Dual Mobility Cups

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Introduction

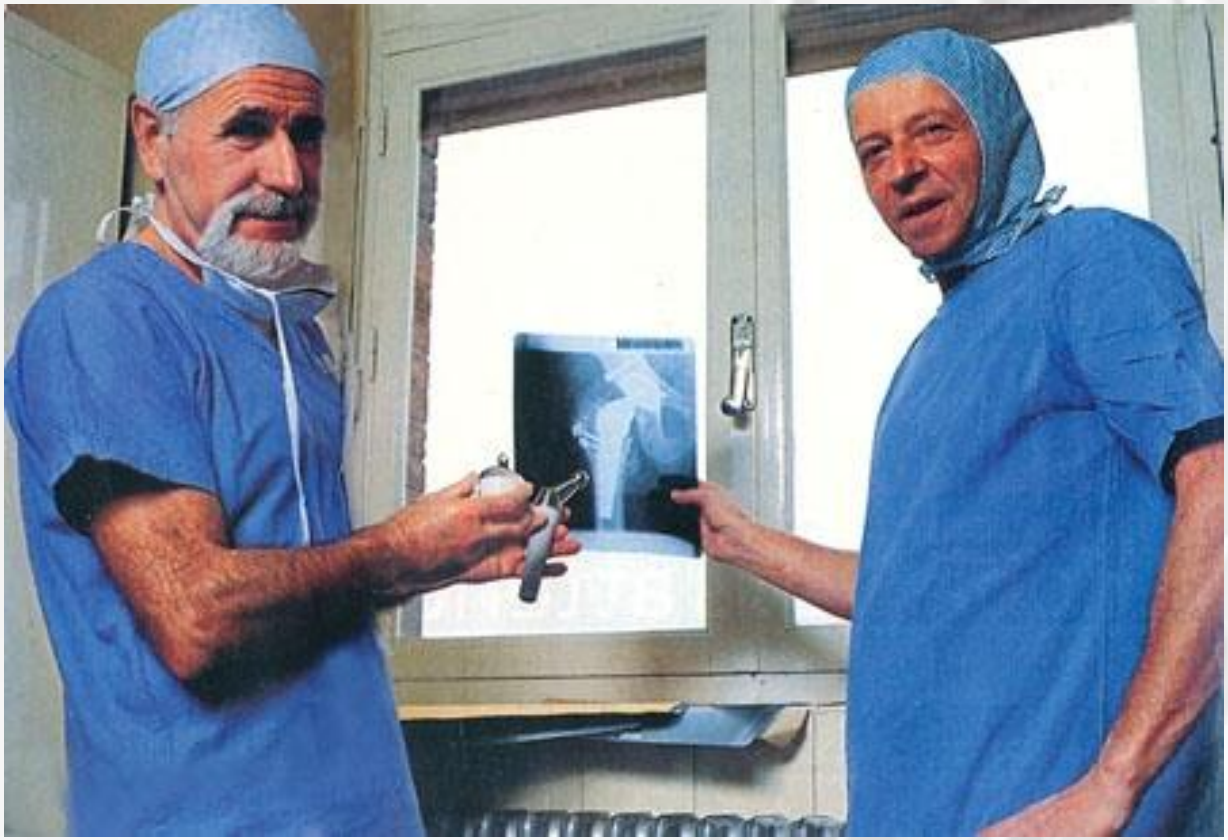
Indications

Limitations

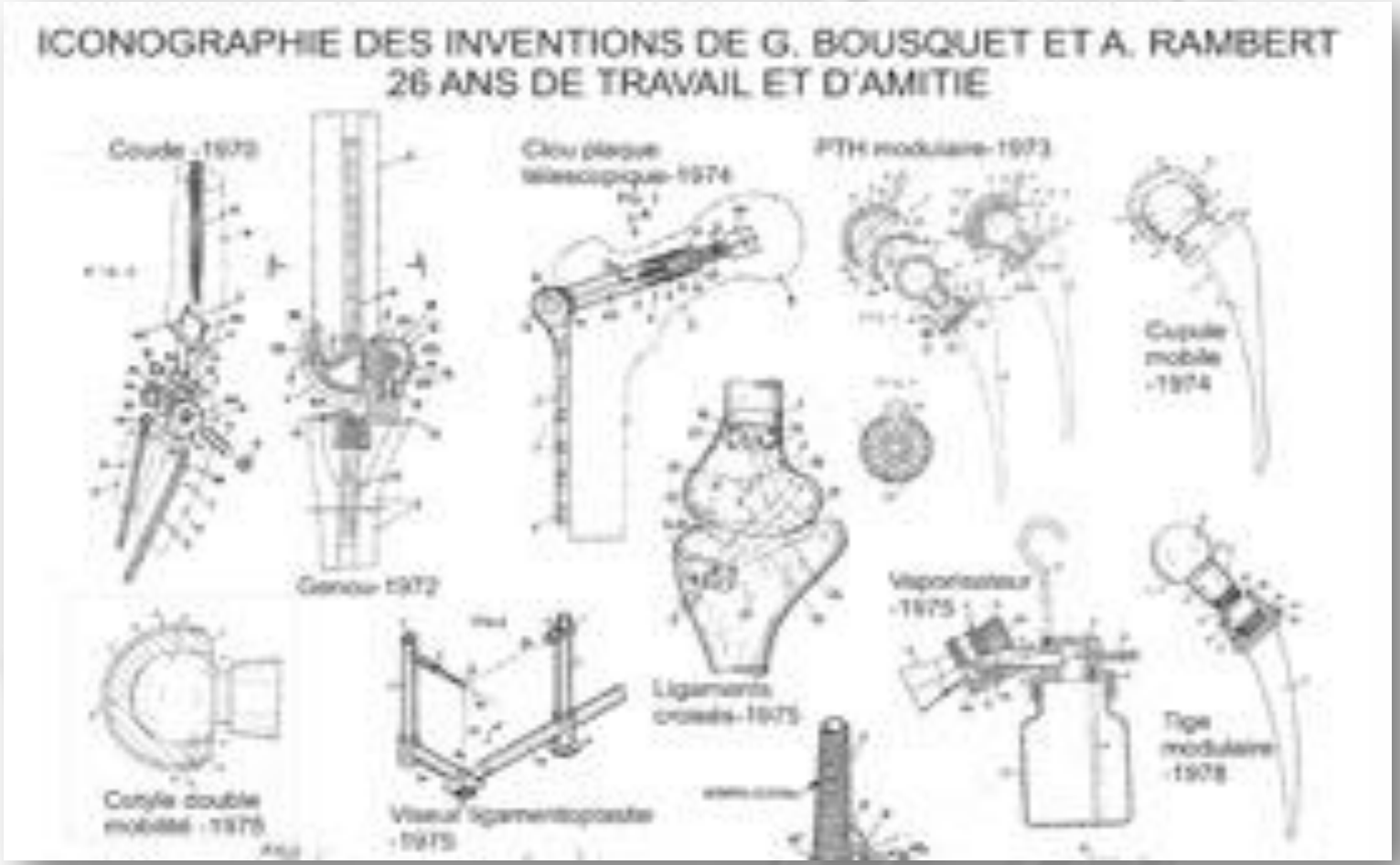
Conclusions

“All good things in life come from France”

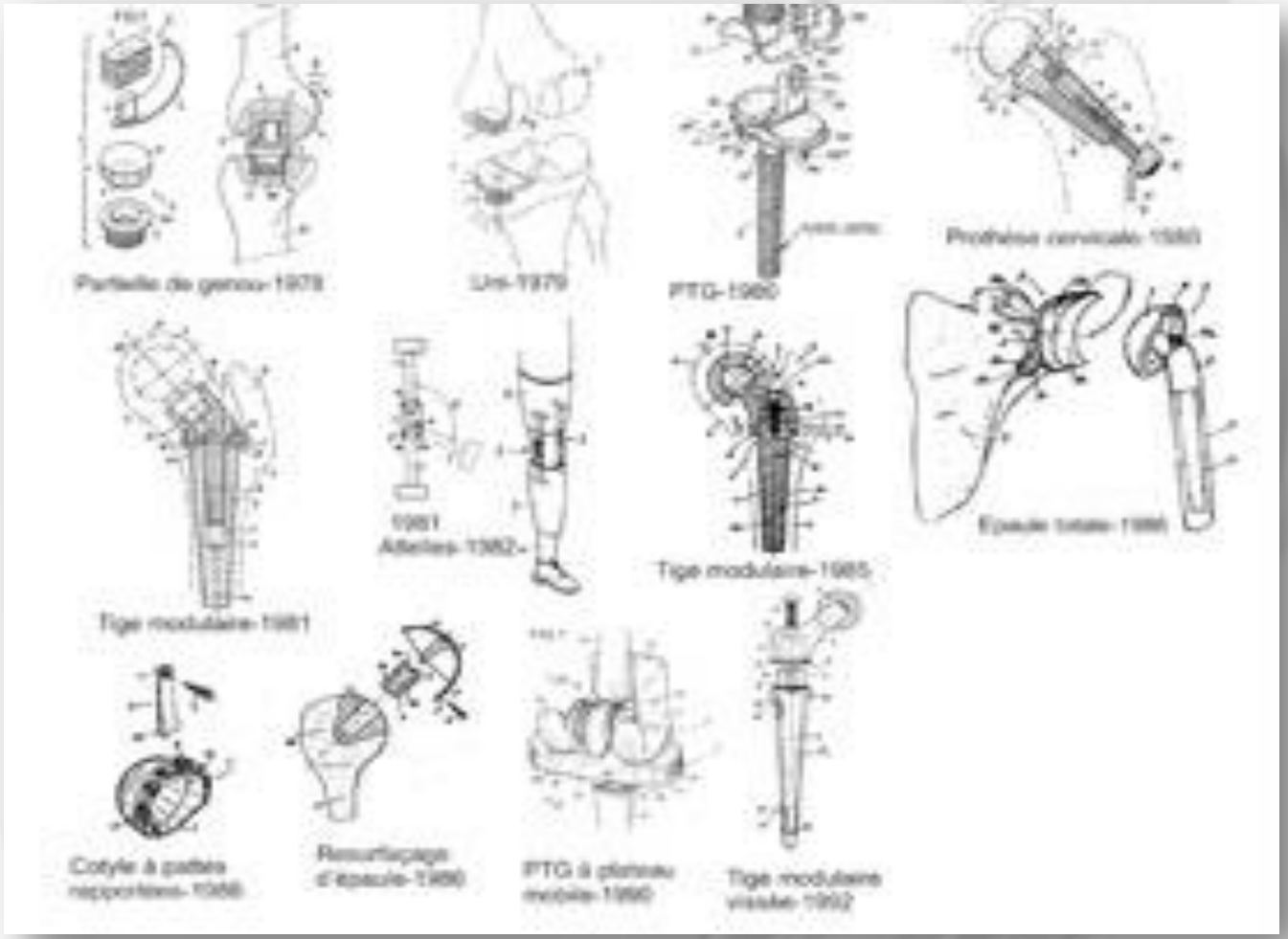
Gilles Bousquet 1979 + Rambert (SERF)



Inventions Bousquet - Rambert



Inventions Bousquet - Rambert



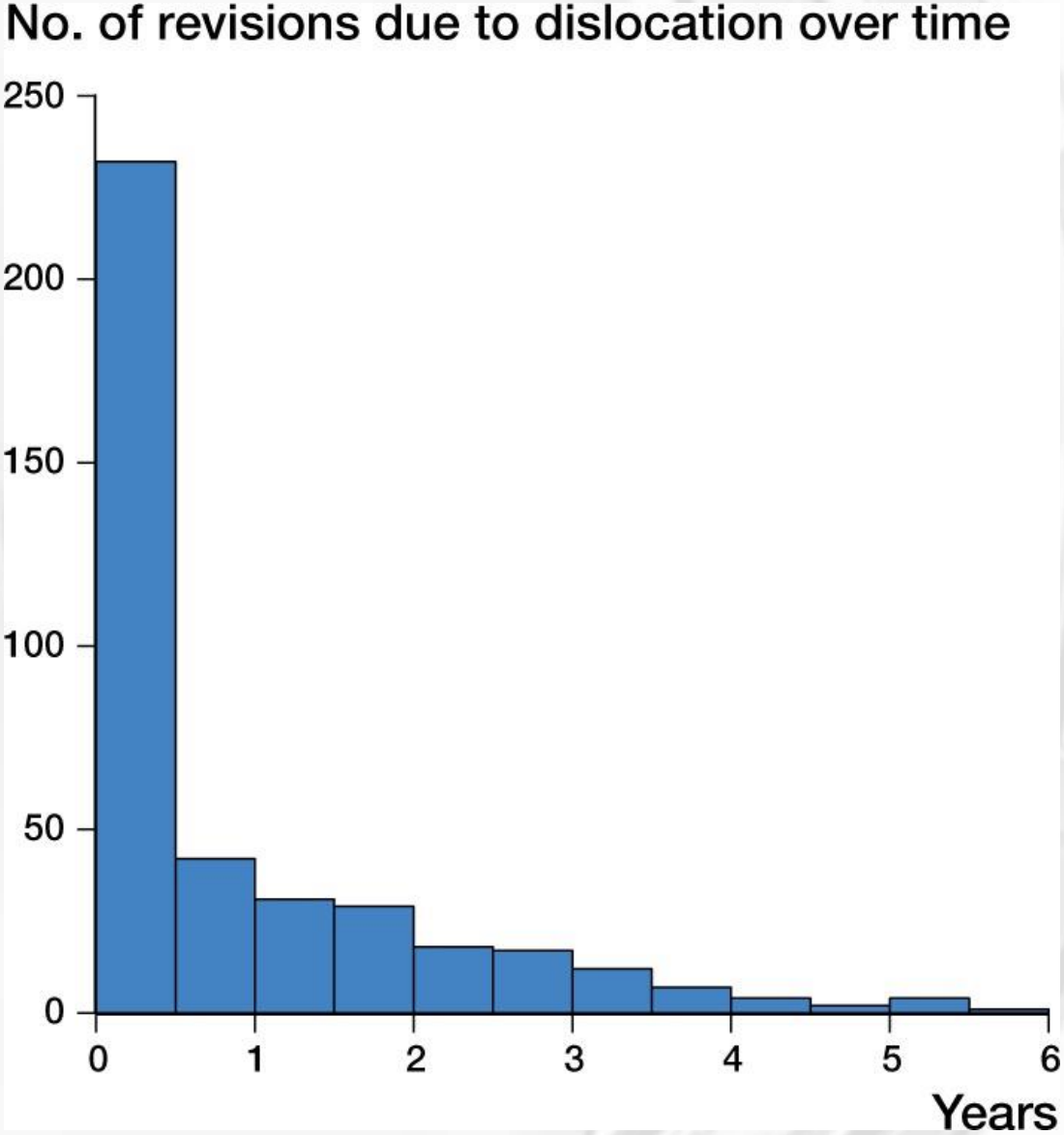
“those who denigrate us don’t understand a thing and we are right”.

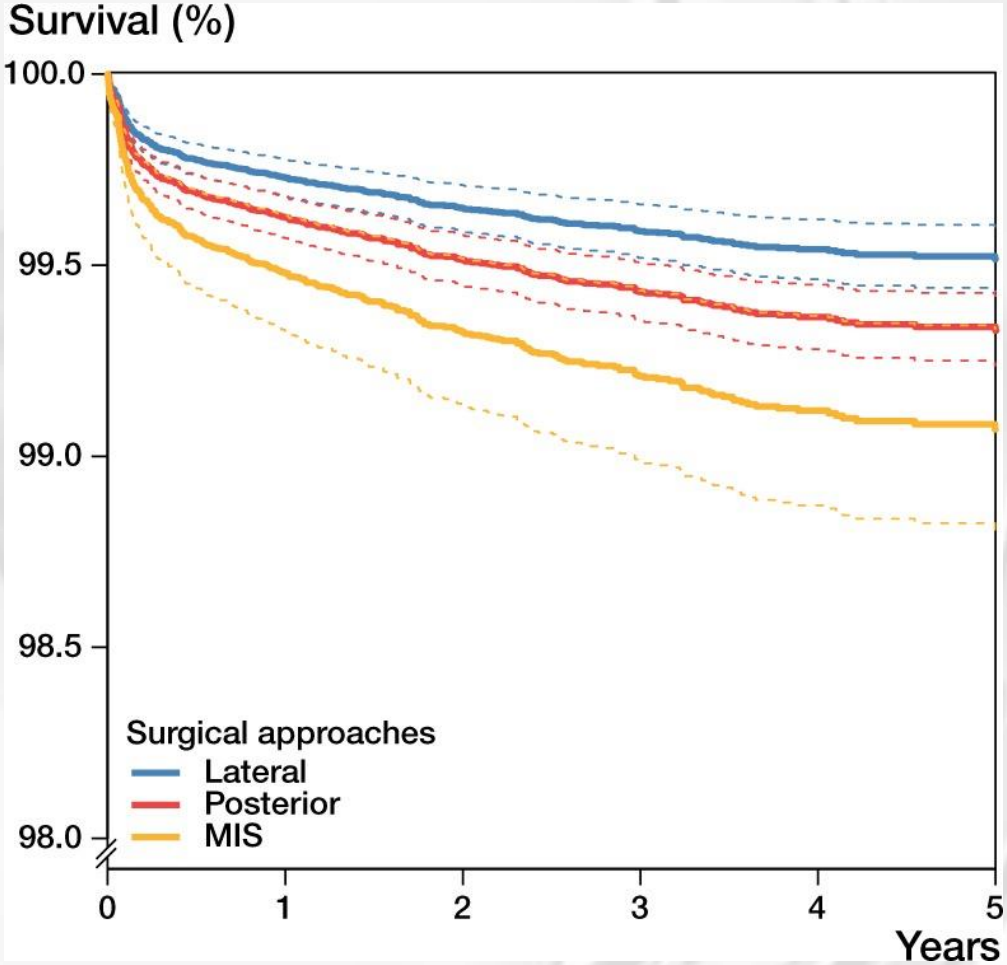
1979-1995

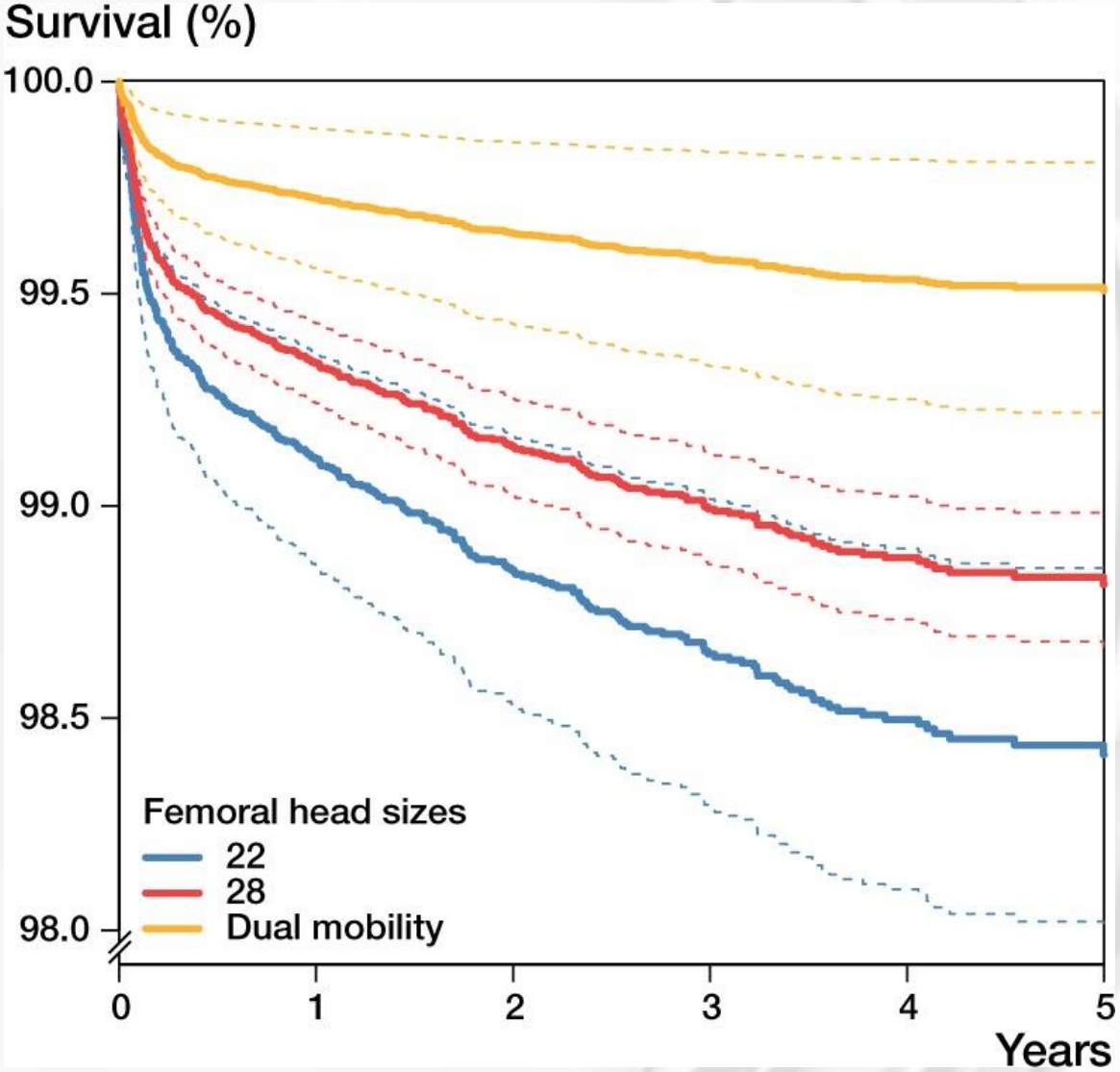
The risk of revision due to dislocation after total hip arthroplasty depends on surgical approach, femoral head size, sex, and primary diagnosis.

An analysis of 78,098 operations in the Swedish Hip Arthroplasty Register.

Hailer , Acta Orthop 2012


No. of revisions due to dislocation over time
250
200
150
100
50
0
0
1
2
3
4
5
6
Years


Survival (%)
100.0
99.5
99.0
98.5
98.0
Surgical approaches
Lateral
Posterior
MIS
0
1
2
3
4
5
Years


Survival (%)
100.0
99.5
99.0
98.5
98.0
Femoral head sizes
22
28
Dual mobility
0
1
2
3
4
5
Years

An increased risk of revision due to dislocation was found for the diagnoses femoral neck fracture (RR = 3.9, CI: 3.1-5.0) and osteonecrosis of the femoral head (RR = 3.7, CI: 2.5-5.5

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Indications for dual mobility

- Primary THA
  - Low demand
  - Non compliant
- Femoral Neck fractures
- (Isolated) acetabular Revisions
- Revision for instability

Non compliant patient


Norwegia
Szwecja
Finlandia
Estonia
Łotwa
Litwa
Rosja
Białoruś
Polska
Ukraina
Niemcy
Czechy
Słowacja
Francja
Szwajcaria
Austria
Węgry
Włochy
Hiszpania

Low Rate of Dislocation of Dual-mobility Cups in Primary Total Hip Arthroplasty.

N = 2480

22 dislocations (= 0,88 %)

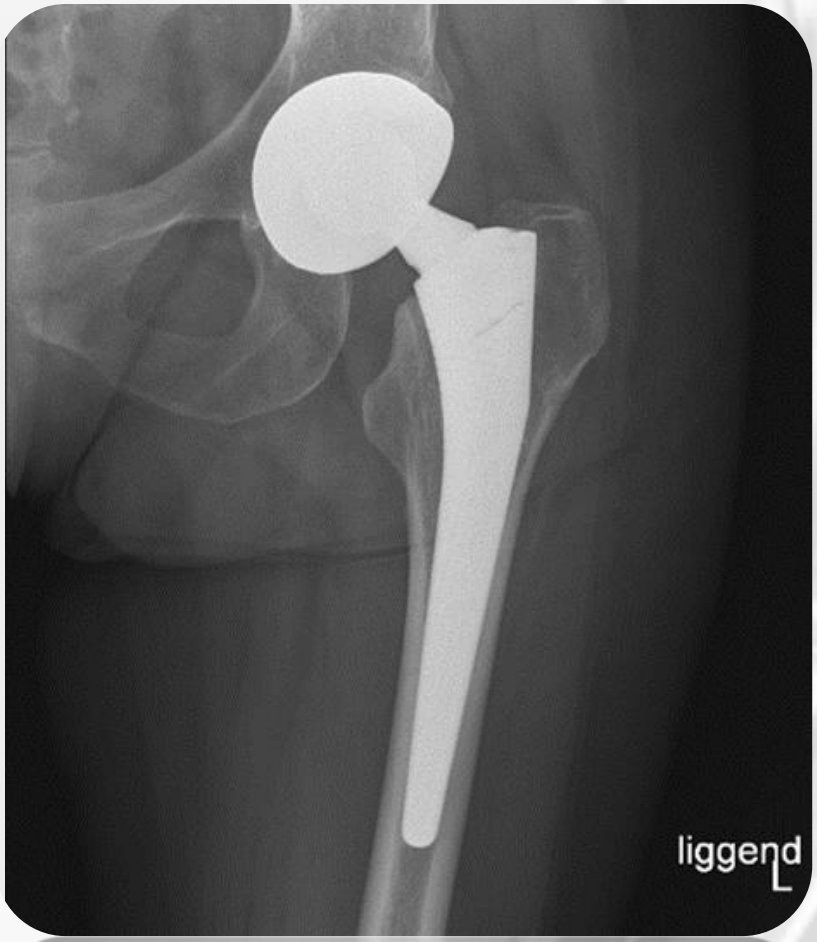
15 larger articulation

7 dislodgement smaller articulaion

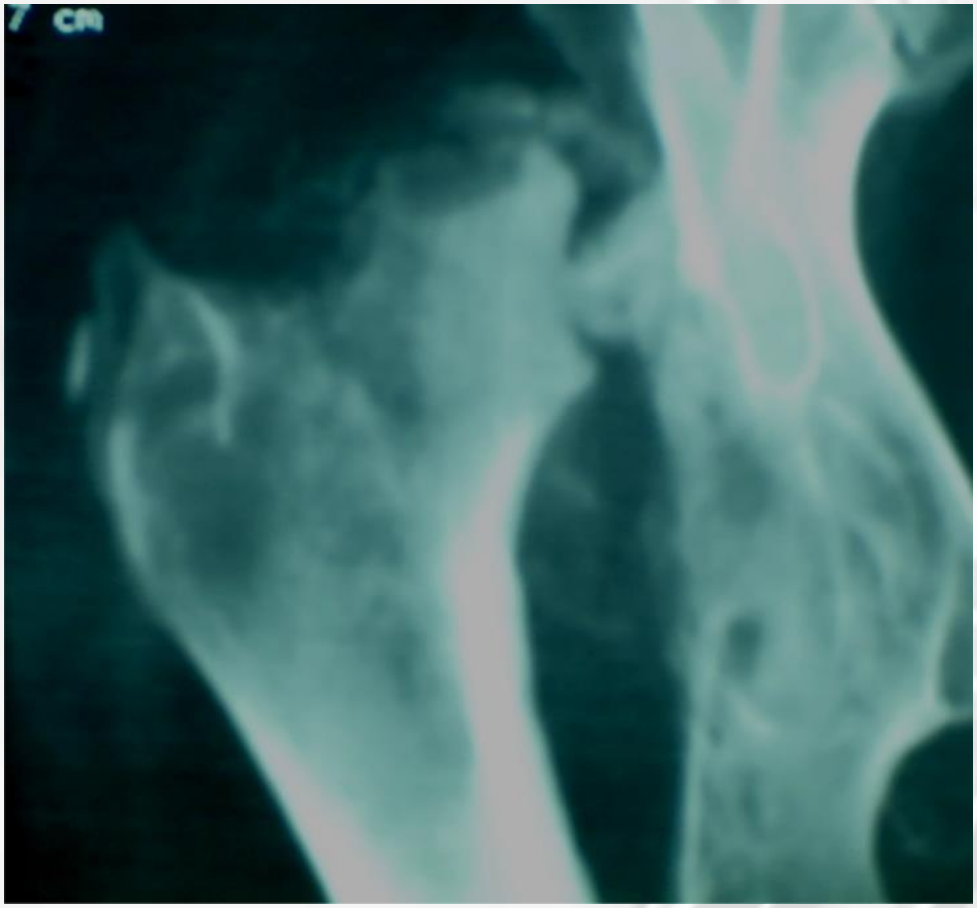
Combes , CORR 2013

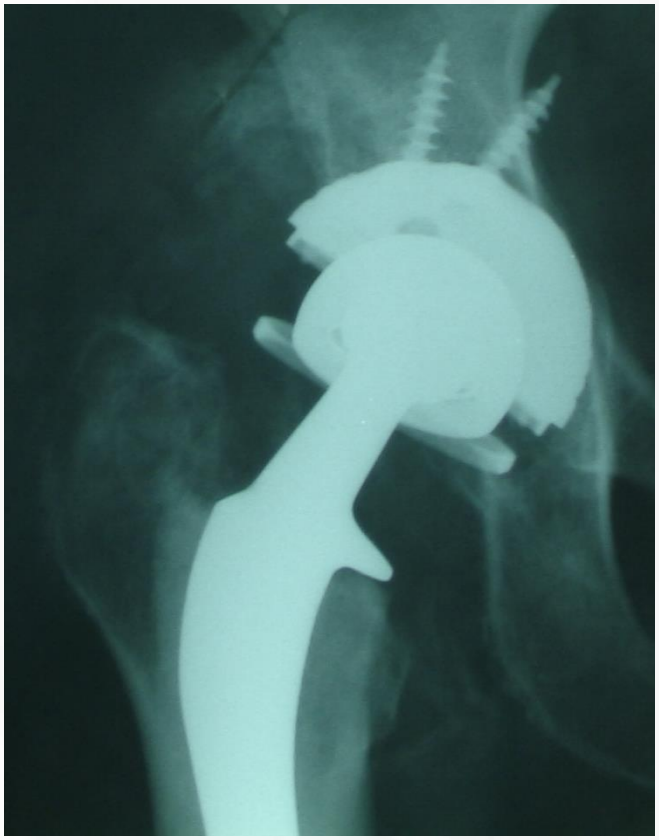
Conversion ORIF to THA

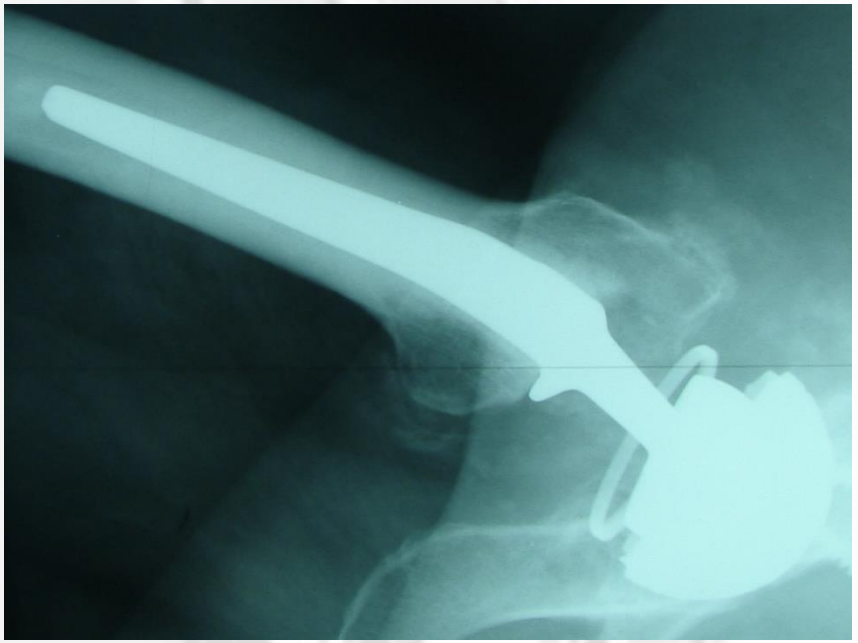
Conversion ORIF to THA



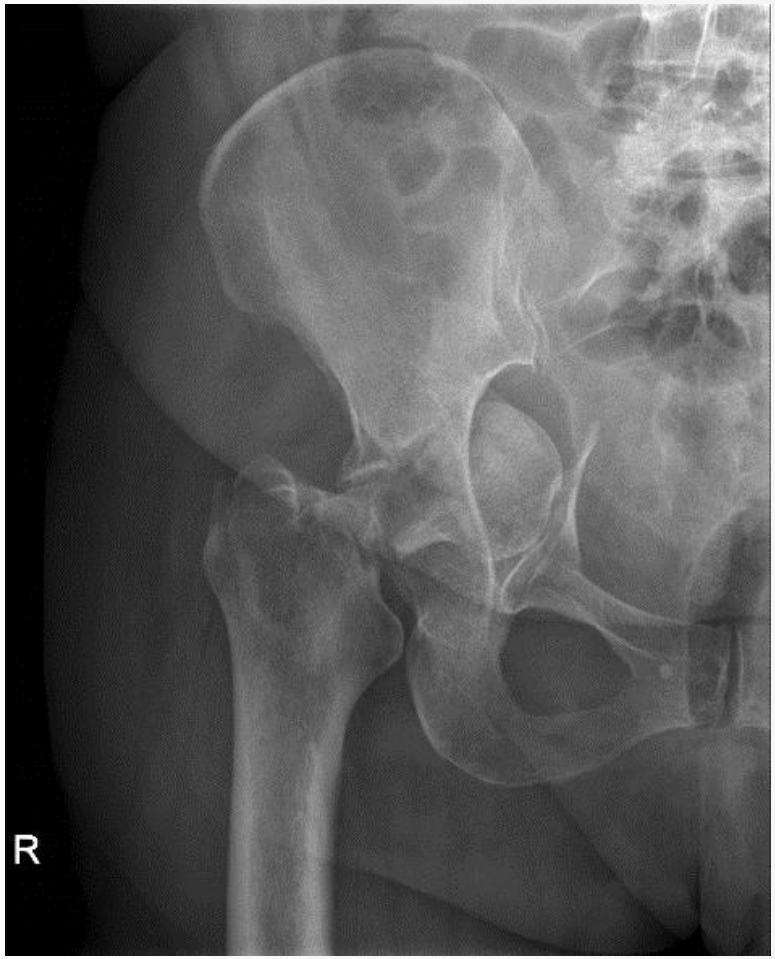
62Y , neglected dislocation

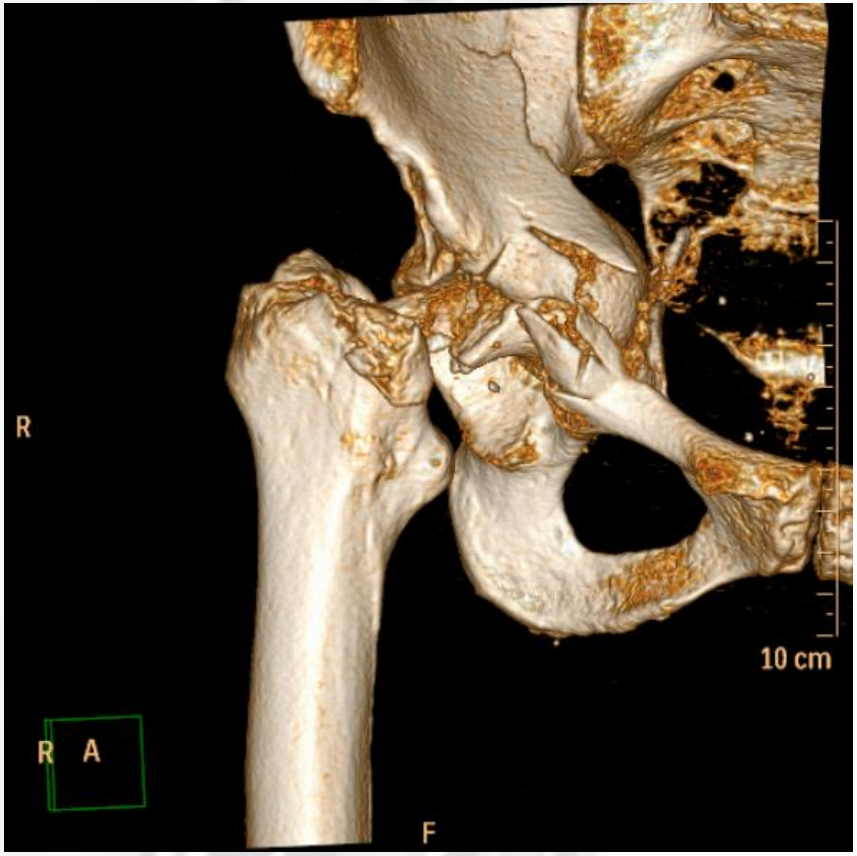




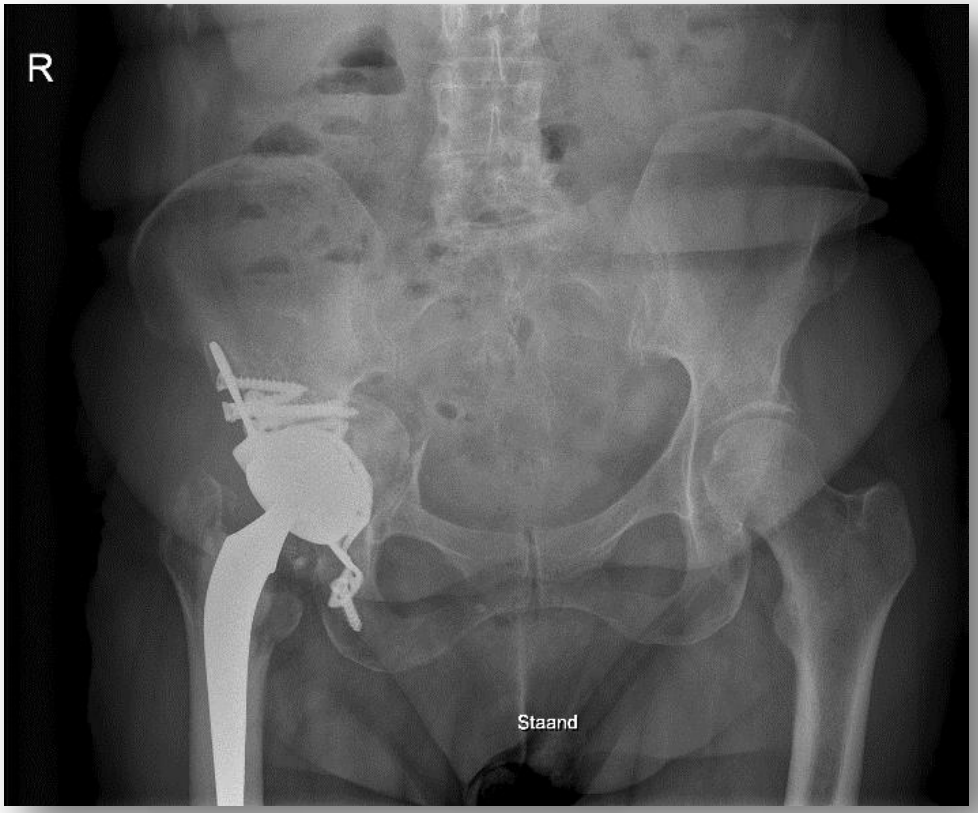


Fracture dislocation





Fracture dislocation



Dual mobility cups hip arthroplasty as a treatment for displaced fracture of the femoral neck in the elderly

N = 214

Three patients (1.4%), operated through a posterior approach, presented one postoperative dislocation, all of which were posterior.

Adam , Orthop Trauma Surg Res 2012

Relevance of a press-fit dual mobility cup to deal with recurrent dislocation of conventional total hip arthroplasty: a 29-case series.

N = 29

9 previous procedures for dislocation

1 redislocation (3,4 %)

Saragaglia
Europ journal orthop surg 2013

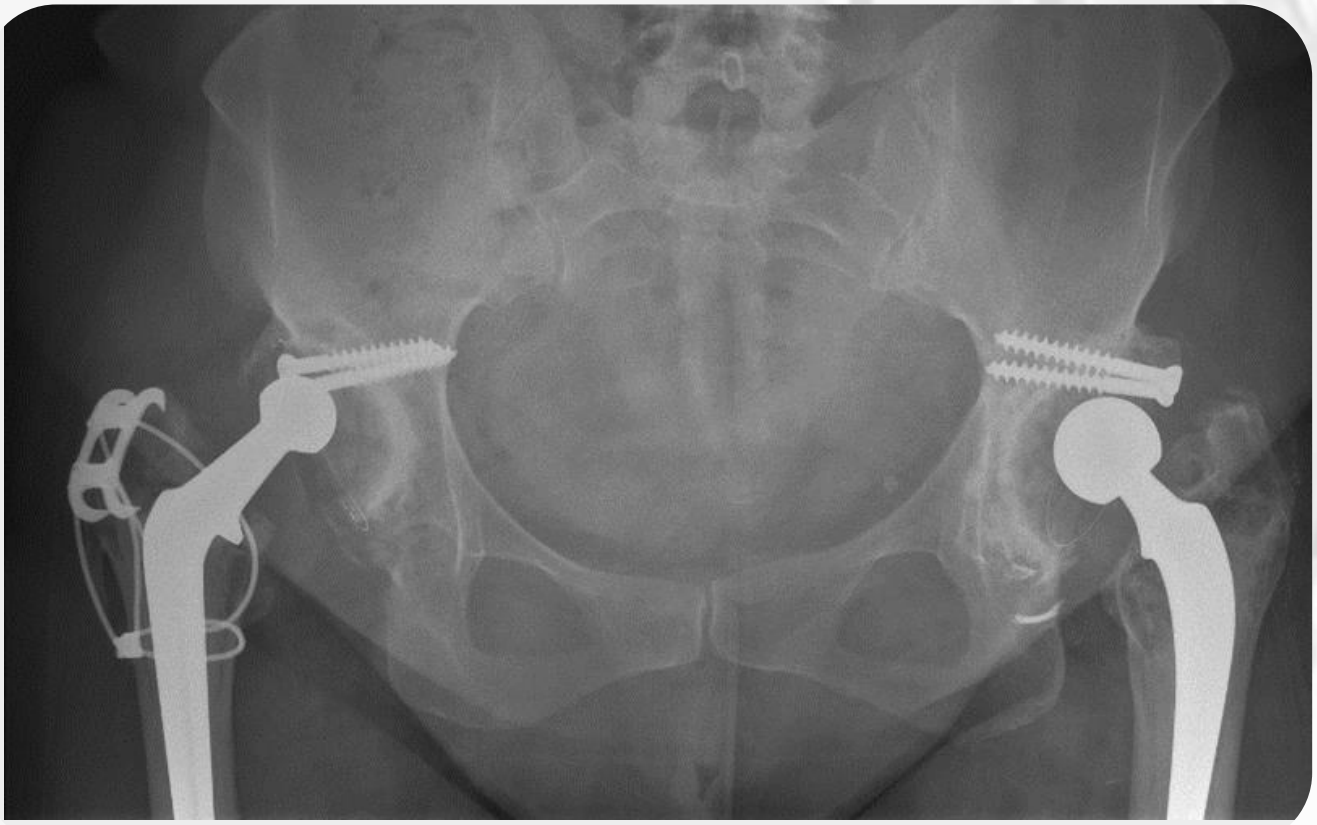
A dual-mobility cup reduces risk of dislocation in isolated acetabular revisions.

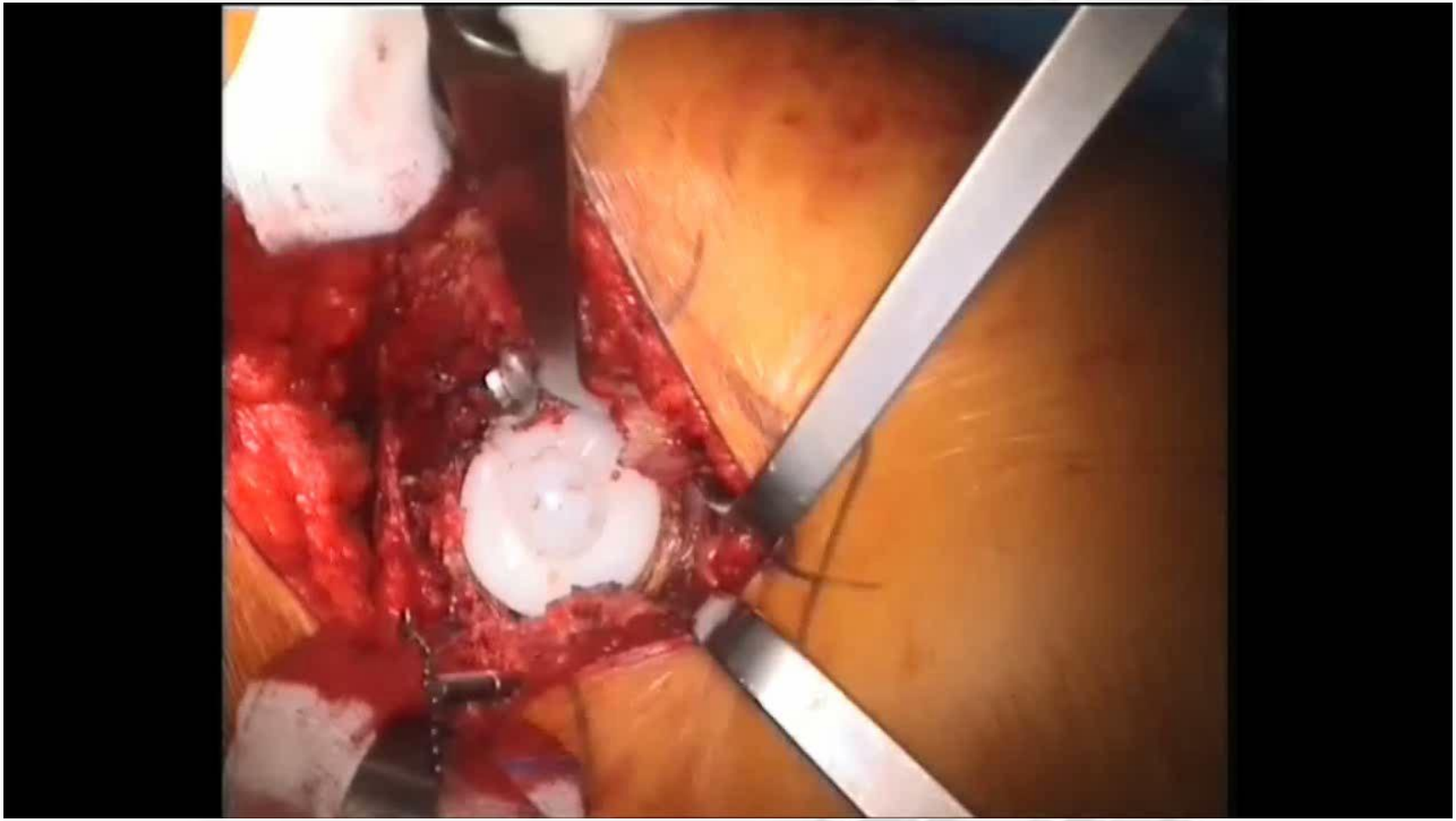
N = 33

dual-mobility cup reduced the risk of dislocation without increasing loosening from 2 to 5 years.

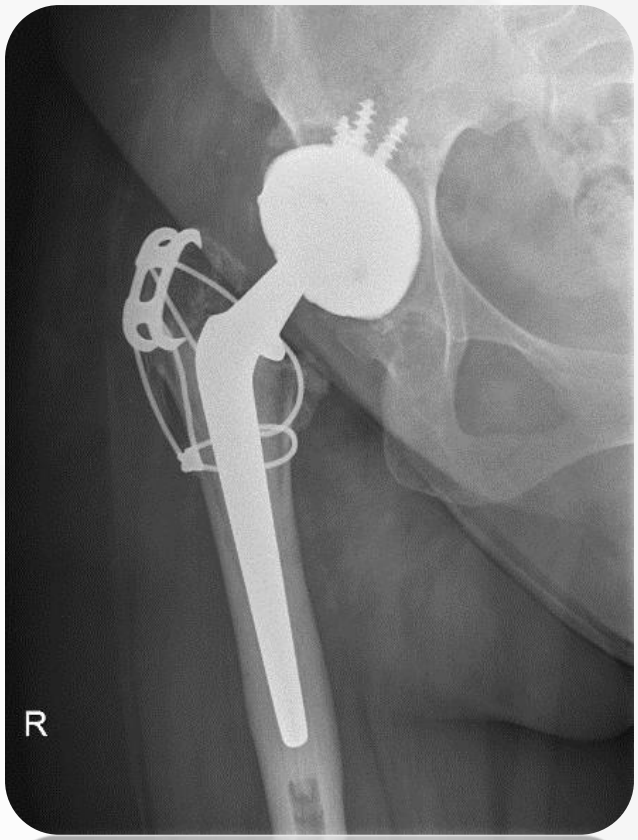
Civinini , CORR 2012

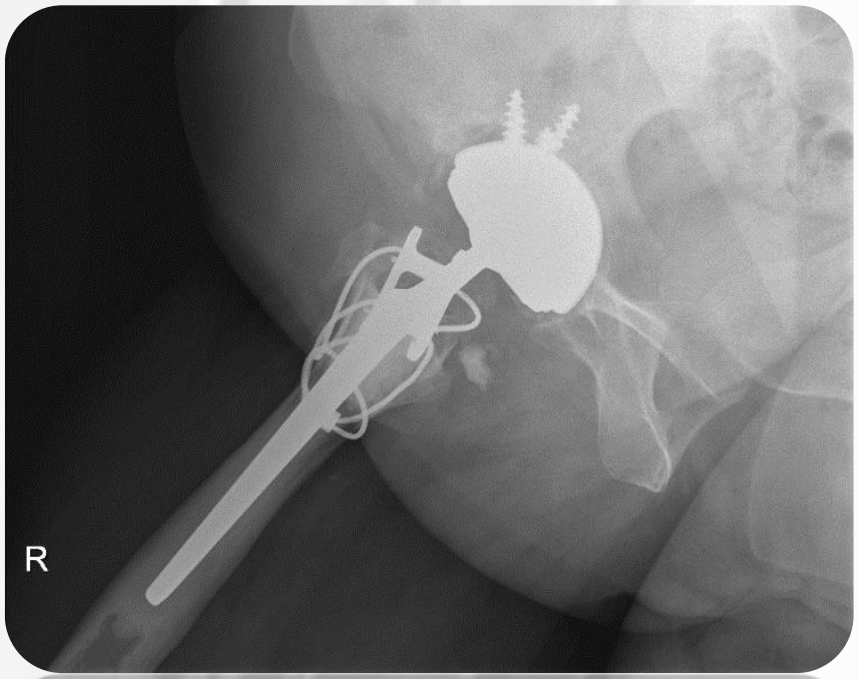
Isolated Cup Revision





Isolated Cup Revision





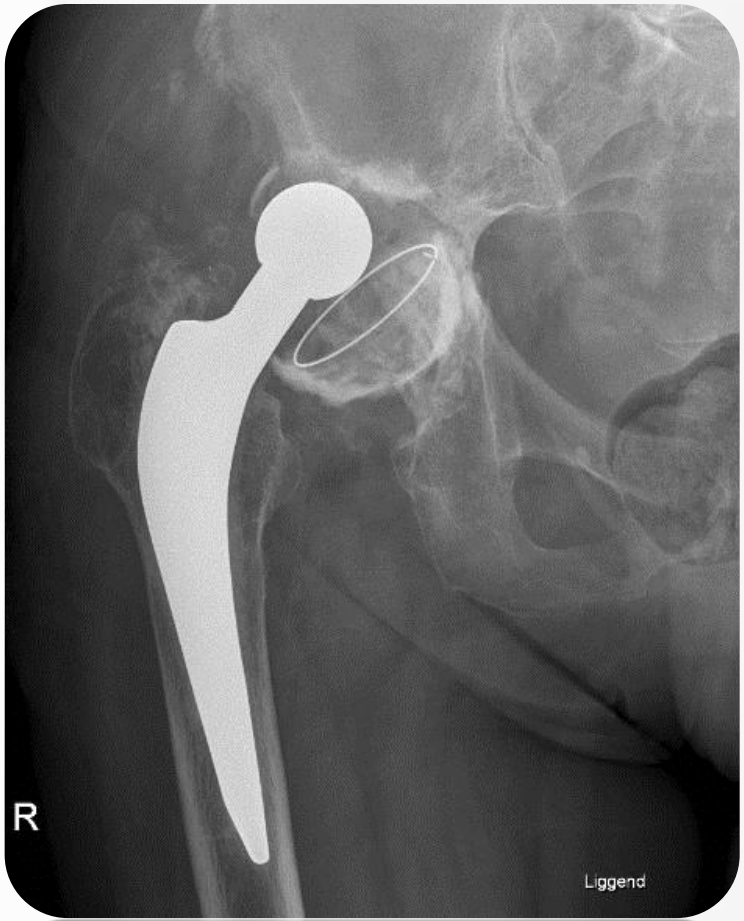
Revision total hip arthroplasty using a reconstruction cage device and a cemented dual mobility cup.

N = 96

cemented fixation of dual mobility cups in cages appears to be a reliable short-term option

Schneider , Orthop Traumato Surg Res , 2011

Isolated Acetabular Cup Revision



Cementation of a dual-mobility acetabular component into a well-fixed metal shell during revision total hip arthroplasty: A biomechanical validation

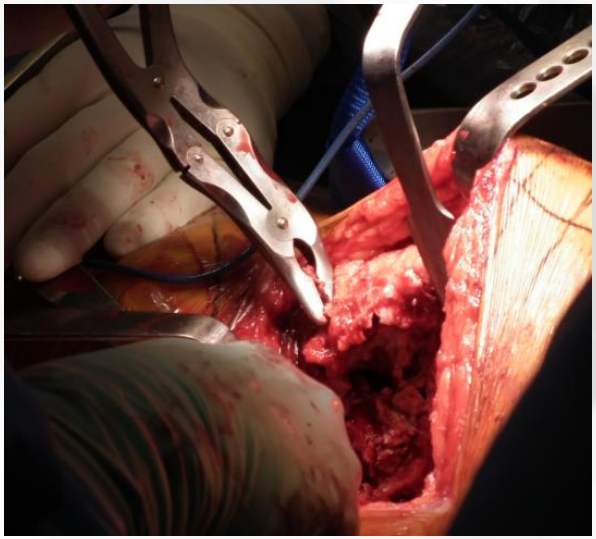
Wegrzin , J orthop research 2013

Cementing dual mobility liners

In conclusion, a dual-mobility acetabular component cemented into a well-fixed metal shell could constitute a biomechanically acceptable alternative to acetabular shell removal or PE liner cementation

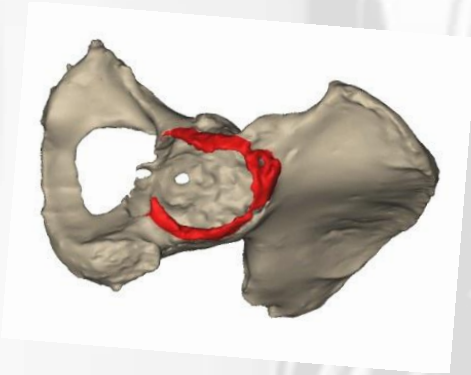
Isolated Acetabular Cup Revision

Surgery

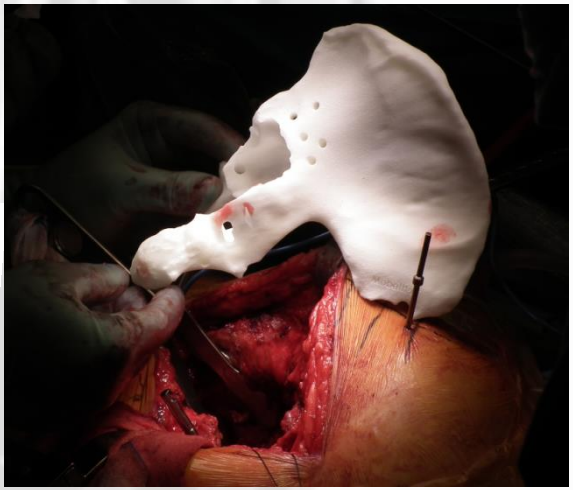


Bone reaming

Removal of (non-functional) bone, precisely as planned



With 3D visualisations in mind

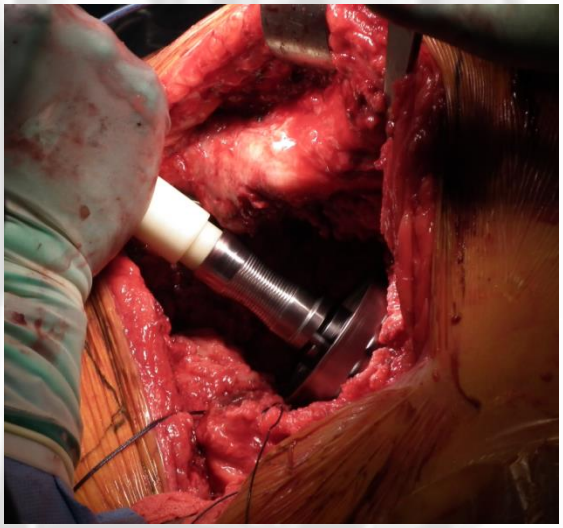


Using bone model of the pelvis

Surgery

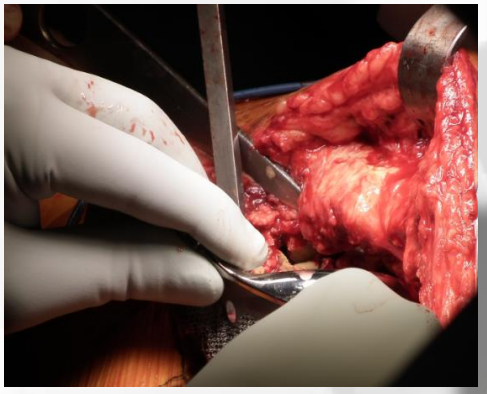
Bone reaming

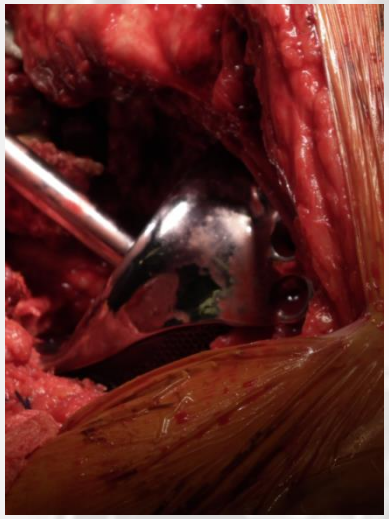
Check with prepared bone model and trial implant

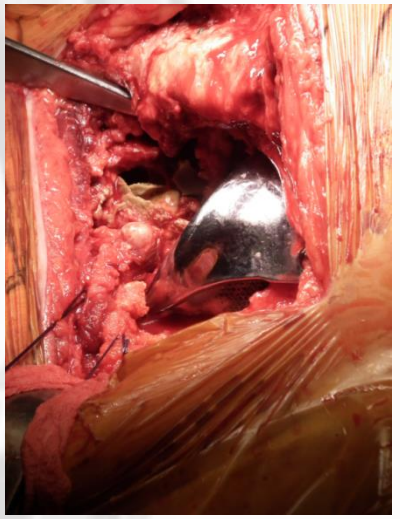


Superficial local reaming, shallow depth, small bone surface area.

Surgery



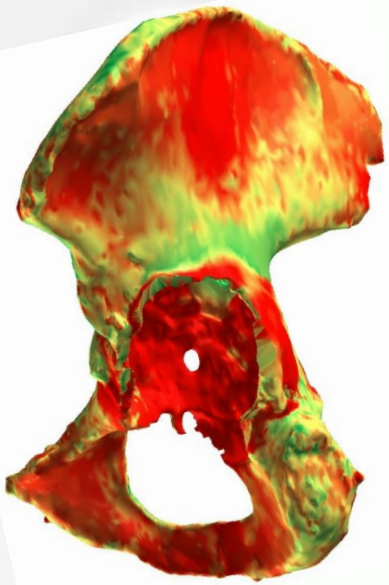




Implant insertion

Insert implant. Fit along full perimeter & depth. Hammering. Check surface contact on all flanges and in depth of acetabulum. OK. **Good intimate bony contact established. Unique and very stable position obtained!**

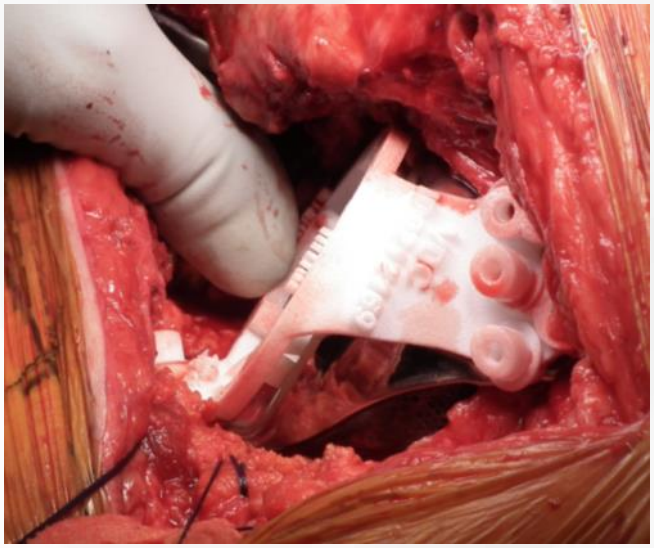
Surgery

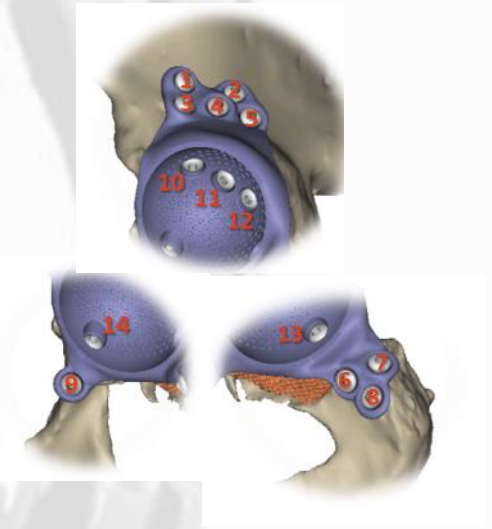


Personalised fixation

Screw planning is based on the patient’s bone quality.

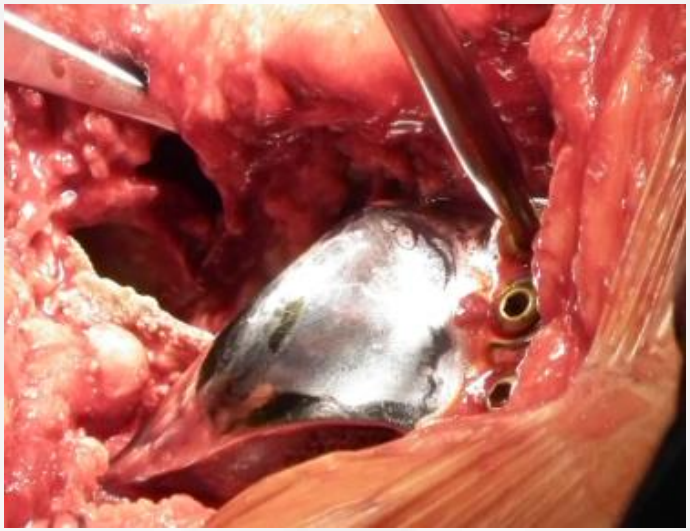
Surgery

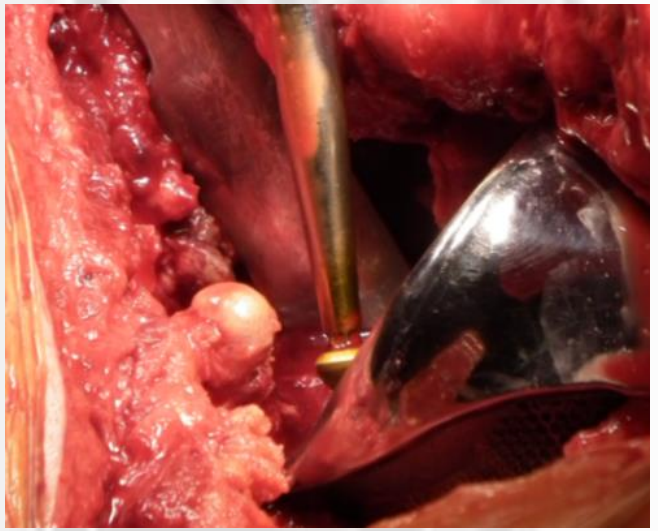




Drill Guide

Surgery

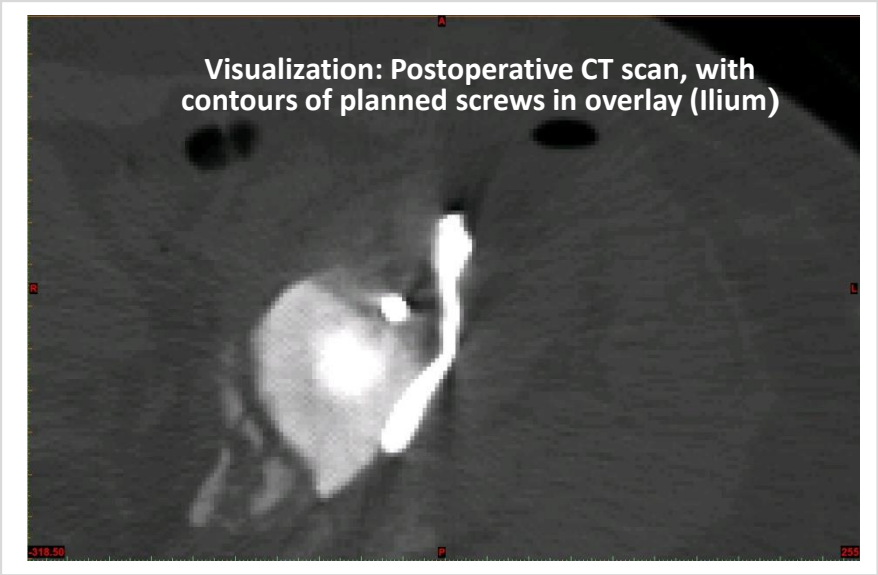




Screw fixation

Cup screws: 6.5mm spongiosa screws
Flange screws: 4.5mm bicortical screws

Drill guide accuracy



even cup screws (e.g. pubic ramus) can be placed without any hesitation, correctly

Dual-mobility cups for revision due to instability are associated with a low rate of re-revisions due to dislocation

N = 228

58 prior revisions

4 re-revisions for dislocation (2 %)

Hailer Acta Orthop 2012

Introduction

Indications

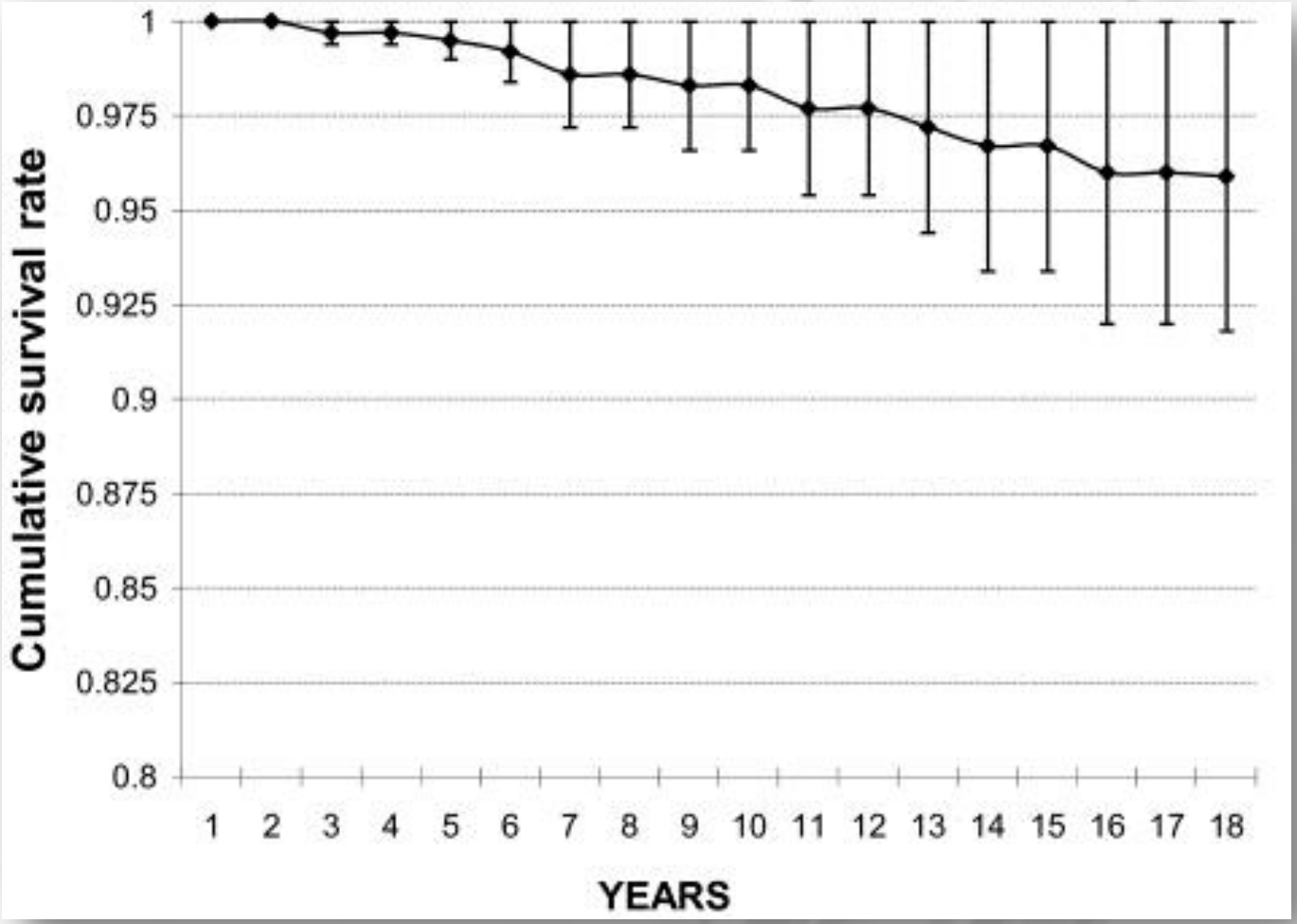
Limitations

Conclusions

Limitations

- Wear and osteolysis
- Head- liner dislocation
- Surgical Technique
- Cup stability

15 year Survival



Limitations

- Wear and osteolysis
- Head- liner dislocation
- Surgical Technique
- Cup stability

Femoral head dislodgement complicating use of a dual mobility prosthesis for recurrent instability

N = 1

Dislodgement during closed reduction

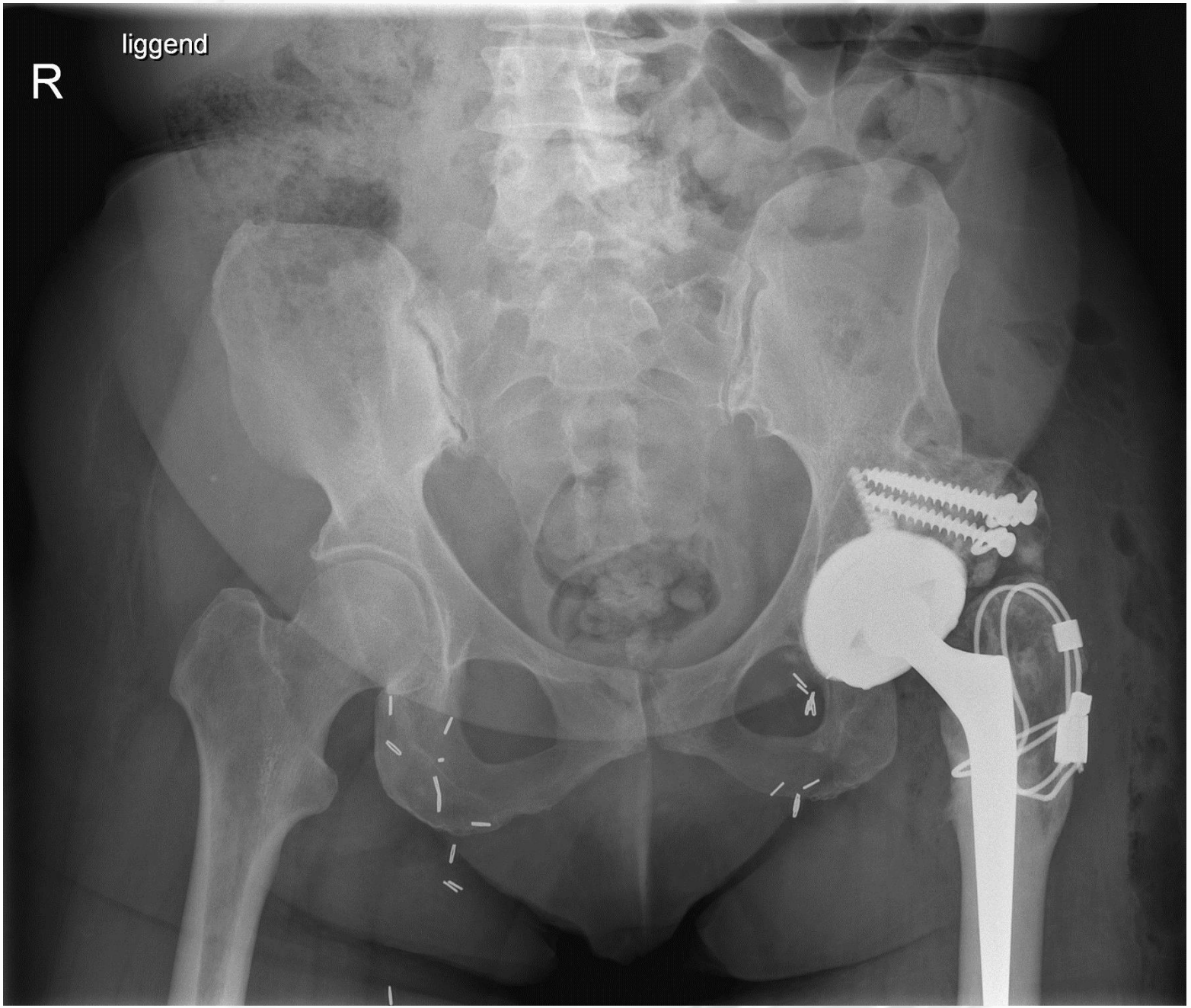
Banzhof
Journal of arthroplasty 2013

VDA , Female 47 Y

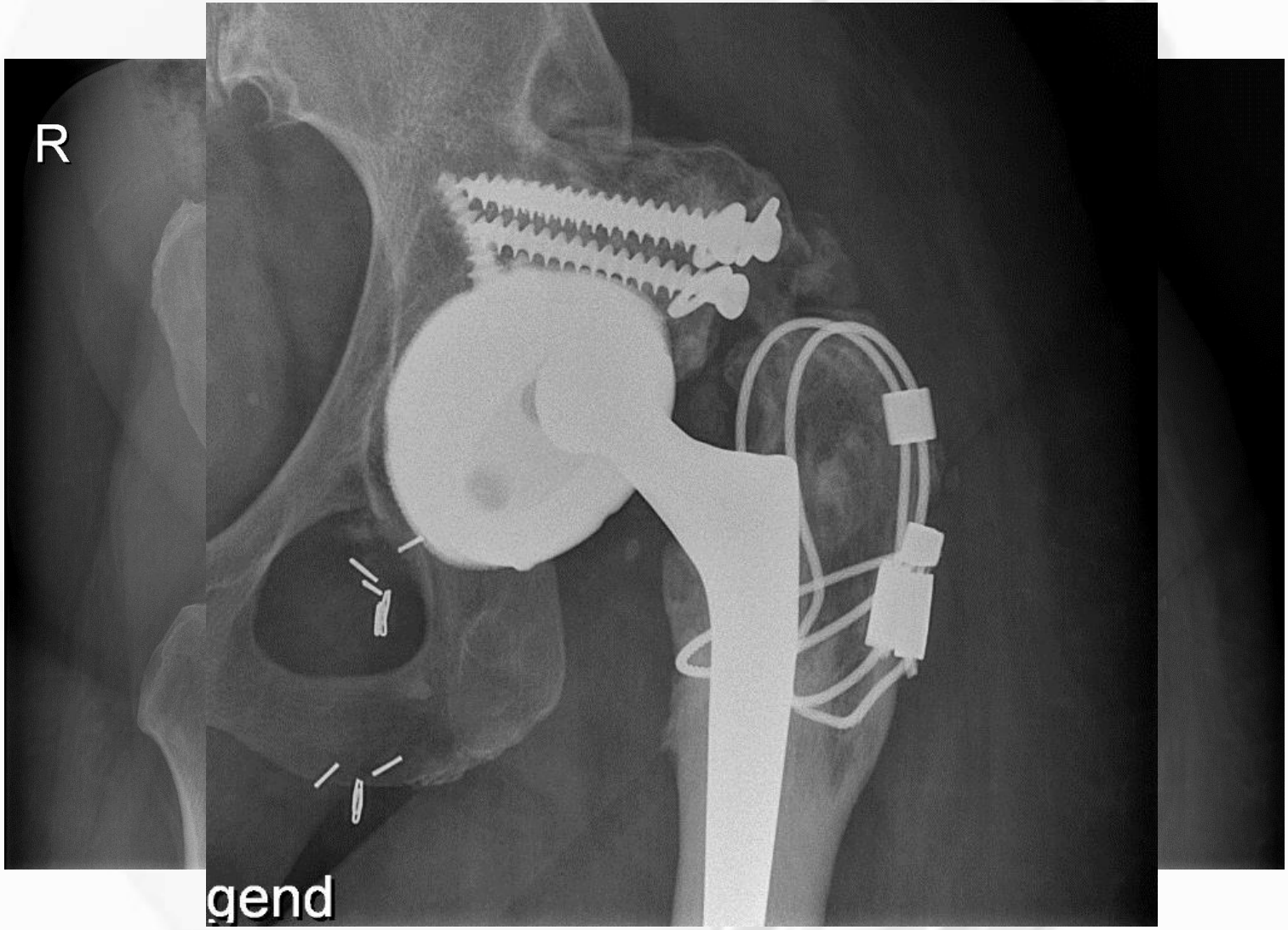
- Dysplasia
- Primary THA age 20
- Postop brace 12 months
- Increasing stifness and pain


R
LIGGEND

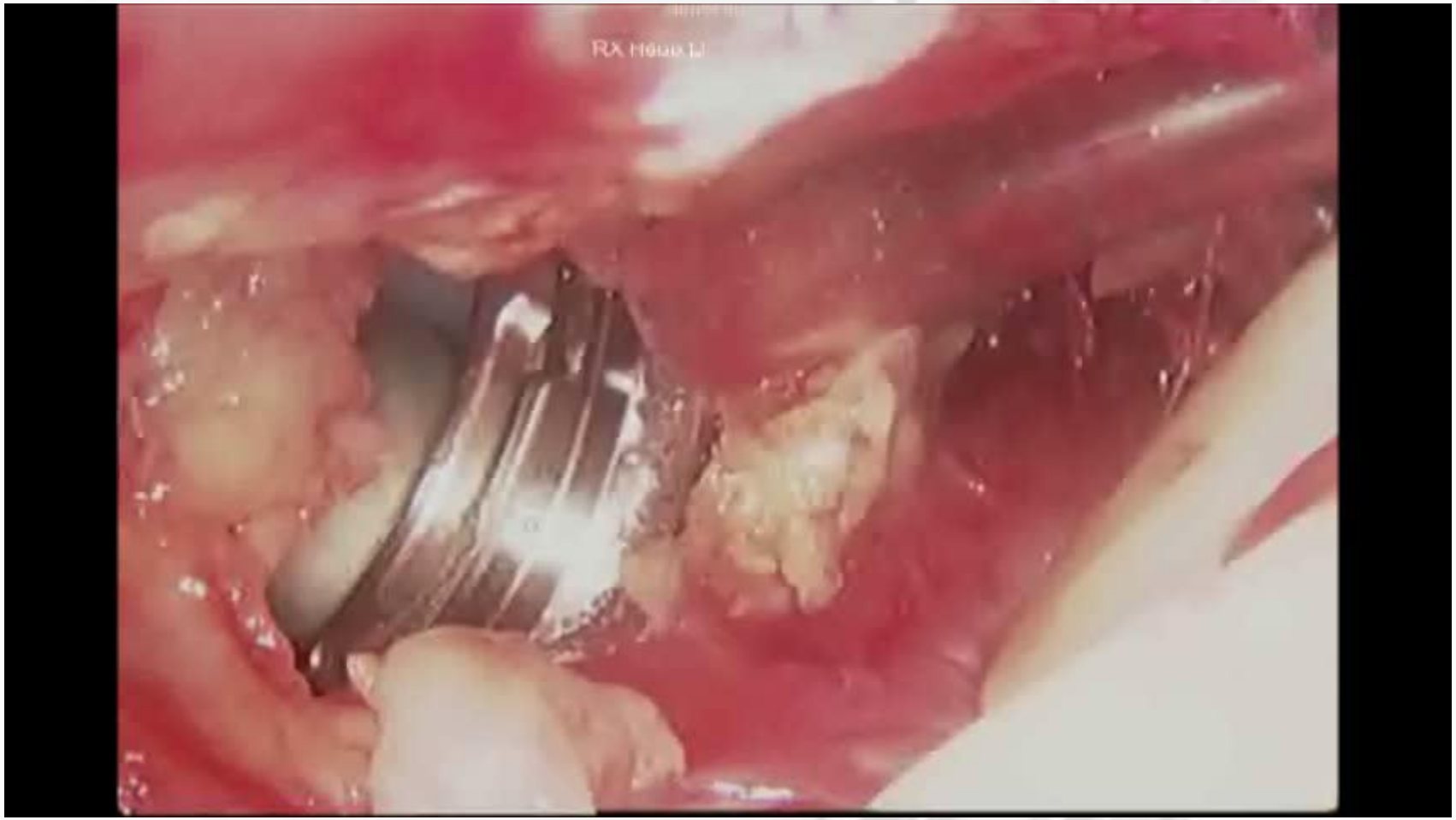

demo license
RX Heup Li


liggend
R

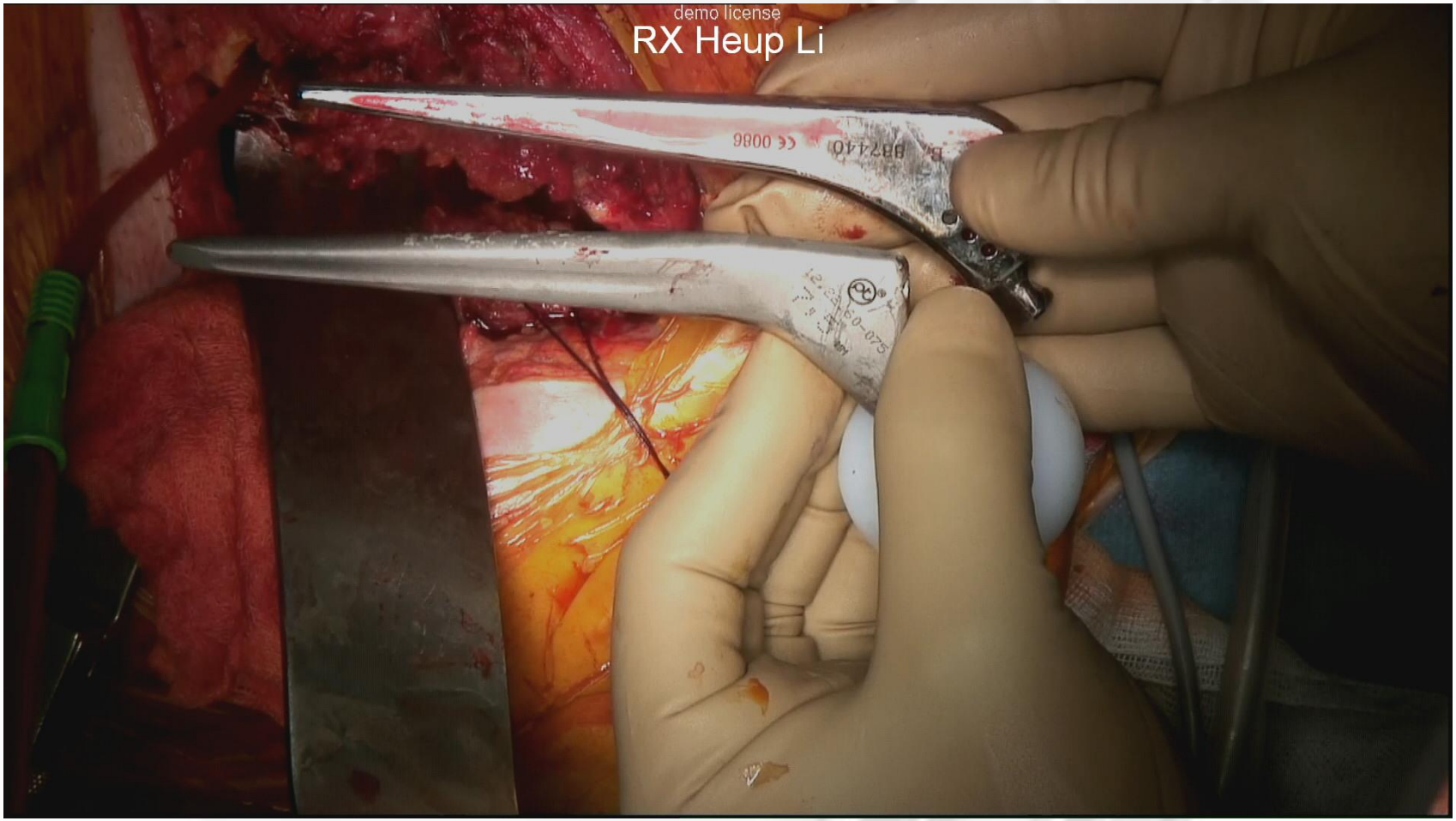
6W after index operation



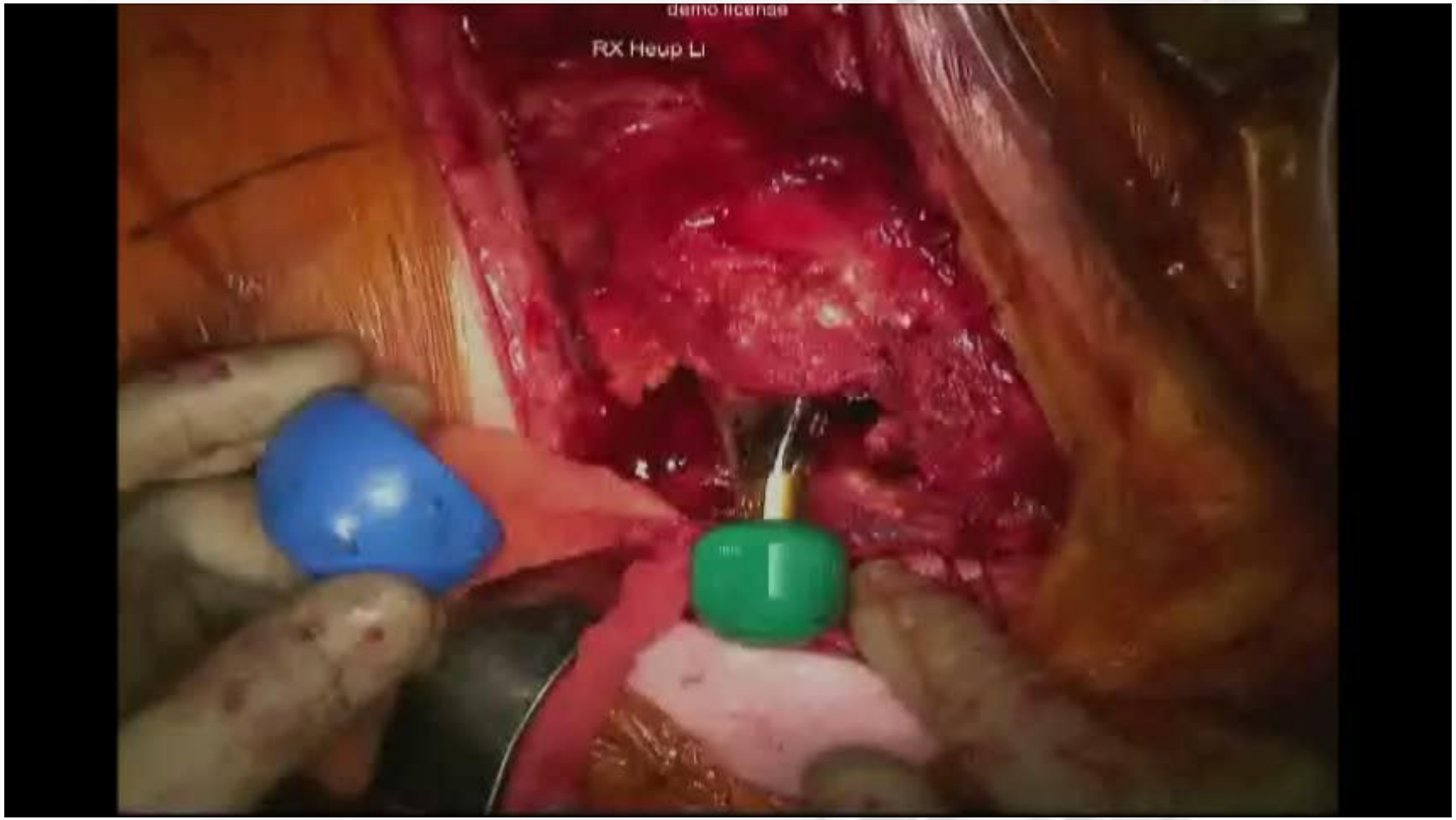
Intraop findings



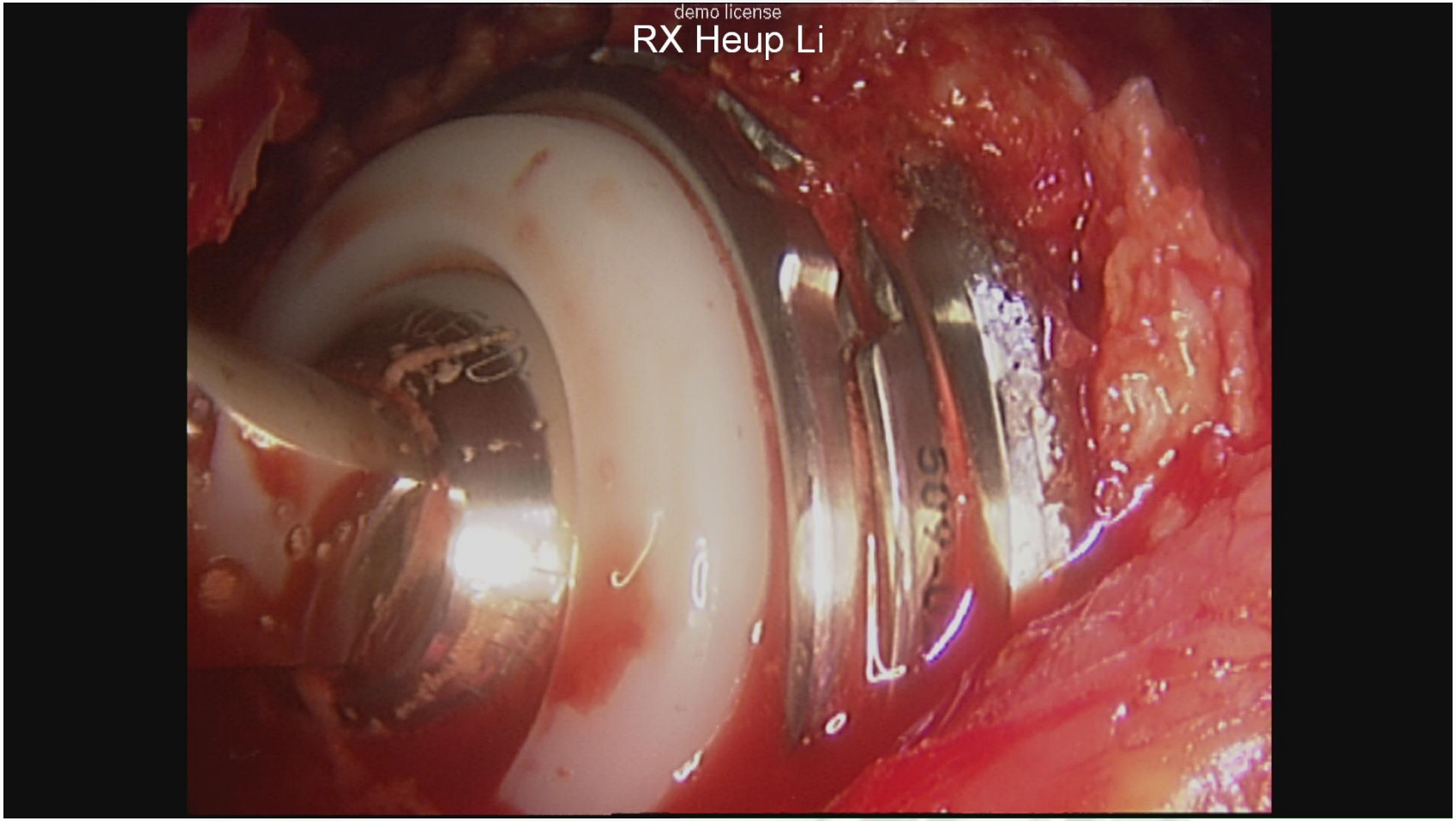
Measuring

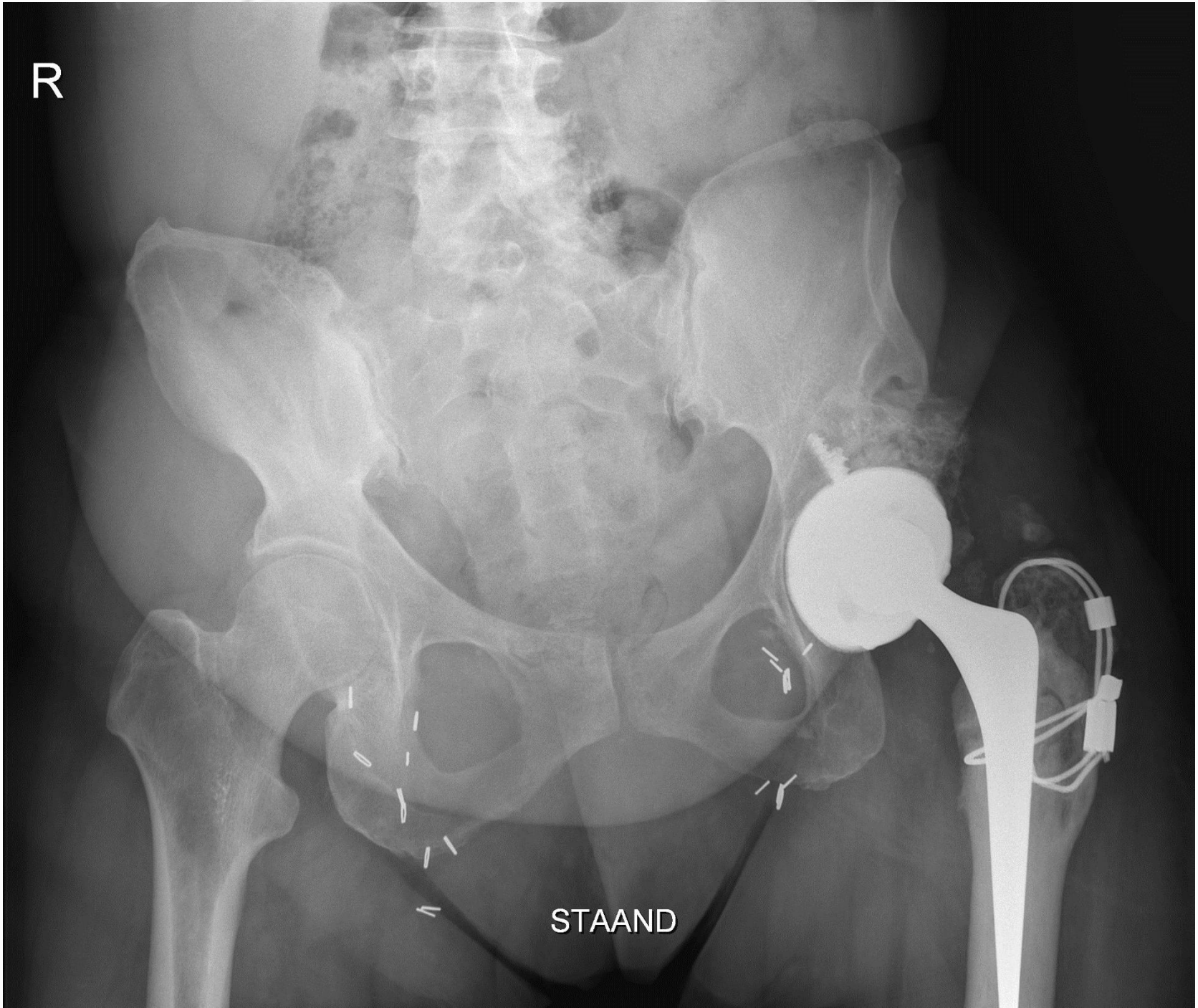

demo license
RX Heup Li

Trial after stem change



Final construct

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STAAND

Limitations

- Wear and osteolysis
- Head- liner dislocation
- Surgical Technique
- Cup stability

Surgical Technique

- Primary Press fit
- Cup orientation
- Mounting femoral head in liner

Fixation failures of dual mobility cups: a mid-term study of 2601 hip replacements.

The 8-year survival rate of press-fit, grit-blasted cups was lower than that for press-fit, grit-blasted cups fixed with screws (91% versus 100%) and for tripod fixation (98%).

Massini , CORR 2012

Dual mobility and RSA

???

Dual mobility hip arthroplasty wear measurement: Experimental accuracy assessment using radiostereometric analysis (RSA).

Pineau , orthop trauma surg res 2010

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Conclusions

- Here to stay
- Learning curve
- Outperformes constrained liners
- Excellent to prevent and treat dislocation
  - Primary THA
  - Revision THA
- Long term Wear ???

For a perfect day