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AZIENDA OSPEDALIERO-UNIVERSITARIA DI PARMA
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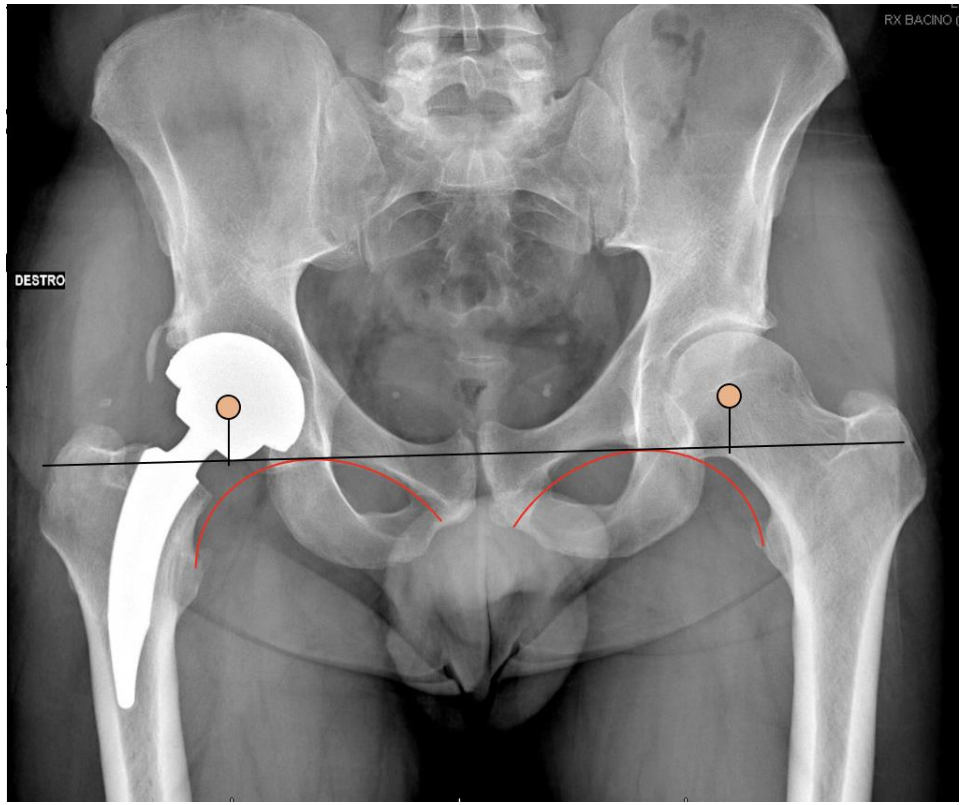
CLINICA ORTOPEDICA
DIRETTORE: PROF. E.VAIENTI

I FALLIMENTI ACETABOLARI

E. VAIENTI, P. SCHIAVI, A. FERRARI

OBIETTIVI DI UNA PROTESI DI PRIMO IMPIANTO E DI REVISIONE:

- **ANCORAGGIO OSSEO E OSTEOINTEGRAZIONE**
- **RIPRISTINO CENTRO DI ROTAZIONE E GEOMETRIA IDEALE**
- **DURATA NEL TEMPO E NESSUN DANNO ALL'ORGANISMO**



The Epidemiology of Revision Total Hip Arthroplasty in the United States

By Kevin J. Bozic, MD, MBA, Steven M. Kurtz, PhD, Edmund Lau, MS, Kevin Ong, PhD, Thomas P. Vail, MD, and Daniel J. Berry, MD

Investigation performed at the Department of Orthopaedic Surgery, University of California, San Francisco, and Philip R. Lee Institute for Health Policy Studies, San Francisco, California

identified reasons for acetabular-only revision, including: instability (33.0%), mechanical loosening (24.2%), implant failure (10.8%), peri-prosthetic osteolysis (8.1%), bearing surface wear (8.0%), infection (4.7%), and peri-prosthetic fracture (1.8%)

Longo *et al. BMC Surgery* (2022) 22:355
https://doi.org/10.1186/s12893-022-01785-8

BMC Surgery

RESEARCH ARTICLE Open Access

Epidemiology of revision hip replacement in Italy: a 15-year study

Umile Giuseppe Longo[1,2,3*], Rocco Papalia[1,2,3], Giuseppe Salvatore[1,2,3], Salvatore Maria Tecce[1,2,3], Alexander Jedrzejczak[1,2,3], Martina Marcozzi[1,2,3], Ilaria Piergentili[1,2,3] and Vincenzo Denaro[1,2,3]

FEMMINE
GIOVANI MASCHI

CAUSE DI REIMPIANTO

3.6 Cause di reimpianto

Numero di interventi di reimpianto effettuati su pazienti con data di ricovero compresa fra il 1 gennaio 2000 e il 31 dicembre 2019, per **diagnosi**.
Le tabelle seguenti non forniscono alcuna indicazione sul tempo trascorso fra l'impianto ed il reimpianto.

La tabella riporta i motivi di tutti i reimpianti eseguiti su **protesi totali convenzionali** in Regione, indipendentemente dalla sede geografica e dal periodo in cui è stato eseguito l'impianto primario

Diagnosi nei reimpianti di protesi totali convenzionali	Numerosità	Valori percentuali
Mobilizzazione asettica cotile	4.985	30,3
Mobilizzazione asettica globale	2.903	17,6
Mobilizzazione asettica stelo	2.201	13,4
Lussazione protesica	1.533	9,3
Frattura periprotesica	1.215	7,4
Esito espianto	869	5,3
Rottura protesi*	850	5,2
Usura polietilene	711	4,3
Dolore senza mobilizzazione	301	1,8
Mobilizzazione settica	177	1,1
Metallosi	174	1,1
Instabilità primaria	118	0,7
Ossificazioni	85	0,5
Trauma	38	0,2
Frattura acetabolo	25	0,2
Altro	294	1,8
Totale°	**16.479**	**100,0**

R.I.P.O.
Registro Implantologia Protesica Ortopedica

NEI REIMPIANTI LA CAUSA PRINCIPALE DI RE-REIMPIANTO E' LA MOBILIZZAZIONE DEL COTILE

La tabella seguente mostra le incidenze di revisione nei reimpianti totali per ***causa di successivo reimpianto*** e viene riportata la distribuzione delle cause di fallimento

Causa reimpianto	Incidenza	%	Distribuzione % delle cause di fallimento
Mobilizzazione asettica cotile	**74**/3.084	2,4	19,7
Lussazione recidivante	**67**/3.084	2,2	17,8
Mobilizzazione settica	**59**/3.084	1,9	15,7
Mobilizzazione asettica stelo	**53**/3.084	1,7	14,1
Mobilizzazione asettica globale	**31**/3.084	1,0	8,2
Frattura periprotesica	**22**/3.084	0,7	5,9
Rottura protesi	**7**/3.084	0,2	1,9
Dolore senza moblizzazione	**6**/3.084	0,2	1,6
Instabilità primaria	**5**/3.084	0,2	1,3
Usura polietilene	**3**/3.084	0,1	0,8
Altro	**12**/3.084	0,4	3,2
Non nota *(di cui 13 non note in quanto reimpianto eseguito fuori regione)*	**37**/3.084	1,2	9,8
Totale	**376/3.084**	**12,2**	**100,0**

LUSSAZIONE DELL'IMPIANTO (33%)

Acta Orthopaedica 2017; 88 (1): 10–17

Acetabular cup position and risk of dislocation in primary total hip arthroplasty

A systematic review of the literature

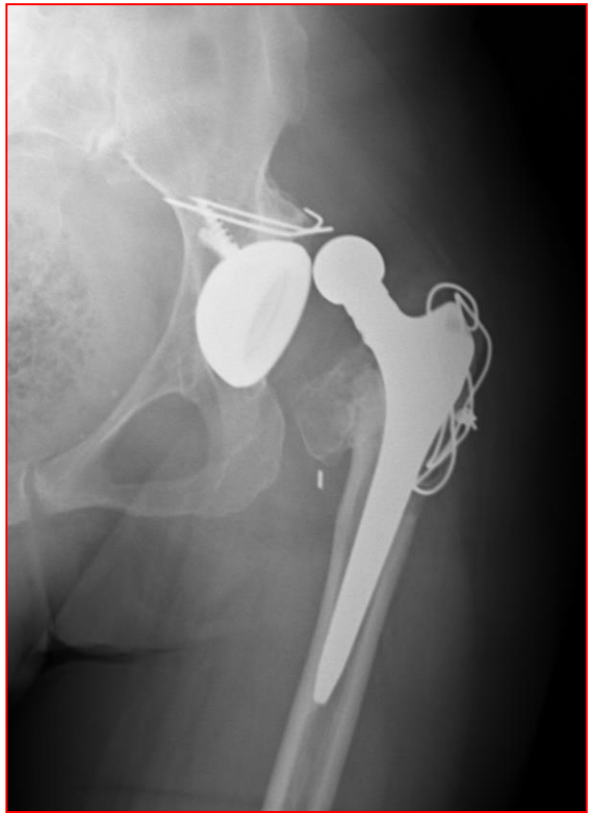
Kurt G SEAGRAVE [1,2], Anders TROELSEN [2], Henrik MALCHAU [3,4], Henrik HUSTED [2], and Kirill GROMOV [2]

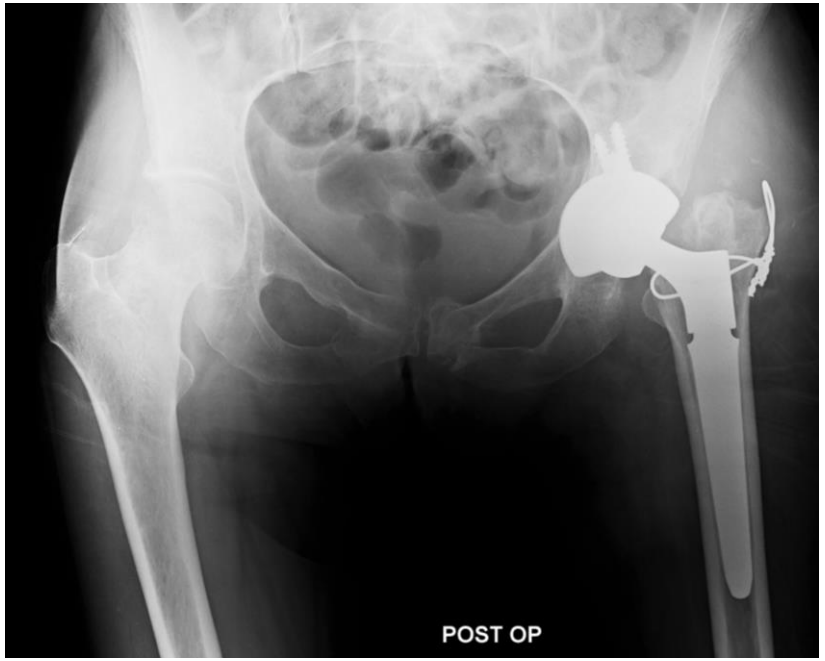
[1] Faculty of Medicine, University of New South Wales, Sydney, Australia; [2] Department of Orthopaedic Surgery, Copenhagen University Hospital Hvidovre. Copenhagen, Denmark; [3] Harris Orthopaedic Laboratory, Massachusetts General Hospital; [4] Department of Orthopaedic Surgery, Harvard Medical School, Boston, MA, USA.
Correspondence: kirgromov@gmail.com
Submitted 2016-05-12. Accepted 2016-09-06.

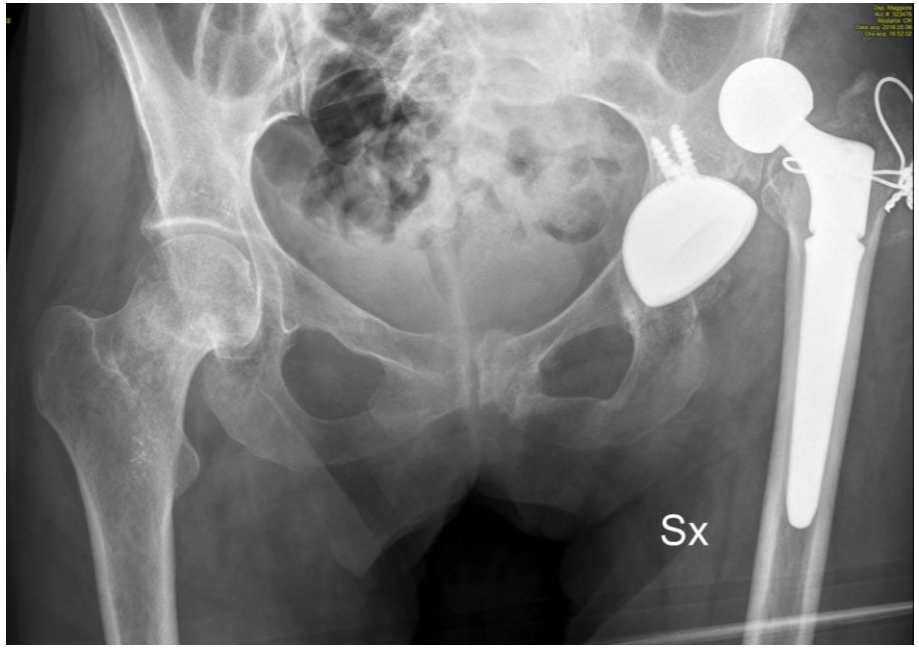
Dislocation is a common complication following total hip arthroplasty (THA), with an estimated rate of 1% to 4% following a primary procedure . Instability following THA has been cited as the most common reason for revision surgery, accounting for 23% of all revisions . Acetabular component malpositioning can adversely affect stability and has been described as among the most important factor in determining the risk of dislocation .

CONDIZIONI GENERALI DEL PAZIENTE

- ETÀ AVANZATA
- SCARSA COMPLIANCE (ALCOLISMO-TOSSICODIPENDENZA, PAT. PSICHIATRICHE)
- SCARSO CONTROLLO MUSCOLARE (NEUROPATIE CENTRALI E PERIFERICHE)
- POLIARTRITI ARTI INFERIORI
- PREGRESSI INTERVENTI CHIRURGICI ALL'ANCA




POST OP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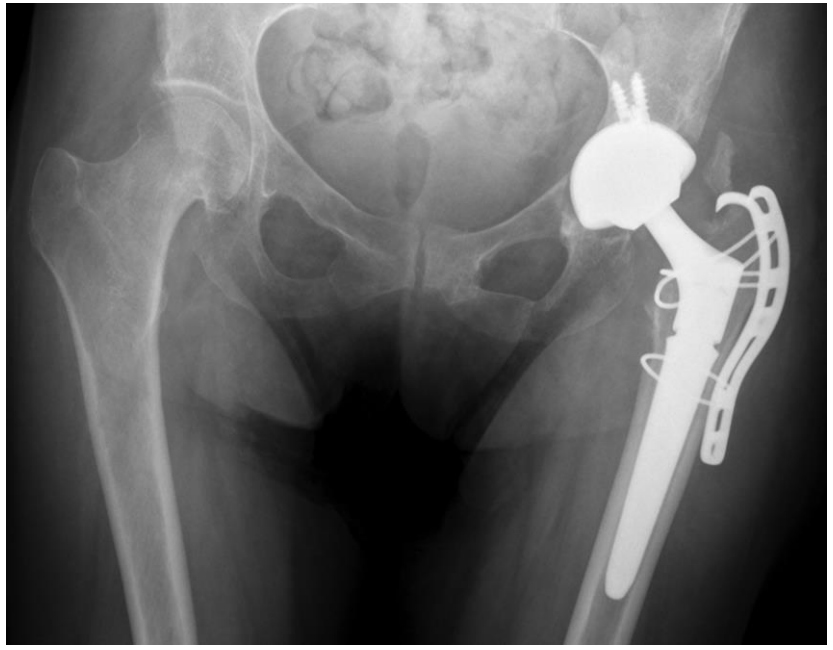


ACCESSO CHIRURGICO

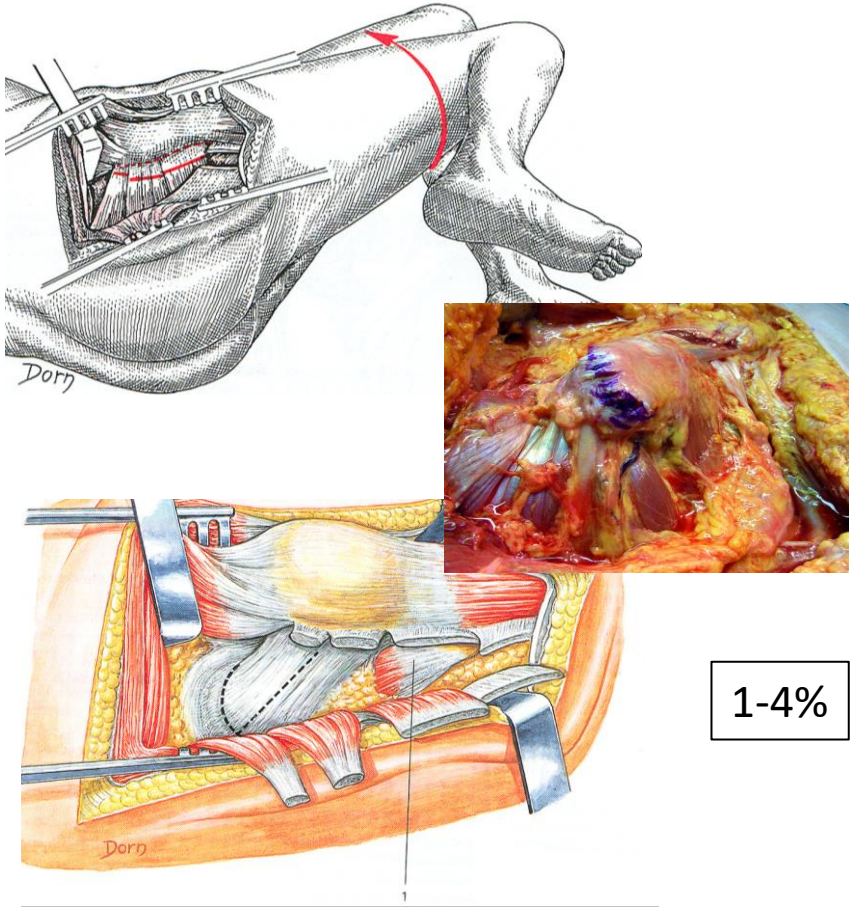
Acta Orthopaedica 2012; 83 (6): 559–565

The type of surgical approach influences the risk of revision in total hip arthroplasty

A study from the Swedish Hip Arthroplasty Register of 90,662 total hip replacements with 3 different cemented prostheses

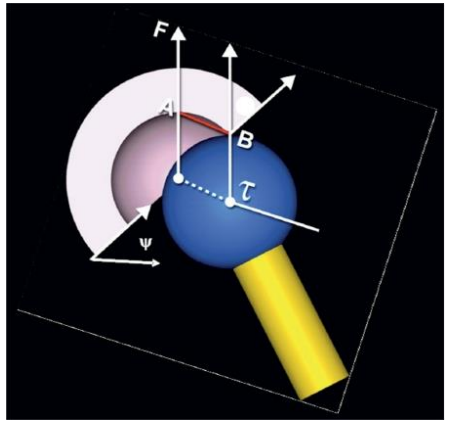
Viktor Lindgren[1,2], Göran Garellick[2,3], Johan Kärrholm[2,3], and Per Wretenberg[1]

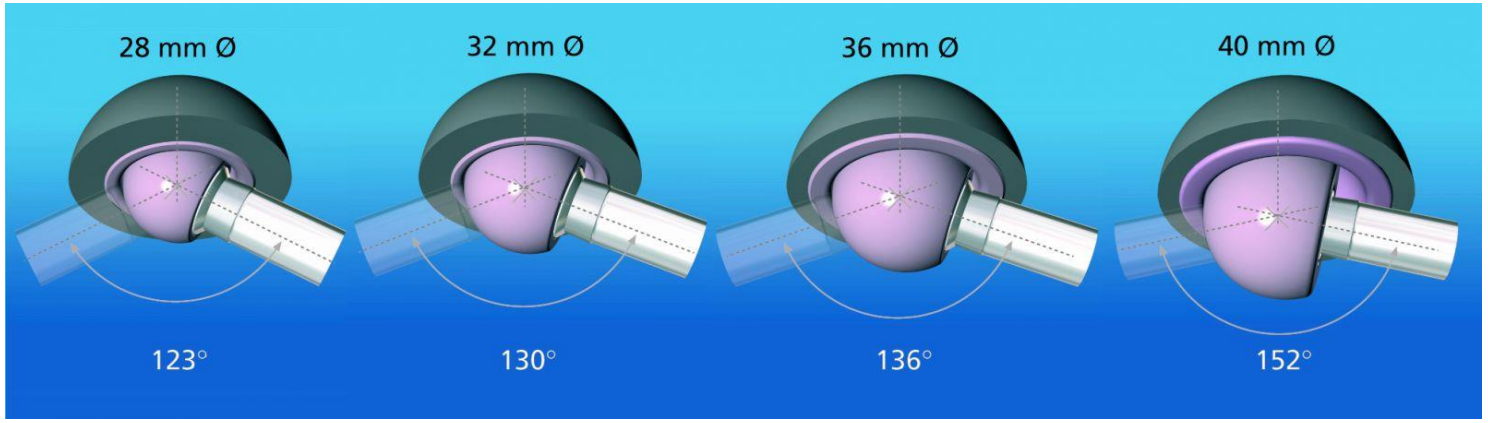
[1]Department of Molecular Medicine and Surgery, Section of Orthopaedics and Sports Medicine, Karolinska University Hospital, Karolinska Institutet, Stockholm; [2]The Swedish Hip Arthroplasty Register, Registercentrum VGR; [3]Department of Orthopaedics, Institute of Clinical Sciences at Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden.
Correspondence: viktor.lindgren@karolinska.se
Submitted 12-03-18. Accepted 12-08-09

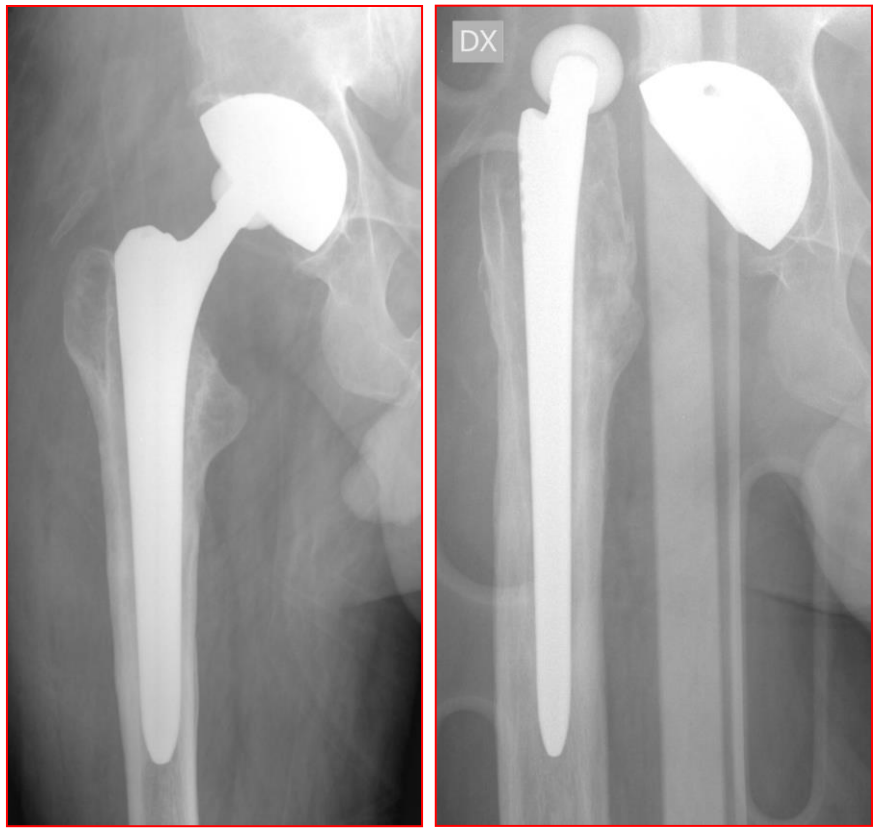


1-4%

SCELTA DELL'IMPIANTO



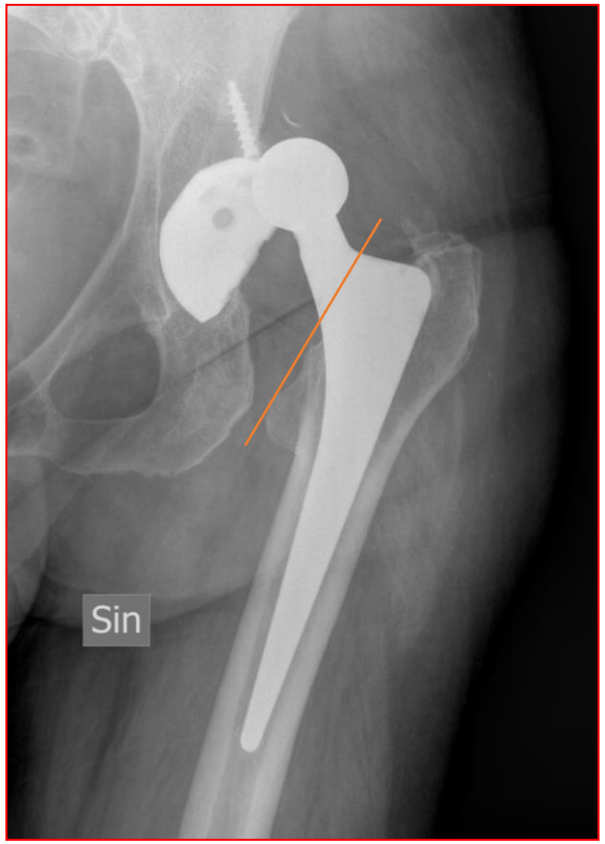




"Effect of femoral head diameter on the risk of dislocation after primary THA"
JBJS Am 2010 Nov

"Risk of dislocation using large vs small diameter femoral heads in THA"
BMC 2012 Nov

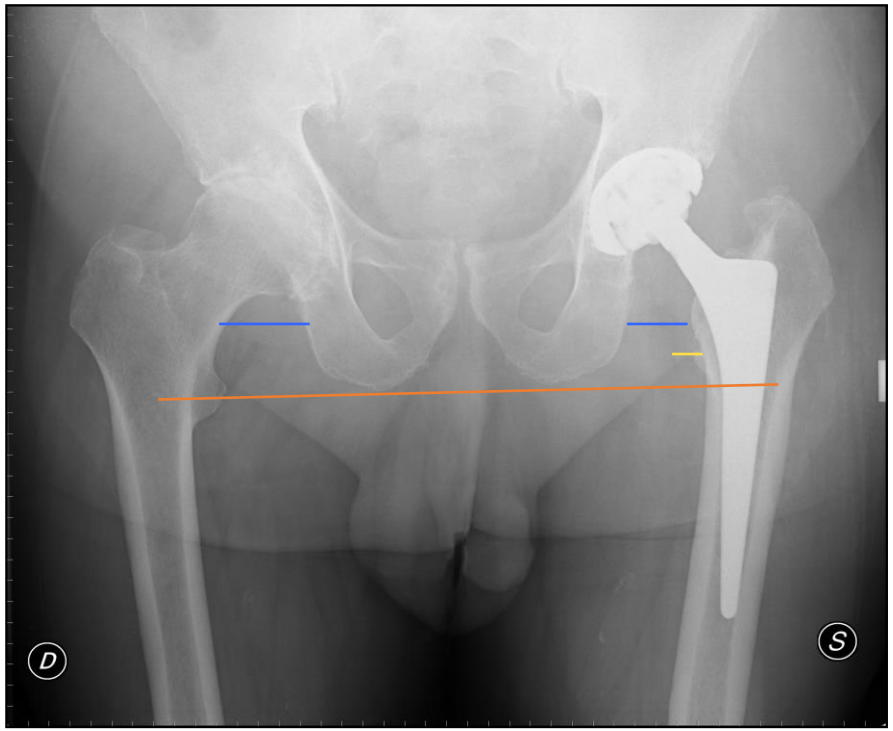
ORIENTAMENTO DELLE COMPONENTI



VERTICALE - ANTIVERSO
ORIZZONTALE - RETROVERSO

"The importance of acetabular component position in THA"
Orthop Clin North Am 2012

ALTERATA GEOMETRIA ARTICOLARE



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Clin Orthop Relat Res. 2016 Feb; 474(2): 386–391.
Published online 2015 Jul 7. doi: 10.1007/s11999-015-4432-5
PMCID: PMC4709312
PMID: 26150264

What Safe Zone? The Vast Majority of Dislocated THAs Are Within the Lewinnek Safe Zone for Acetabular Component Position

Matthew P. Abdel, MD, Philipp von Roth, MD, Matthew T. Jennings, BS, Arlen D. Hanssen, MD, and Mark W. Pagnano, MD

Creating a stable THA remains a balancing act among appropriate component positioning taking into account individual patient bony and muscular anatomy in both the static and dynamic state, soft tissue balance and tensioning, and appropriate aftercare and rehabilitative efforts.

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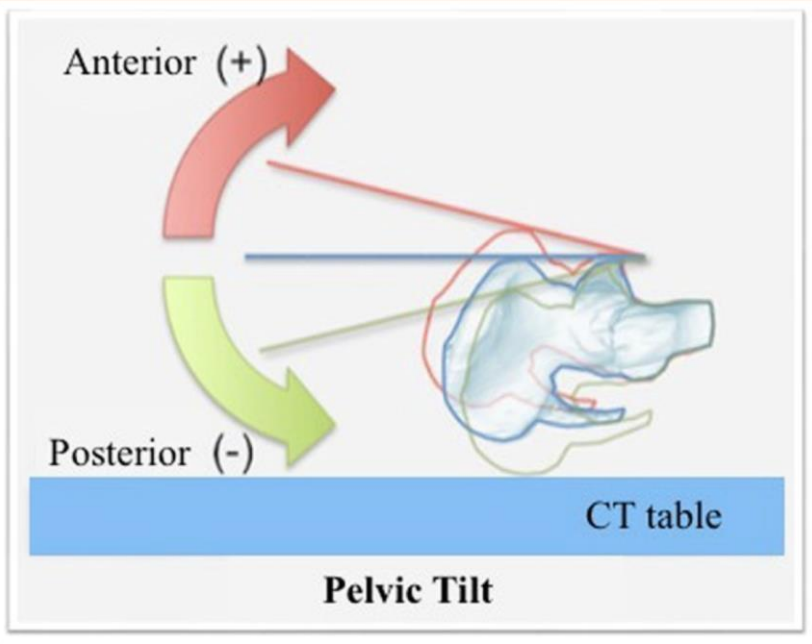
Clin Orthop Relat Res. 2018 Feb; 476(2): 325–335.
Published online 2018 Jan 17. doi: 10.1007/s11999.0000000000000051
PMCID: PMC6259696
PMID: 29529664

The Safe Zone Range for Cup Anteversion Is Narrower Than for Inclination in THA

William S. Murphy, AB, Ho Hyun Yun, MD, Brett Hayden, MD, Jens H. Kowal, PhD, and Stephen B. Murphy, MD



VALUTARE IL PAZIENTE
CLINICAMENTE E RADIOGRAFICAMENTE

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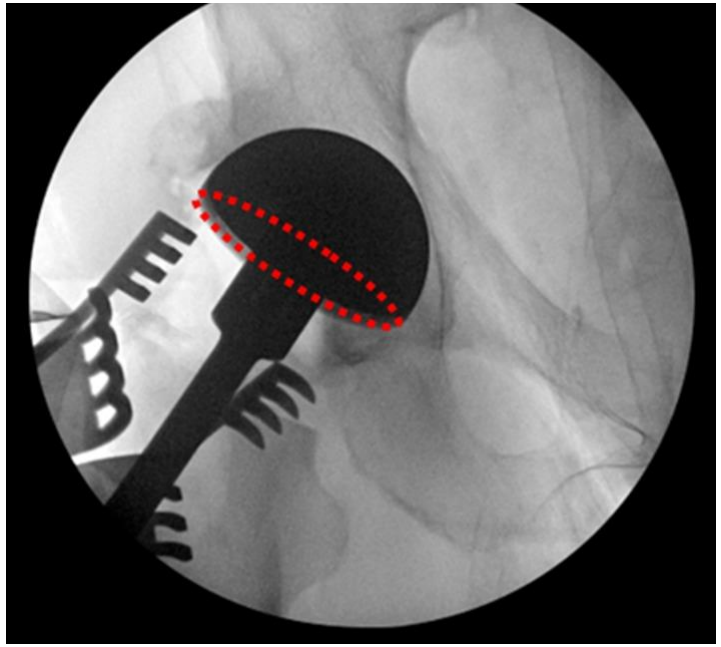
Clin Orthop Relat Res. 2014 Dec; 472(12): 3953–3962.
Published online 2014 Sep 20. doi: 10.1007/s11999-014-3944-8
PMCID: PMC4397754
PMID: 25238804

Does Fluoroscopy Improve Acetabular Component Placement in Total Hip Arthroplasty?

Brandon S. Beamer, MD, Jordan H. Morgan, BS, Christopher Barr, BS, Michael J. Weaver, MD, and Mark S. Vrahas, MD



Computer-Assisted Navigation Is Associated with Reductions in the Rates of Dislocation and Acetabular Component Revision Following Primary Total Hip Arthroplasty

Daniel D. Bohl, MD, MPH, Michael T. Nolte, MD, Kevin Ong, PhD, Edmund Lau, MS, Tyler E. Calkins, BS, and Craig J. Della Valle, MD

A total of 803,732 primary THA procedures were identified; 14,540 (1.81%) involved the use of navigation. Navigation use was associated with a lower rate of dislocation (1.00% versus 1.70% for no navigation; adjusted hazard ratio [HR] = 0.69; 95% confidence interval [CI] = 0.58 to 0.82; $p < 0.001$) and aseptic revision of the acetabular component (1.03% versus 1.55%; adjusted HR = 0.75; 95% CI = 0.64 to 0.88; $p < 0.001$).

In conclusion, our findings suggest that the use of navigation was associated with a decrease in the postoperative dislocation rate.

«COMBINED ANTEVERSION»

Modern technique of cemented total hip arthroplasty

Chitranjan S. Ranawac, M. Maynard 1991

Loppini *et al. BMC Musculoskeletal Disorders* (2017) 18:331
DOI 10.1186/s12891-017-1688-9

BMC Musculoskeletal Disorders

Femur first surgical technique: a smart non-computer-based procedure to achieve the combined anteversion in primary total hip arthroplasty

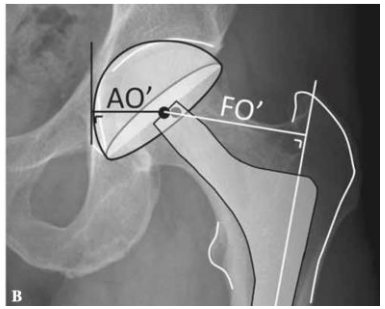
Mattia Loppini[1,2*], Umile Giuseppe Longo[3], Emanuele Caldarella[1], Antonello Della Rocca[1], Vincenzo Denaro[3] and Guido Grappiolo[1]

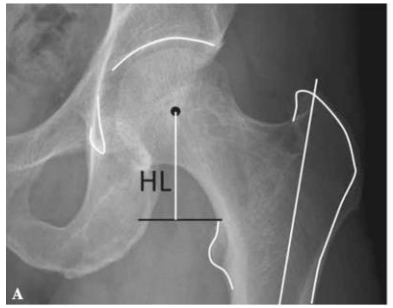
Acta Orthop. Belg., 2014, **80**, 336-347

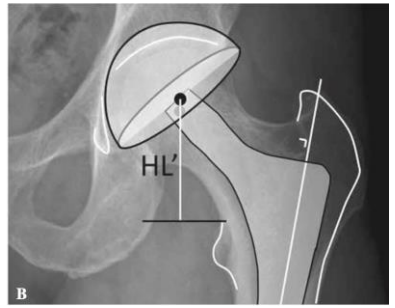
Cup positioning in total hip arthroplasty

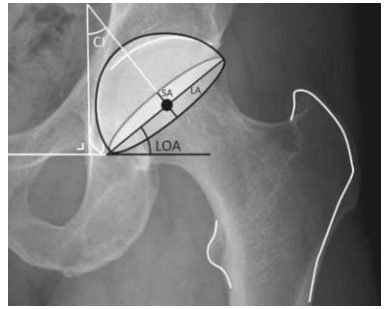
Thierry SCHEERLINCK

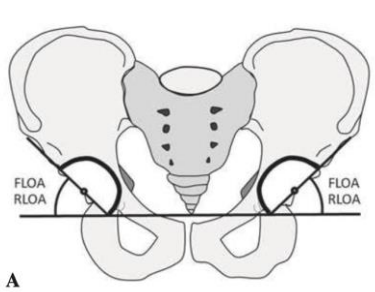
From the Universitair Ziekenhuis Brussel (UZ Brussel), Belgium

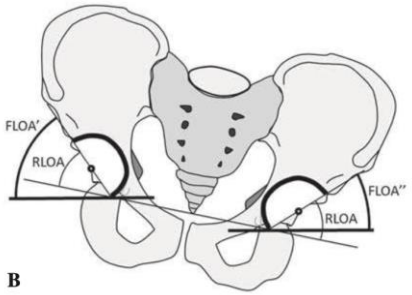






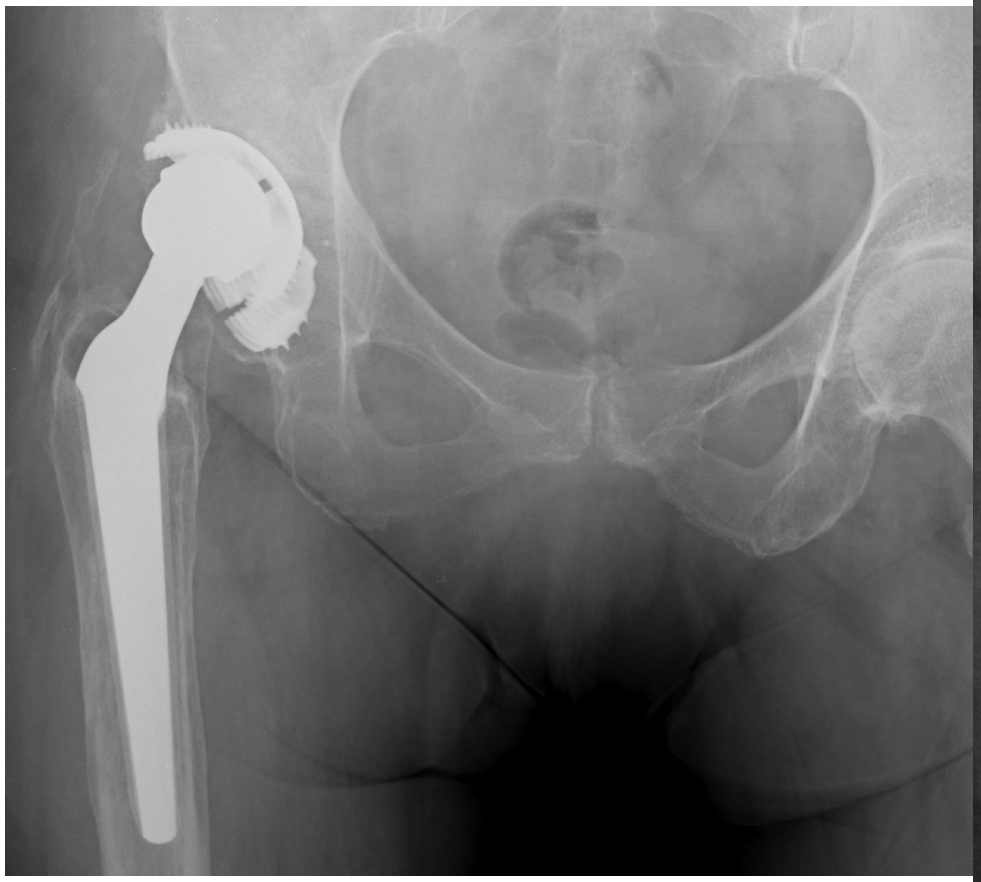


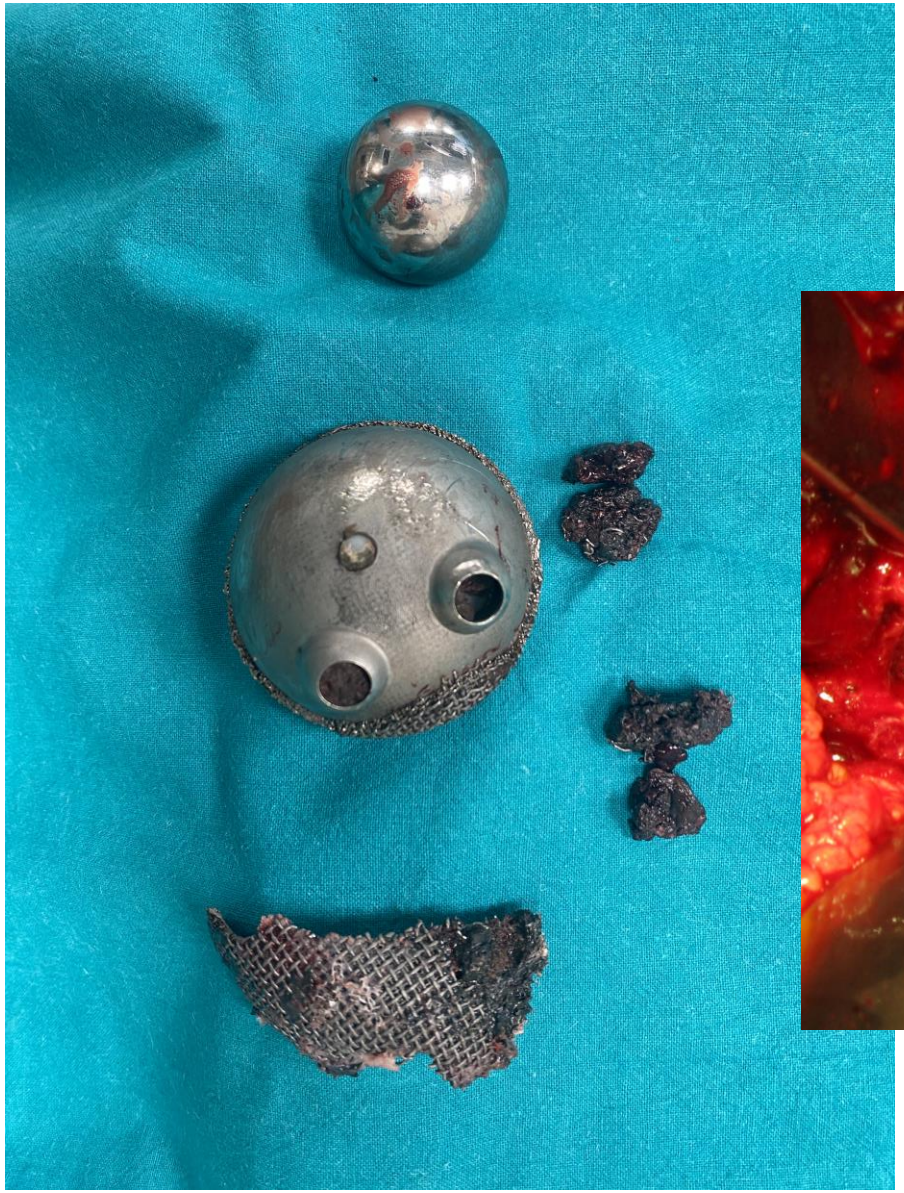


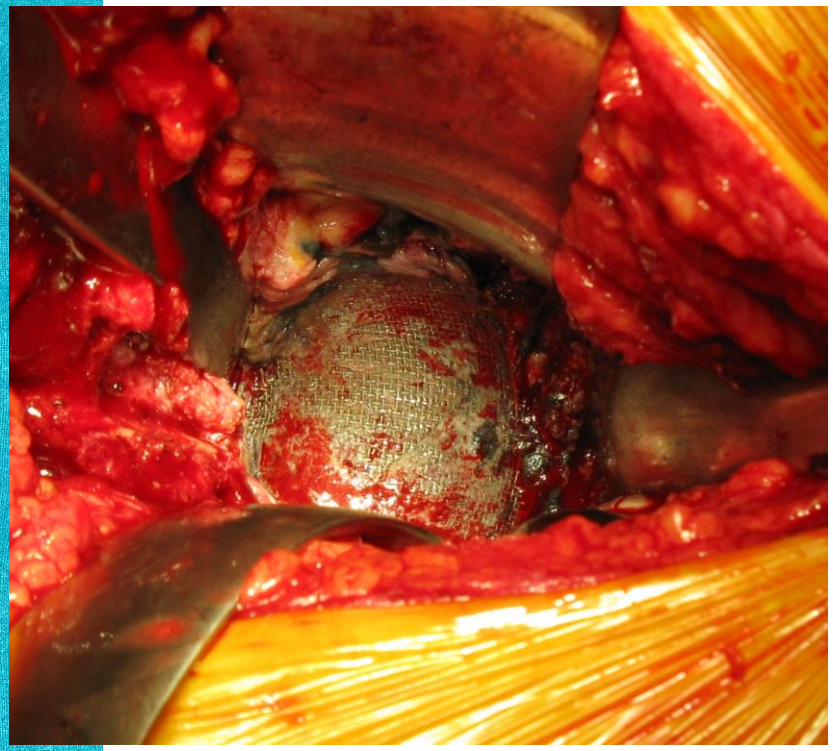


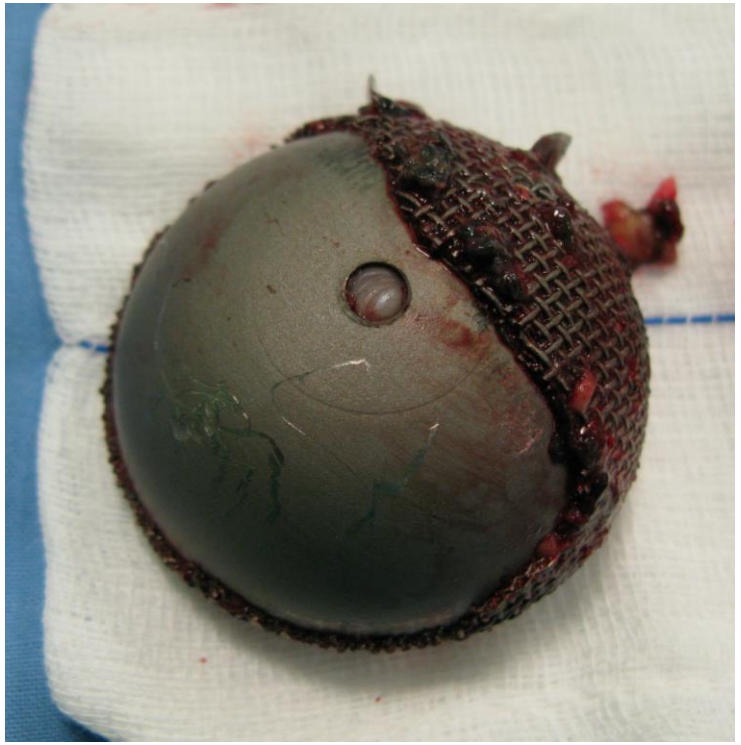
Defining the optimal cup position is challenging. A good understanding of anatomic, patient and im- plant related factors that affect the "optimal" cup position is mandatory. In most cases, restoring the original hip rotation centre and a "fixed standard target" of 40° of inclination and 20° of anteversion will result in a good clinical outcome.

ROTTURA DELL'IMPIANTO









The Journal of Arthroplasty
Volume 36, Issue 8, August 2021, Pages 2992-2997

Complications - Other

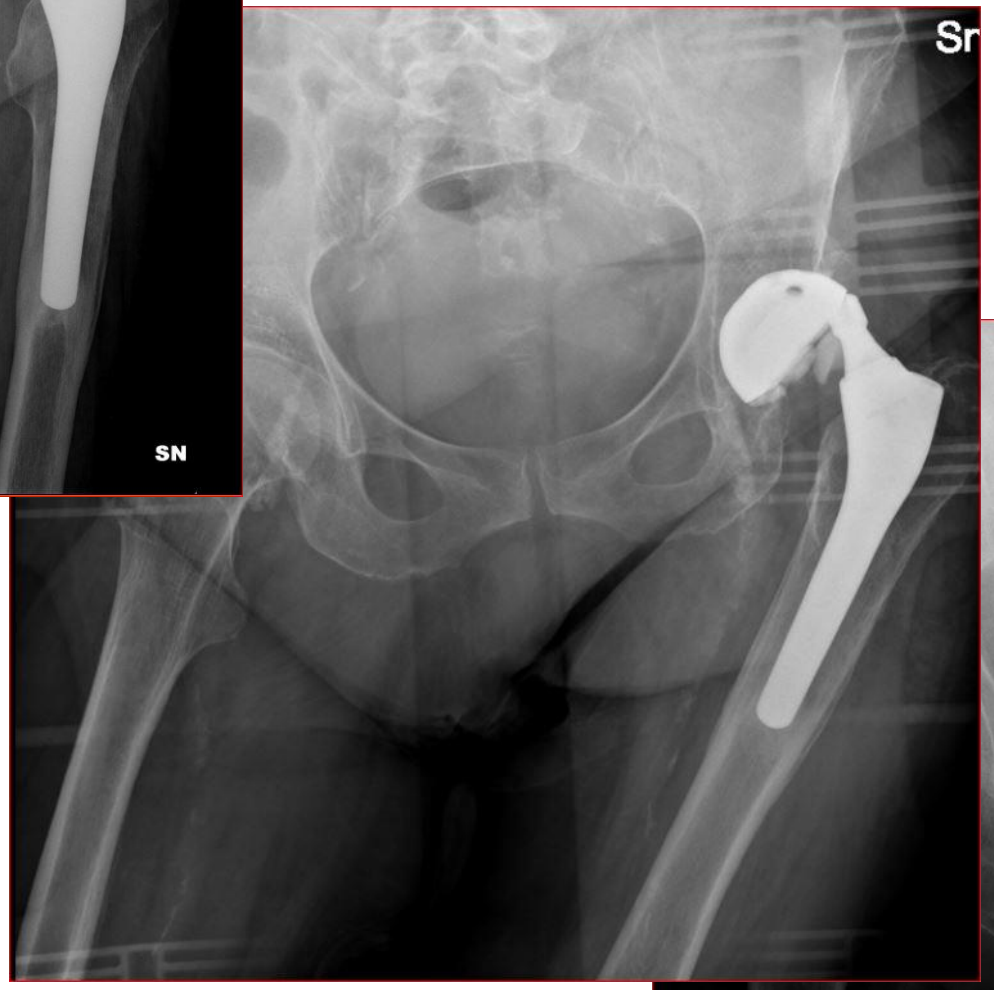
Incidence, Risk Factors, and Outcome of Ceramic-On-Ceramic Bearing Breakage in Total Hip Arthroplasty

Wayne Hoskins MBBS (Hons), FRACS, PhD [a, b], Sophia Rainbird PhD [d], Yi Peng MMed (Epi & Stats) [c], Michelle Lorimer BSc (Maths&CompSc) (Hons) [c], Stephen E. Graves MBBS, DPhil (Oxon), FRACS(Orth), FAOrthA [d, e], Roger Bingham MBBS, FRACS [b, f]

Despite revision for bearing fracture events being rare, it is apparent that liner fractures are more common (0.126%) than head fractures (0.009%) with the latest generation Biolox Delta ($p < 0.01$).

In conclusion, the risk of revision for CoC bearing fracture is very low but previous studies have underestimated this risk. There is good evidence that the latest generation of ceramic has reduced the odds of head fracture but not of liner fracture, suggesting that factors other than ceramic composition are responsible for liner fracture.


SN
GIA ORTOPEDICA


Sr


Sx

FRATTURA PERIPROTESICA

Acetabular Peri-Prosthetic Fractures—A Narrative Review

by Gautier Beckers [1,*], Az-Eddine Djebara [1], Morgan Gauthier [1,2], Anne Lubbeke [1], Axel Gamulin [1], Matthieu Zingg [1], Johannes Dominik Bastian [2] and Didier Hannouche [1]

[1] Department of Orthopaedic Surgery and Traumatology, Geneva University Hospitals, 1205 Geneva, Switzerland
[2] Department of Orthopaedic Surgery and Traumatology, Inselspital, University Hospital of Bern, 3010 Bern, Switzerland
[*] Author to whom correspondence should be addressed.

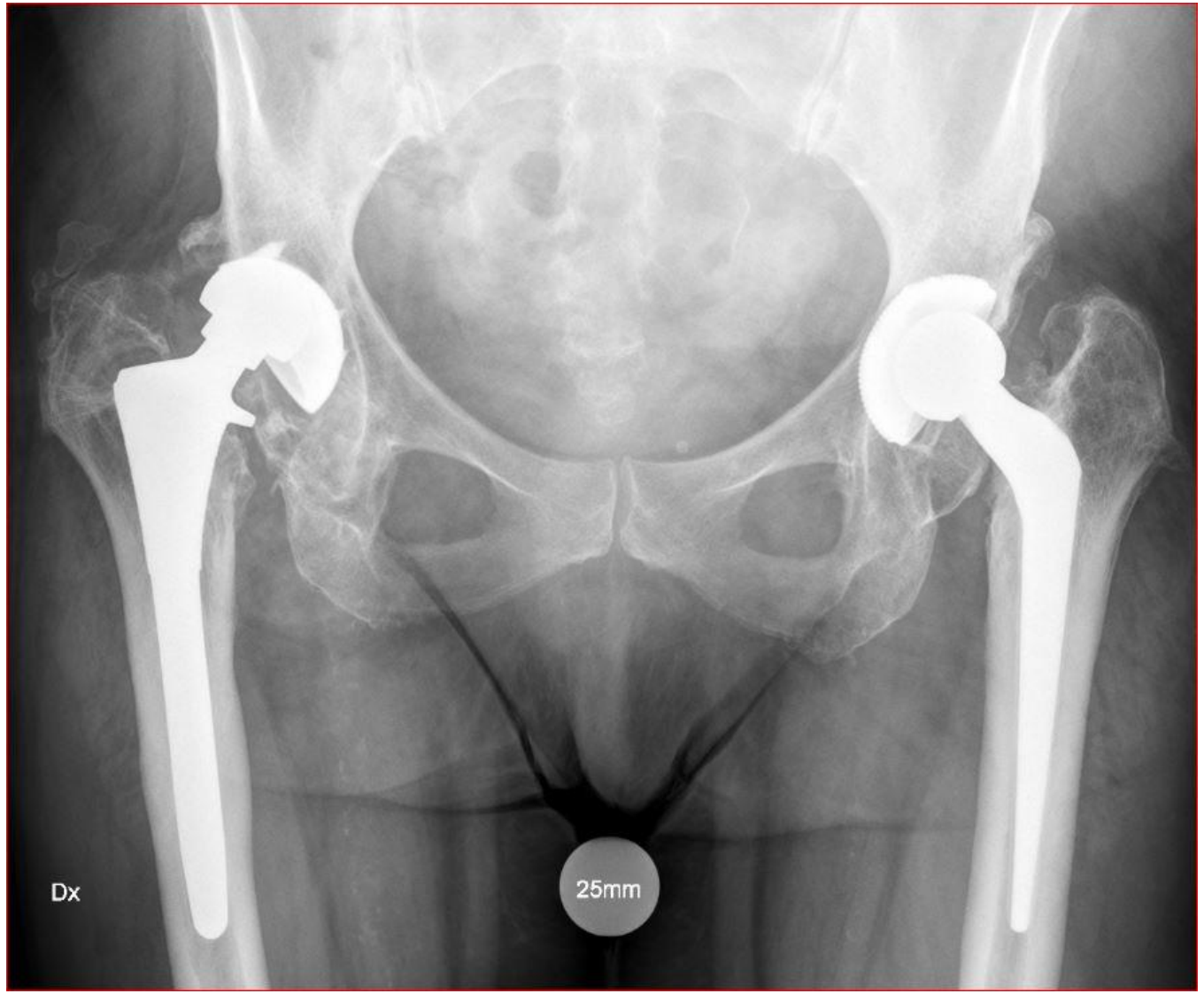
Academic Editor: Vassilios S. Nikolaou

Medicina **2022**, *58*(5), 630; https://doi.org/10.3390/medicina58050630

Received: 30 March 2022 / Revised: 25 April 2022 / Accepted: 27 April 2022 / Published: 1 May 2022

Intra-operative fractures can occur during acetabular exposure, reaming, hip dislocation, and acetabular implant insertion or removal. Their reported incidence varies between 0.09–0.4% . Underreaming, blunt reamers, elliptical cups, porous tantalum cups, and previous irradiation of the pelvis are known risk factors for intra-operative fractures

Post-operative fractures may be due to traumatic events, infection, adverse local around the socket (such as neoplasm). In 0.9% of the cases, pelvic discontinuity tissue reaction (ALTR) or debris-induced pelvic osteolysis and pathological processes is observed. Osteoporosis is an accepted risk factor for post-operative fractures around the socket (such as neoplasm)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PROVA


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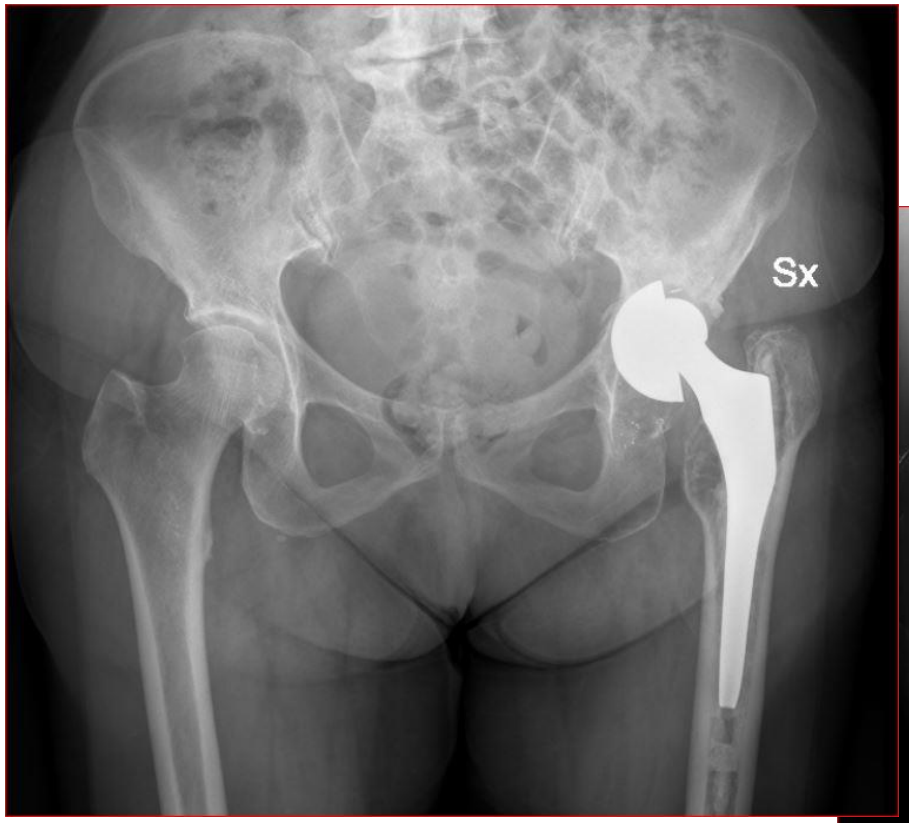
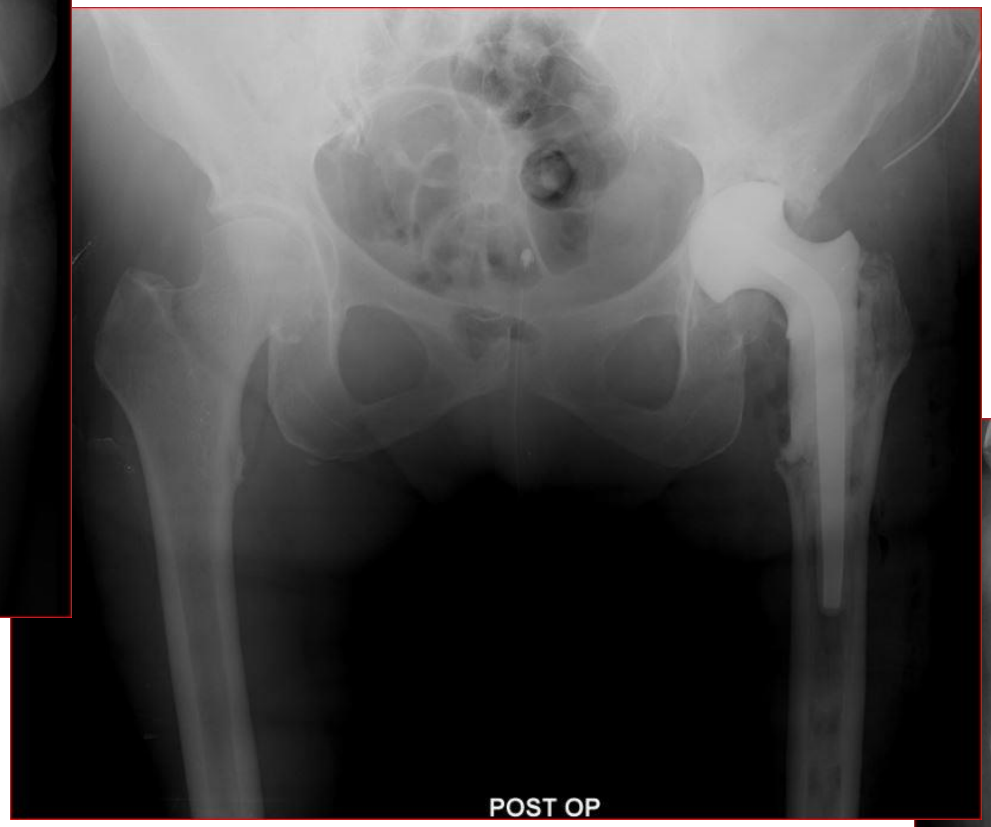
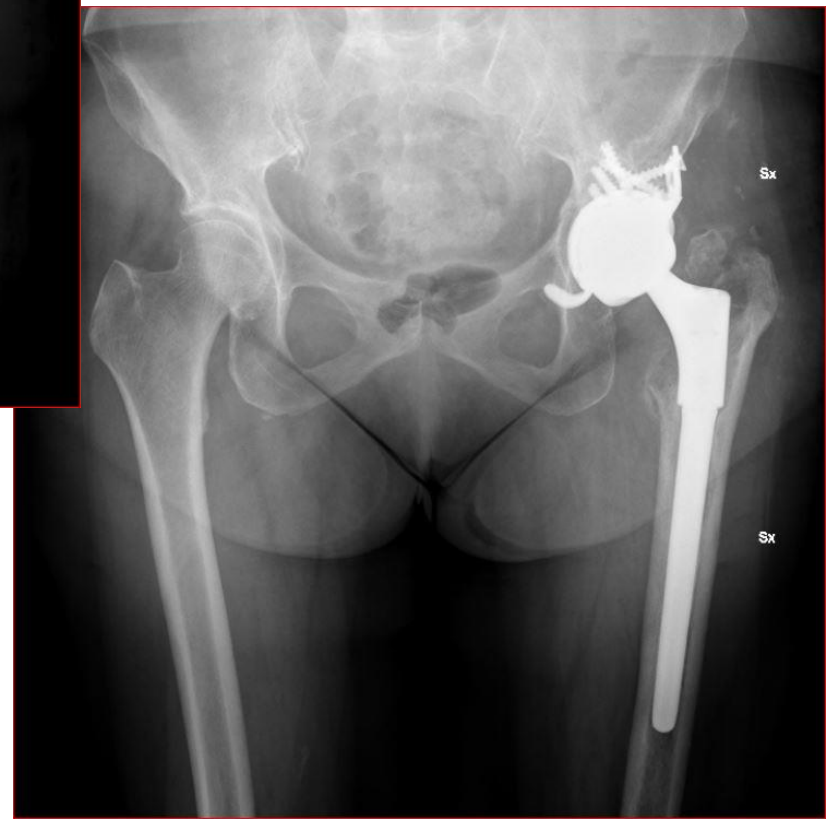
INFEZIONE







Orthopaedics and Trauma
Volume 34, Issue 3, June 2020, Pages 146-152

Basic science

How does aseptic loosening occur and how can we prevent it?

Mark D. Jones, Christopher L. Buckle

Aseptic loosening is defined as the loosening of a prosthesis from bone, in the absence of infection or trauma

…aseptic loosening can occur because of inadequate fixation at the initial surgery, mechanical loss of fixation over time or biological loss of fixation due to any type of particulate debris leading to aseptic osteolysis and aseptic loosening of the prosthesis

MANAGING BONE LOSS IN ACETABULAR REVISION

BY SCOTT M. SPORER, MD, WAYNE G. PAPROSKY, MD, AND MICHAEL O'ROURKE, MD

An Instructional Course Lecture, American Academy of Orthopaedic Surgeons

- **FISSAZIONE NON BIOLOGICA**
- **FISSAZIONE BIOLOGICA (osteointegrazione)**

Protesi cementata			
Causa reimpianto	**Incidenza**	**%**	**Distribuzione % delle cause di fallimento**
Mobilizzazione asettica cotile	**63**/4.158	1,5	29,9
Mobilizzazione asettica globale	**39**/4.158	0,9	18,5
Lussazione recidivante	**29**/4.158	0,7	13,7
Mobilizzazione asettica stelo	**20**/4.158	0,5	9,5
Mobilizzazione settica	**20**/4.158	0,5	9,5
Frattura periprotesica	**17**/4.158	0,4	8,1
Instabilità primaria	**4**/4.158	0,1	1,9
Rottura protesi	**2**/4.158	0,05	0,9
Altro	**1**/4.158	0,02	0,5
Non nota *(di cui 7 non note in quanto reimpianto eseguito fuori regione)*	**16**/4.158	0,4	7,6
Totale	**211/4.158**	**5,1**	**100,0**

Protesi non cementata			
Causa reimpianto	**Incidenza**	**%**	**Distribuzione % delle cause di fallimento**
Frattura periprotesica	**594**/81.091	0,7	15,5
Mobilizzazione asettica stelo	**575**/81.091	0,7	15,0
Mobilizzazione asettica cotile	**536**/81.091	0,7	14,0
Lussazione recidivante	**484**/81.091	0,6	12,6
Rottura protesi	**406**/81.091	0,5	10,6
Mobilizzazione settica	**224**/81.091	0,3	5,8
Mobilizzazione asettica globale	**160**/81.091	0,2	4,2
Dolore senza mobilizzazione	**94**/81.091	0,1	2,5
Usura polietilene	**89**/81.091	0,1	2,3
Instabilità primaria	**83**/81.091	0,1	2,2
Metallosi	**51**/81.091	0,1	1,3
Ossificazioni	**35**/81.091	0,0	0,9
Altro	**112**/81.091	0,1	2,9
Non nota *(di cui 217 non note in quanto reimpianto eseguito fuori regione)*	**393**/81.091	0,5	10,2
Totale	**3.836/81.091**	**4,7**	**100,0**

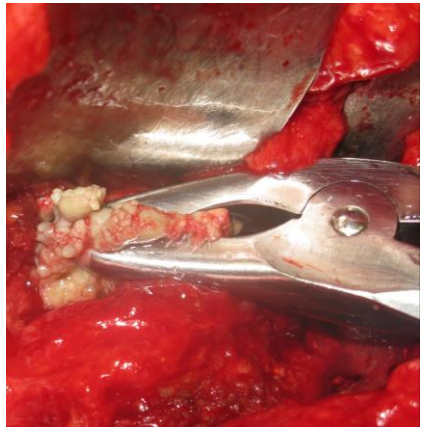
Clin Orthop Relat Res. 1987 Dec;(225):192-206.

Cement disease.

Jones LC, Hungerford DS.

Abstract

Does "cement disease" exist? The bony environment surrounding a loosened cemented prosthesis is an abnormal pathologic condition which, if left unattended, will progress to a total failure of the joint including an inhibition of function and immobilizing pain. That biomaterial properties of the cement used for fixation also contribute to the pathologic state separates this disease from other modes of loosening. This leads inevitably to the conclusion that "cement disease" does exist. Methyl methacrylate has revolutionized the treatment of severe joint dysfunction. There can be no doubt that improving surgical technique, cement handling, and the cement itself will continue to improve the results and reduce the incidence of failure due to loosening. Cement is undoubtedly satisfactory for elderly patients with low activity levels and relatively short life expectancies. However, because of the inherent biologic and biomechanical properties of methyl methacrylate, it is unlikely that it can be rendered satisfactory in the long run for the young, the active, or the overweight patient, for whom alternatives are currently being sought. In such cases, the elimination of "cement disease" can only occur with the elimination of cement. Alternatives include the search for other grouting materials and the development of prostheses with satisfactory surfaces for either press-fit or biologic ingrowth.



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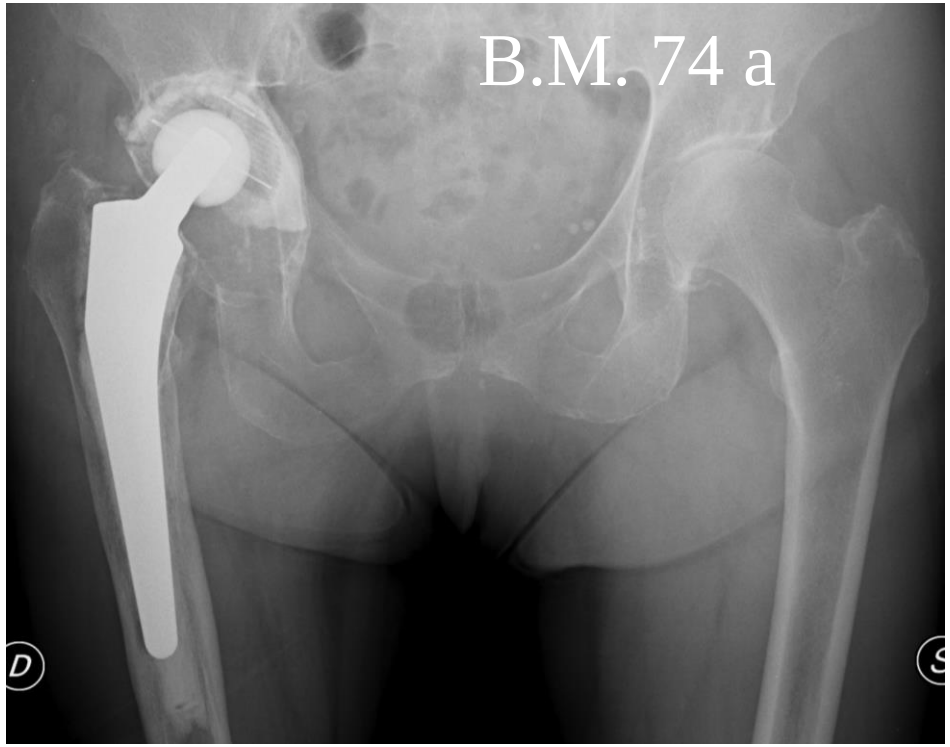

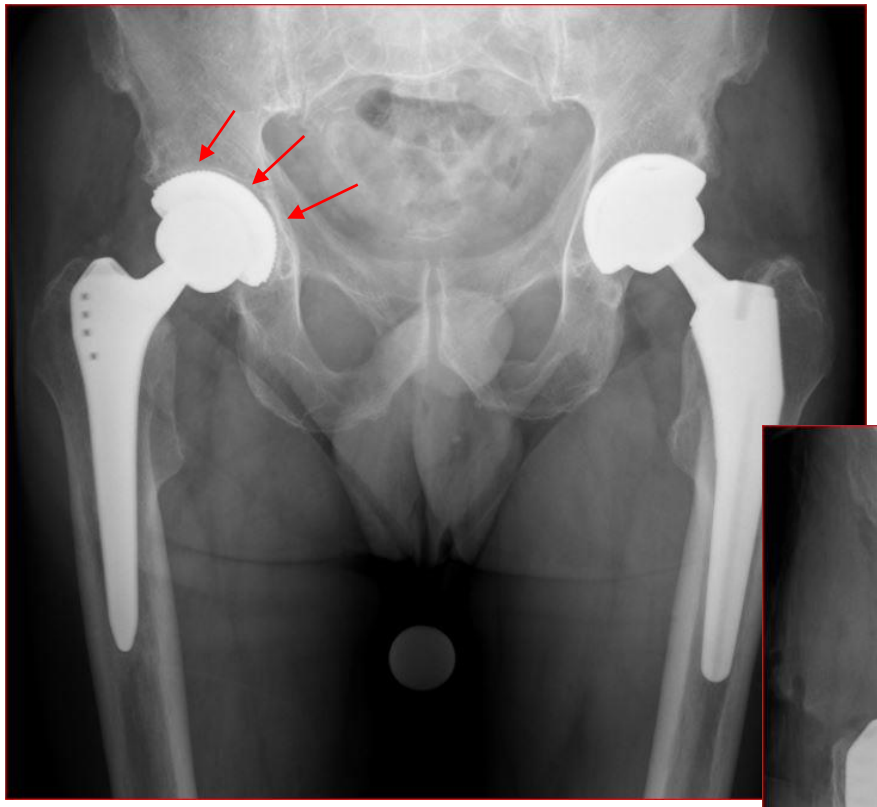


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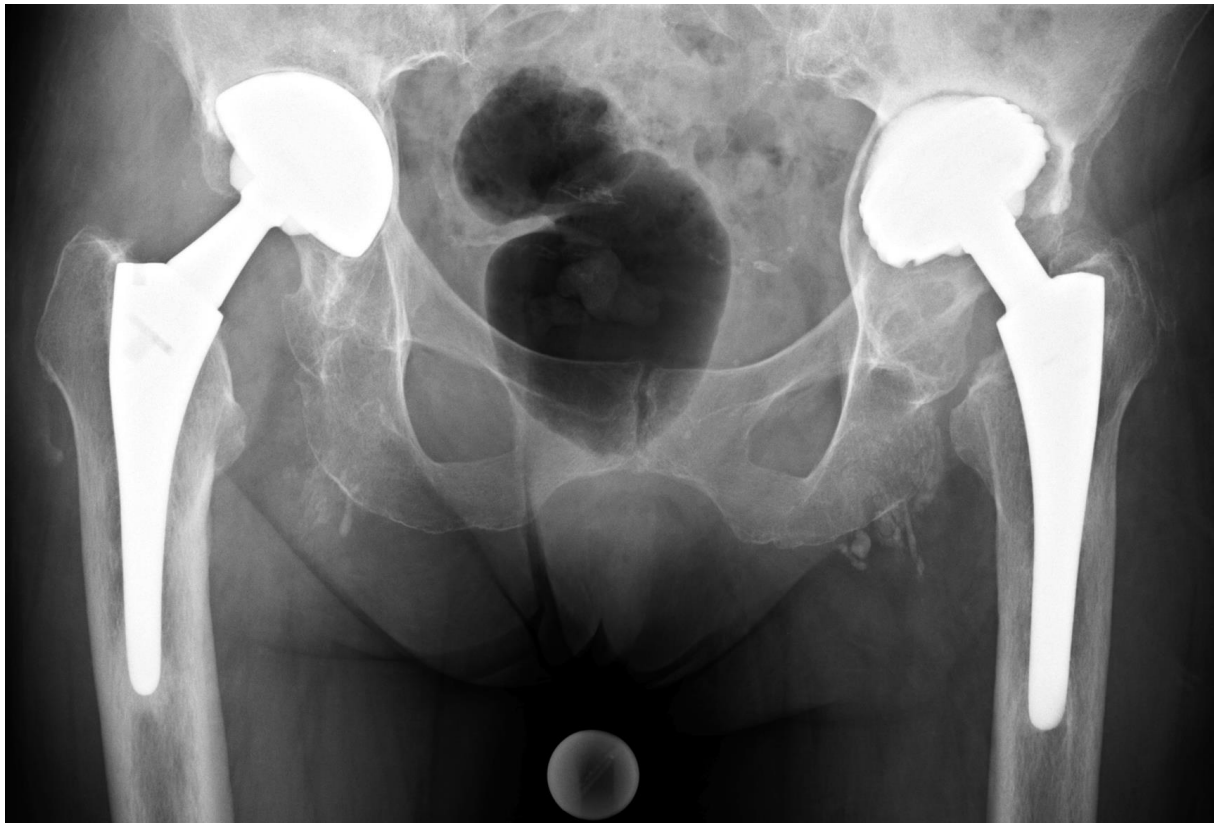

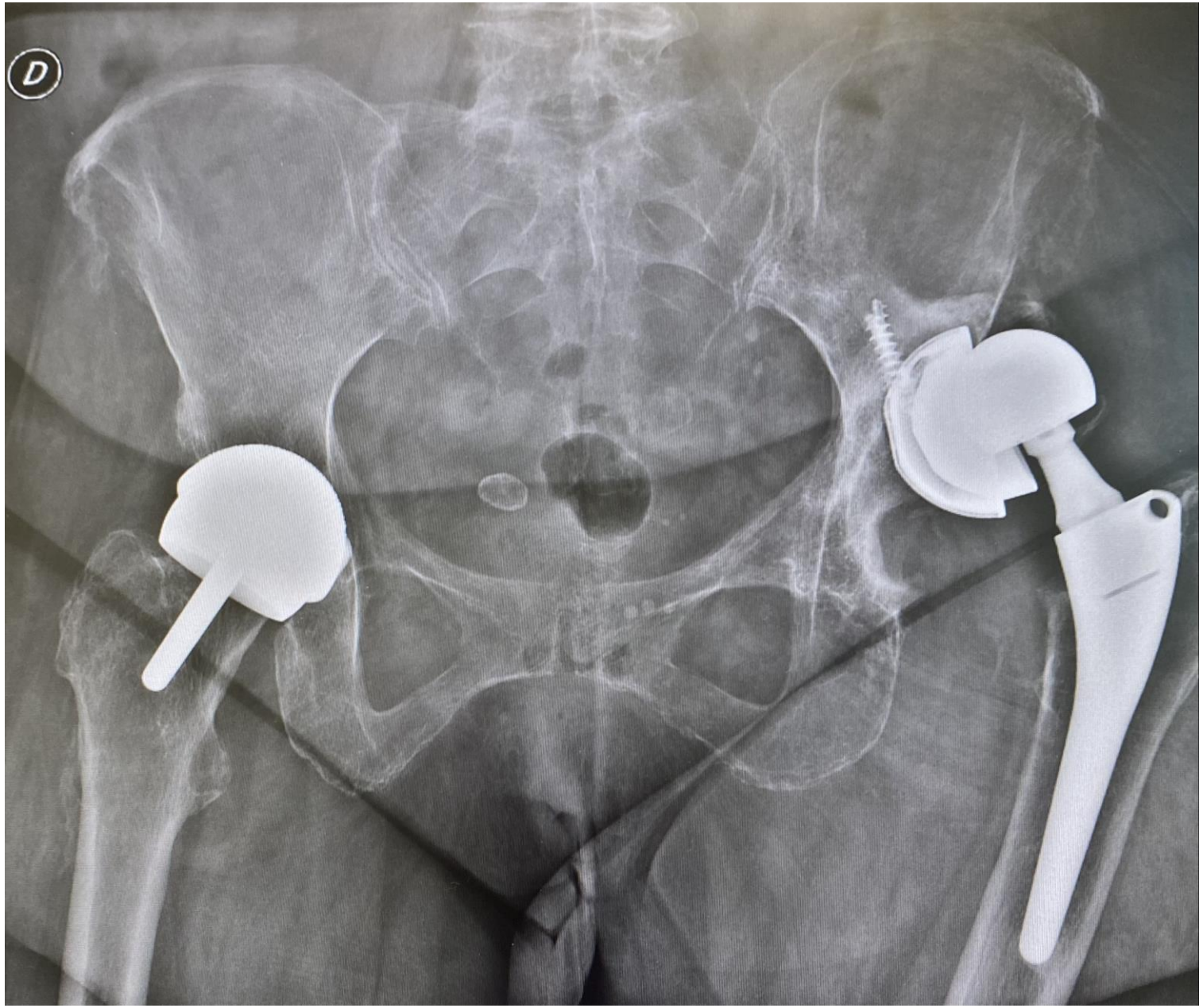
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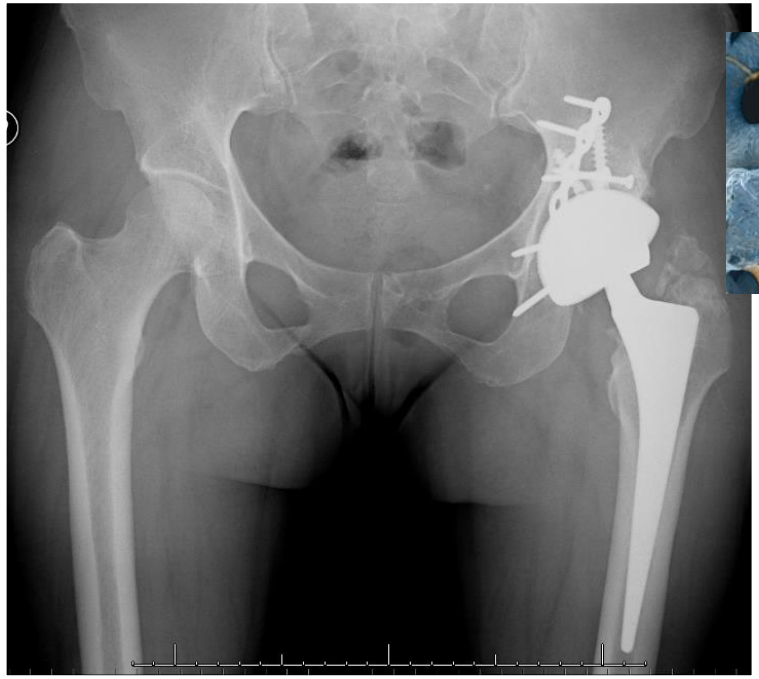

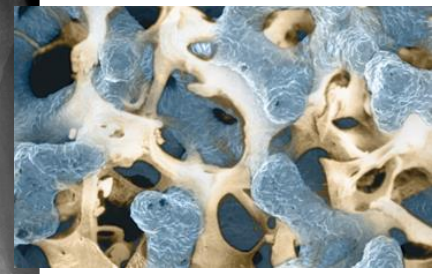

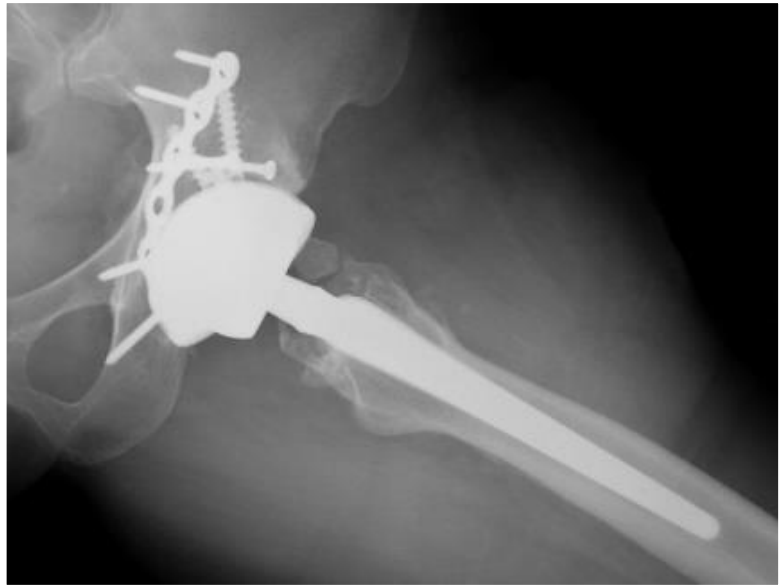

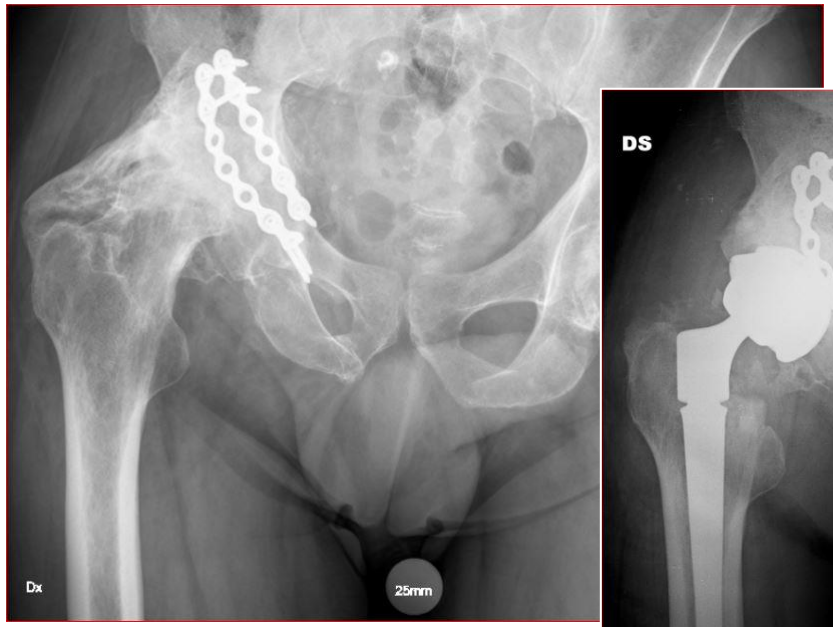
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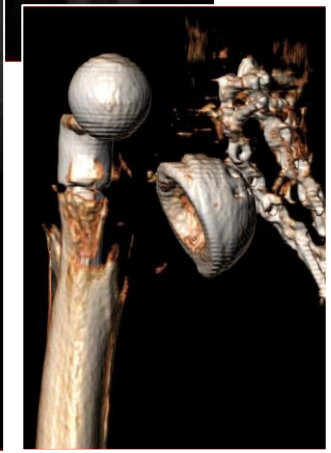
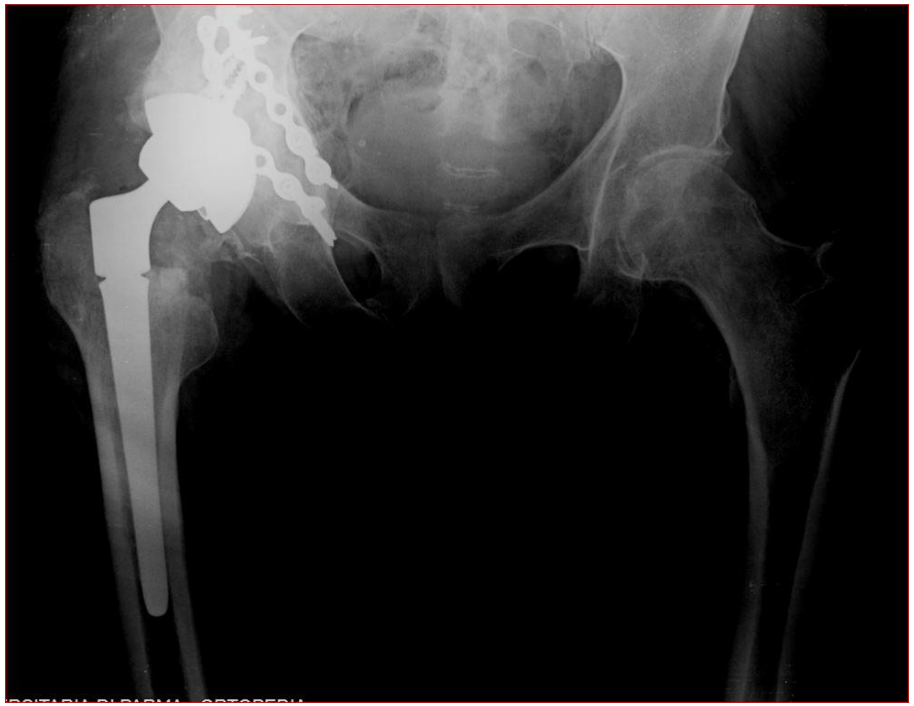




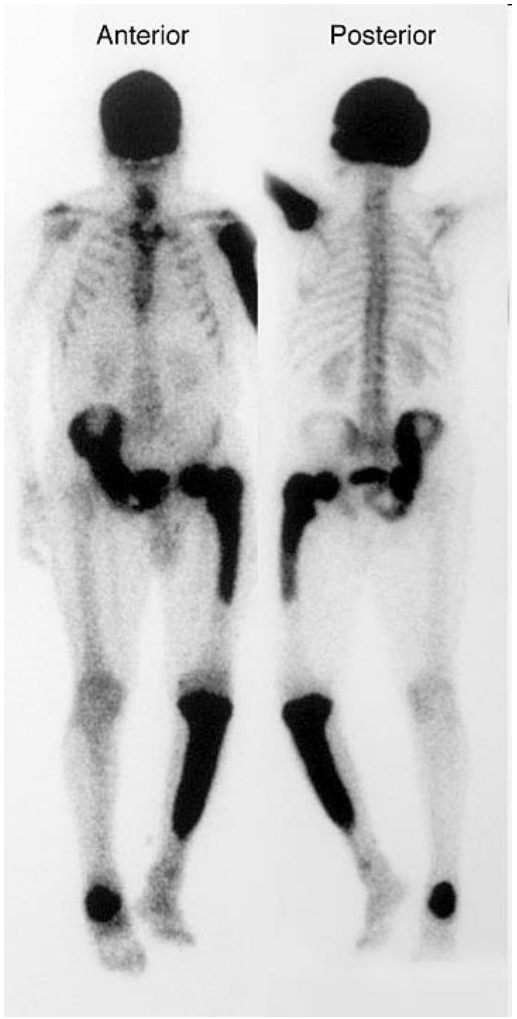
Symposium: 2015 Hip Society Proceedings
Clinical Orthopaedics and Related Research®
February 2016, Volume 474, Issue 2, pp 392-398

First online: 03 September 2015

Total Hip Arthroplasty After Acetabular Fracture Is Associated With Lower Survivorship and More Complications

Zachary Morison ✉ , Dirk Jan F. Moojen, Aaron Nauth, Jeremy Hall, Michael D. McKee, James P. Waddell, Emil H. Schemitsch

In this case-control study, patients with a prior acetabular fracture had markedly inferior 10-year survivorship and more frequent serious complications when compared with patients undergoing THA for primary osteoarthritis or AVN. Given these findings, management of these complex cases should be in highly specialized units where the expertise of arthroplasty and trauma reconstructio is available.


Anterior
Posterior

Total hip arthroplasty in patients with Paget's disease of bone: A systematic review

World J Orthop 2017 April 18; 8(4): 357-363 DOI: 10.5312/wjo.v8.i4.357 ISSN 2218-5836

(online)

Sammy A Hanna, Sebastian Dawson-Bowling, Steven Millington, Rej Bhumbra, Pramod Achan

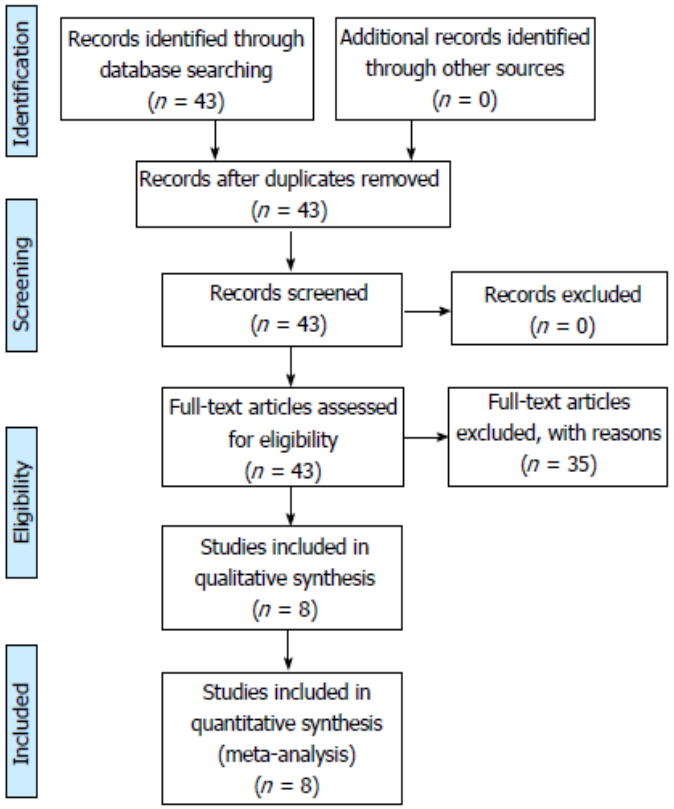


Figure 1 PRISMA flowchart illustrating the search strategy and number of records screened and included.

It is estimated that approximately 3% to 4% of the population over age 50 in the United States are affected by PDB[10]. Although the majority of these patients will not require surgical intervention, those who do, however, represent a unique subset of patients and orthopaedic pathology. When taking into account the exponential increase in the number of THAs performed annually, it can be extrapolated that arthroplasty surgeons will be faced with caring for an increasing number of patients with PDB in the future. It is, therefore, important to recognise the unique problems and challenges inherent to performing THA in patents with PDB. To this end, we therefore performed a systematic review of the literature to determine the method of fixation, failure rates, complication rates and functional outcome of THA in patients with PDB of the hip.

Eligibility criteria

Inclusion criteria included all papers, which described the results of THA in patients with PDB published in the English language. Isolated case reports/series with 5 or less patients were excluded. The included articles met the PICO criteria for systematic reviews (Population, Intervention, Comparison and Outcomes).

Table 1 Demographics of the patients included in the studies and summary of the results

Study and country	No. of hips	Age (yr)	Follow-up (yr)	Type of fixation	Approach	Complications (implant related)	Heterotopic ossification (%)	Revision rate (%)	Functional outcome (pre and post op)
Merkow *et al*[11] 1984, United States	21	68.6 (57-80)	5.2 (2-11.4)	Cemented	Direct lateral (7) Antero-lateral (14)	Aseptic loosening (2)	52%	10%	HSS scale: 18 to 30
McDonald *et al*[12] 1987, United States	91	69.9 (49-85)	7.2 (0.7-15)	Cemented	Direct lateral (64) Antero-lateral (27)	Aseptic loosening (12) Deep infection (2) Instability (2) Foot drop (1) Nonunion of GT osteotomy (7)	37%	15%	HHS: 39 to 83
Ludkowski *et al*[13] 1990, United States	37	71.5 (60-81)	7.8 (1-18.4)	Cemented	Direct lateral	Superficial infection (3)	65%	0%	HHS: 48.1 to 83.2
Sochart *et al*[14] 2000, United Kingdom	98	67.4 (51-79)	10.4 (5.3-20)	Cemented	Direct lateral	Stem fracture (1) Deep infection (1) Instability (1) Aseptic loosening (2) Nonunion of GT osteotomy (1) Foot drop (1)	29%	5%	
Kirsh *et al*[15] 2001, Australia	20	72 (62-82)	5.7 (4-8)	Uncemented (17) Hybrid (3)	Antero-lateral (13) Posterior (7)	Instability (1)	50%	0%	HHS: 31 to 88
Parvizi *et al*[16] 2002, United States	19	71.3 (54-85)	7 (2-15)	Uncemented	Posterior	Instability (1)	32%	0%	HHS: 59.8 to 86.7
Wegrzyn *et al*[17] 2010, France	39	74.2 (55-89)	6.6 (2-12)	Uncemented (36) Hybrid (3)	Antero-lateral (36) Posterior (3)	Intra-operative posterior column acetabular fracture (1) Periprosthetic fractures (2)	56%	0%	HHS: 54 to 89
Imbuldeniya *et al*[7] 2014, Australia	33	75 (63-85)	12.3 (10.3-17)	Uncemented	Posterior	Aseptic loosening/ poly wear (4) Periprosthetic fracture (2)	45%	18%	

Intra-operative considerations /requirements

Effective blood salvage strategies should be employed including expeditious surgery and the administration of tranexamic acid.

Surgery should be performed through an extensile approach when necessary with liberal soft tissue releases in patients with severe contractures.

Preparation of the femoral side must be performed with caution because standard rasps and reamers may not be effective when used in extremely sclerotic bone. A high-speed burr may be useful to aid in bone preparation.

As discussed previously, sclerotic bone may compromise the interdigitation of cement, and uncemented implants may be preferred under these circumstances.

If an uncemented shell is used, it is important to achieve good peripheral rim fit and the use of acetabular screws are recommended to enhance fixation[24].

Table 2 Comparison of the complication rates between the cemented and uncemented groups *n* (%)

Complication	Cemented THR (*n* = 247)	Uncemented THR (*n* = 105)
Aseptic loosening	16 (6)	3 (3)
Septic loosening	3 (1)	0 (0)
Periprosthetic fracture	0 (0)	4 (4)
Intra-operative fracture	0 (0)	1 (1)

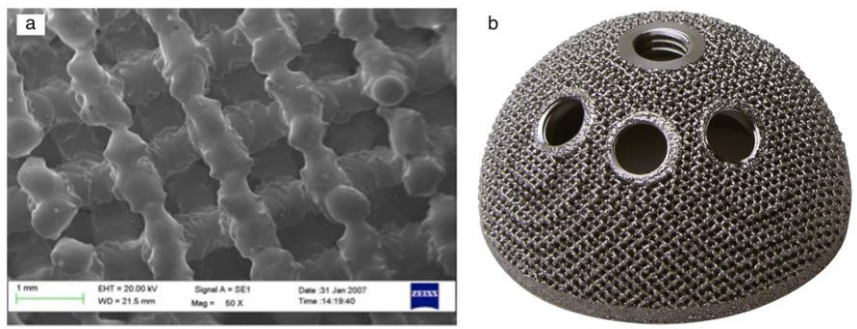
Post-operative considerations /requirements

Bisphosphonate treatment should continue if the disease activity high (ALP levels).

It is advisable to administer prophylaxis against HO with preventive measures such as radiation and/or prophylactic drug regimens[21]. The efficacy of indomethacin in preventing HO is well documented[26]. The most common treatment is to give 25 mg three times a day for five to six weeks. Several studies have shown the efficacy of radiation therapy in reducing the incidence of HO following lower limb arthroplasty. The most appropriate dose regimen appears to be 7 to 8 Gy given as a single fraction either < 4 h pre-operatively or < 72 h post-operatively[26].

Conclusion

The findings of this review support the use of THA to alleviate debilitating hip pain and functional limitation in PDB patients with hip arthropathy. Post-operative patient satisfaction and functional improvement is similar to other patients, however, the revision rate is higher with aseptic loosening being the most common reason for revision. Uncemented implants appear to be associated with a lower failure rate. However, there are no studies reporting on the use of modern stem designs fixed using current generation cementing techniques in PDB patients, so caution is advised when drawing any conclusions.



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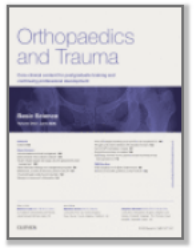
Volume 34, Issue 3, June 2020, Pages 146-152



Basic science

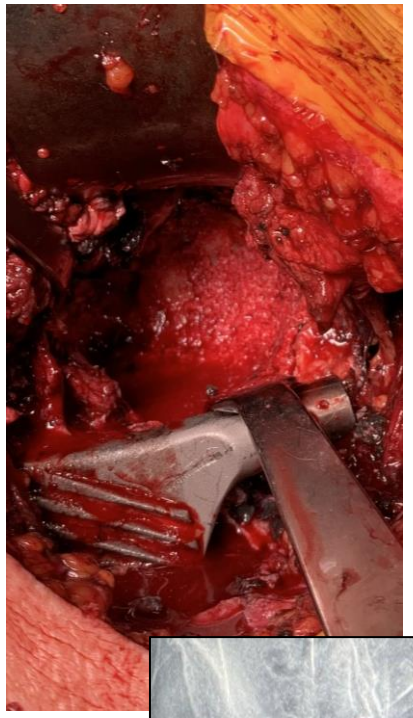
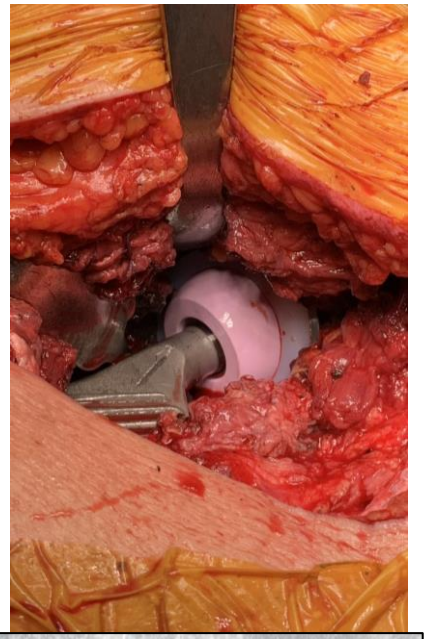
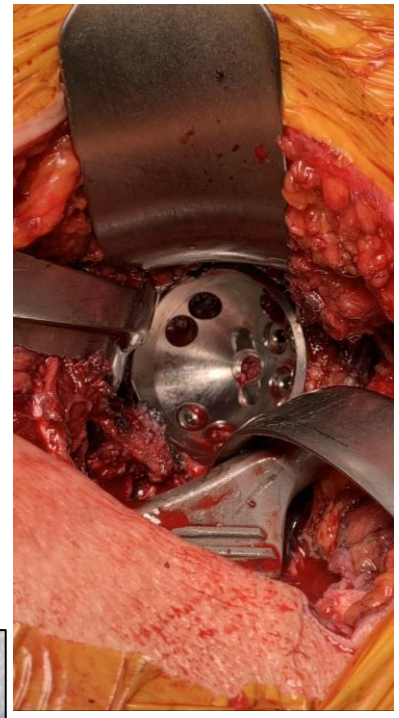
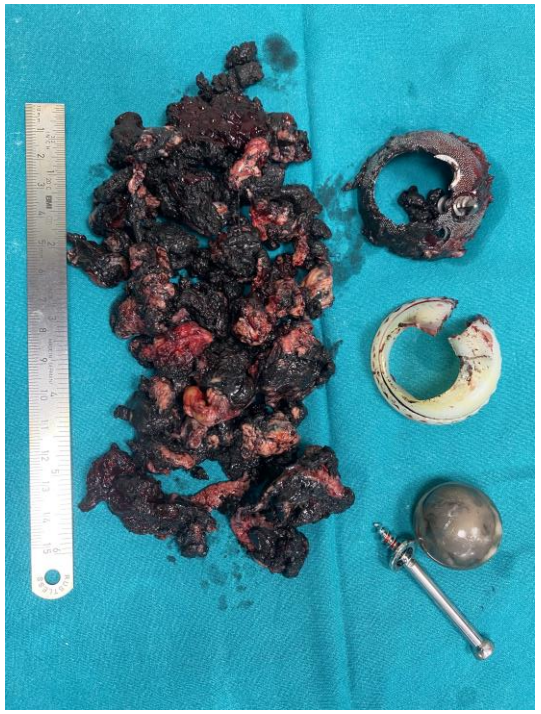
How does aseptic loosening occur and how can we prevent it?

Mark D. Jones, Christopher L. Buckle

WEAR

Wear from articulating, non articulating, modular interfaces.	Abrasive Adhesive Fatigue	Ultra-high-molecular-weight polyethylene - HCLPE Polymethylmethacrylate Metal alloys (Cobalt chrome, Stainless steel, Titanium, Ceramics)	Implant factors Patient factors Surgical factors



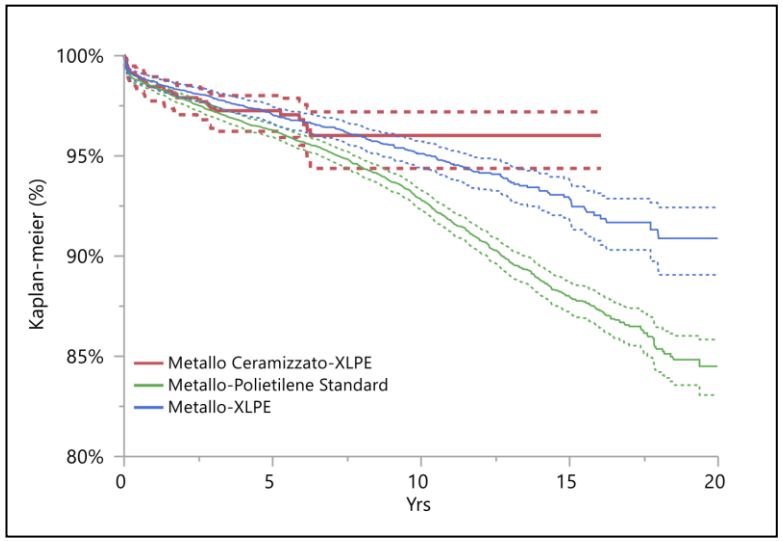






8.8 Analisi della sopravvivenza protesi totale primaria per accoppiamento

In questa analisi sono state considerate separatamente le protesi in base al loro accoppiamento articolare, sono esclusi i cotili a doppia mobilità e vengono presentate solo le categorie con più di 1.000 impianti. L'accoppiamento articolare viene definito sulla base delle caratteristiche delle superifici di scorrimento, indipendentemente dal fatto che l'inserto sia realizzato con un unico materiale o con due.

Per chiarezza grafica le curve vengono tracciate in tre grafici separatamente.

Accoppiamento	Follow-up medio	N.	n. revisioni	soprav 5 anni	i.c al 95%	soprav 10 anni	i.c al 95%
Ceramica Composita-Ceramica Composita	5,2	29.967	789	97,5	97,3-97,7	95,8	95,5-96,2
Metallo-Polietilene Standard	9,7	13.329	1.056	96,3	96,0-96,6	92,9	92,3-93,3
Ceramica Composita-XLPE	3,9	10.930	287	97,0	96,6-97,3	95,3	94,3-96,1
Allumina-Polietilene Standard	11,2	8.281	577	96,8	96,4-97,2	94,6	94,1-95,1
Allumina-Allumina	12,4	8.158	639	96,0	95,5-96,4	93,5	92,9-94,0
Metallo-XLPE	8,0	6.505	279	97,1	96,6-97,5	95,1	94,4-95,7
Metallo-Metallo	11,3	4.667	514	95,4	94,7-96,0	90,7	89,8-91,6
Ceramica Composita-XLPE + Vitamina E	2,8	2.957	61	97,4	96,5-98,0	96,3	93,3-98,0
Metallo Ceramizzato-XLPE	3,7	1.785	44	97,3	96,2-98,0	96,0	94,4-97,2
Ceramica Composita-Polietilene Standard	5,7	1.566	61	96,6	95,5-97,5	94,4	92,7-95,7
Allumina-XLPE	10,2	1.217	64	96,5	95,2-97,4	95,0	93,5-96,1
Allumina-Ceramica Composita	10,6	1.170	52	97,1	95,9-97,9	95,9	94,5-96,9


100%
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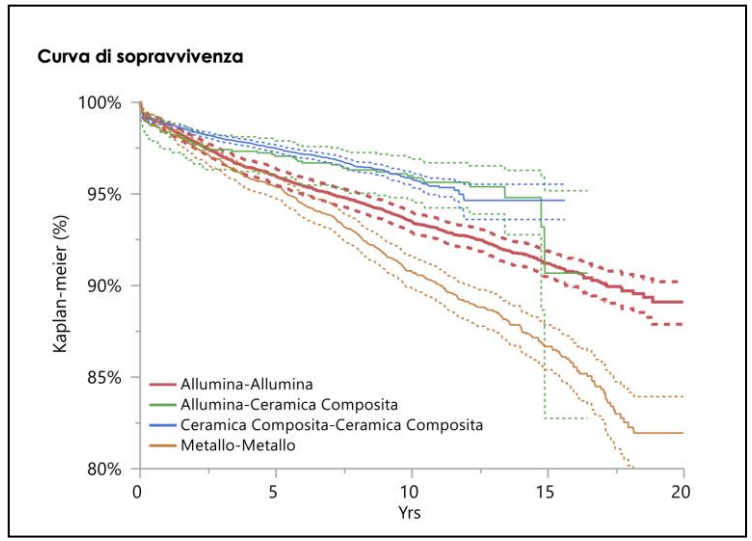
Metallo Ceramizzato-XLPE
Metallo-Polietilene Standard
Metallo-XLPE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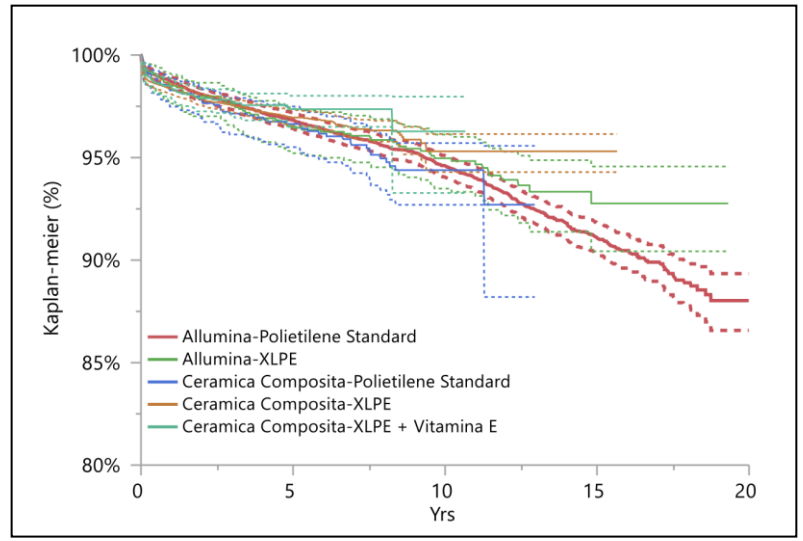
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Allumina-Polietilene Standard
Allumina-XLPE
Ceramica Composita-Polietilene Standard
Ceramica Composita-XLPE
Ceramica Composita-XLPE + Vitamina E

Protesi Metallo-Non XLPE			
Causa reimpianto	**Incidenza**	**%**	**Distribuzione % delle cause di fallimento**
Mobilizzazione asettica cotile	**244**/13.329	1,8	23,1
Mobilizzazione asettica stelo	**183**/13.329	1,4	17,3
Lussazione protesica	**155**/13.329	1,2	14,7
Mobilizzazione asettica globale	**108**/13.329	0,8	10,2
Frattura periprotesica	**100**/13.329	0,8	9,5
Usura polietilene	**67**/13.329	0,5	6,3
Mobilizzazione settica	**53**/13.329	0,4	5,0
Dolore senza mobilizzazione	**19**/13.329	0,1	1,8
Rottura protesi *(di cui 10 steli, 4 cotili, 3 inserto e 1 non specificata)*	**18**/13.329	0,1	1,7
Instabilità primaria	**9**/13.329	0,1	0,9
Ossificazioni	**2**/13.329	0,02	0,2
Altro	**9**/13.329	0,1	0,9
Non nota *(di cui 45 non note in quanto reimpianto eseguito fuori regione)*	**88**/13.329	0,7	8,3
Totale	**1.056/13.329**	**7,9**	**100,0**

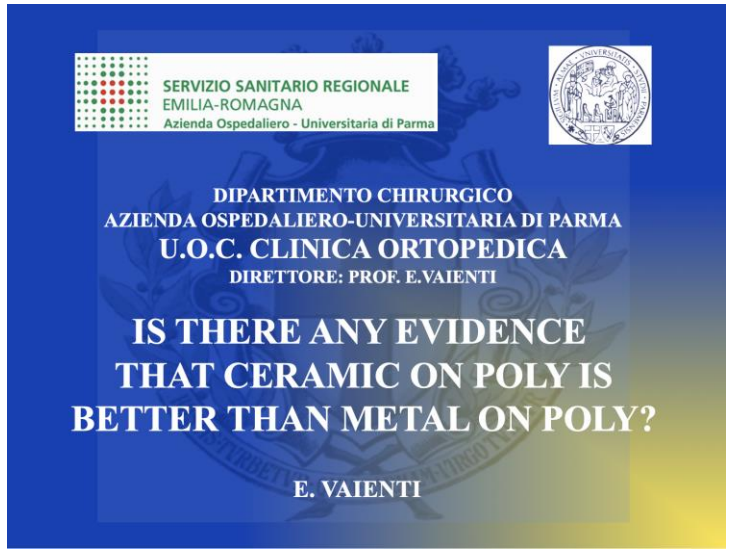
Protesi Metallo-XLPE			
Causa reimpianto	**Incidenza**	**%**	**Distribuzione % delle cause di fallimento**
Frattura periprotesica	**89**/6.505	1,4	31,9
Lussazione protesica	**42**/6.505	0,6	15,1
Mobilizzazione asettica stelo	**31**/6.505	0,5	11,1
Mobilizzazione asettica cotile	**30**/6.505	0,5	10,8
Mobilizzazione settica	**20**/6.505	0,3	7,2
Mobilizzazione asettica globale	**16**/6.505	0,2	5,7
Dolore senza mobilizzazione	**7**/6.505	0,1	2,5
Instabilità primaria	**7**/6.505	0,1	2,5
Usura polietilene	**3**/6.505	0,05	1,1
Rottura stelo	**1**/6.505	0,02	0,4
Ossificazioni	**1**/6.505	0,02	0,4
Altro	**13**/6.505	0,2	4,7
Non nota *(di cui 10 non note in quanto reimpianto eseguito fuori regione)*	**19**/6.505	0,3	6,8
Totale	**279/6.505**	**4,3**	**100,0**

Protesi Ceramica Composita-XLPE			
Causa reimpianto	**Incidenza**	**%**	**Distribuzione % delle cause di fallimento**
Lussazione protesica	**64**/10.930	0,6	22,3
Frattura periprotesica	**48**/10.930	0,4	16,7
Mobilizzazione asettica stelo	**45**/10.930	0,4	15,7
Mobilizzazione asettica cotile	**31**/10.930	0,3	10,8
Mobilizzazione settica	**23**/10.930	0,2	8,0
Instabilità primaria	**10**/10.930	0,1	3,5
Mobilizzazione asettica globale	**5**/10.930	0,05	1,7
Rottura protesi *(di cui 3 steli e 2 cotili)*	**5**/10.930	0,05	1,7
Ossificazioni	**5**/10.930	0,05	1,7
Dolore senza mobilizzazione	**3**/10.930	0,03	1,0
Usura polietilene	**2**/10.930	0,02	0,7
Altro	**13**/10.930	0,1	4,5
Non nota *(di cui 10 non note in quanto reimpianto eseguito fuori regione)*	**33**/10.930	0,3	11,5
Totale	**287/10.930**	**2,6**	**100,0**

Protesi Ceramica Composita-XLPE + Vitamina E			
Causa reimpianto	**Incidenza**	**%**	**Distribuzione % delle cause di fallimento**
Frattura periprotesica	**11**/2.957	0,4	18,0

Metallo Ceramizzato-XLPE			
Causa reimpianto	**Incidenza**	**%**	**Distribuzione % delle cause di fallimento**
Mobilizzazione asettica stelo	**10**/1.785	0,6	22,7
Frattura periprotesica	**7**/1.785	0,4	15,9
Mobilizzazione settica	**6**/1.785	0,3	13,6
Lussazione protesica	**4**/1.785	0,2	9,1
Mobilizzazione asettica cotile	**3**/1.785	0,2	6,8
Dolore senza mobilizzazione	**3**/1.785	0,2	6,8
Ossificazioni	**2**/1.785	0,1	4,5
Mobilizzazione asettica globale	**1**/1.785	0,1	2,3
Altro	**3**/1.785	0,2	6,8
Non nota *(di cui 1 non note in quanto reimpianto eseguito fuori regione)*	**5**/1.785	0,3	11,4
Totale	**44/1.785**	**2,5**	**100,0**

LA SOPRAVVIVENZA DIPENDE DALLA QUALITA' DEL POLIETILENE

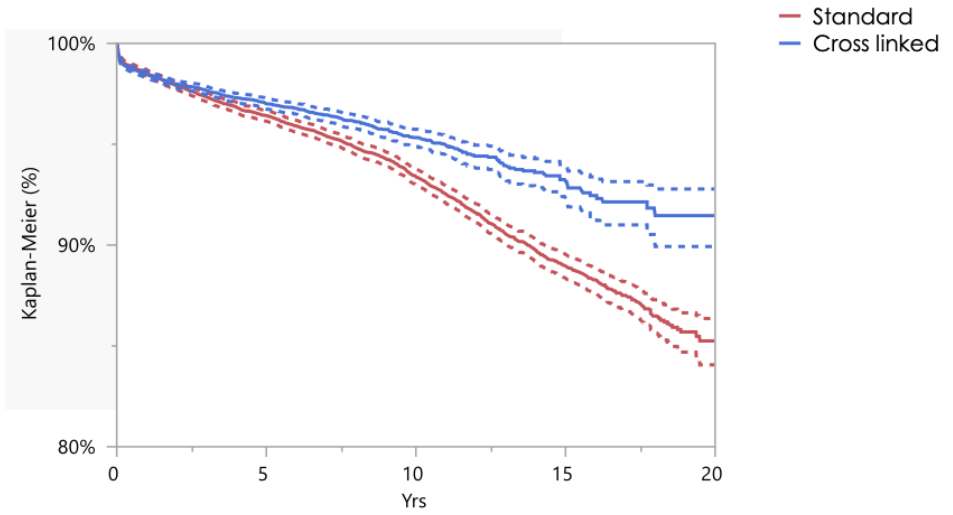


8.9 Analisi della sopravvivenza protesi totale primaria per tipo di polietilene dell'inserto

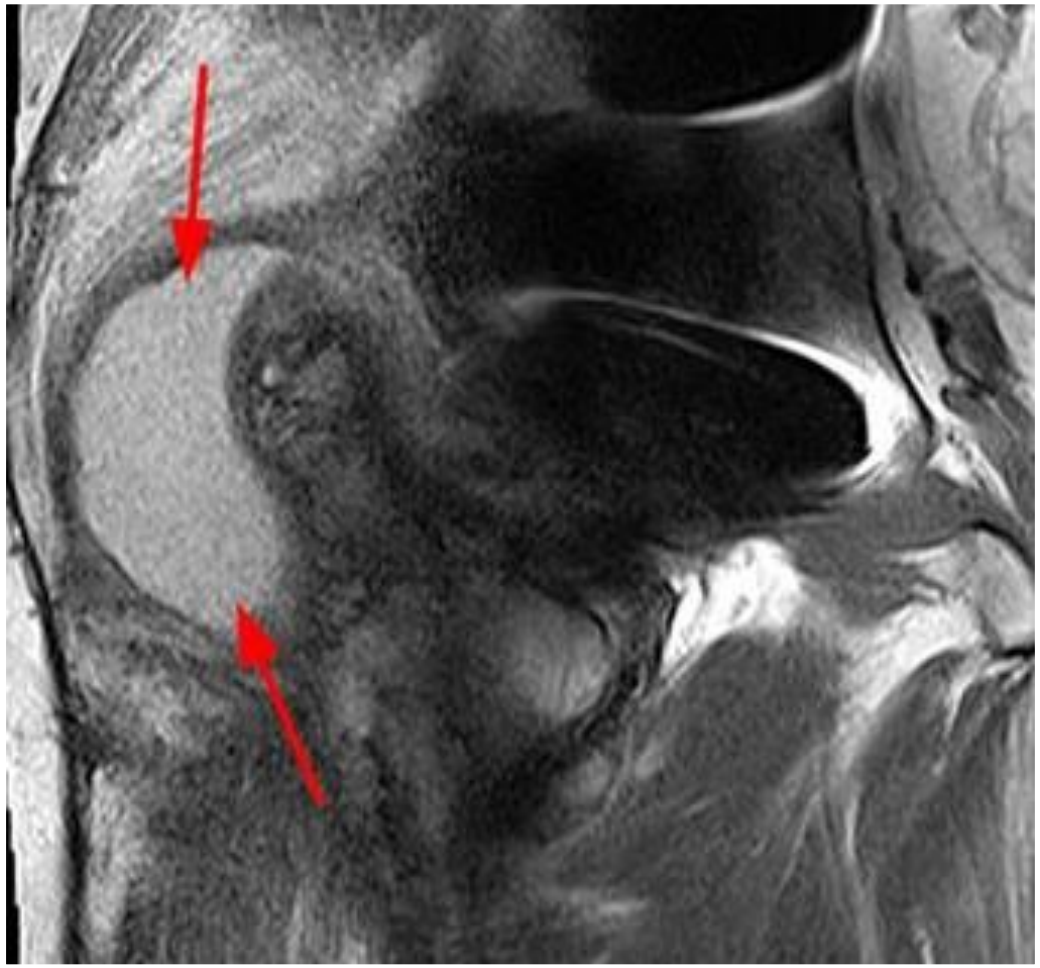
In questa analisi sono stati considerati separatamente gli inserti di polietilene standard e di polietilene cross linked indipendentemente dall'accoppiamento articolare con il quale sono stati utilizzati. Non sono stati inclusi nell'analisi i cotili monoblocco di polietilene.

Polietilene	N.	Rimozioni	Proporzione di Sopravvivenza percentuale cumulata a 19 anni	Intervallo confidenza al 95%	Follow-up medio
Standard	19.468	1.503	85,7	84,7-86,6	10,2
Cross linked	22.588	694	91,5	89,9-92,8	5,1

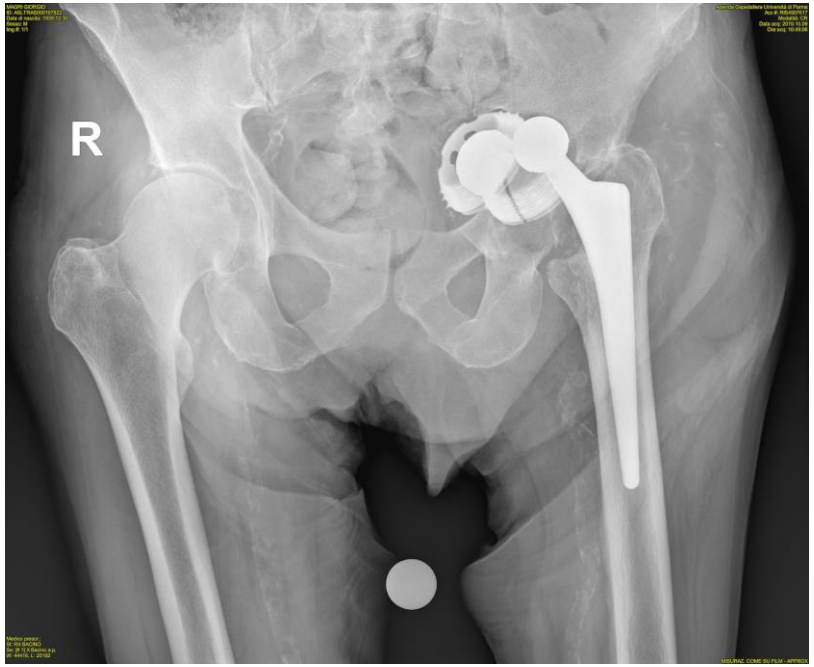
Curva di sopravvivenza

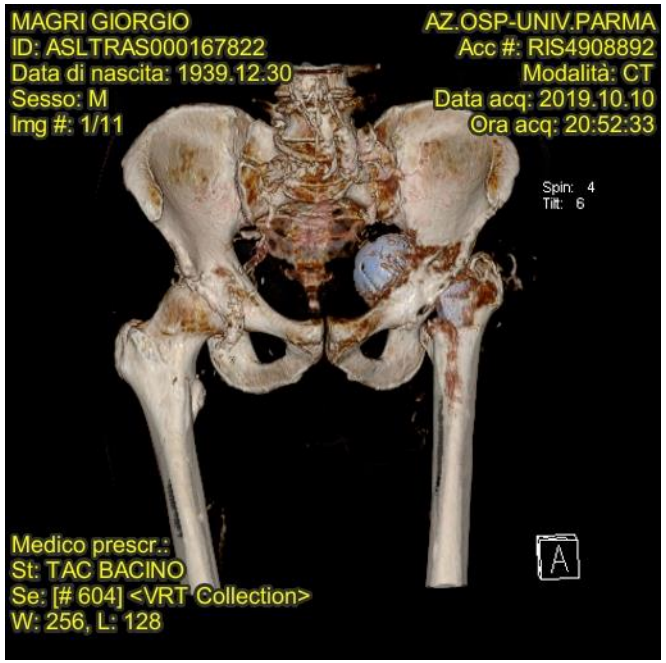


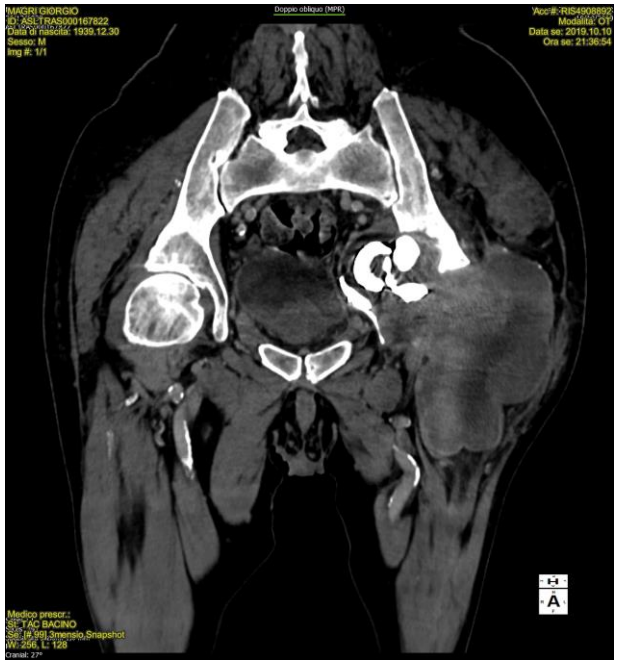
MOM DISASTER

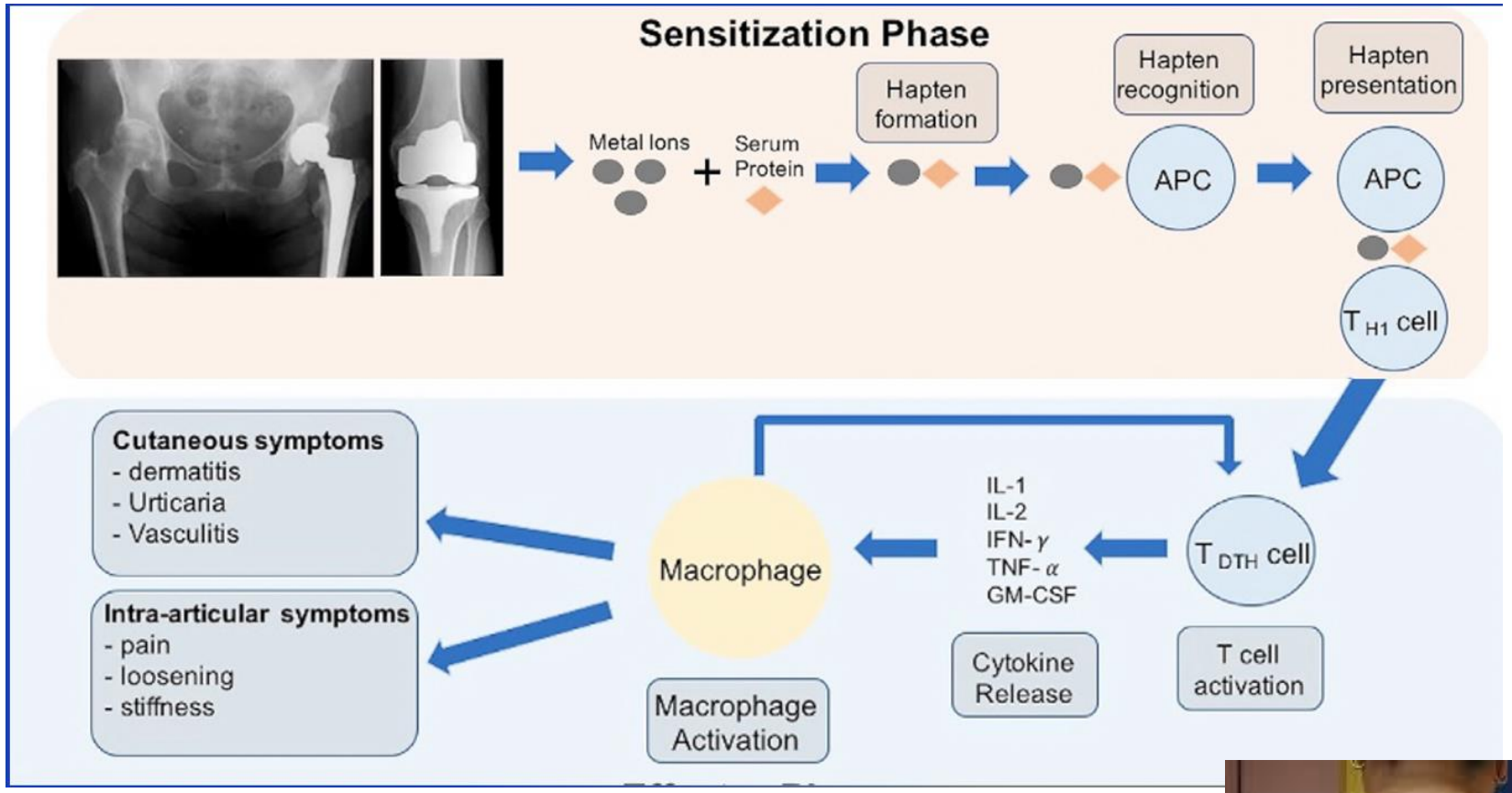


Anno intervento	Protesi totale primaria	
	Convenzionali	Rivestimento
2000	99,9	0,1
2001	99,8	0,2
2002	99,3	0,7
2003	98,5	1,5
2004	97,9	2,1
2005	96,7	3,3
2006	96,2	3,8
2007	96,7	3,3
2008	97,3	2,7
2009	97,4	2,6
2010	98,1	1,9
2011	97,2	2,8
2012	95,1	4,9
2013	95,6	4,4
2014	96,5	3,5
2015	97,5	2,5
2016	98,4	1,6
2017	99,6	0,4
2018	99,8	0,2
2019	99,9	0,1

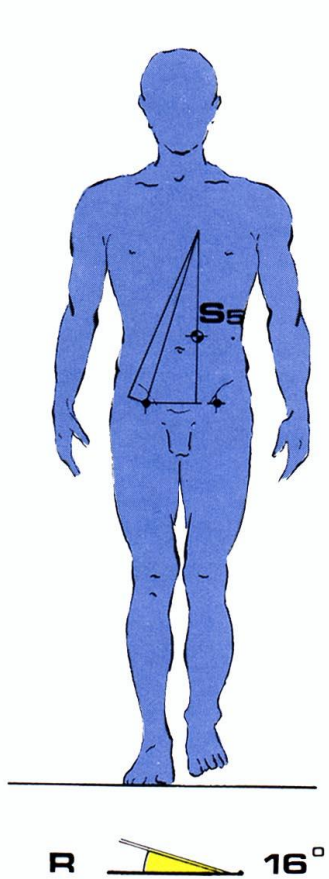

R

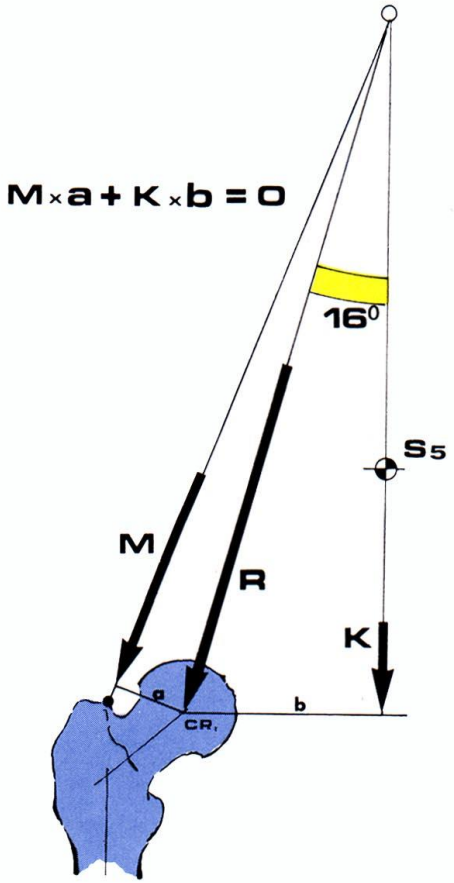

MAGRI GIORGIO
ID: ASLTRAS000167822
Data di nascita: 1939.12.30
Sesso: M
Img #: 1/11
AZ.OSP-UNIV.PARMA
Acc #: RIS4908892
Modalità: CT
Data acq: 2019.10.10
Ora acq: 20:52:33
Spin: 4
Tilt: 6
Medico prescr.:
St: TAC BACINO
Se: [# 604] <VRT Collection>
W: 256, L: 128


Doppio obliquo (MPR)
MAGRI GIORGIO
ID: ASLTRAS000167822
Data di nascita: 1939.12.30
Sesso: M
Img #: 1/1
Acc #: RIS4908892
Modalità: CT
Data se: 2019.10.10
Ora se: 21:36:54
Medico prescr.:
St: TAC BACINO
W: 256, L: 128

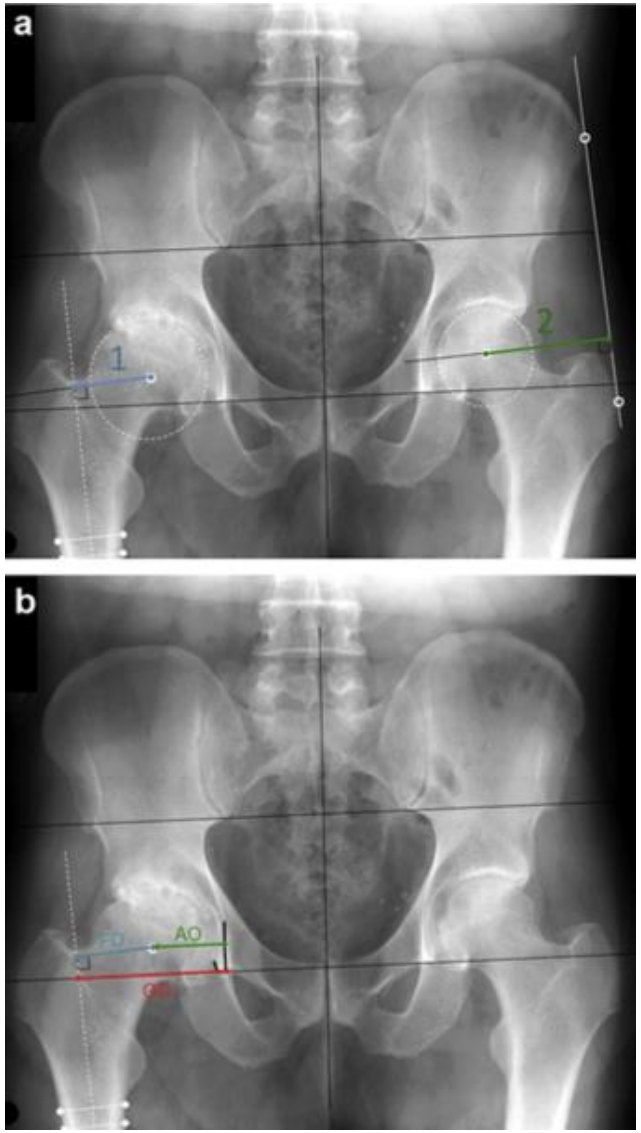

Sensitization Phase
Metal Ions
Serum Protein
Hapten formation
Hapten recognition
Hapten presentation
APC
APC
T H1 cell
Cutaneous symptoms
- dermatitis
- Urticaria
- Vasculitis
Intra-articular symptoms
- pain
- loosening
- stiffness
Macrophage
Macrophage Activation
IL-1
IL-2
IFN-γ
TNF-α
GM-CSF
Cytokine Release
T DTH cell
T cell activation

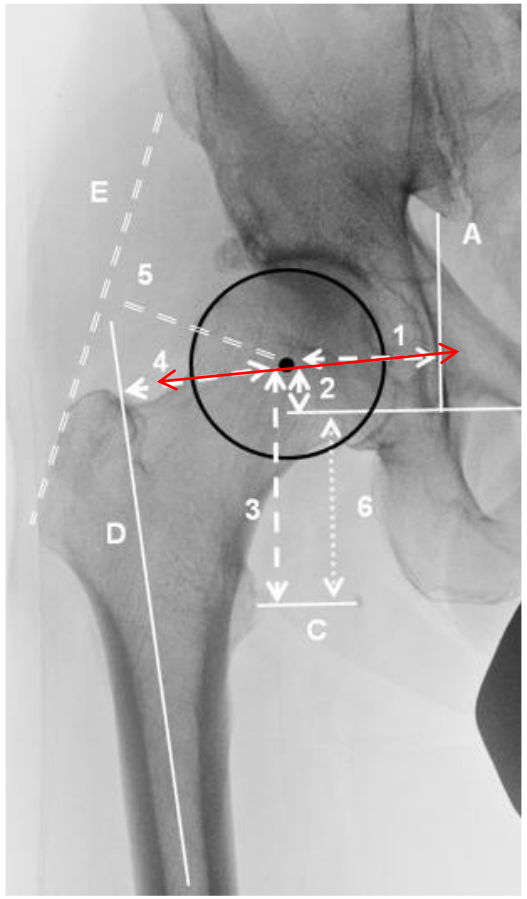
CENTER OF ROTATION





HIP OFFSET





OFFSET INSUFFICIENTE

- **ZOPPIA**
- **STAMPELLE**
- **INSTABILITA’**
- **ROM DIMINUITO**
- **IMPINGEMENT**
- **FUNZIONE PEGGIORE**
- **INSODDISFAZIONE**
- **MAGGIOR USURA**
- **MINOR DURATA**

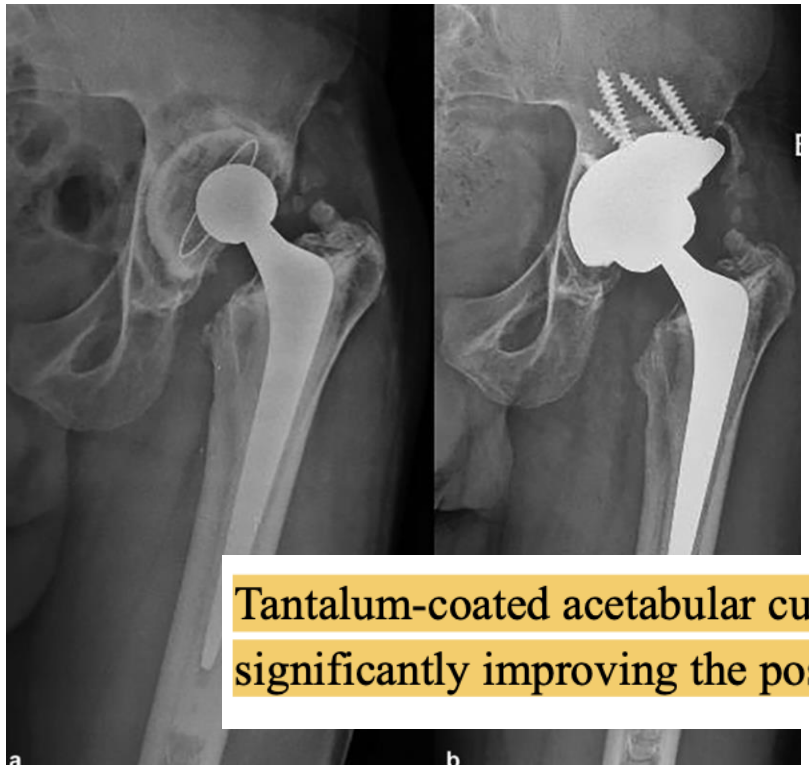
OFFSET ESAGERATO

- **PERCEZIONE ALLUNGAMENTO**
- **TROPPA TENSIONE**
- **TROPPO CARICO POLARE SUPERIORE**
- **MINOR DURATA**

Rev Bras Ortop (Sao Paulo). 2019 Jul; 54(4): 471–476. PMCID: PMC6701971
Published online 2019 Aug 20. doi: 10.1055/s-0039-1693047 PMID: 31435117

Recovery of the Hip Rotation Center with Tantalum in Revision Arthroplasty *

Antônio Augusto Guimarães Barros,[1] Victor Atsushi Kasuya Barbosa,[1] Lincoln Paiva Costa,[1] Euler de Carvalho Guedes,[1] and Carlos César Vassalo[1]



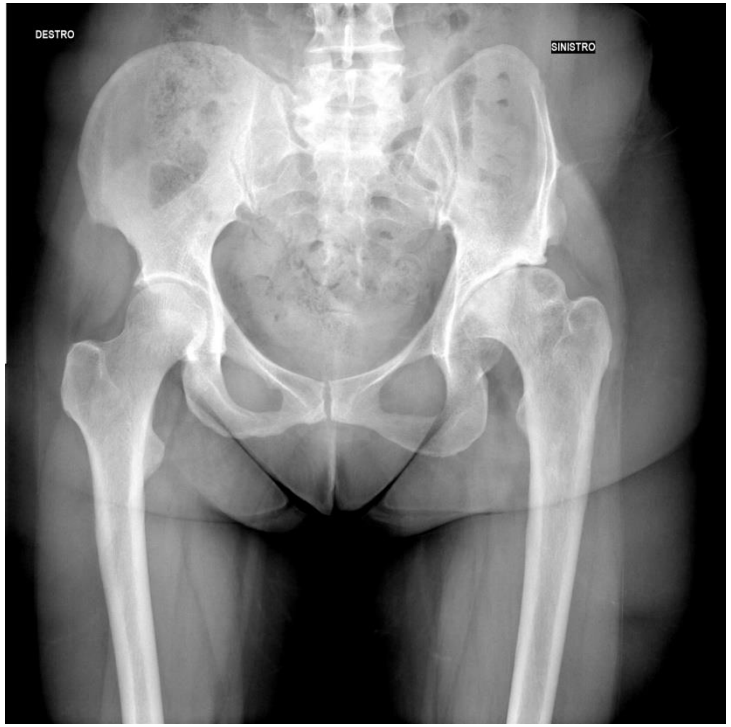
Tantalum-coated acetabular cups, associated or not with addition wedges, were effective in significantly improving the positioning of the anatomical hip rotation center in revision surgeries.

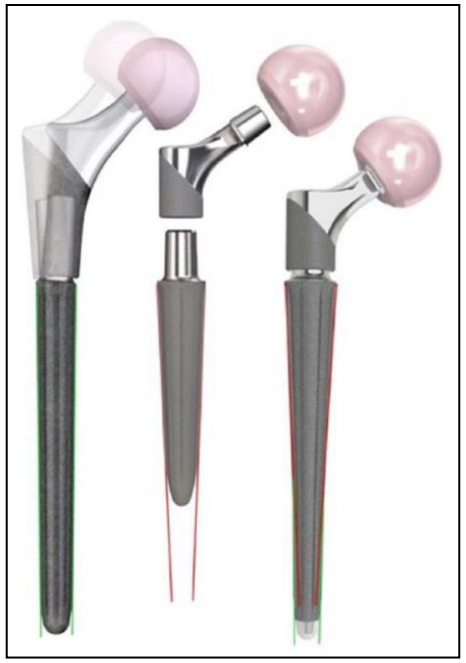
Hip Arthroplasty | Published: 15 November 2021

Trabecular titanium cups in acetabular revision arthroplasty: analysis of 10-year survivorship, restoration of center of rotation and osteointegration

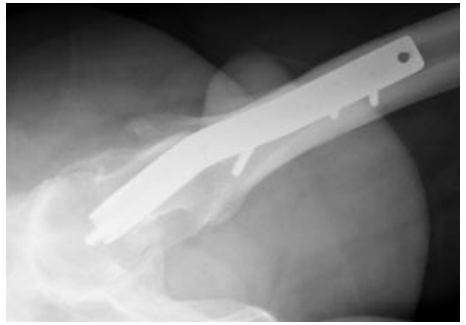
Andrea Cozzi Lepri ✉, Matteo Innocenti, Alberto Galeotti, Christian Carulli, Marco Villano & Roberto Civinini

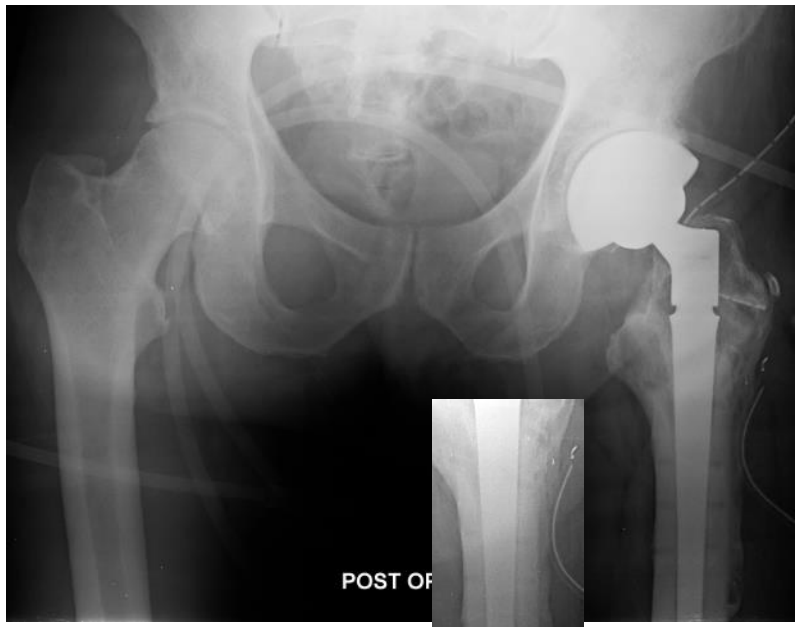
In case of severe bone loss, TT revision cup system allows for good restoration of center of rotation and osteointegration showing good 10-year survival rate.


DESTRO
SINISTRO

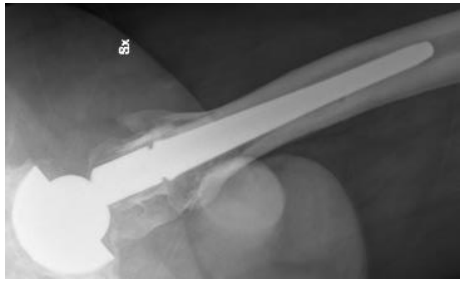



25mm
Sx

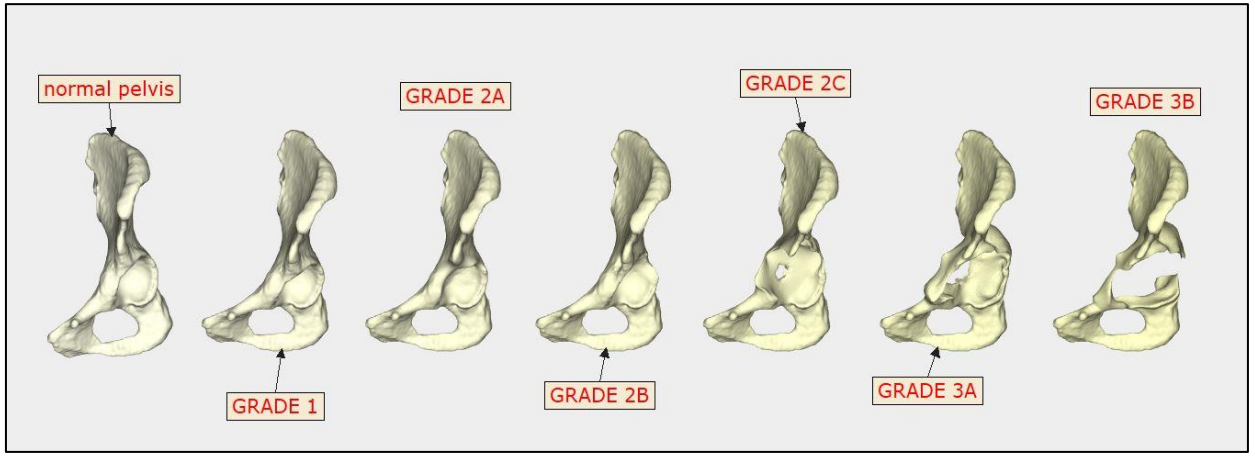


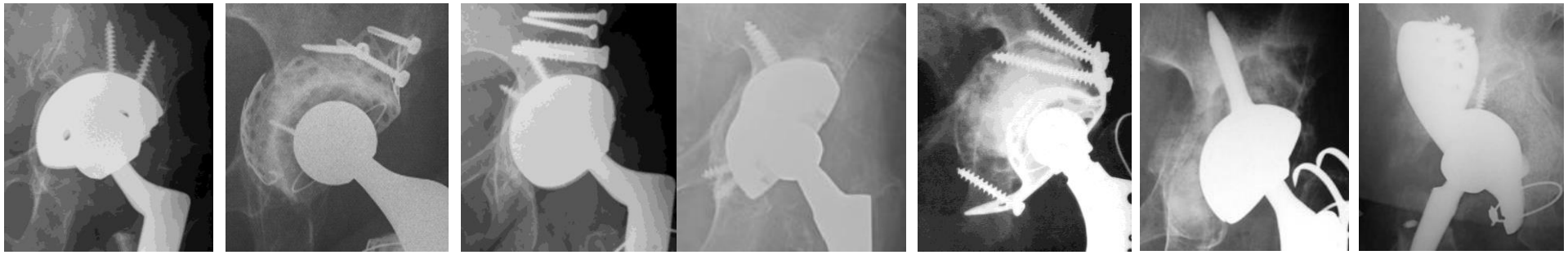

POST OP


Sx

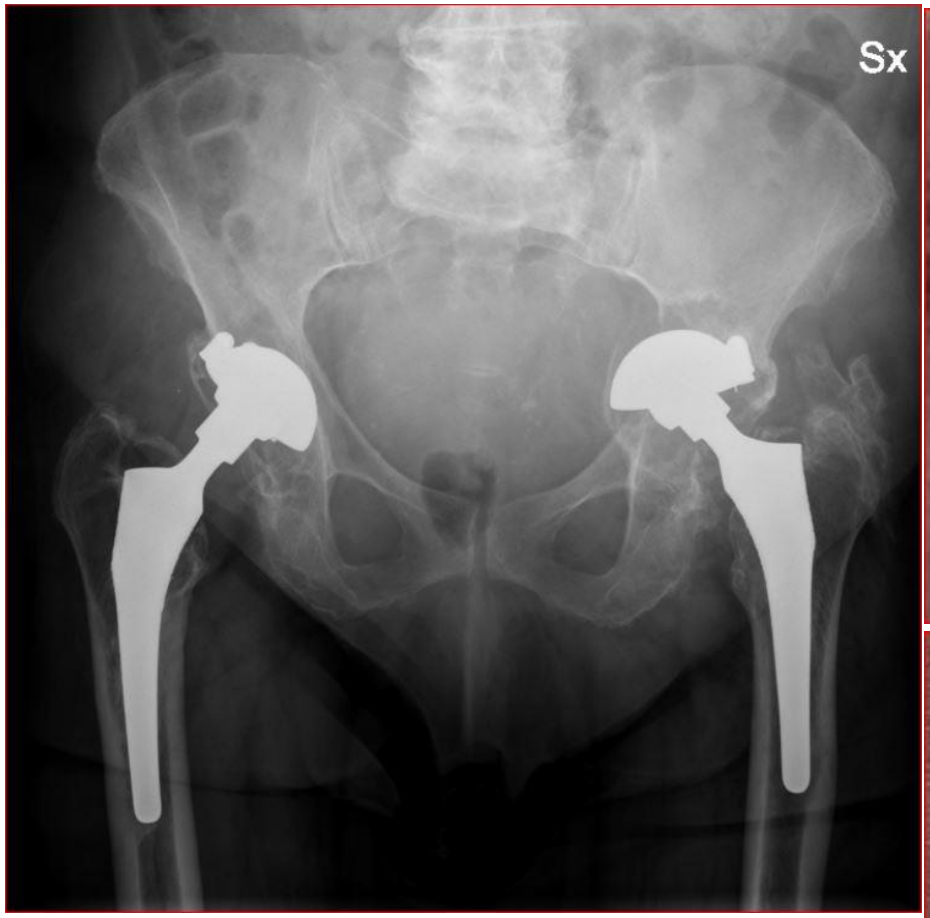

Sx

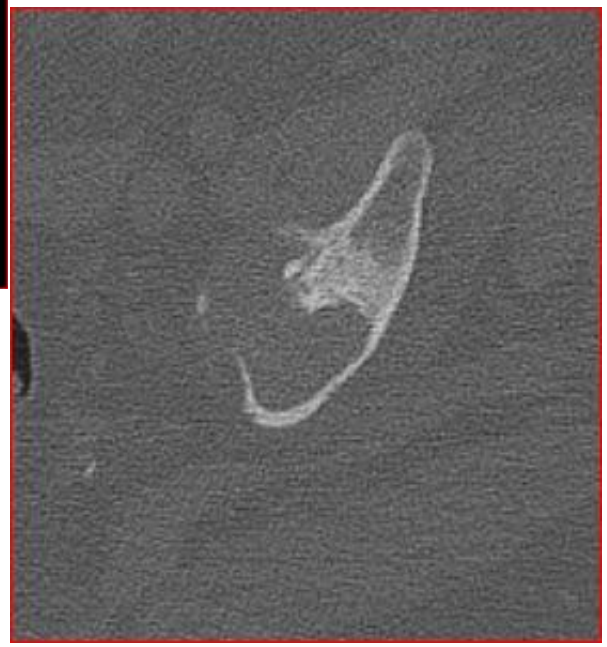
All causes of acetabular failure may be further complicated by acetabular bone loss.

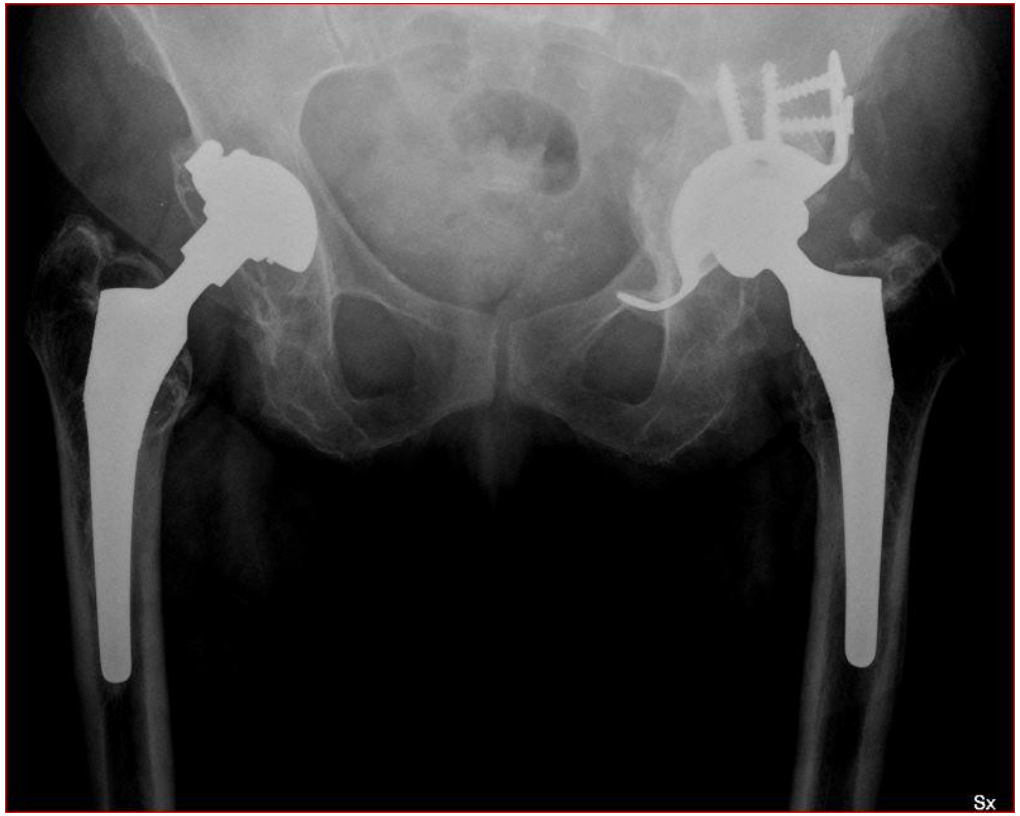




Pre-operative planning ensures that all "thinking" has been done prior to surgery, so that plan execution is the main intra- operative focus. The pre-operative plan includes five essential elements: (1) what is the reason for acetabular failure/revision; (2) what implant(s) are currently in place; (3) what is the planned revision strategy; (4) what alternative strategies have been identified to address anticipated and unanticipated difficulties; and (5) what are the surgeon's limitations? Pre-operative planning is critical for less experienced revision surgeons.







ANGIO-TC ARTO INFERIORE DX E SX

Indicazione: valutazione rapporti coppa acetabolare e grandi vasi iliaci.
Esame parzialmente inficiato da artefatti da indurimento del fascio in sede pelvica per PTA bilaterale.

Conservato il calibro e il decorso dei grandi vasi iliaci bilateralmente senza occlusioni.
Alcune piccole placche calcifiche di parete non significative.
PTA bilaterale con marcata erosione ossea a livello del neocotile di sinistra con conseguente severo assottigliamento del tetto acetabolare e lieve risalita nel contesto dello scavo pelvico. Conservato il clivaggio adiposo con i vasi iliaci omolaterali.
Non lussazioni.
Diverticolosi colica.
Non liquido libero.

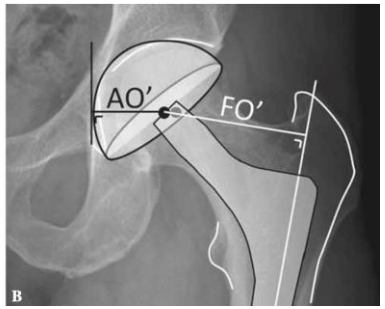
CONCLUSIONI

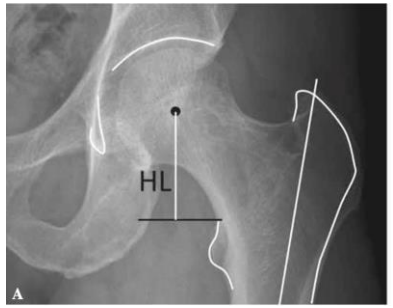
Acta Orthop. Belg., 2014, **80**, 336-347

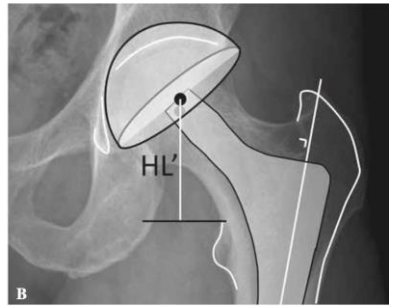
Cup positioning in total hip arthroplasty

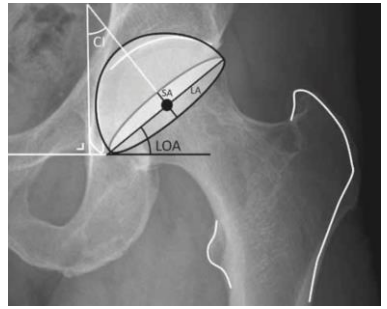
Thierry SCHEERLINCK

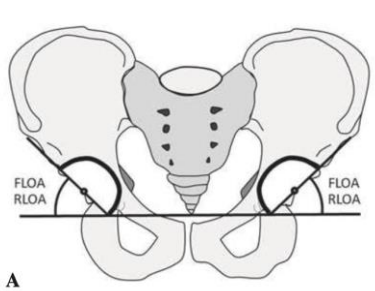
From the Universitair Ziekenhuis Brussel (UZ Brussel), Belgium

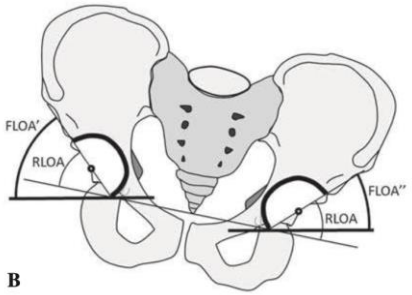






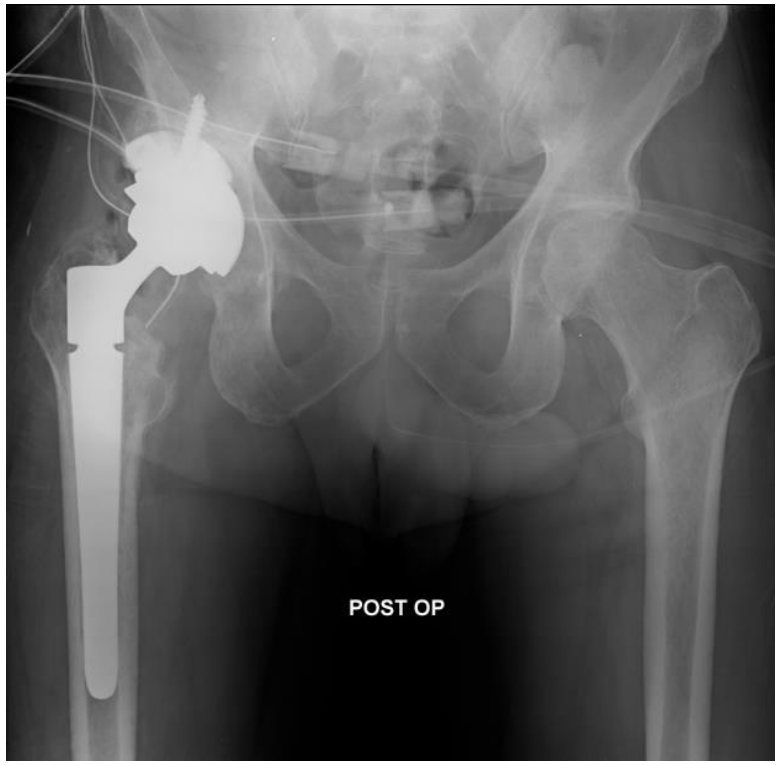




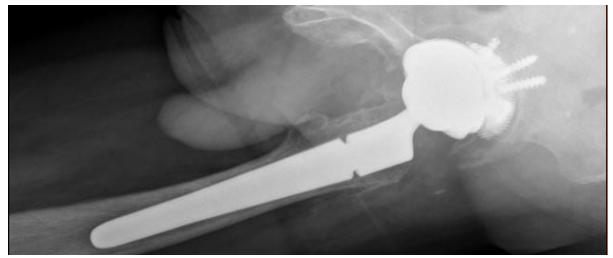


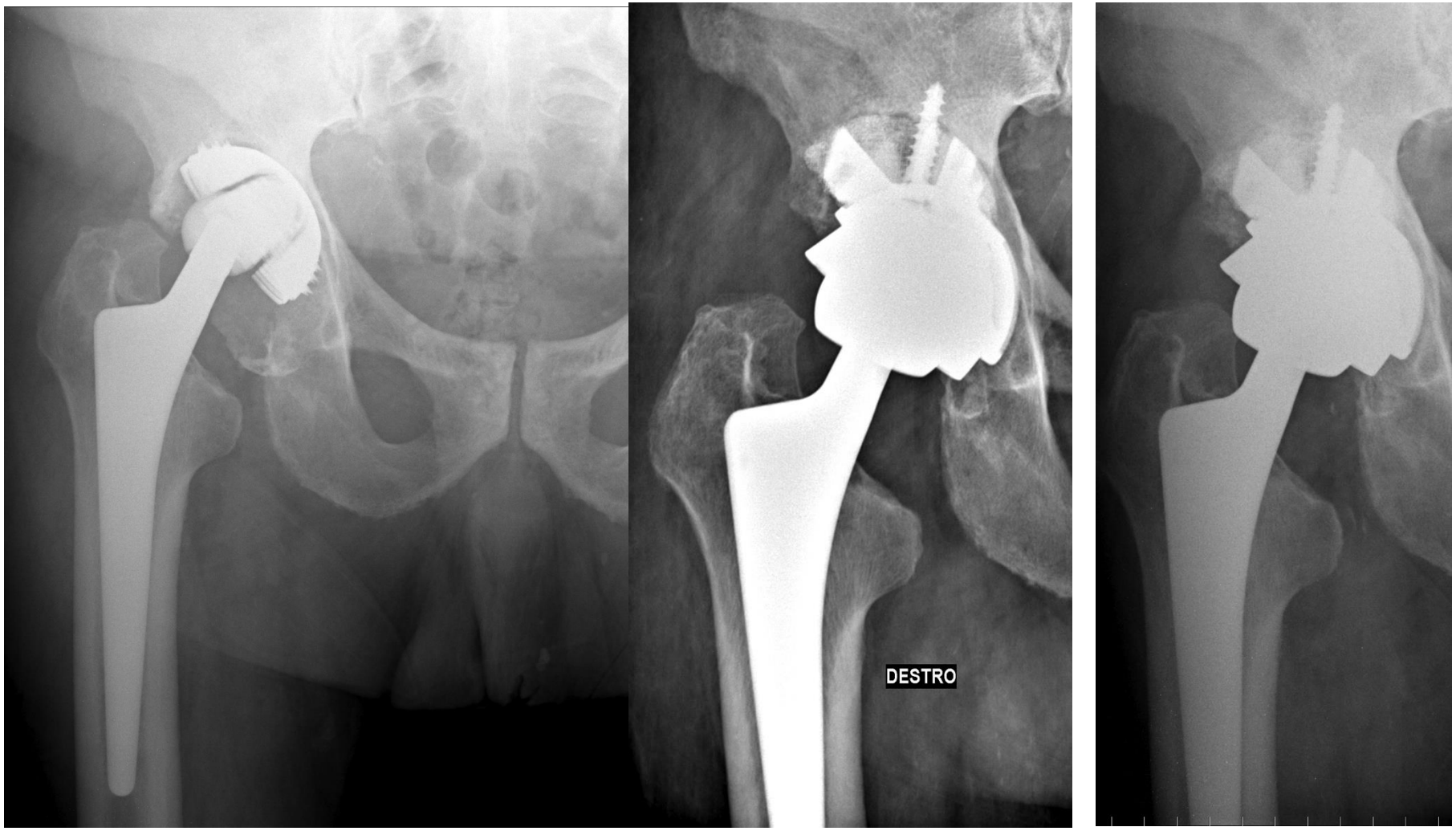
Defining the optimal cup position is challenging. A good understanding of anatomic, patient and im- plant related factors that affect the "optimal" cup position is mandatory. In most cases, restoring the original hip rotation centre and a "fixed standard target" of 40° of inclination and 20° of anteversion will result in a good clinical outcome.


Dx
Sx
25mm


POST OP

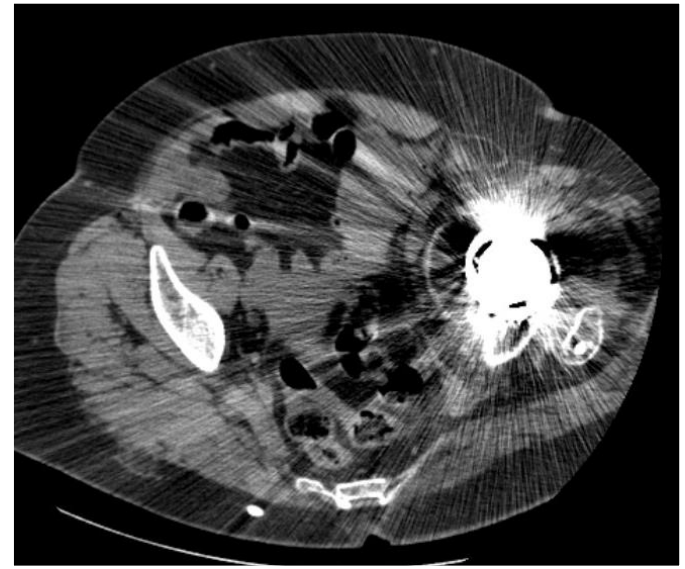

Dx

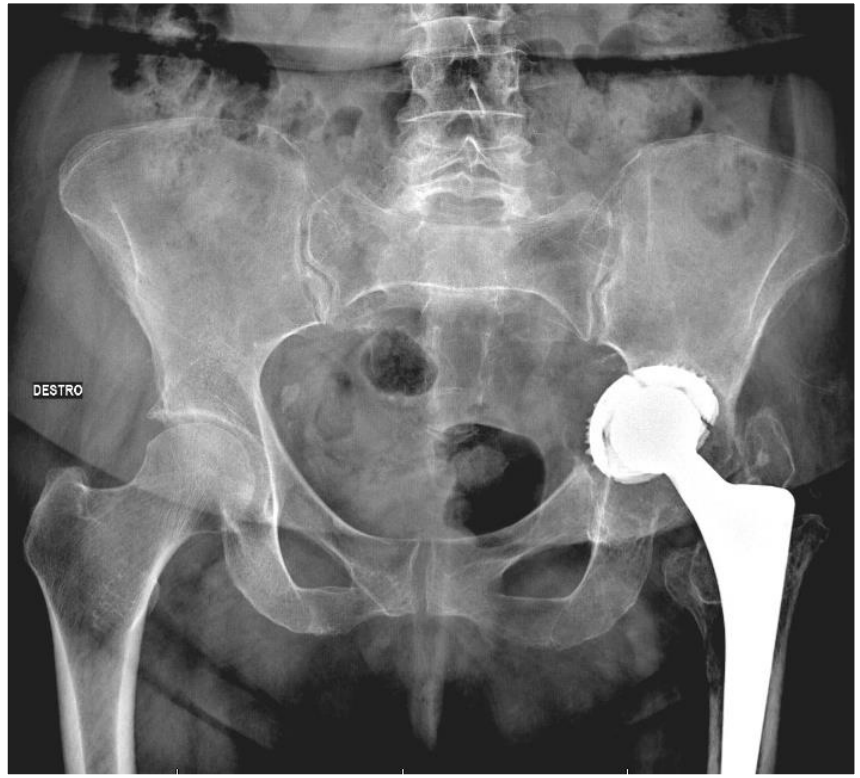


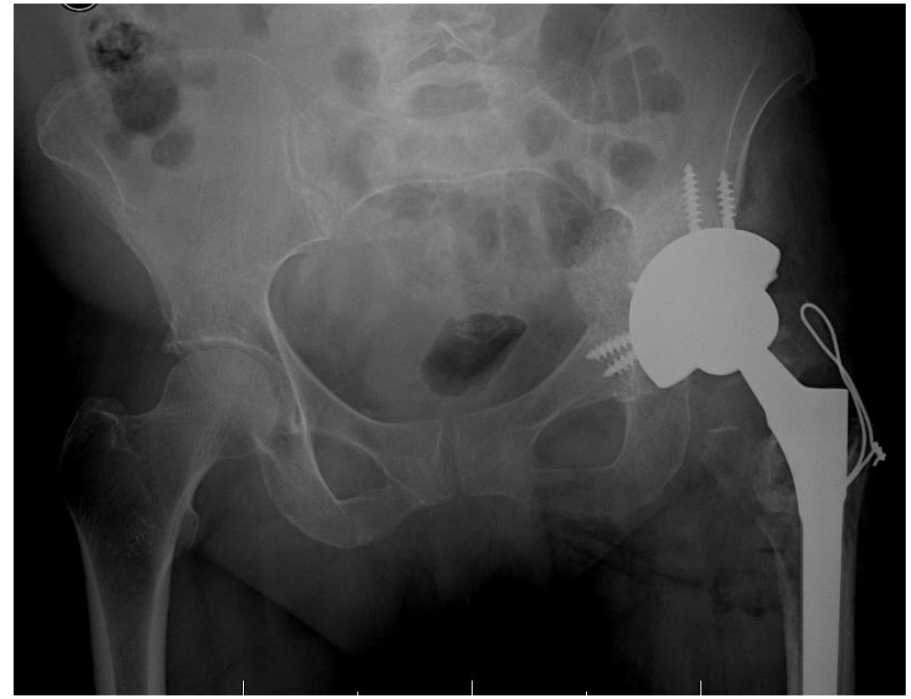

DESTRO

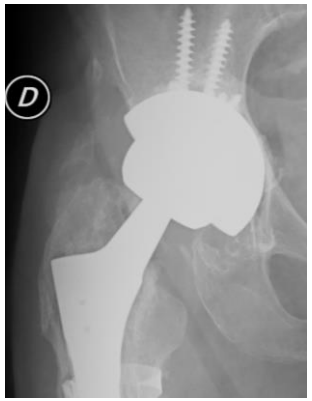

RX BACINO (RX PE
D


RX BACINO (RX
D
S




DESTRO

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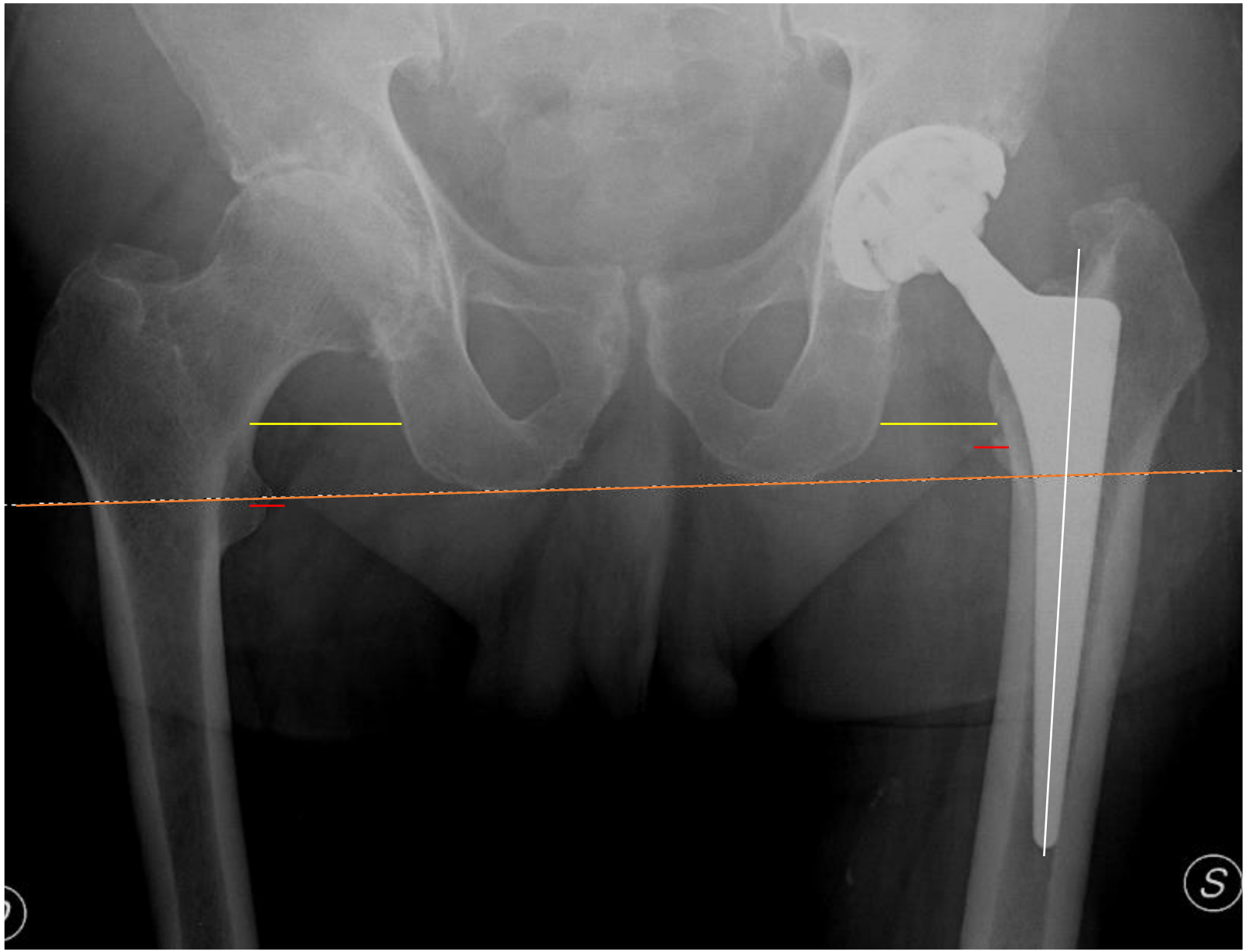
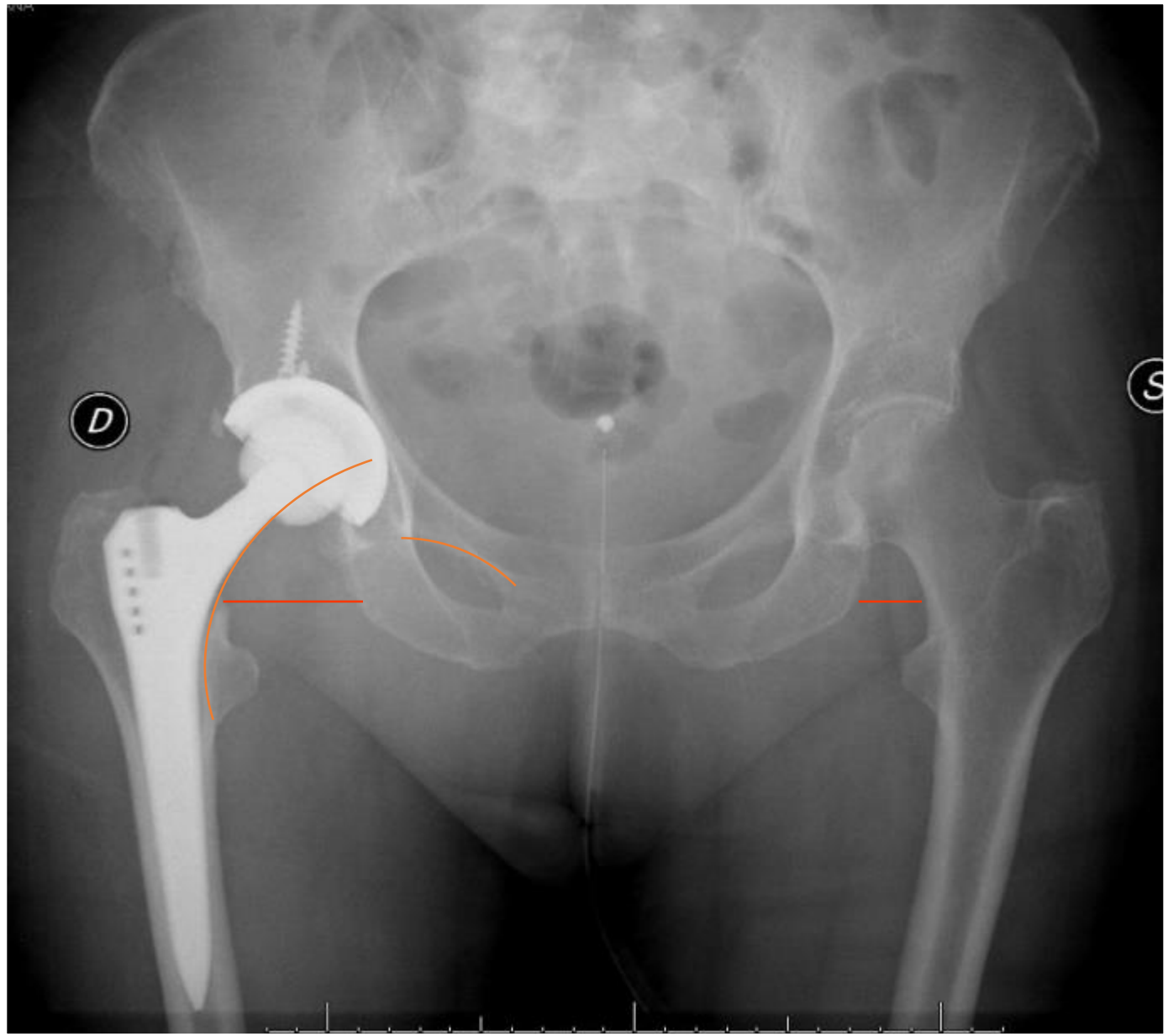

S


D
S