

Optimal Treatment Of Acetabular Fractures In Patients Over 60

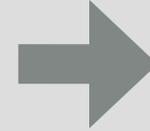
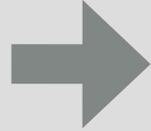
Matteo Giachino



Università degli Studi di Torino
Clinica Ortopedica e Traumatologica I
AOU Città della Salute e della Scienza
Centro Traumatologico Ortopedico, Torino Italy



Acetabular fractures



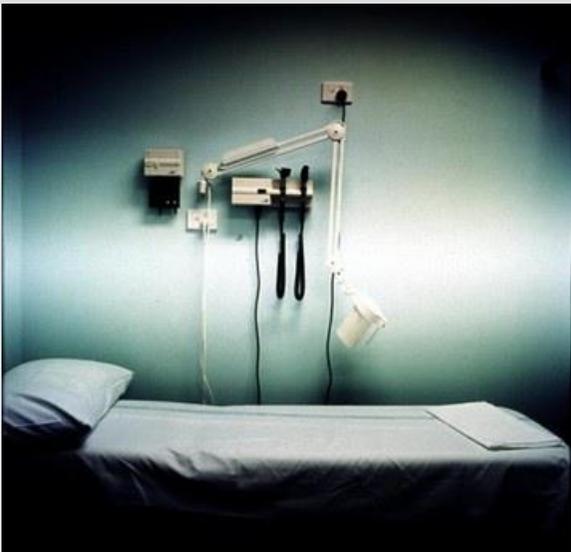
Acetabular fractures above 60



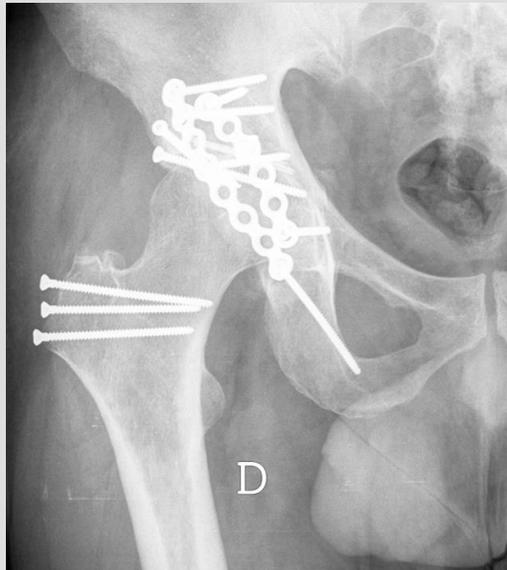
- Rising incidence (+140%)
- Different trauma mechanisms: low energy trauma at older age
- Different trauma patterns: increasing anterior column involvement
- One shot surgery: life expectancy is covered by that of an arthroplasty implant



Non-operative



ORIF



THA



Non-operative

- Severe comorbidities
- Weak autonomy level
- Minimally displaced fractures (?)



Few studies on the outcome of older patients treated non-operatively for acetabular fractures.

- Low level of evidence
- Selection Bias
- Short follow-up

Selection Bias

Operated patients and non-operatively treated patients are often not comparable

ORIF

Outcome predictors:

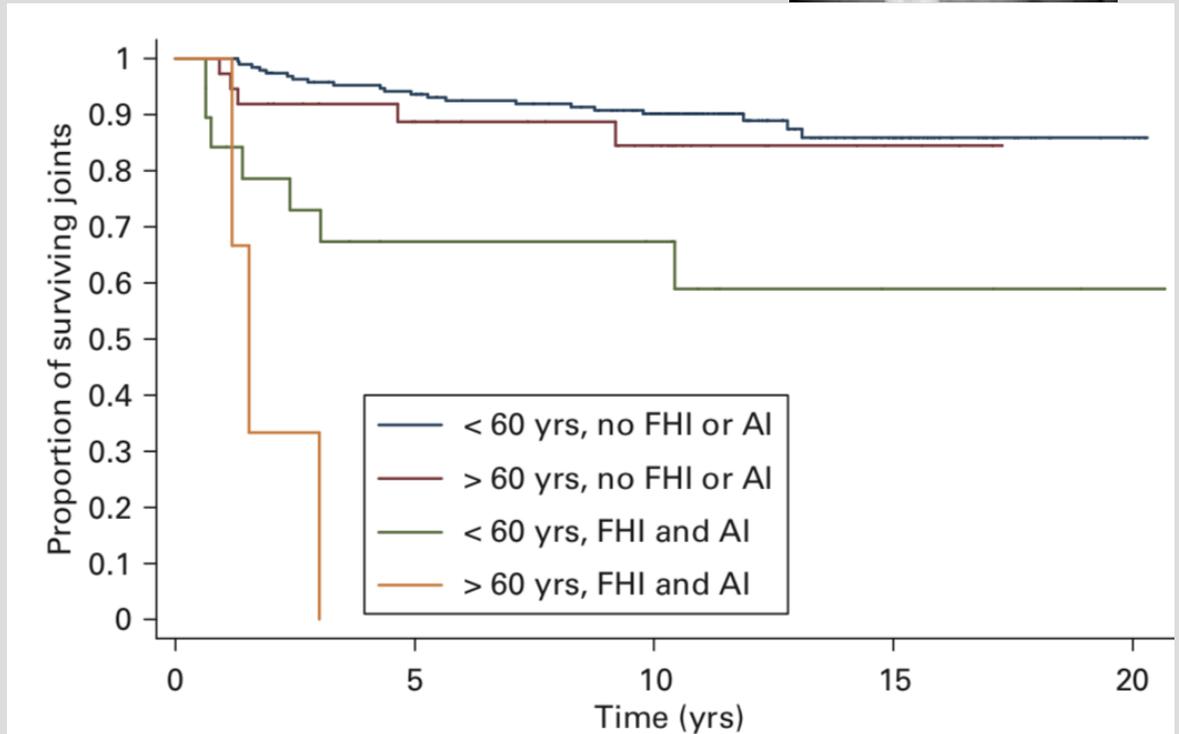


Pre-existent:

- Age
- Osteopenia
- Comorbidities
- Obesity

Trauma related:

- Fracture Pattern
- Impaction
- Time to surgery



[Bone Joint J.](#) 2017 Jun;99-B(6):834-840. doi: 10.1302/0301-620X.99B6.BJJ-2016-1013.R1.

Long-term survival and risk factors for failure of the native hip joint after operatively treated displaced acetabular fractures.

[Clarke-Jenssen J](#)¹, [Røise O](#)², [Storeggen SA](#)³, [Madsen JE](#)².

[Patient Saf Surg.](#) 2019; 13: 16.

Published online 2019 Mar 16. doi: [10.1186/s13037-019-0196-2](https://doi.org/10.1186/s13037-019-0196-2)

PMCID: [PMC6420740](https://pubmed.ncbi.nlm.nih.gov/PMC6420740/)

PMID: [30923570](https://pubmed.ncbi.nlm.nih.gov/30923570/)

Outcomes after surgical treatment of acetabular fractures: a review

[Navid Ziran](#)¹, [Gillian L. S. Soles](#)² and [Joel M. Matta](#)³

38y



75y





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orthopaedic survival database

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▼ Acetabular Fractures



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

[Start using this database](#)

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

Acetabular Fractures

Age ⓘ

Anterior Dislocation ⓘ

Posterior Wall Involvement ⓘ

Initial Displacement >20mm ⓘ

Femoral Cartilage Lesion ⓘ

Congruent Joint ⓘ

Anatomic Reduction ⓘ

Fracture Pattern ⓘ

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

Acetabular Fractures

Age ⓘ

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Initial Displacement >20mm ⓘ

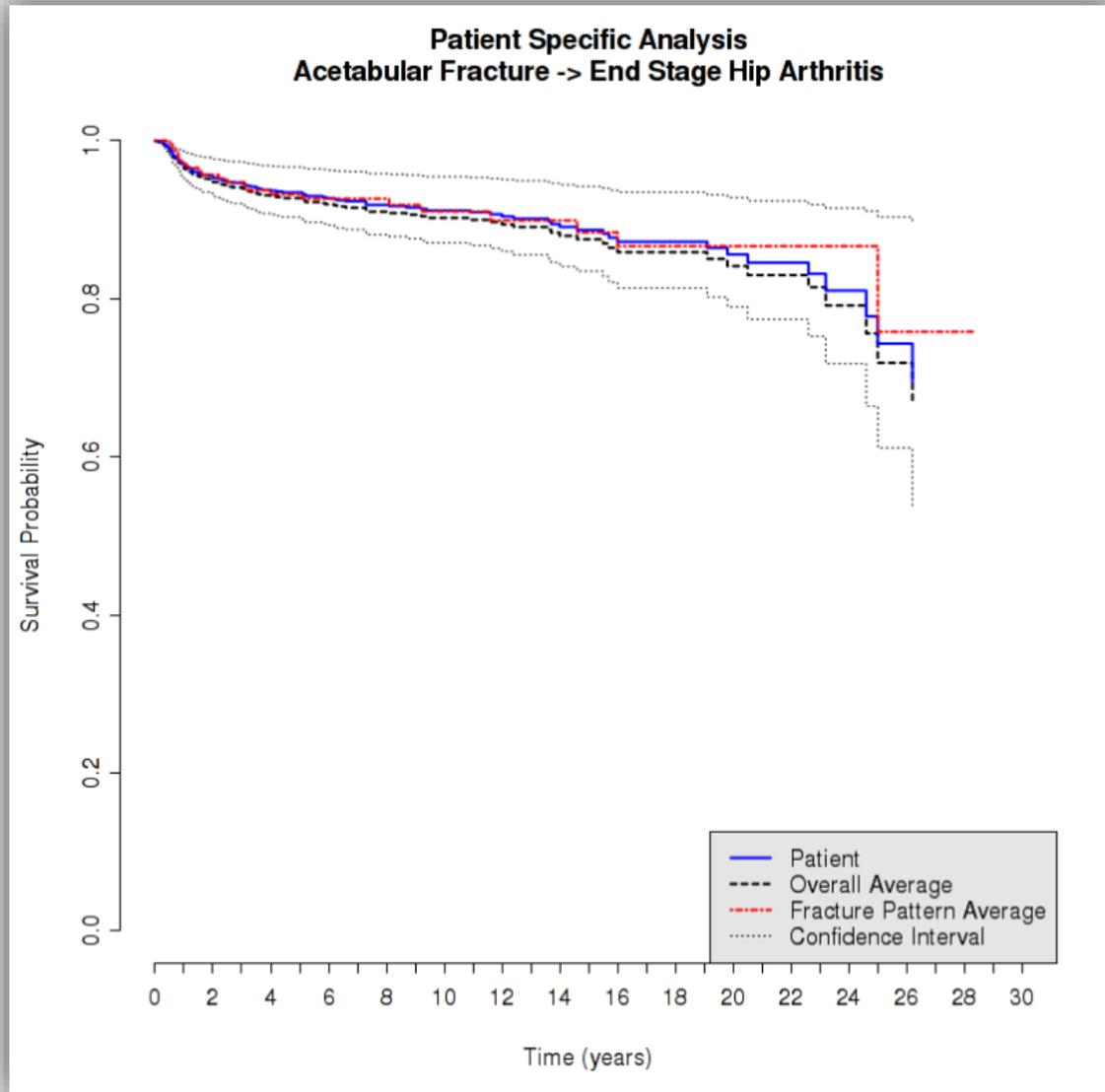
Femoral Cartilage Lesion ⓘ

Congruent Joint ⓘ

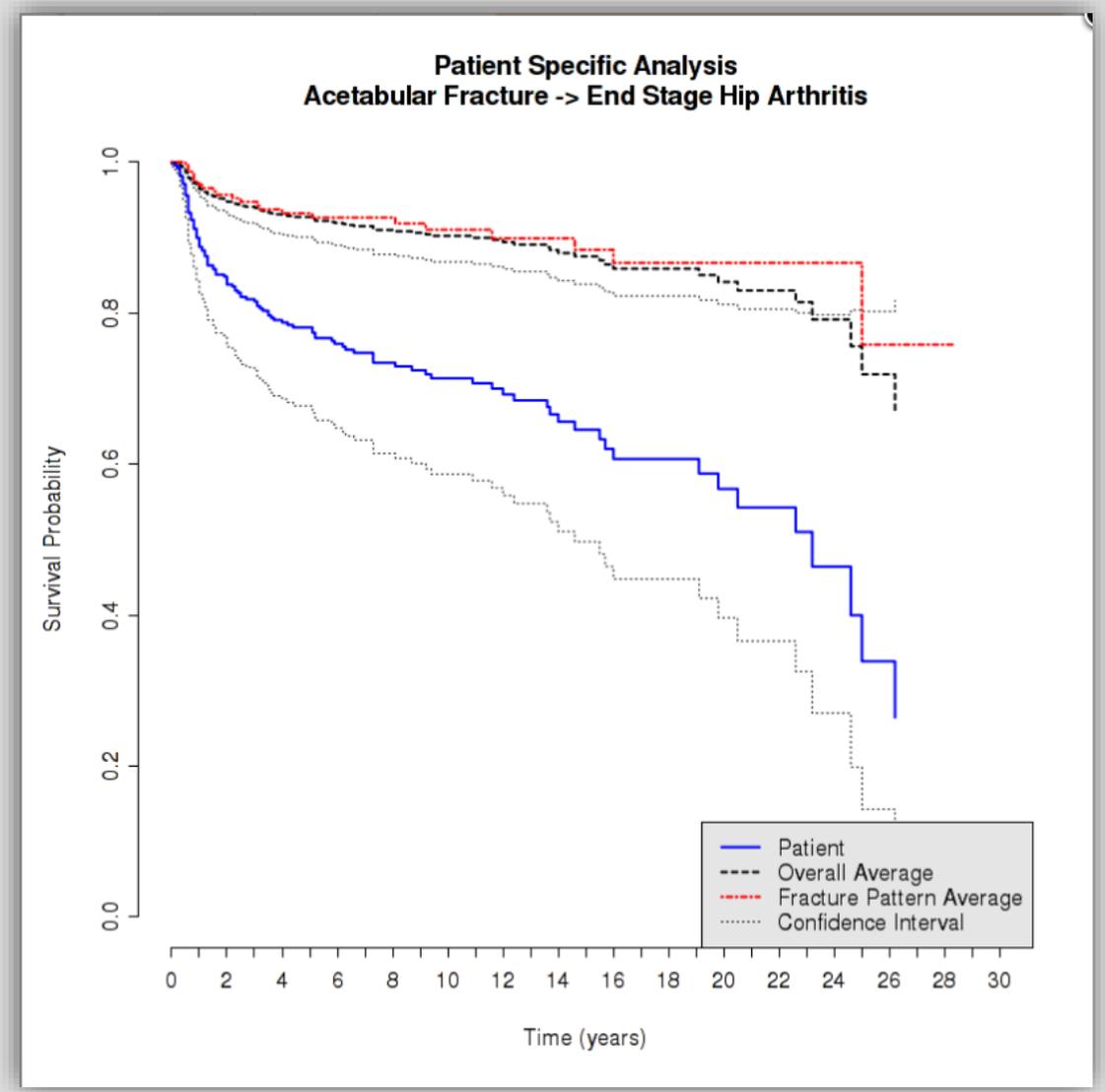
Anatomic Reduction ⓘ

Fracture Pattern ⓘ

38y



75y



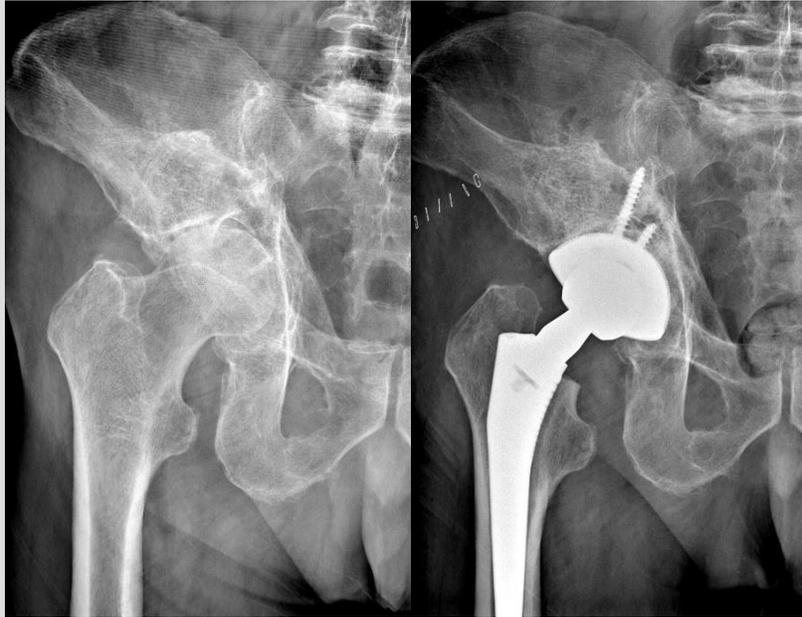
How Often Does Open Reduction and Internal Fixation of Geriatric Acetabular Fractures Lead to Hip Arthroplasty?

Robert V. O'Toole, MD, Emily Hui, MPH, Amit Chandra, BA, and Jason W. Nascone, MD

TABLE 6. Summary of Existing Literature on Open Reduction and Internal Fixation of Geriatric Acetabular Fractures

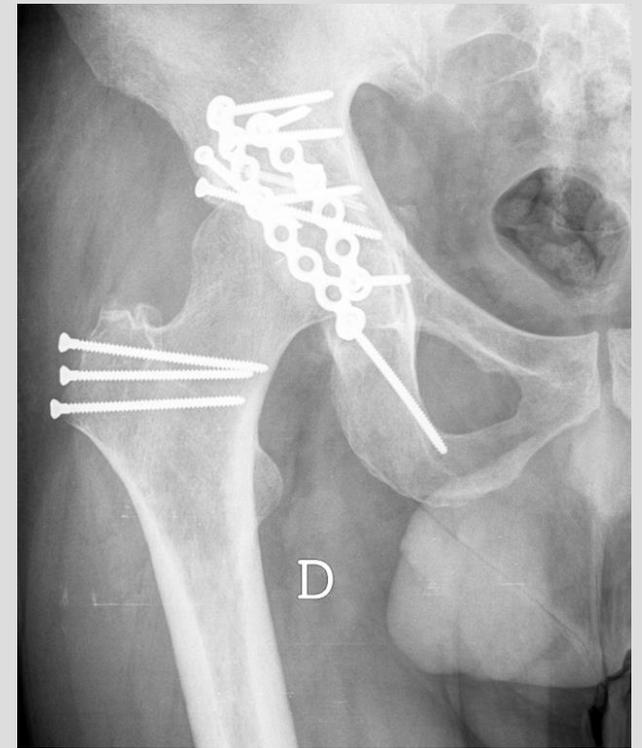
Study	n	Mean Follow-up Duration	% Converted to Arthroplasty	Outcome Measures*
Current study 2013	46	4.4	28	WOMAC, SF-8
Jeffcoat et al ³⁶ 2012	41	5.3	27	SF-36, FMA, SMFA
Carroll et al ¹⁶ 2010	84	5.0	31	SF-36, MFA, SMFA
Anglen et al ¹³ 2003	38	3.1	16	SF-36
Virkus et al ¹⁵ 2000	45	3.4	31	SF-36, MFA
Helfet et al ¹⁴ 1992	18	2.6	6	Harris Hip Score

*WOMAC, Western Ontario and McMaster Universities Index of Osteoarthritis; SF-8, SF-8 Health Survey; SF-36, SF-36 Health Survey; MFA, musculoskeletal function assessment; SMFA, short musculoskeletal function assessment.



THA vs ORIF

Trend towards THA



Evidence Based?

Greater expertise on THA?

Acute or delayed?

[J Orthop Trauma](#). 2010 May;24(5):291-6. doi: 10.1097/BOT.0b013e3181b1d22a.

The combined hip procedure: open reduction internal fixation combined with total hip arthroplasty for the management of acetabular fractures in the elderly.

Herscovici D Jr¹, Lindvall E, Bolhofner B, Scaduto JM.

[J Arthroplasty](#). 2014 Oct;29(10):1983-90. doi: 10.1016/j.arth.2014.06.001. Epub 2014 Jun 12.

Total hip arthroplasty after acetabular fracture: incidence of complications, reoperation rates and functional outcomes: evidence today.

Makridis KG¹, Obakponovwe O¹, Bobak P¹, Giannoudis PV¹.

> J Orthop. 2020 Sep 19;21:523-527. doi: 10.1016/j.jor.2020.09.012. eCollection 2020 Sep-Oct.

Fixation plus acute arthroplasty for acetabular fracture in elderly patients

Alessandro Aprato¹, Matteo Giachino¹, Domenico Messina¹, Alessandro Massé¹

Observed data

1,8 % mortality

9,1 % complications

	Media
Merle d'Aubigné	15,84 (CI 14,91-16,77)
EQ-5D-5L index	0,748 (CI 0,669-0,826)

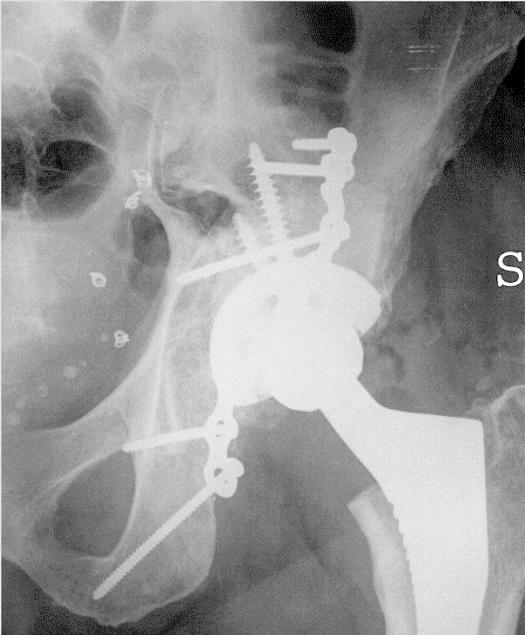
	EQ 5D 5L index
Popolazione (66-75 anni)	0,907 (M) - 0,877 (F)
PTA elezione	0,8
PTG	0,73
Traumatologia	0,73

Expert Rev Med Devices. 2015 May;12(3):287-95. doi: 10.1586/17434440.2015.1009828. Epub 2015 Feb 5.

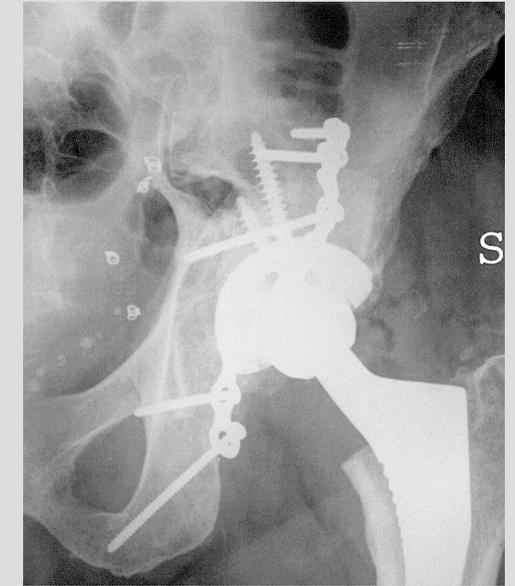
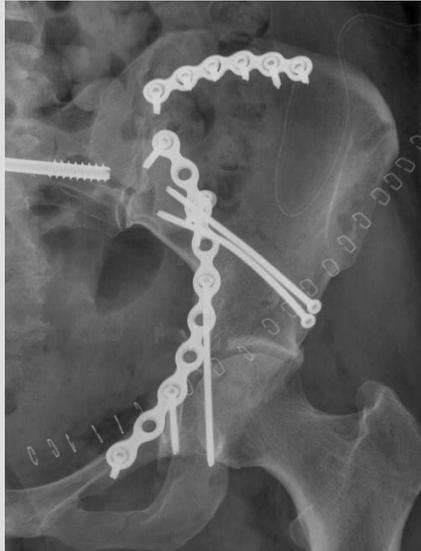
Total hip arthroplasty for acute acetabular fractures: a review of the literature.

Jauregui Jj¹, Clayton A, Kapadia BH, Cherian JJ, Issa K, Mont MA.

Acute THA is a safe and effective procedure



How much does saving femoral head cost after acetabular fracture? Comparison between ORIF and THA



Aims to compare:

1. costs
2. quality of life
3. cost efficacy

In patients over 60 yo the first five years after surgery



Comparative Study > Acta Orthop Belg. 2019 Dec;85(4):502-509.

How much does saving femoral head cost after acetabular fracture? Comparison between ORIF and THA

- ✓ Prospective study
- ✓ Follow up longer than 5 year
- ✓ Patients who underwent further procedures were excluded from the study when the procedures has been performed

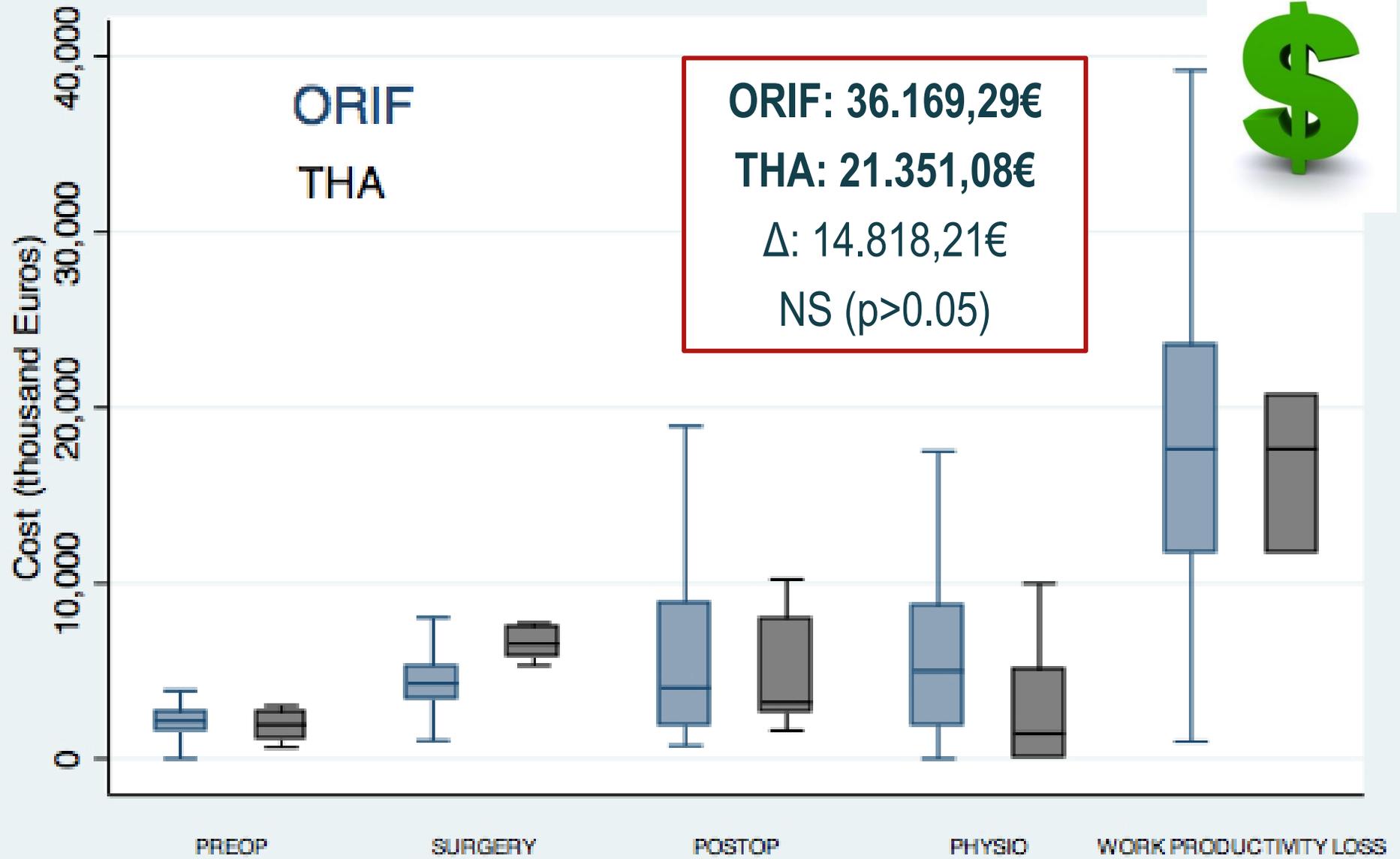
147
PATIENTS

21 THA

126 ORIF

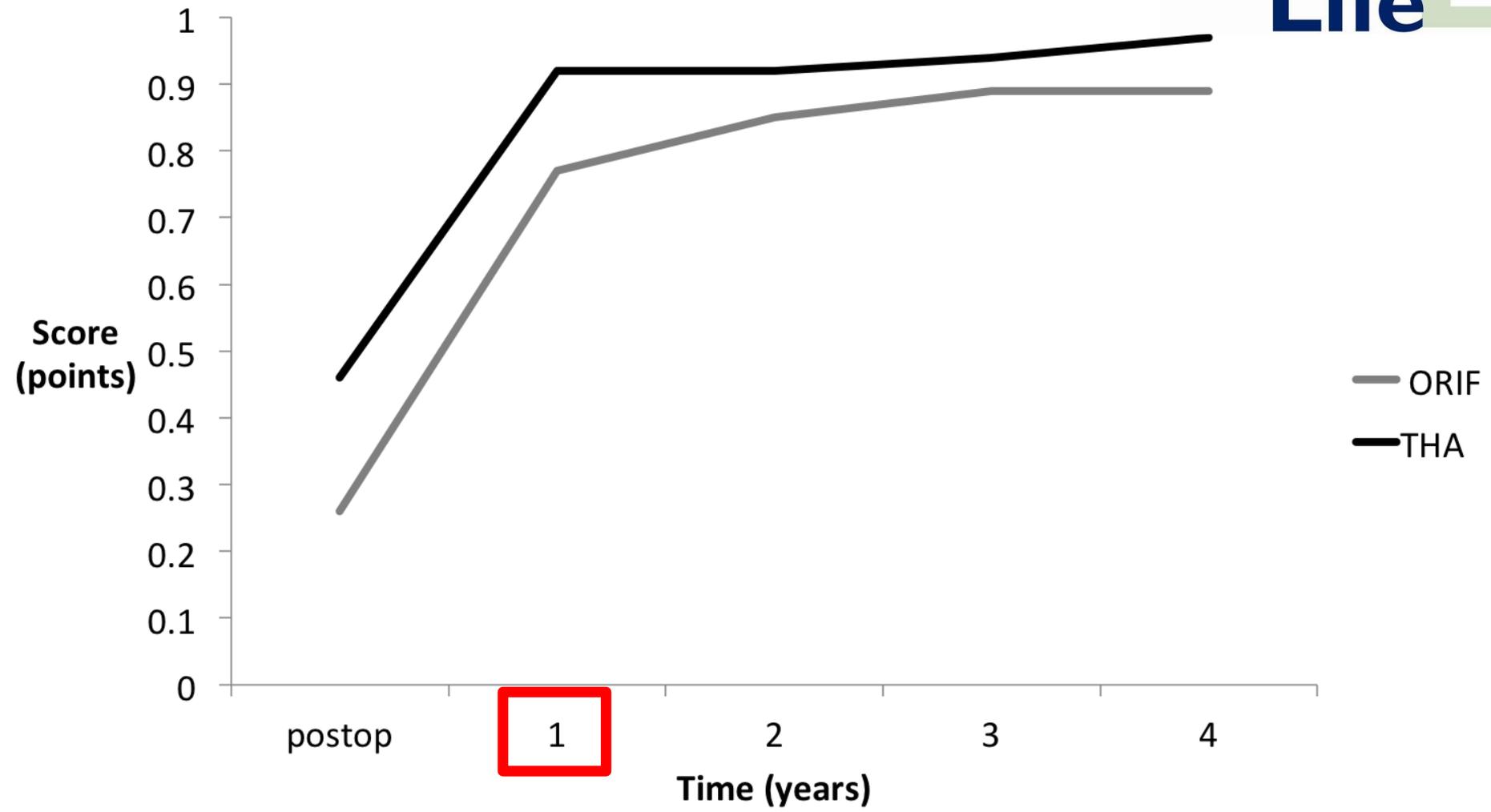
(same fracture pattern,
Follow-up, Age group)

- Costs
- Quality of life
- Quality Adjusted Life Years (QALYs)
- Cost efficacy



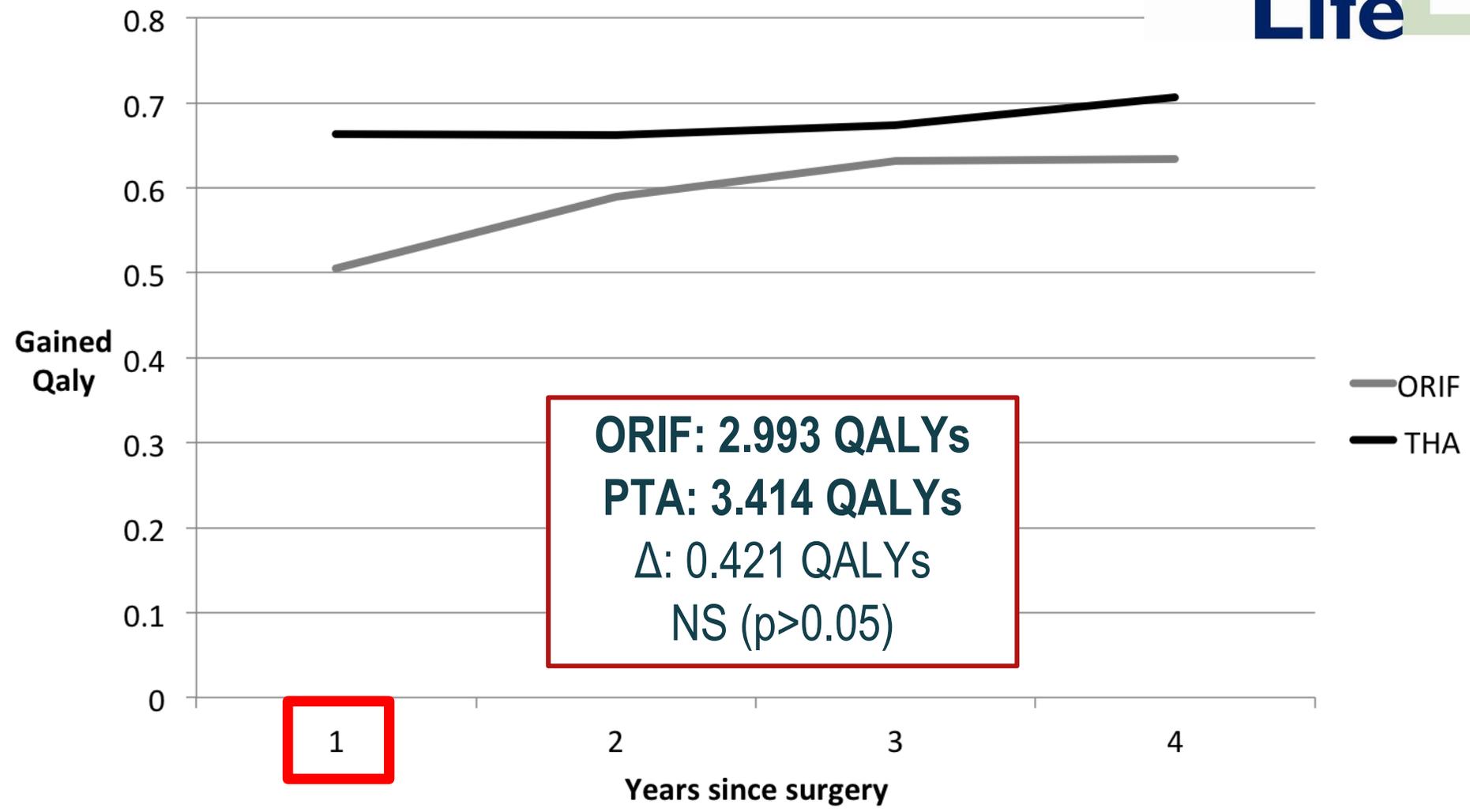
* P<0.05

Quality of Life (EQ-5D-5L)

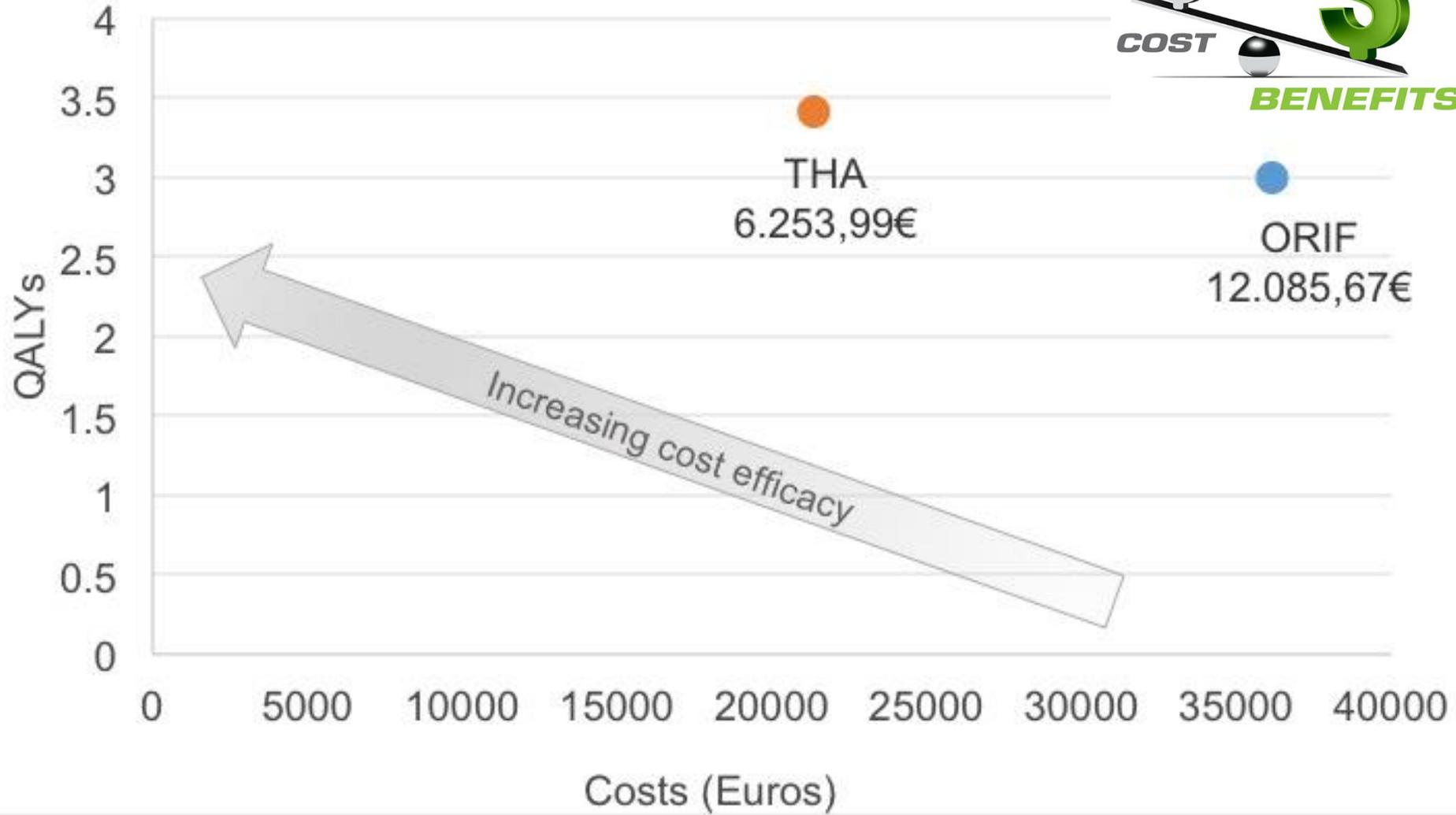


* P < 0.05

Gained Quality of life

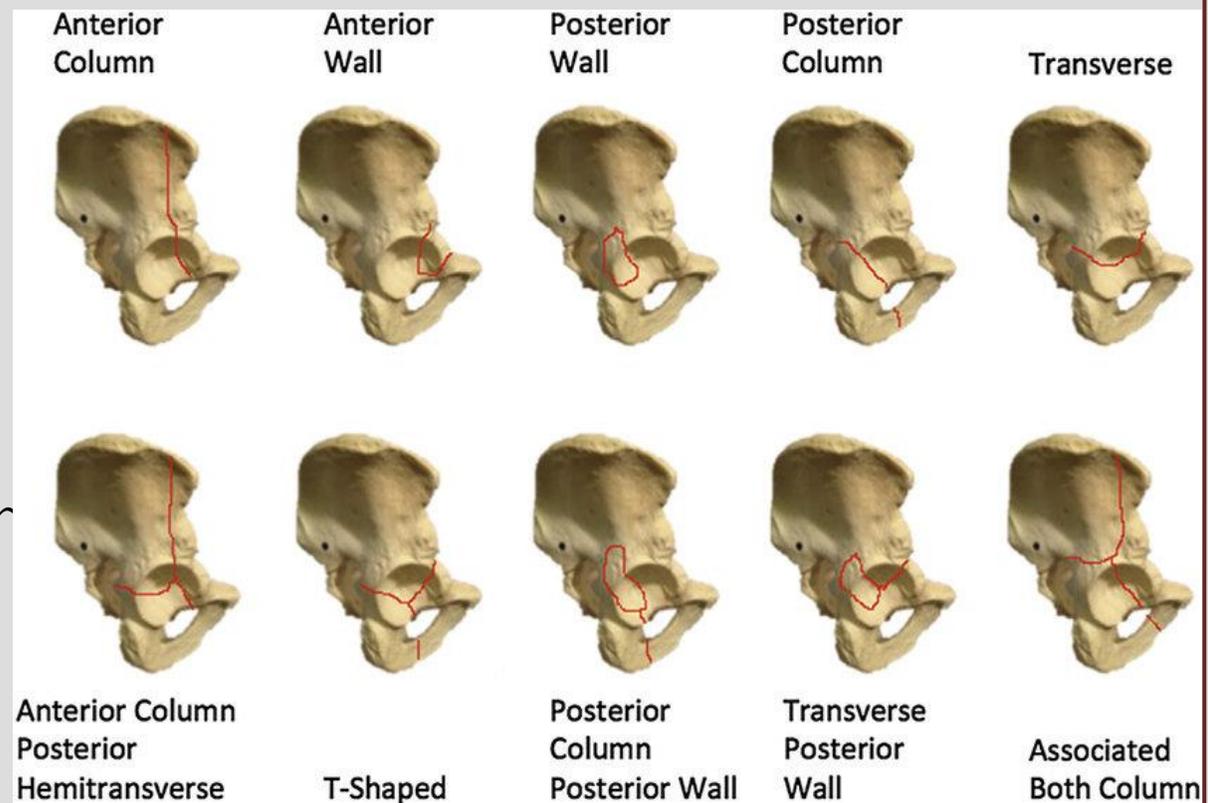


Cost efficacy (euros/QALY)



Is this true for all fracture patterns?

- ORIF results in patients over 60 are worse than those of THA
- Complication rate of THA in acetabular fractures is acceptable



How Often Does Open Reduction and Internal Fixation of Geriatric Acetabular Fractures Lead to Hip Arthroplasty?

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- Impaction
- Comminution
- Head damage
- Easy THA

TABLE 2. Fracture Classification by Letournel Method²²

	All ORIF (n = 46)	ORIF Converted to Arthroplasty (n = 13)	ORIF Not Converted to Arthroplasty (n = 33)
Posterior wall	17	6	11
Posterior column	1	1	0
Anterior wall	0	0	0
Anterior column	4	1	3
Transverse	1	0	1
Transverse posterior wall	4	3	1
T-type	3	0	3
Anterior column or wall posterior hemitransverse	2	1	1
Associated both column	7	0	7
Posterior wall- posterior column	7	1	6

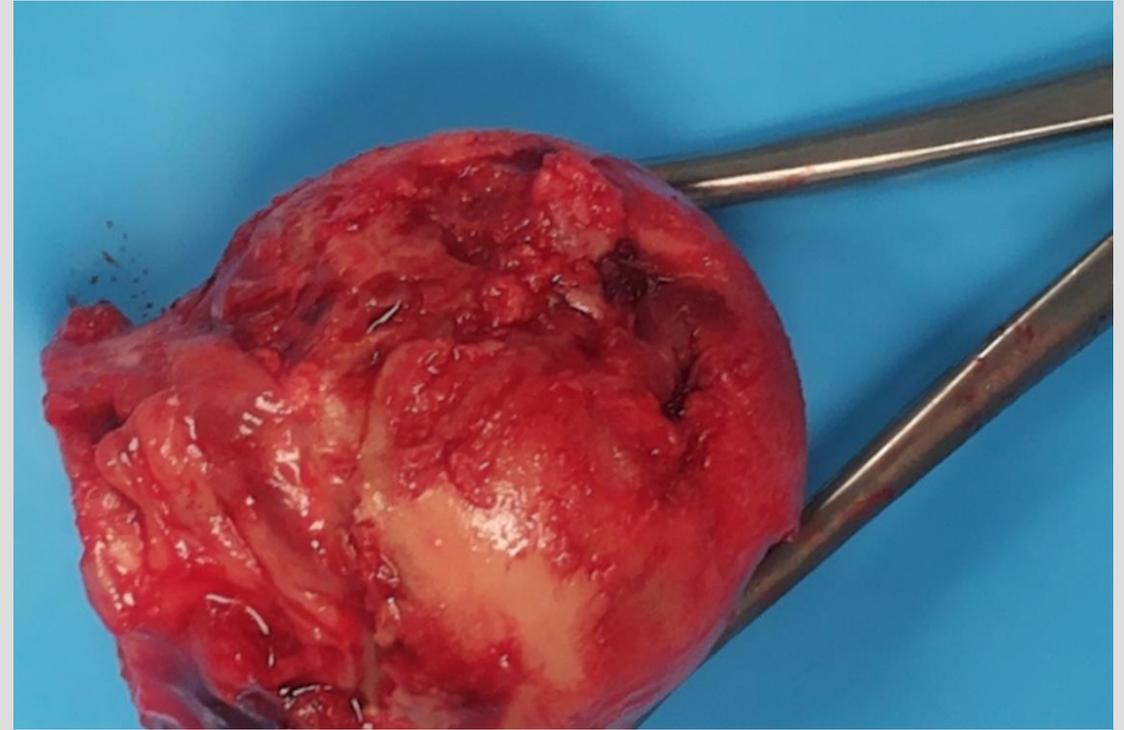
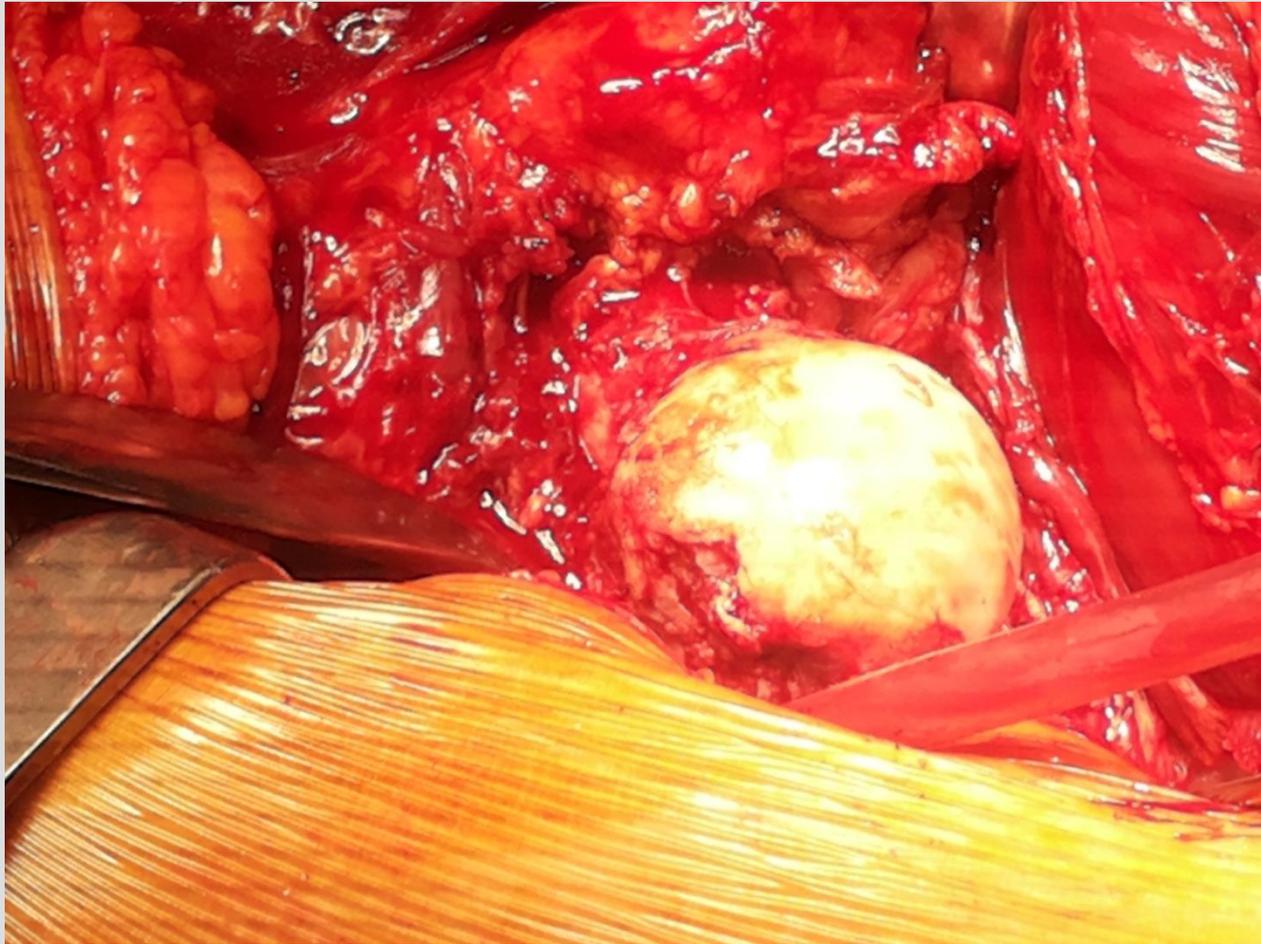
F - 65yo



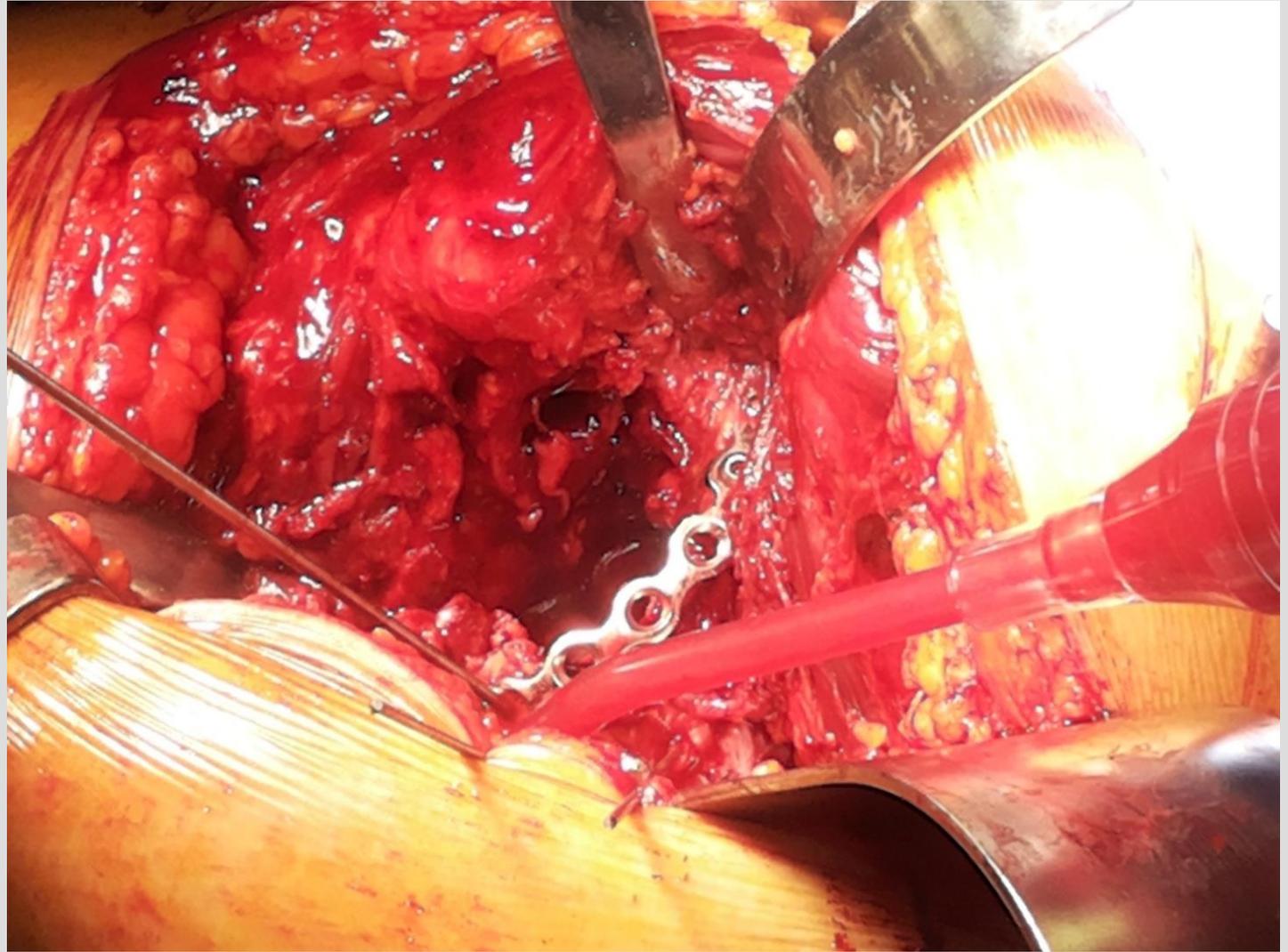
Posterior wall



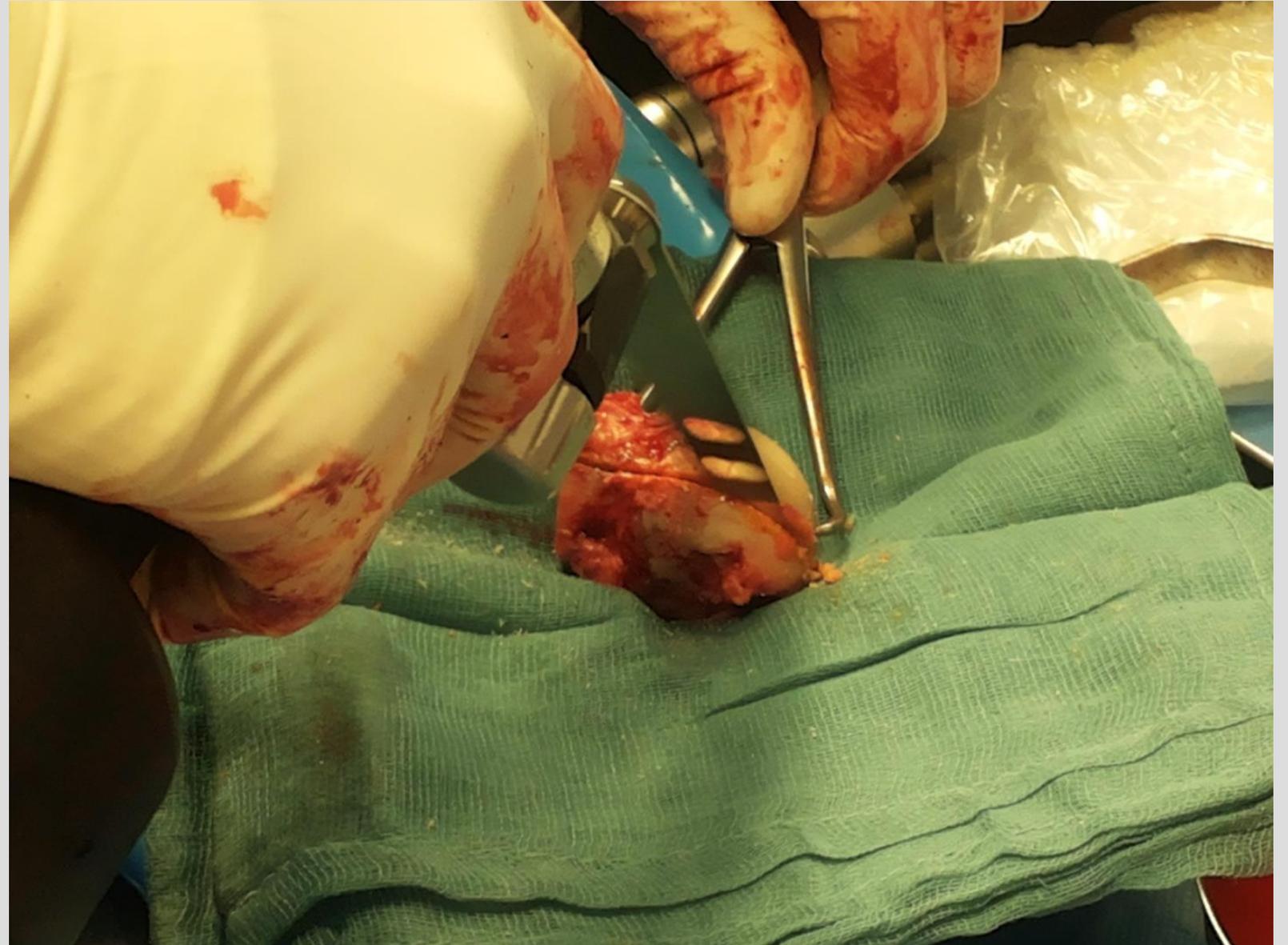
Head damage >25%



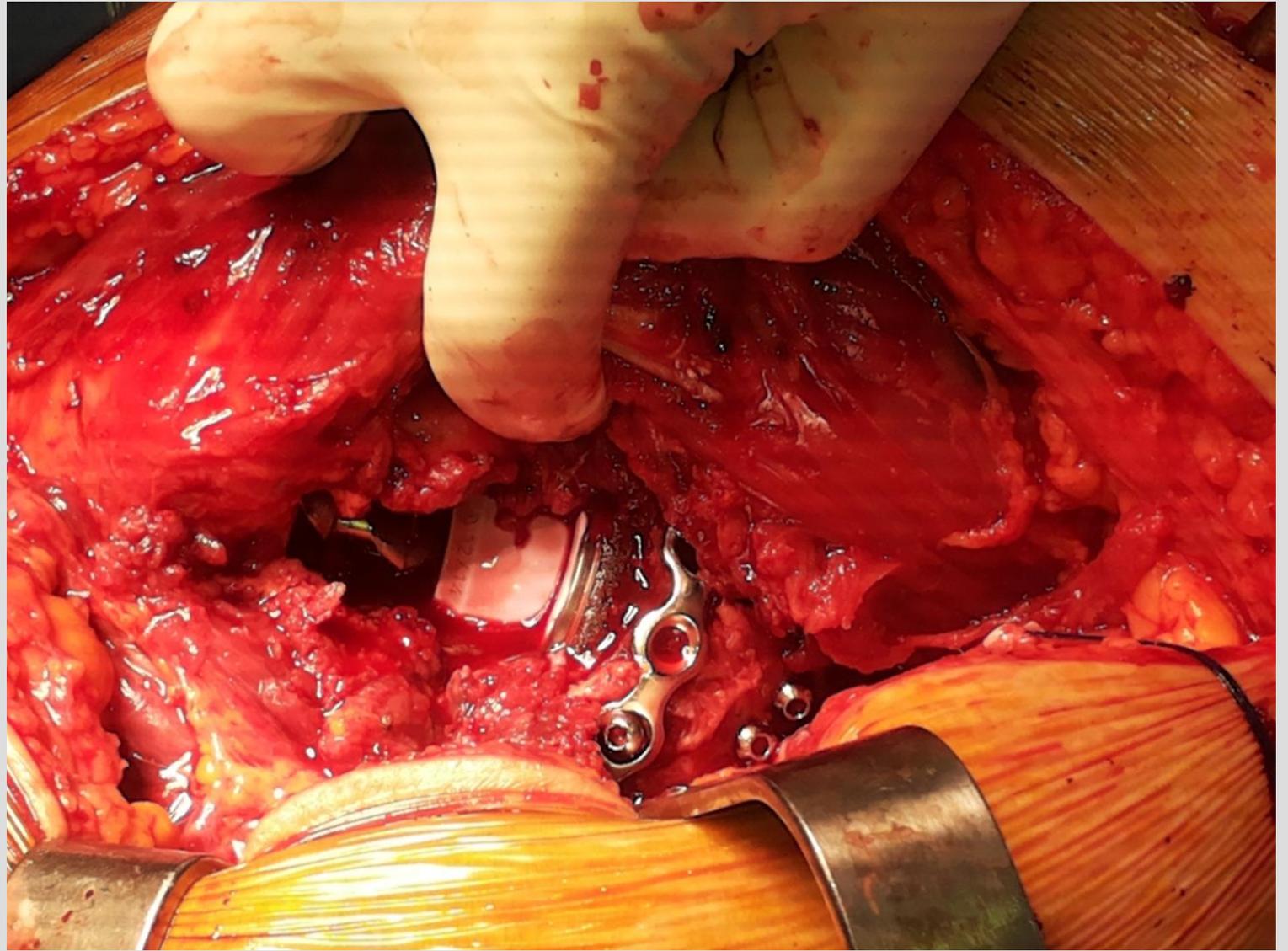
Posterior wall defect

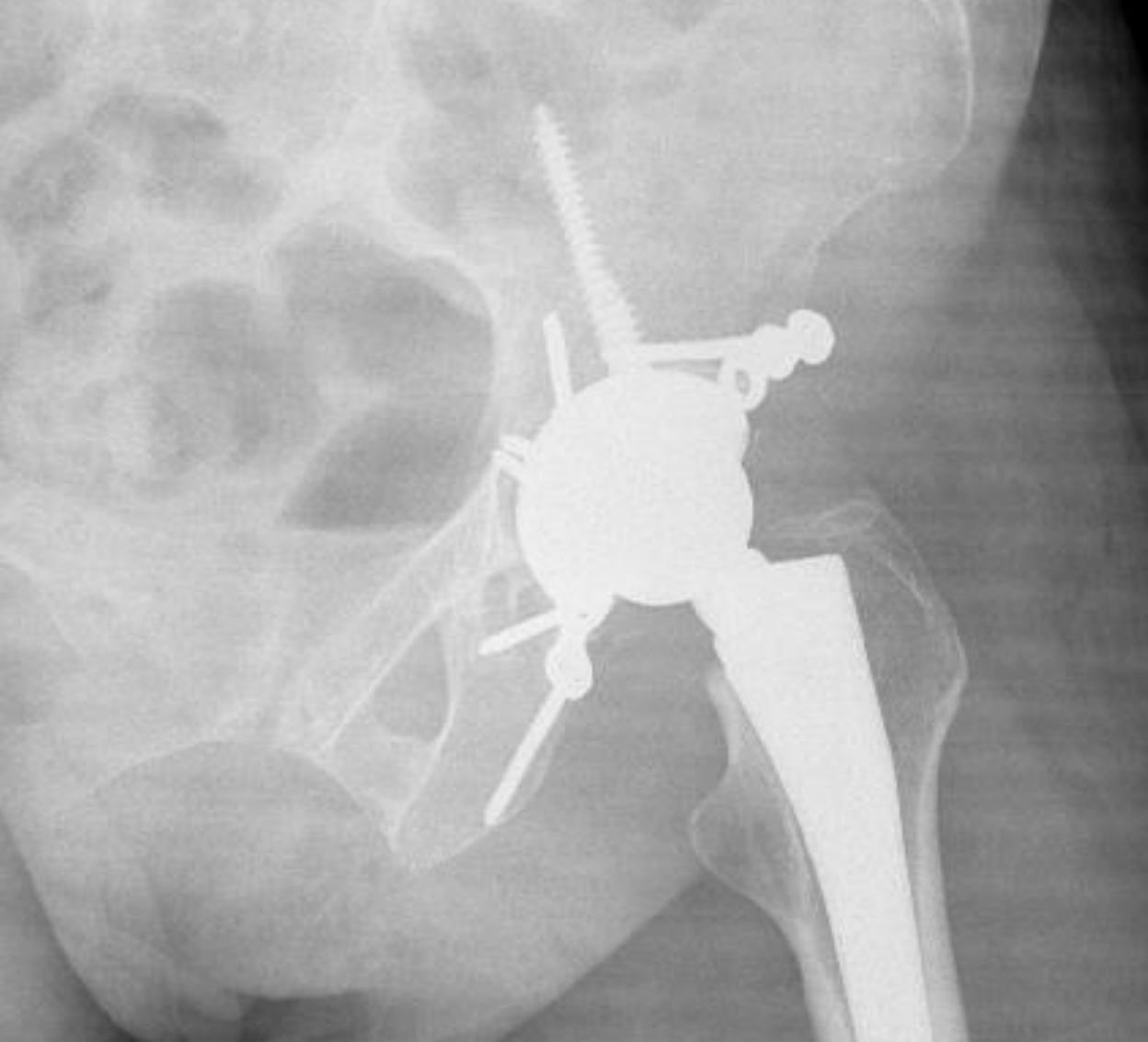


Autologous graft
from femoral head



Posterior wall
reconstruction and
cup implantation

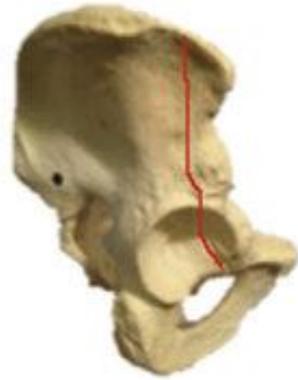




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Anterior Column

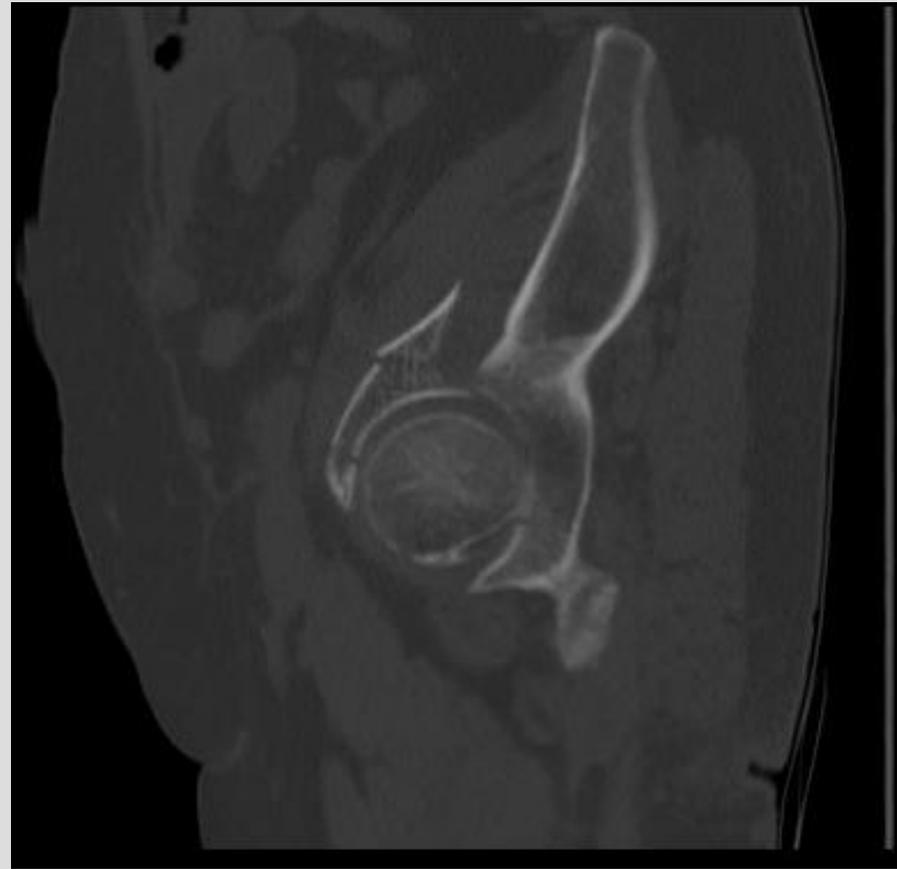
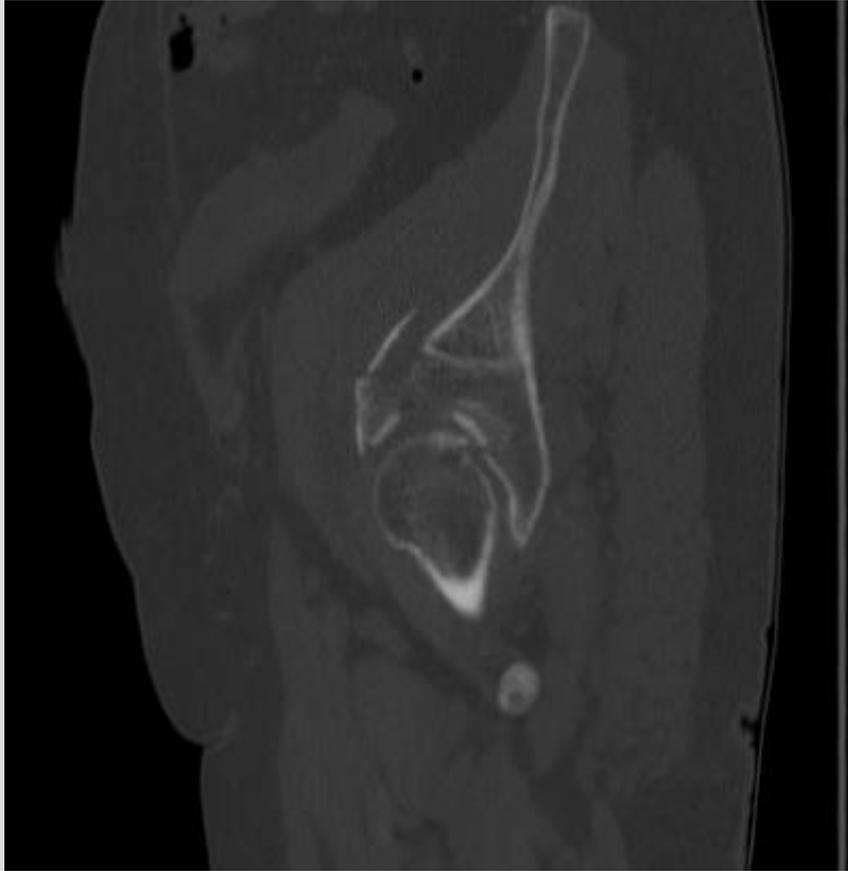


- More elderly
- Low energy trauma
- THA not challenging

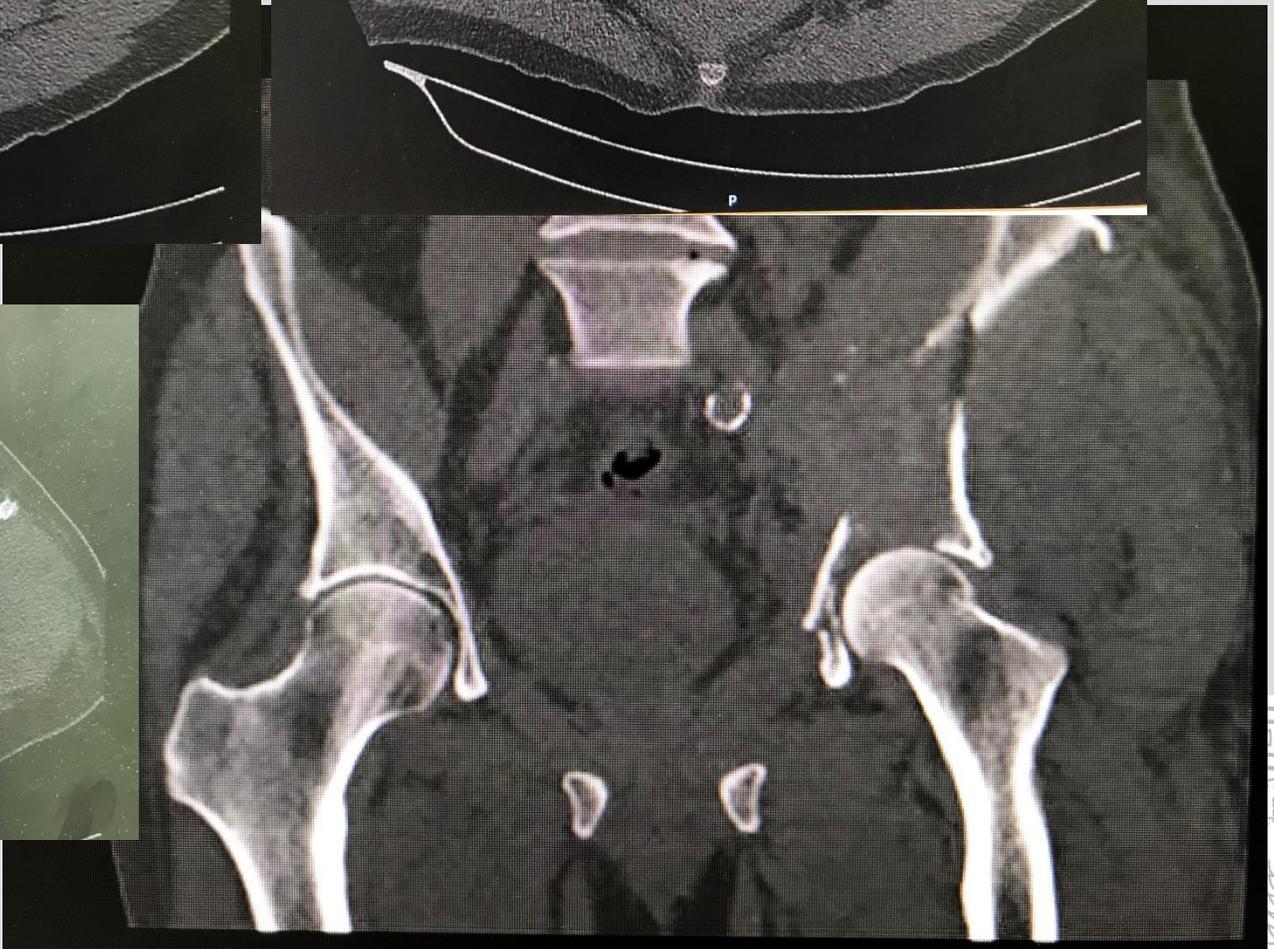
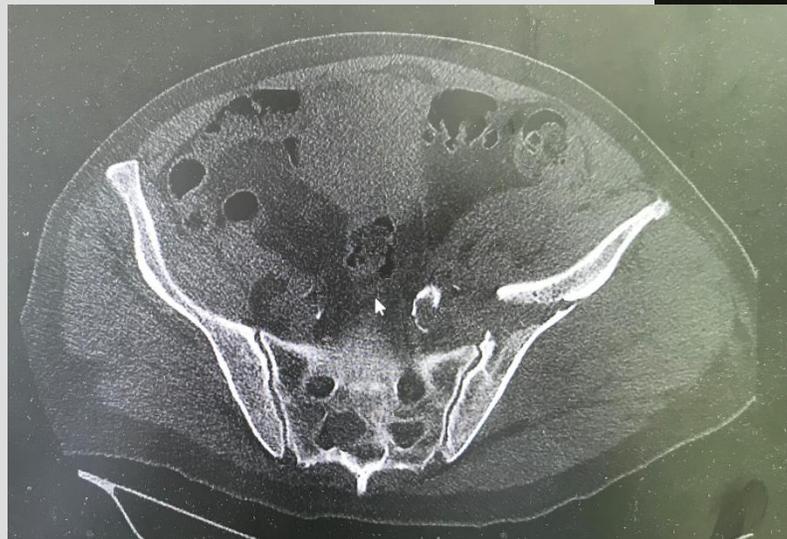
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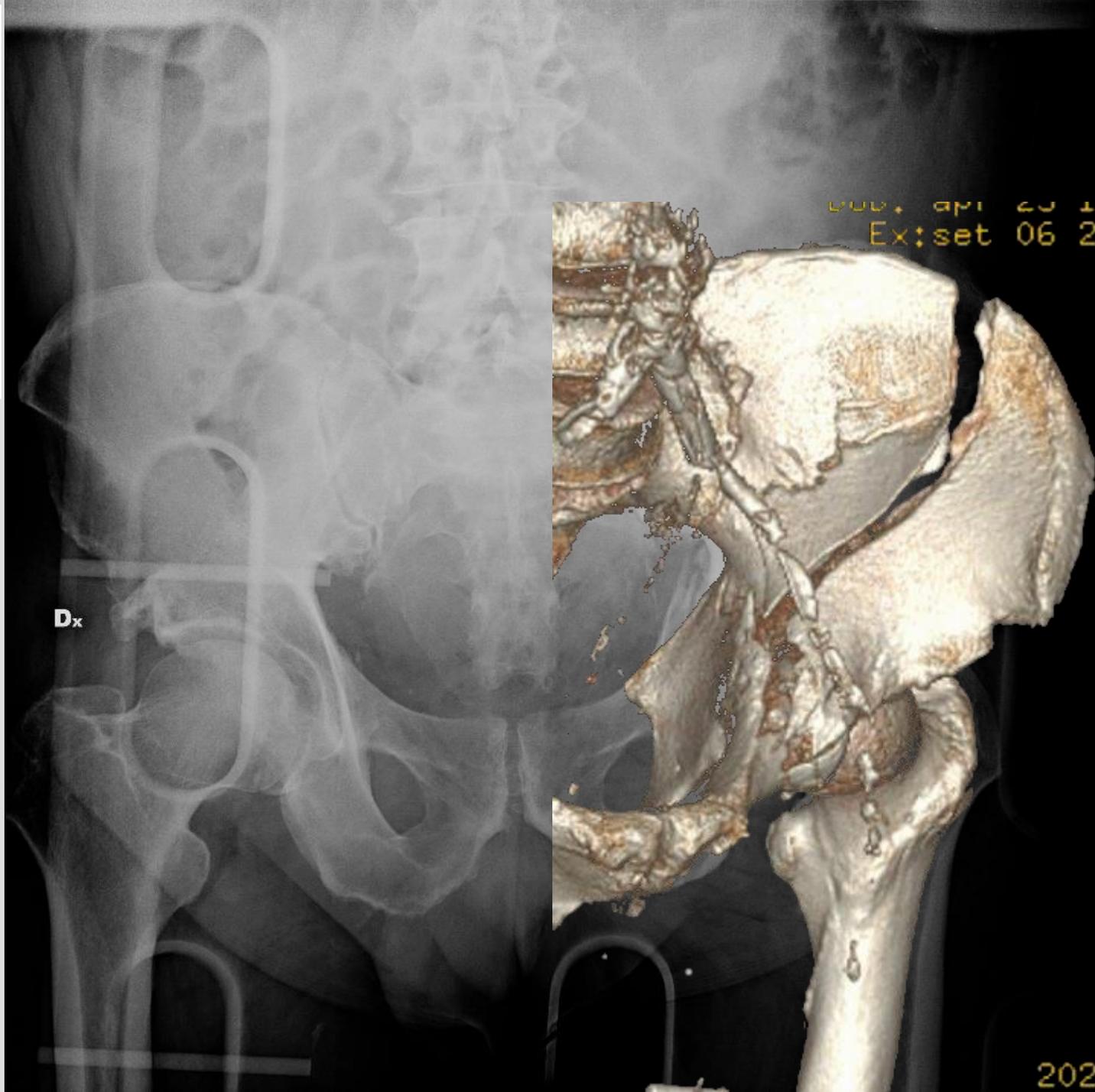
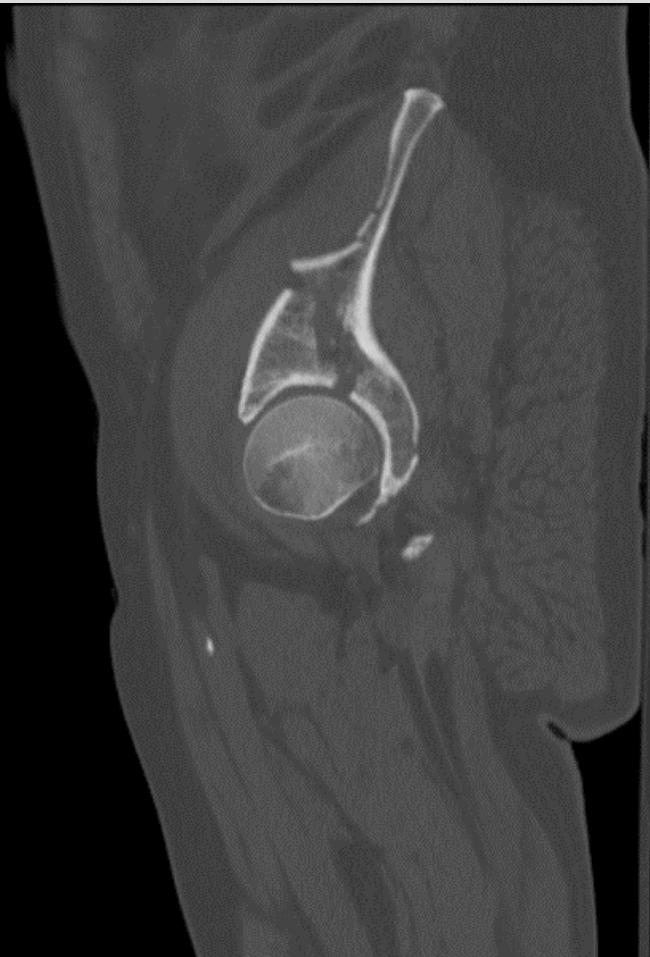
- Small (no) portion of intact acetabulum
- Very Challenging THA
 - Cup fixation
 - COR

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Anterior Column
Posterior
Hemitransverse

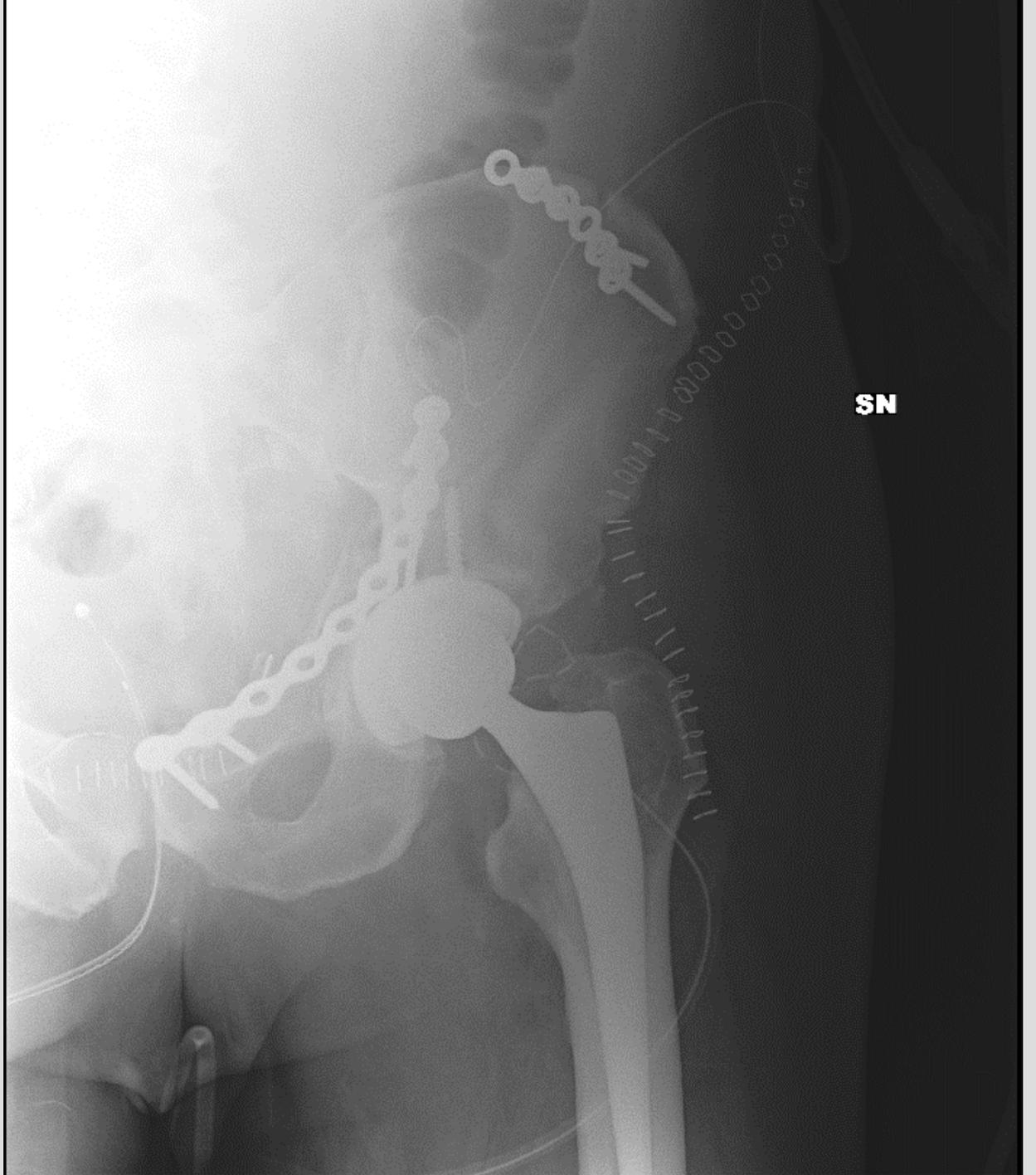




- Stoppa
- 1st window
- Smith Petersen



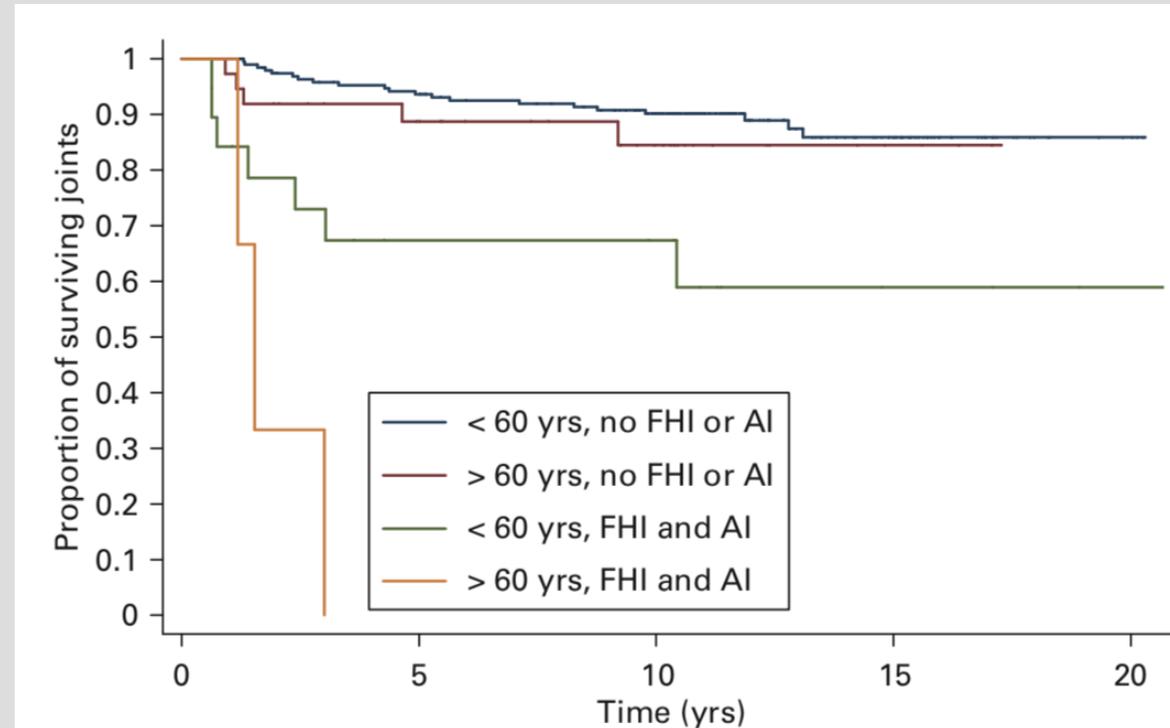
38EDRTW10000



Take Home Message

The choice of the proper treatment should combine:

- Fracture pattern
- Patient's characteristics
- Knowledge of the outcomes expected



Take Home Message

Acute THA vs ORIF

- Effective and “easy” in simple fracture patterns
- Challenging in most complex fracture patterns + lack of evidence
- IT IS NOT A SHORTCUT

