



The Management of Acetabular Bone Defects in Hip Revision

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Challenges in Acetabular Revision

- Primary & secondary stability
- Reconstruction of bone defects
- Improvement of biological stock
- Reestablish the hip kinematics
- Avoiding re-revisions



Reasons for Acetabular Revision

- Aseptic loosening
- Osteolysis and wear
- Infection
- Trauma, Fracture
- Material failures

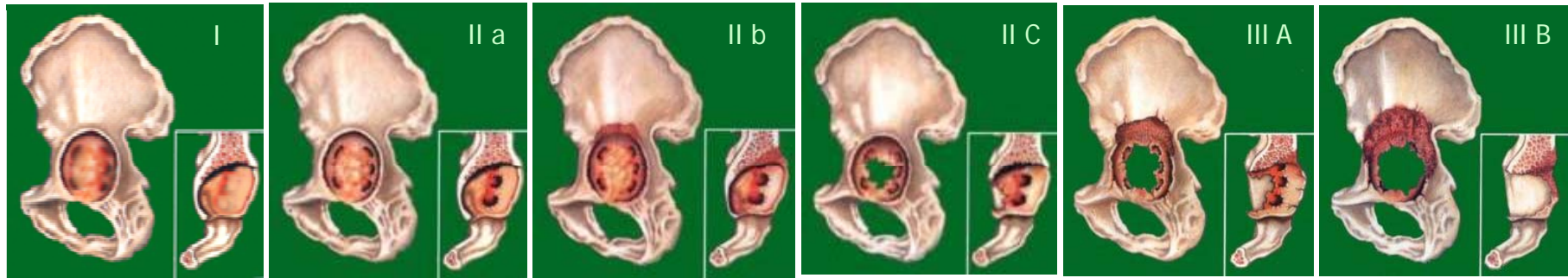


Diagnostics

- Clinics ++
pain groin, gluteal
pain under weight bearing
pain under function
- X-ray series +++
- Exclusion of infection +++
(CRP, Biopsy)
- Scintigraphy +

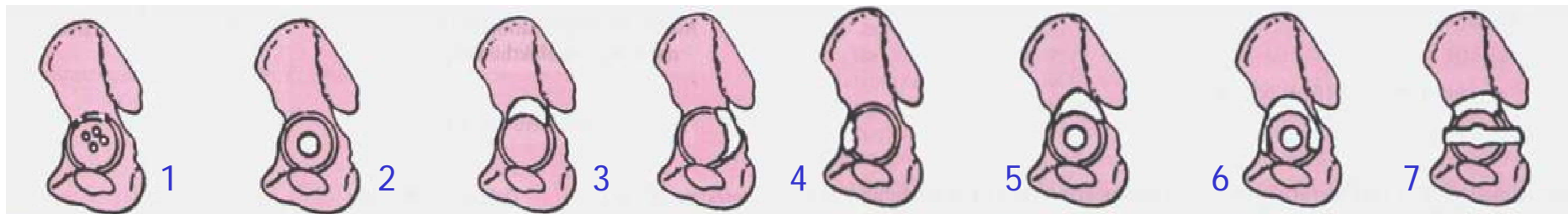


Acetabular Defect Classification



International classification acc. to Paprosky 1994

... small, medial or segmental defects ... large and combined defects ...



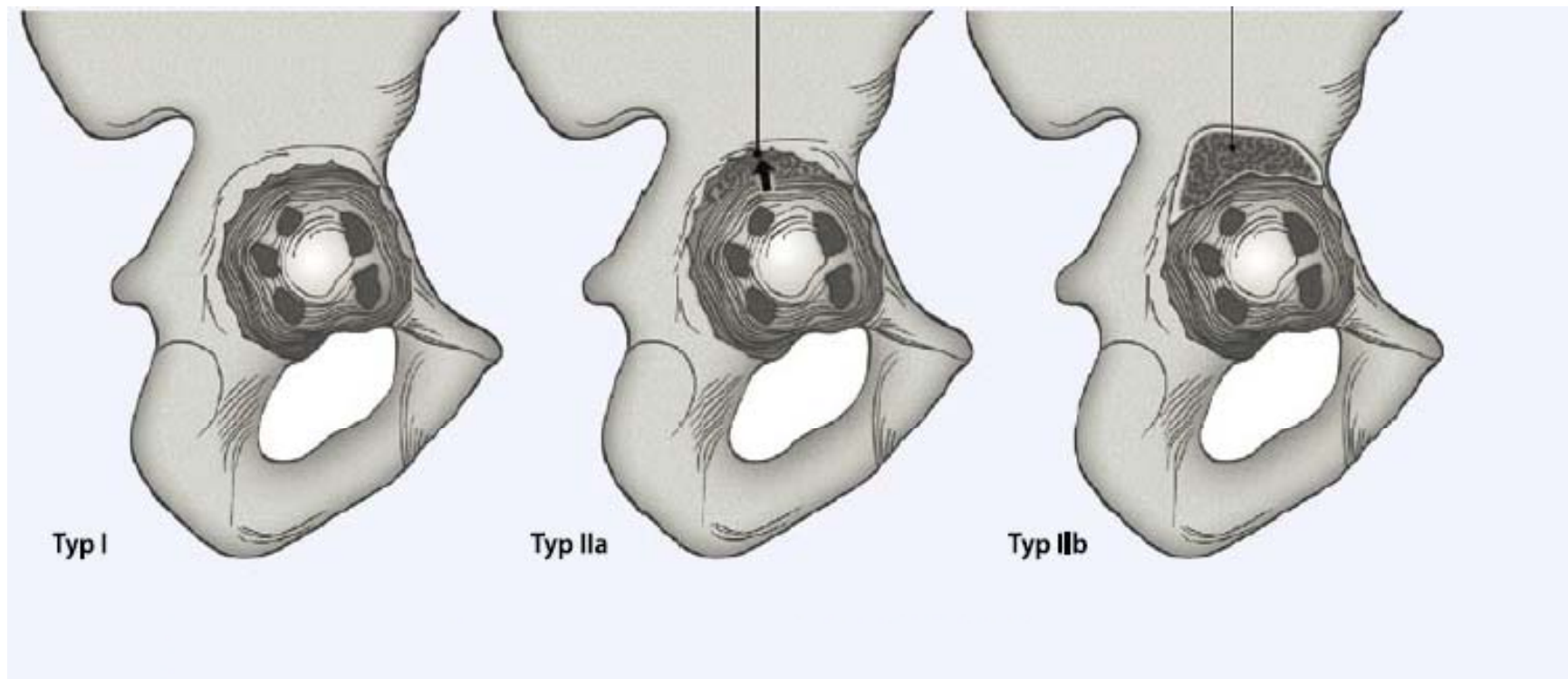
German classification Bettin/Katthagen 1997

Type I, IIa and IIb Defects

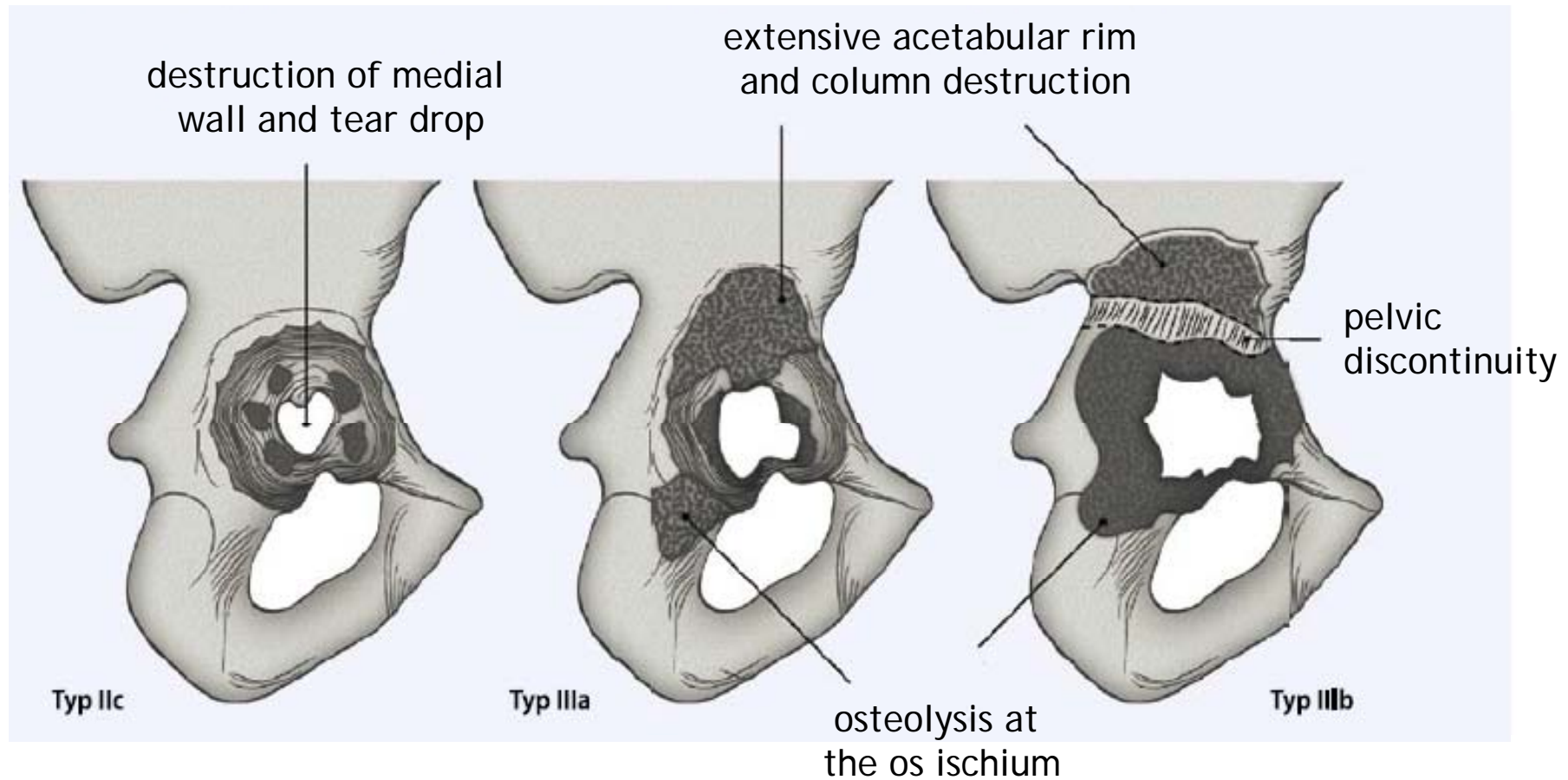
minimal defect

central and superior
defect

supero-lateral
rim zone defect



Type IIc, IIIa and IIIb Defects



Mechanical & Biological Interaction

primary stability

secondary stability

Biomechanics



Biology



Function
Osseointegration
Remodelling



Bone

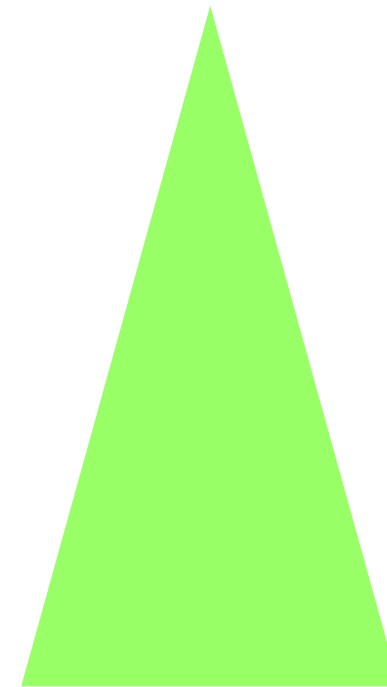


Biomaterial

Acetabular Defect Revision Strategy

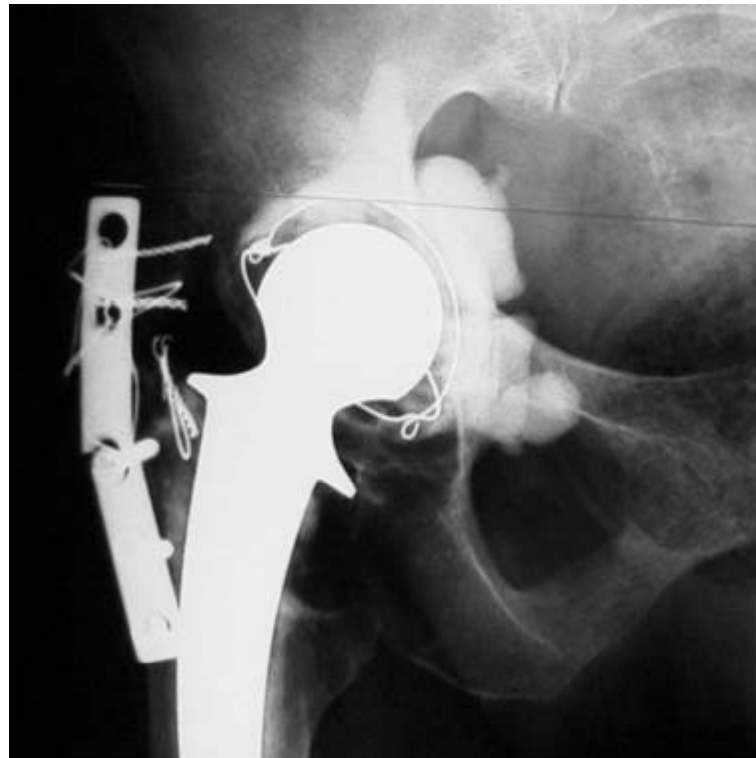
- **Defect filling**
(PMMA or implant)
- **Defect augmentation**
(Implant + impacted bone graft)
- **Defect reconstruction**
(Reconstruction cage + bone remodelling)

mechanical

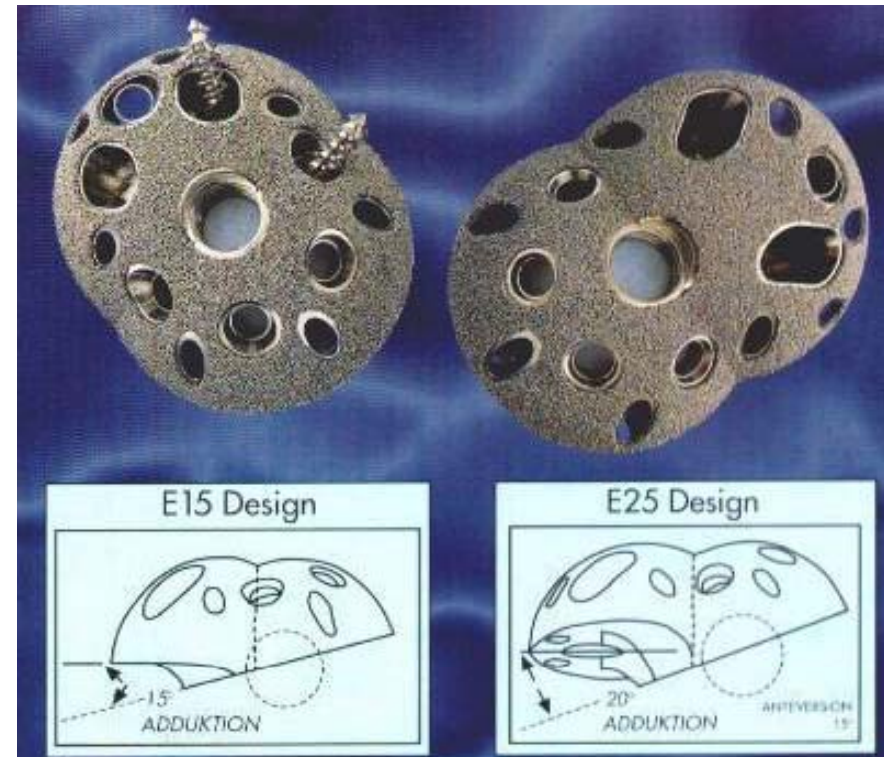


biological

Acetabular Defect Filling

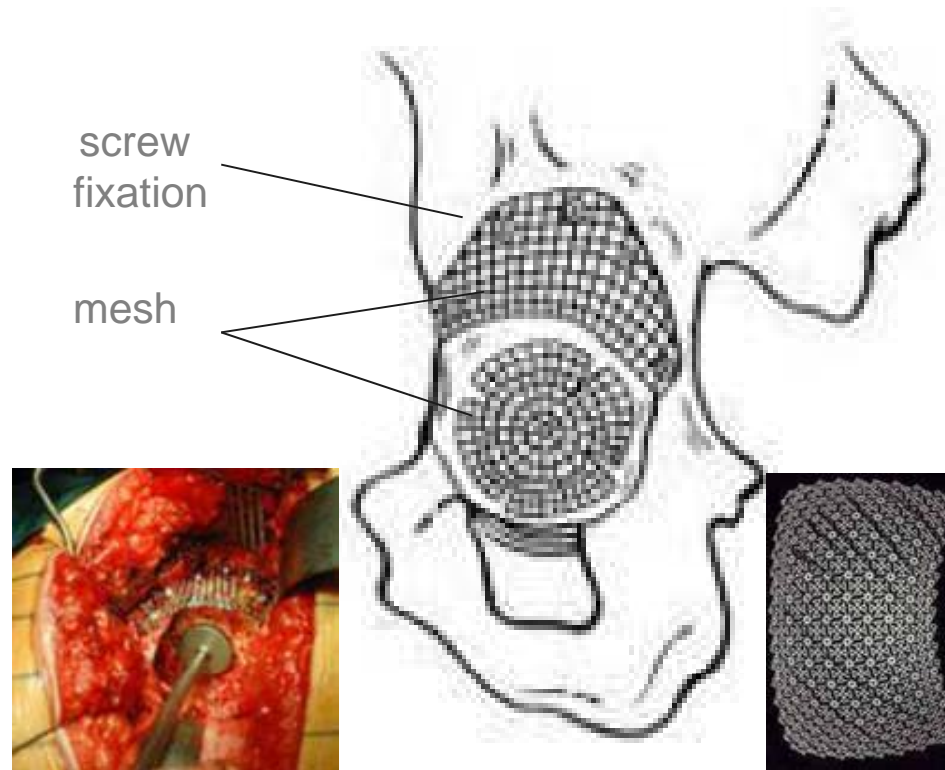


PMMA bonecement



Oblong cup - Sutherland 1996

Acetabular Defect Augmentation Mesh/PMMA/graft + Cement

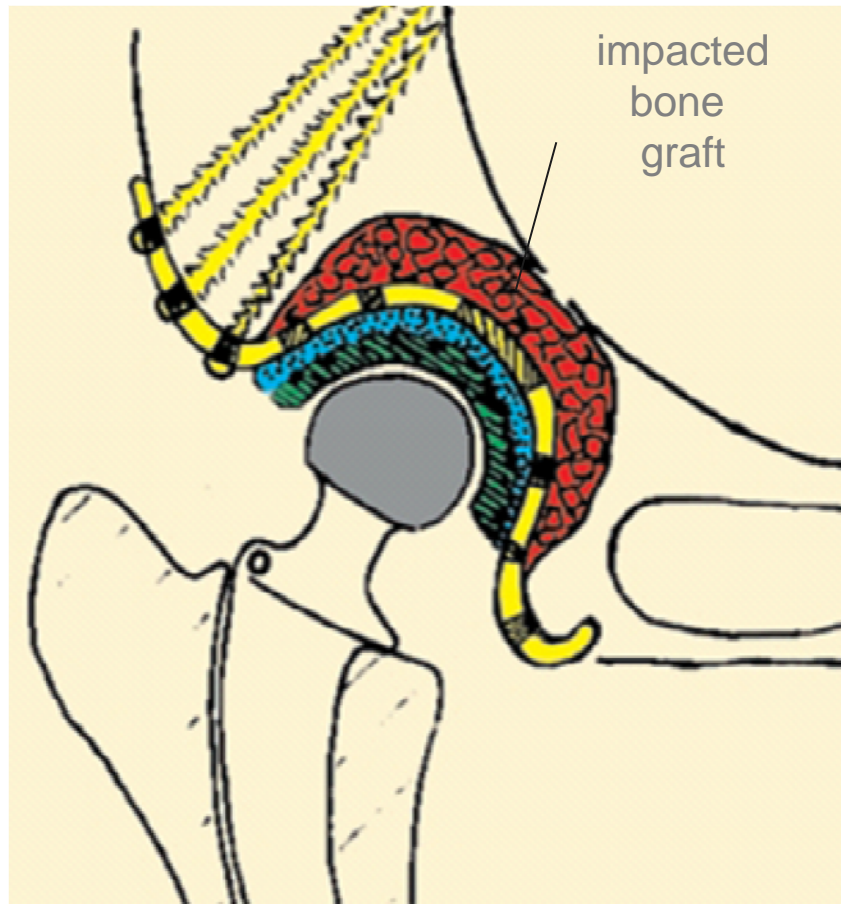


Exeter technique



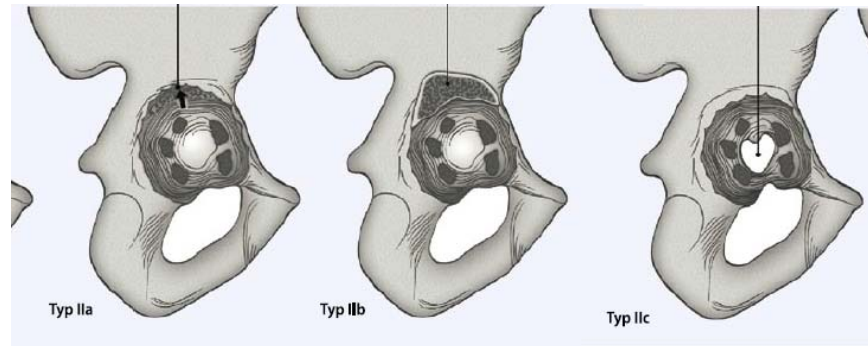
**Cross plate
PMMA augmentation**

Acetabular Defect Reconstruction Cementless Revision Cages



Hoentsch & Weller 1982

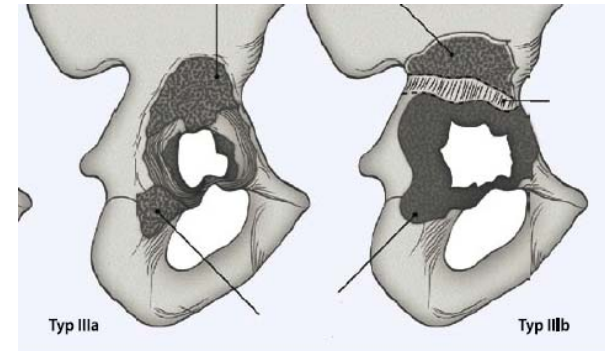
Cages for Acetabular Revision



Müller and



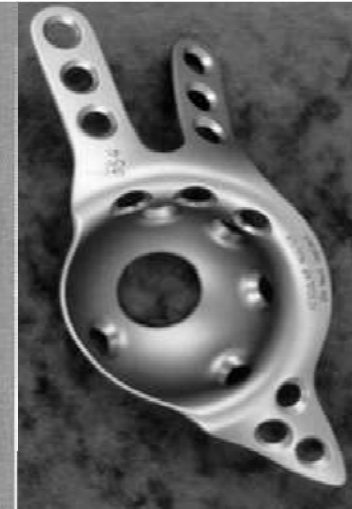
Ganz for I, II a, b & c



Burch-Schneider



Aesculap III a & b

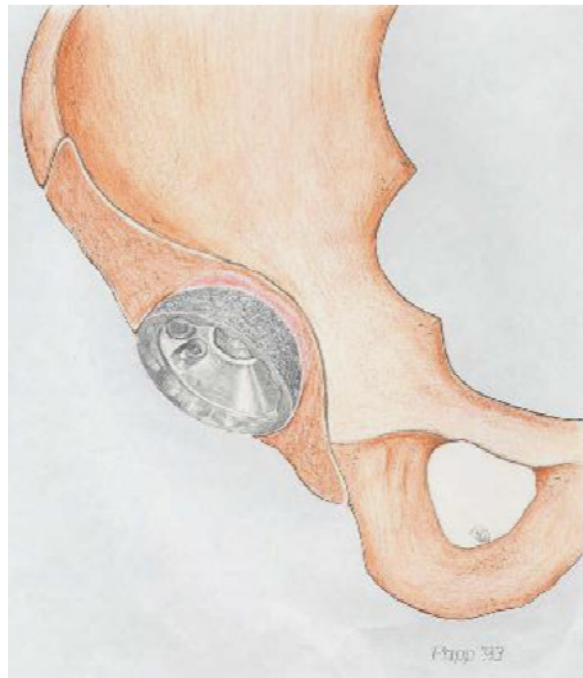


Acetabular Defect Reconstruction Techniques in Bad Rappenau



Cemented cup
Paprosky I

Papp 1993

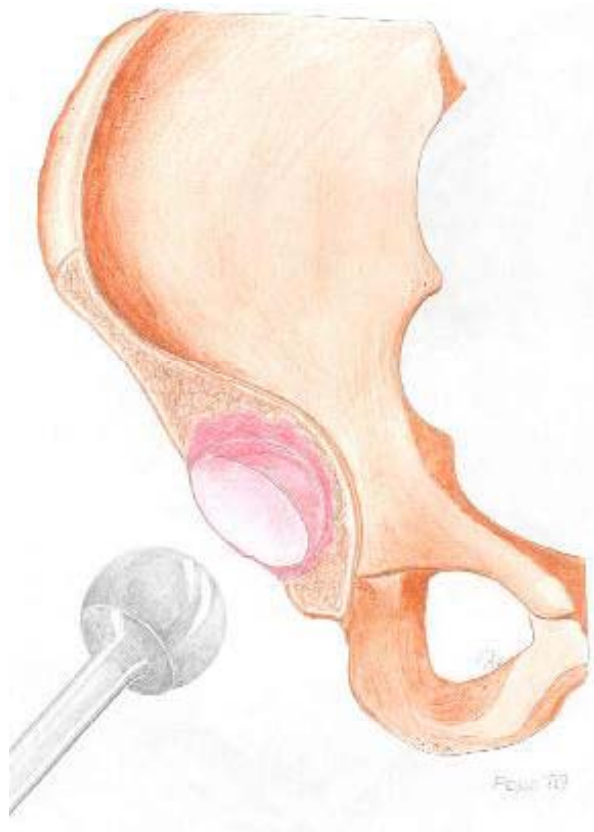


Pressfit cup
Paprosky I



Recon Cage
Paprosky IIa-IIc

Acetabular Defect Reconstruction with Bone Grafting in Bad Rappenau



Impaction Grafting

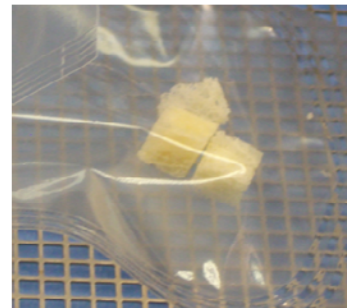


Block Allografts

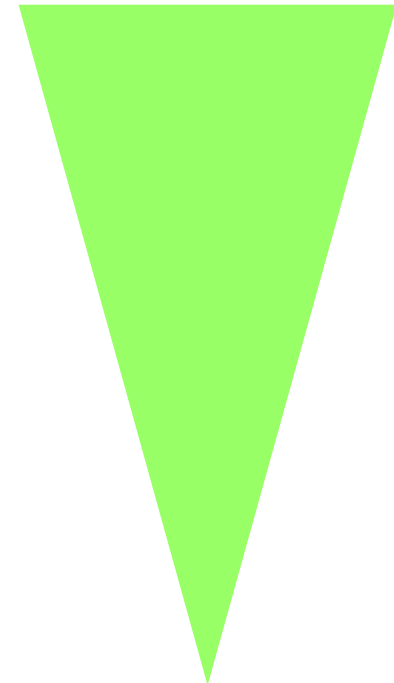
Acetabular Bone Grafting

- **Fresh frozen**
(Bad Rappenau till 2009)
- **Thermodesinfected**
(Bad Rappenau since 2009)
- **Rehydritisation**
(no personal experience)

„ If I want transplant bone I want
a graft,that fights for me!“
W.W.Tromford



Biology



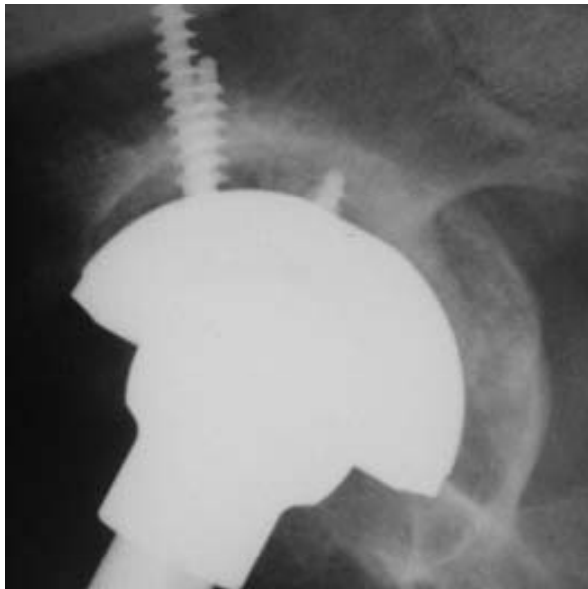
Allograft Preparation Technique



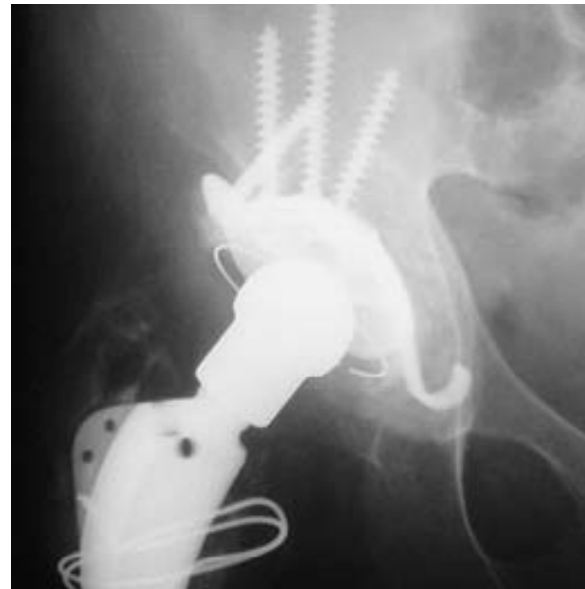
click to start or stop video

Acetabular Revision

... small, medial or segmental defects ... large and combined defects ...



cementless
pressfit Cup
Type I

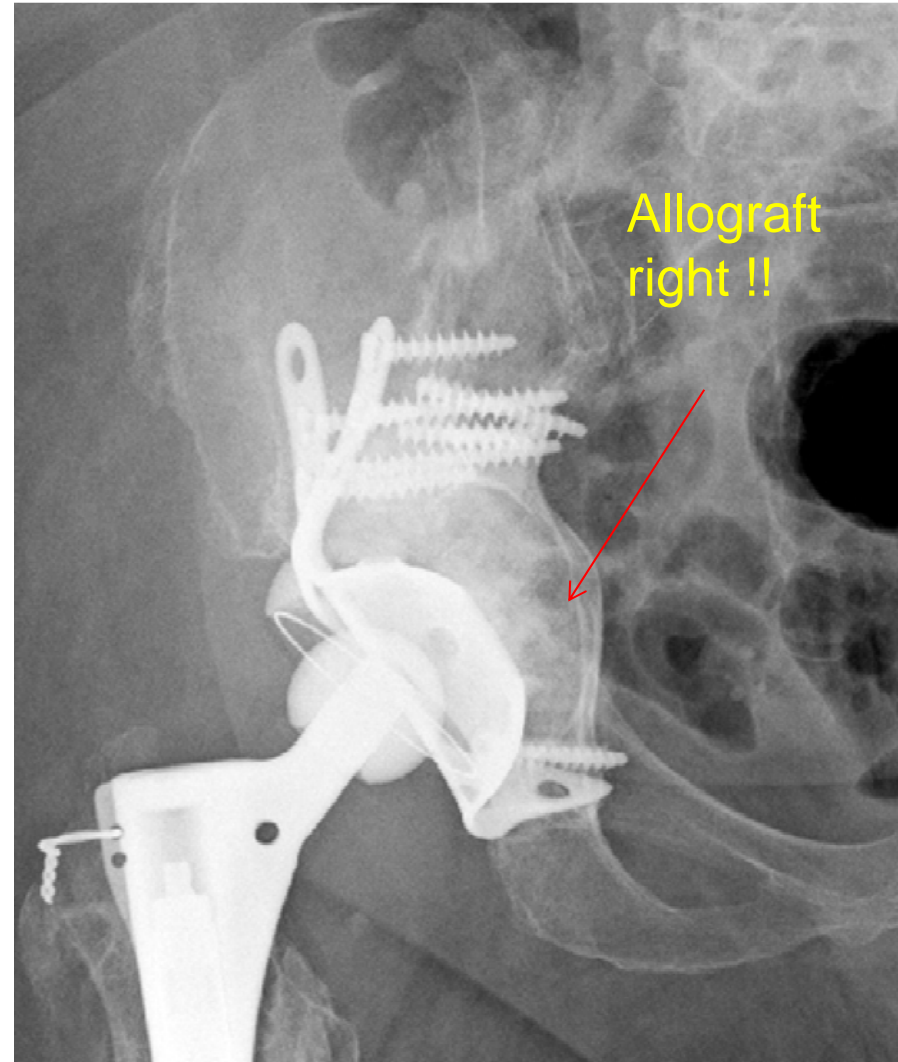
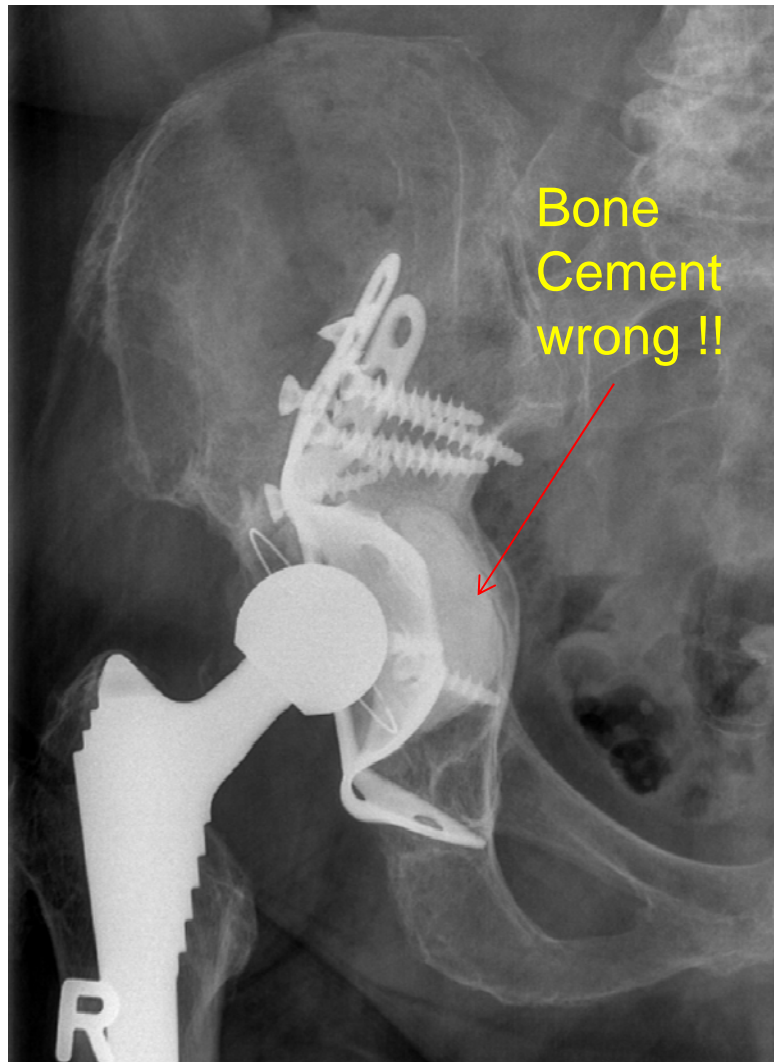


Ganz
cage
Type II



Aesculap
recon cage
Type III

Cementless Technique !!!



Case: HL 1934 ♀



2012



2012 - post-op

Case: KR 1925 ♀ cup revision both hips



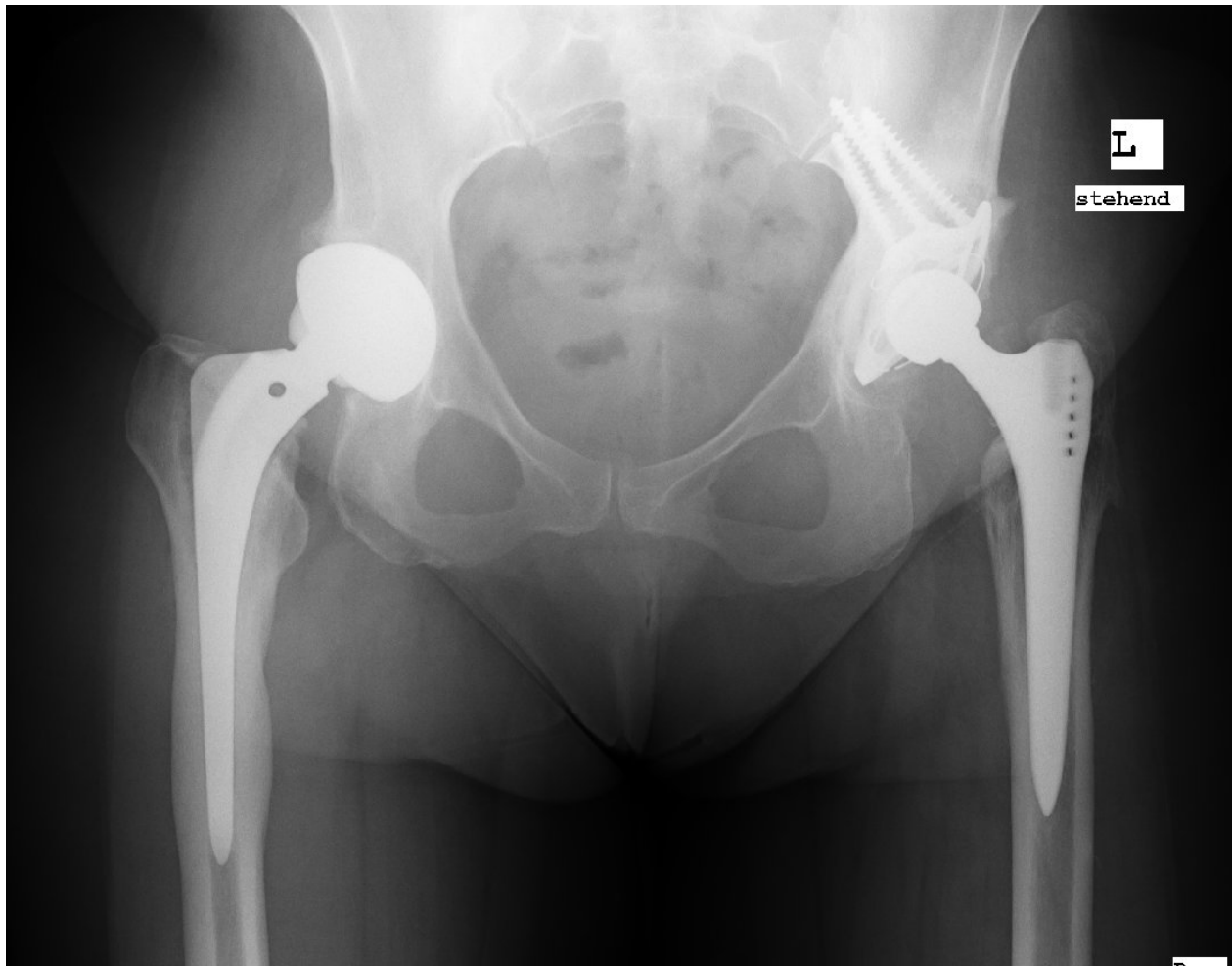
2011

2012

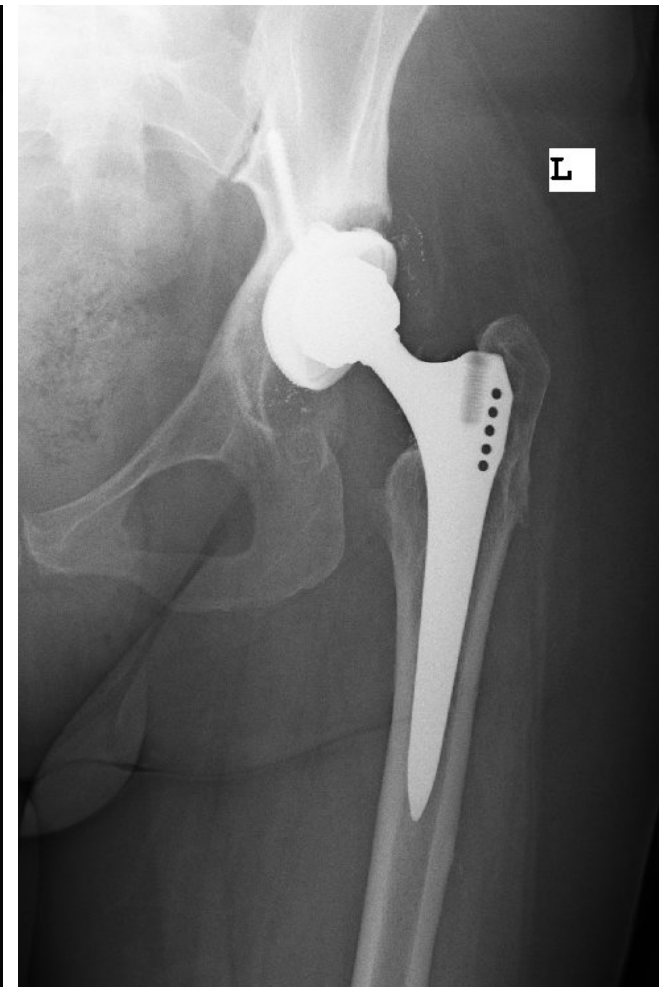
2012

2008

Case: SB 1959 ♀ left hip MoM
(right hip CoC articulation)

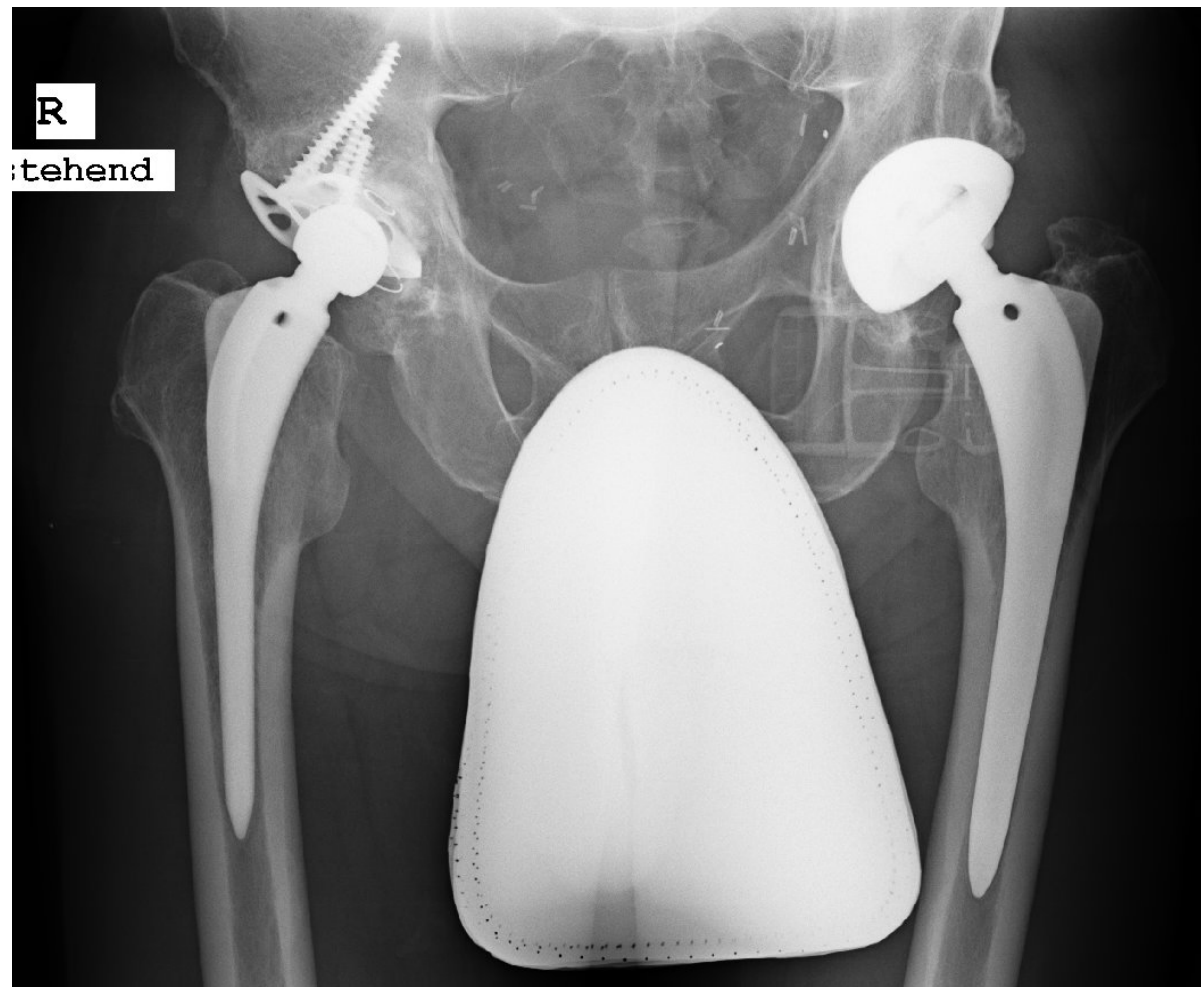


2012 post-op



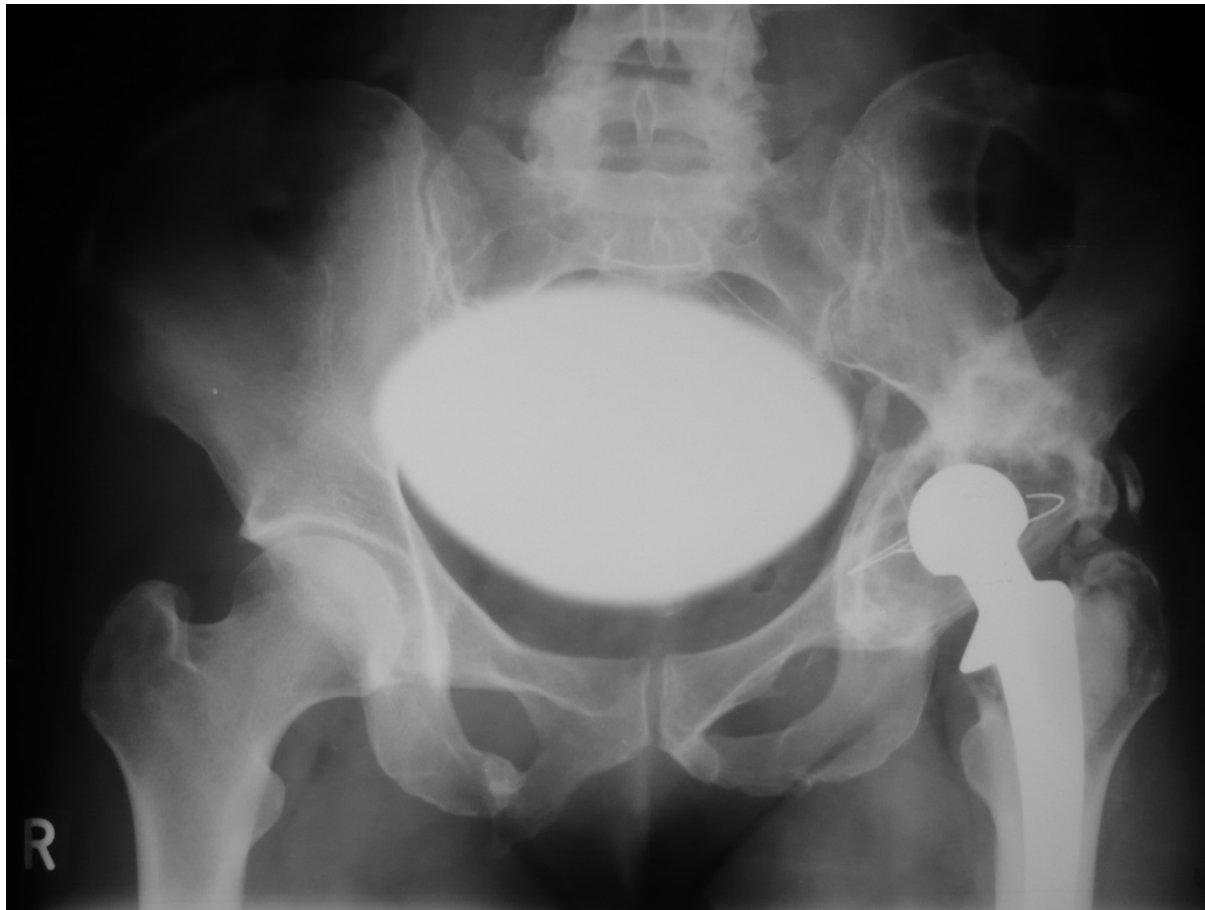
2011

Case: TG 1937 ♂ right Hip



2012 post-op

Case: BM ♀ 1951



1993

Case: BM ♀ 1951



1993

1993

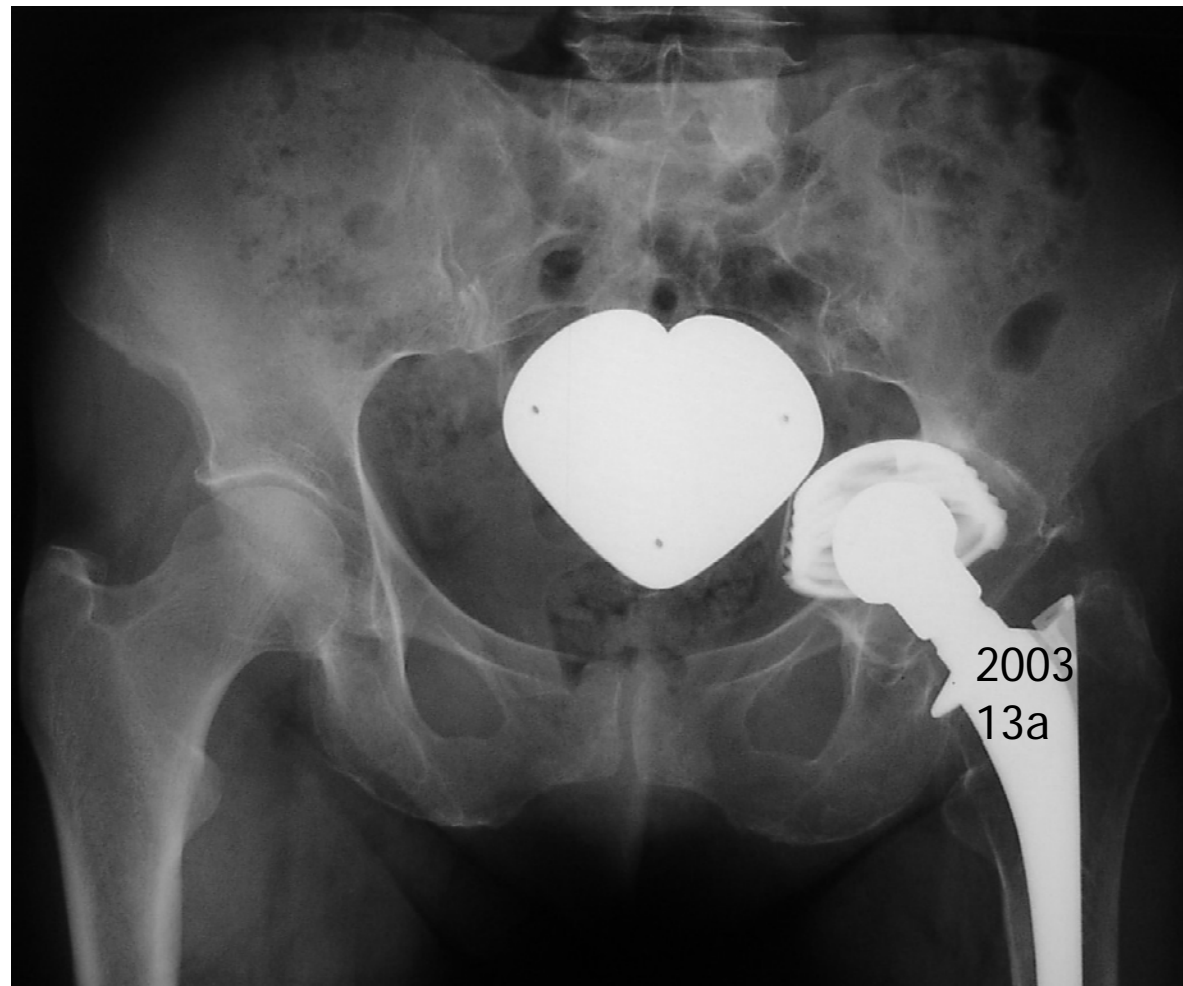
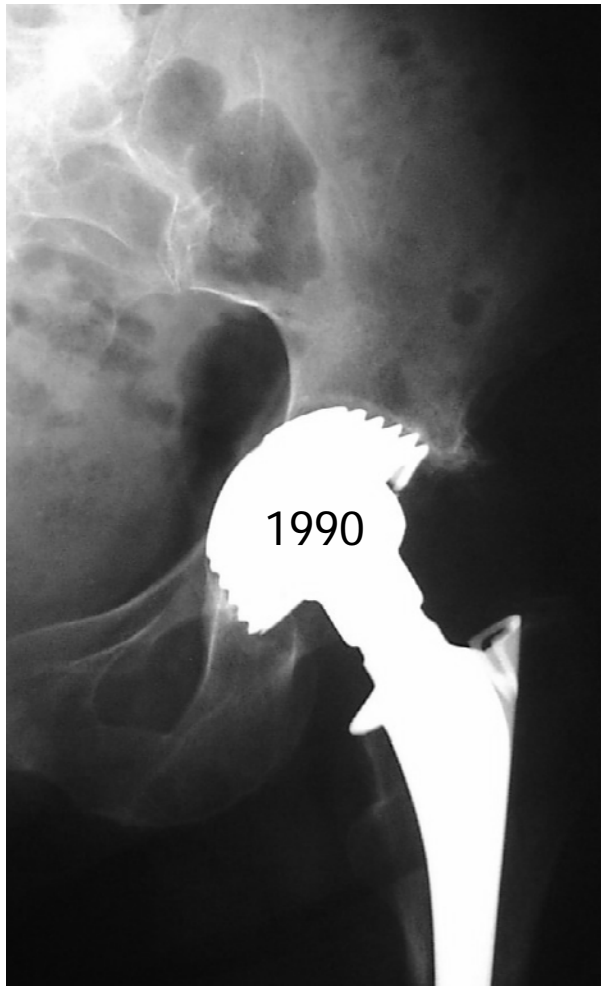
2011

2011

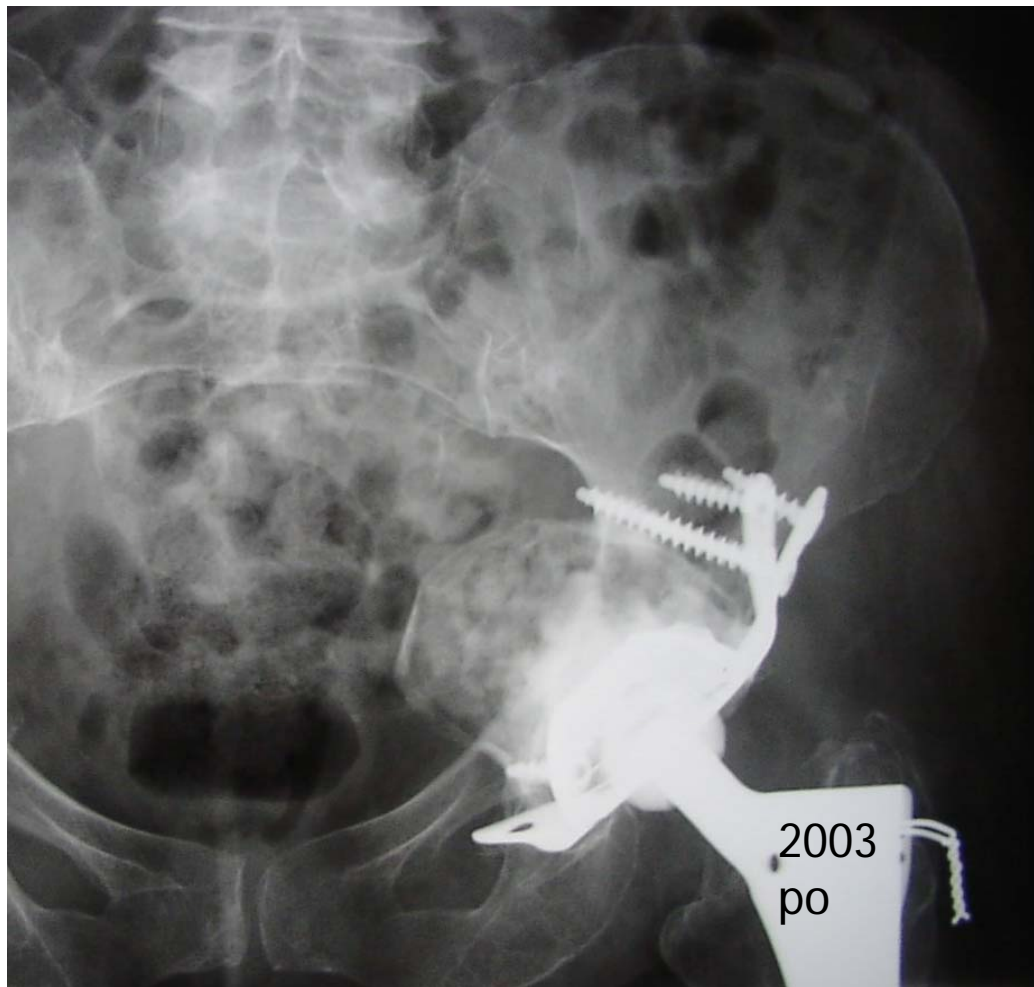
2012

1988 Index THA

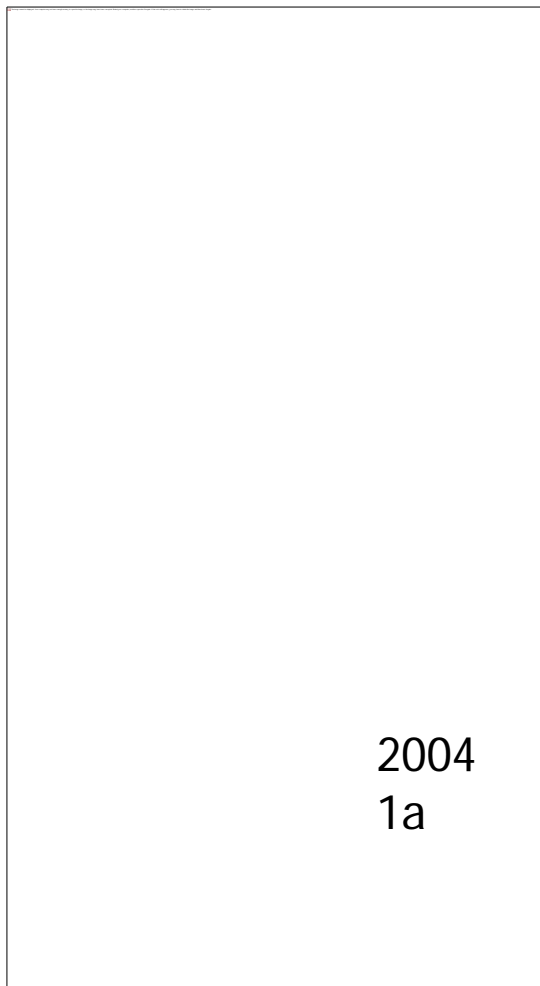
Case OP ♀ 1933



Case OP ♀ 1933



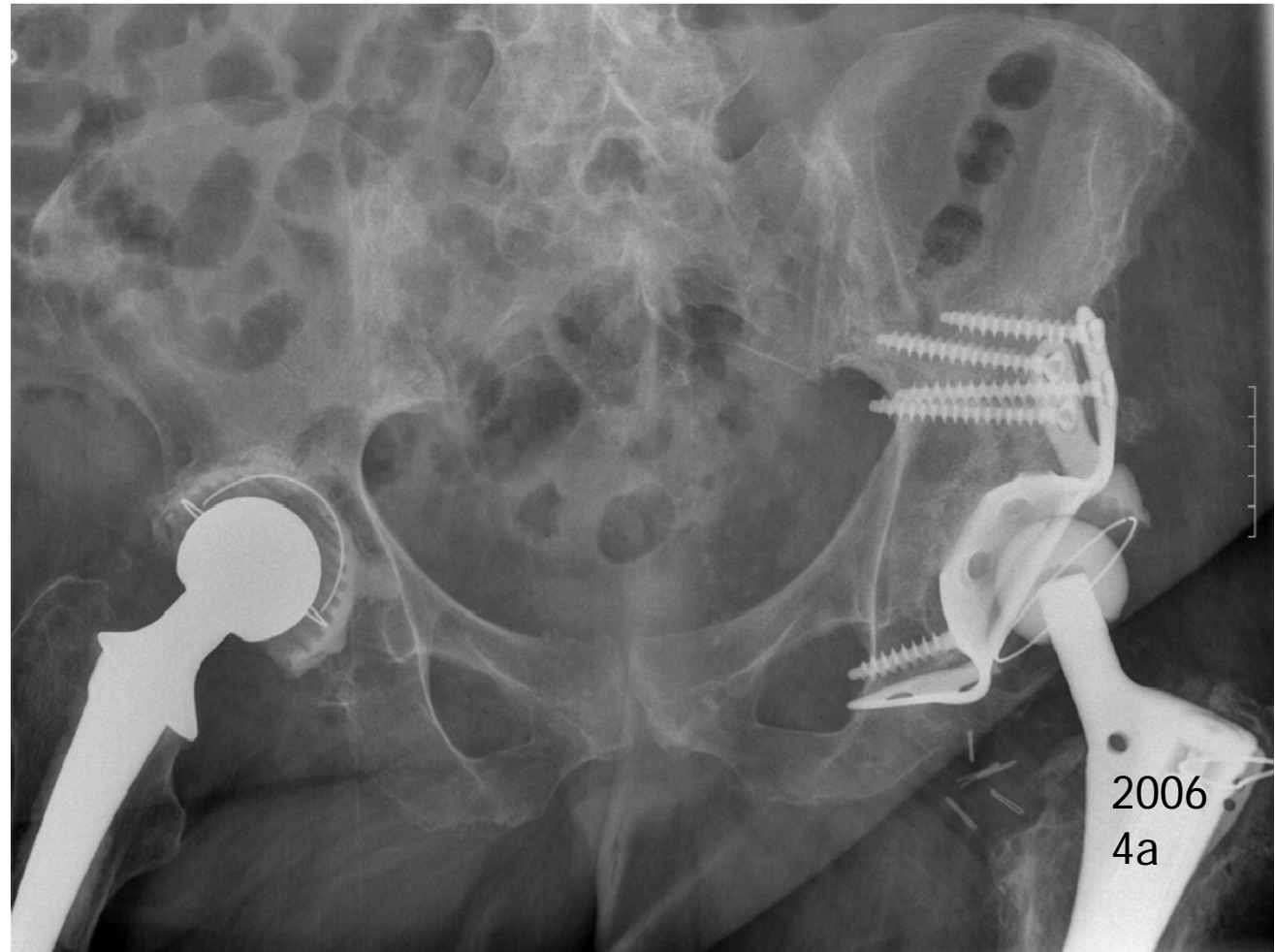
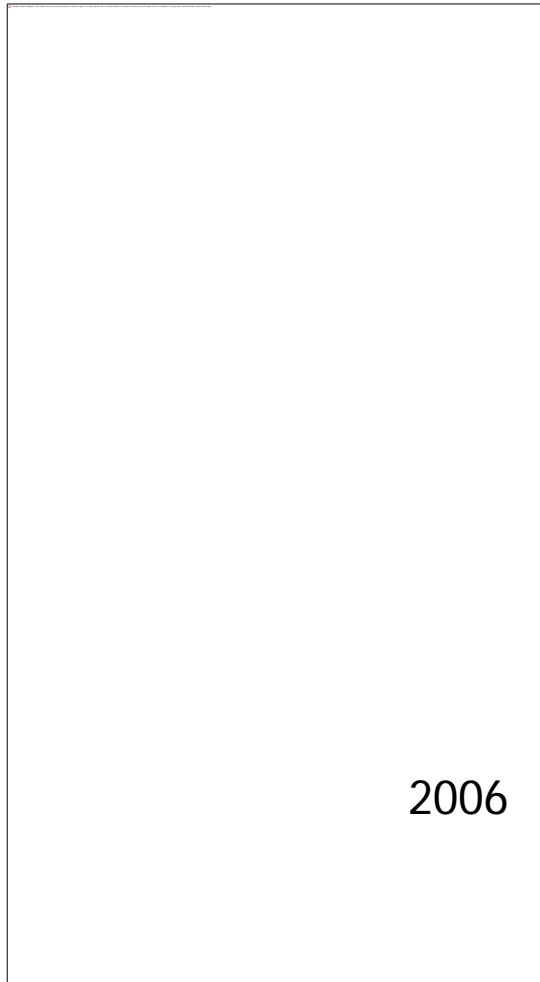
Case OP ♀ 1933



Case LM ♀ 1934



Case LM ♀ 1934



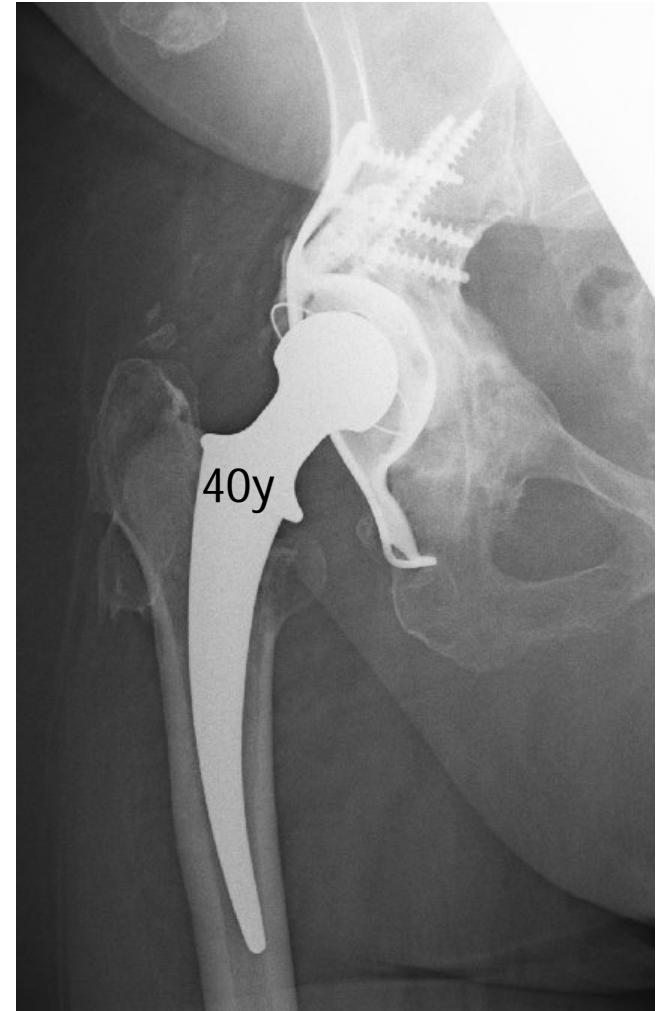
Case: BI ♀ 1927



2001
1972 Index THA



2001



2012

Conclusion

- Management of acetabular bone defects need bone grafting technique
- Smaller defects can be treated with standard implants
- Larger defects can be managed with special reconstruction cages

Thank you for your attention