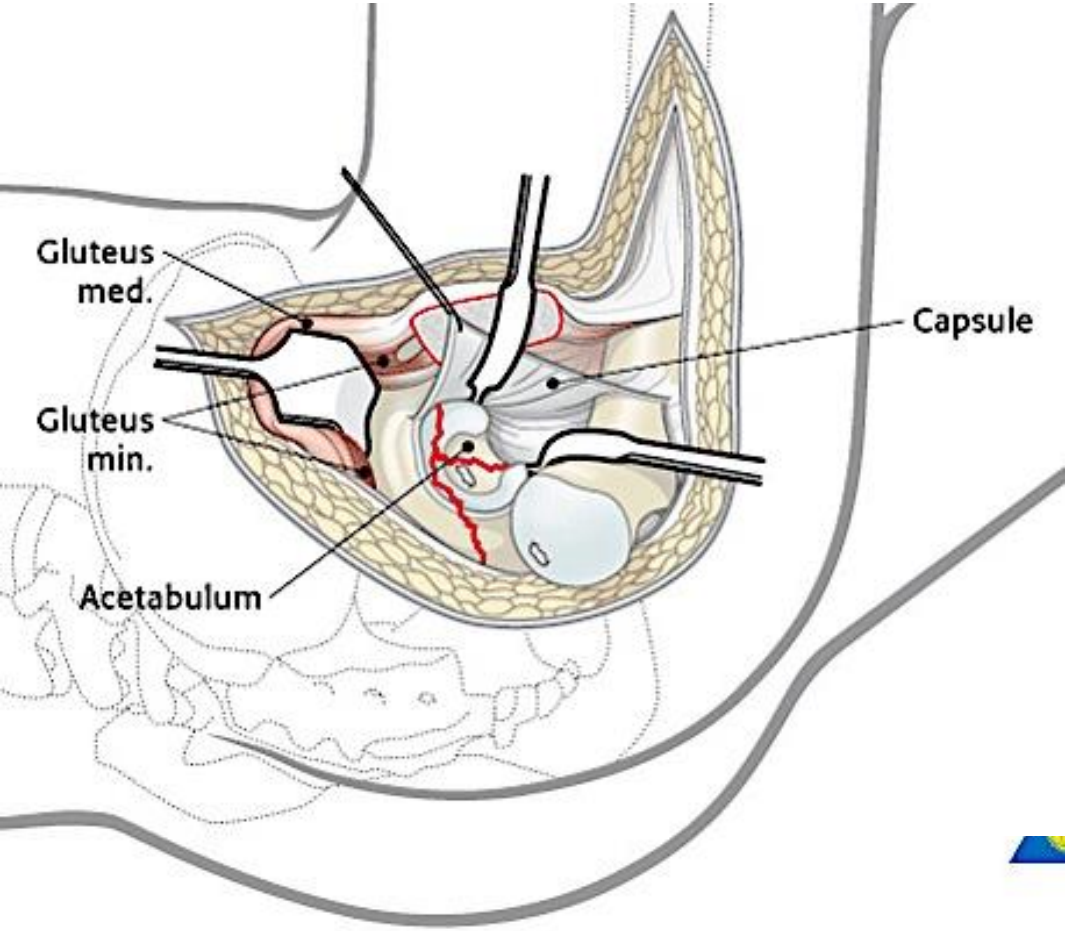
SINTESI DEFINITIVA





TECNICA “OPEN”

FLIP + LUSSAZIONE CHIRURGICA DELL’ANCA





…E SE NON RIUSCISSI A RIDURRE LA FRATTURA?...

1) TAKE YOUR TIME !!!

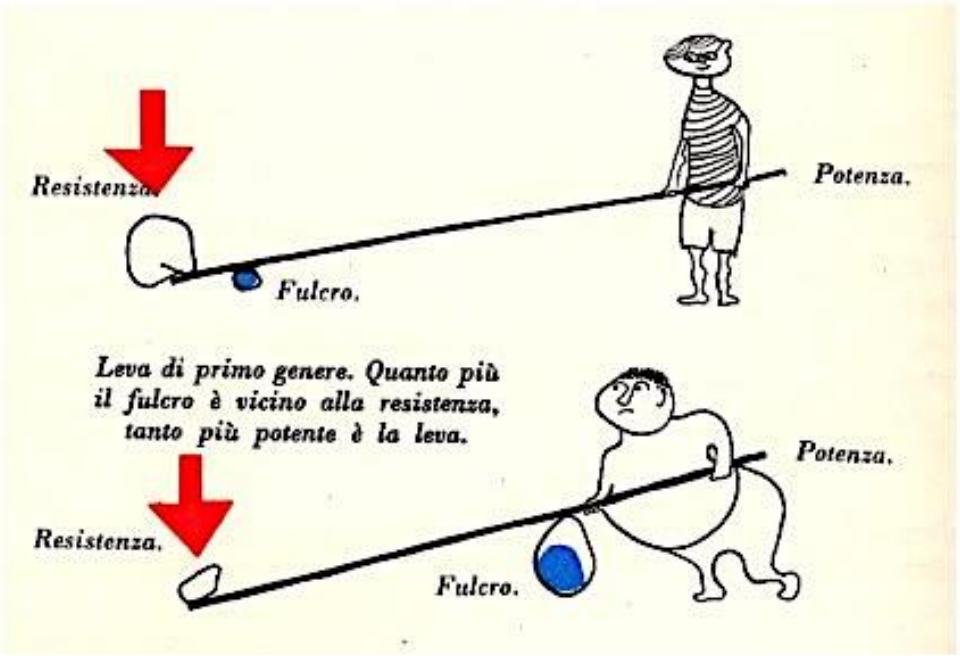
PENSA E RIFLETTI…



...E SE NON RIUSCISSI A RIDURRE LA FRATTURA?...

2) STO APPLICANDO

FORZE DI LEVA ERRATE?

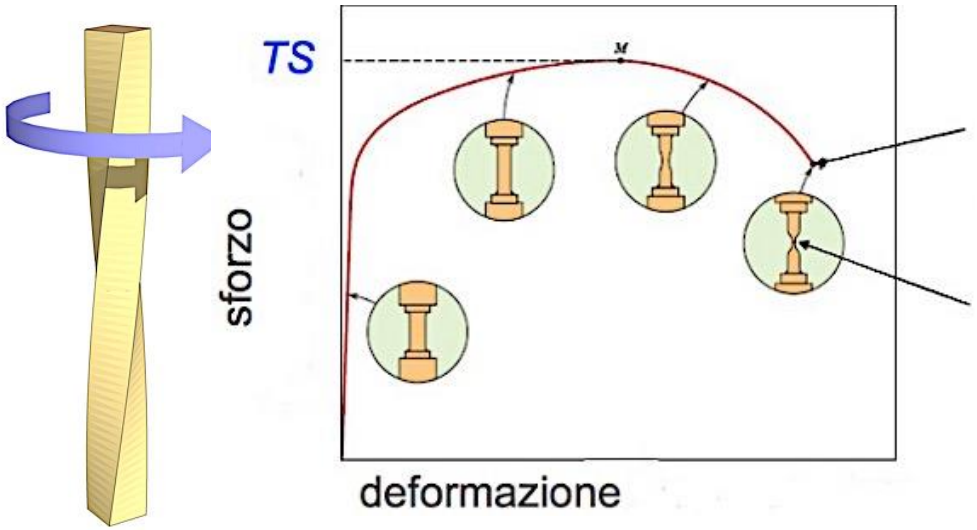


…E SE NON RIUSCISSI A RIDURRE LA FRATTURA?...

Deformazione plastica dell'osso ?

3) I MARGINI DELLA FX

NON COINCIDONO



…E SE NON RIUSCISSI A RIDURRE LA FRATTURA?...

Ho dimenticato un frammento ?

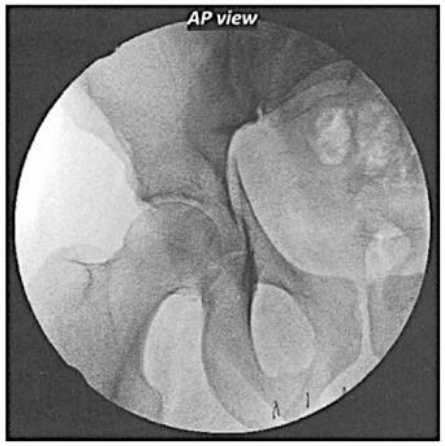
3) I MARGINI DELLA FX

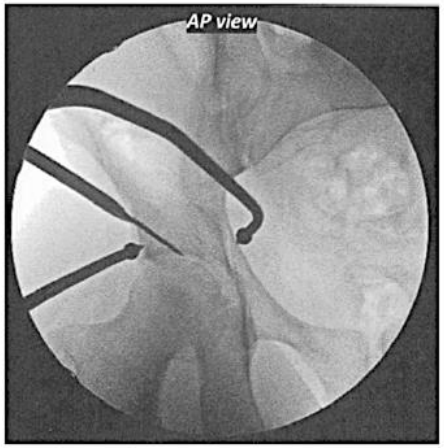
NON COINCIDONO

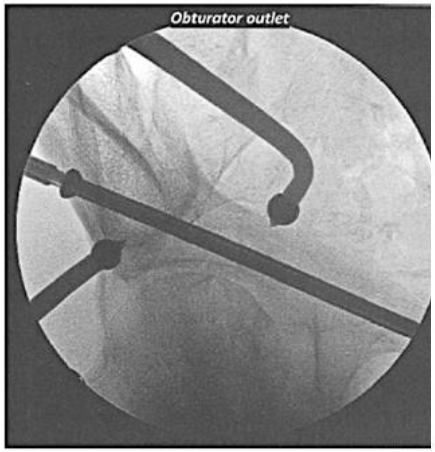


OSTEOSINTESI PERCUTANEA

OPZIONE VALIDA SE NON SI TRASCURA LA RIDUZIONE









TIPS & TECHNIQUES

Percutaneous Fixation of Anterior and Posterior Column Acetabular Fractures

Anthony E. Bozzio, MD; Frank B. Wydra, MD; Justin J. Mitchell, MD; Richard M. Ackerson, MD; Cyril Mauffrey, MD, FACS, FRCS

Orthopedics

October 2014 - Volume 37 · Issue 10: 675-678

DOI: 10.3928/01477447-20140924-04

PTA o SINTESI + PTA

OPZIONE VALIDA IN PAZIENTI ANZIANI

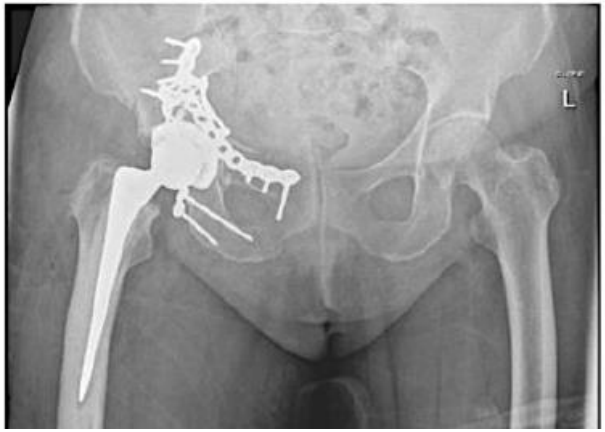
Research Article

Acetabular Fractures in the Elderly: Midterm Outcomes of Column Stabilisation and Primary Arthroplasty

A. Ortega-Briones,[1] S. Smith,[1] and M. Rickman[2]

Received 7 June 2016; Revised 15 September 2016; Accepted 12 December 2016; Published 17 January 2017





RIASSUMENDO…

- CLASSIFICAZIONE
- PLANNING
- TECNICHE DI APPROCCIO E RIDUZIONE
- RICOSTRUZIONE ANATOMICA
- SINTESI STABILE

QUESTIONI APERTE

- NEL GIOVANE ORIF O PTA ?
- NECESSITA' DI ORTO-TRAUMATOLOGO ?
- NELL'ANZIANO PTA ? TIMING ?
- PTA ACCELERA RIABILITAZIONE E RIDUCE I COSTI ?
- CARICO IMMEDIATO O PRECOCE ?
- MAGGIOR RITORNO ALLA VITA INDIPENDENTE?

GRAZIE

