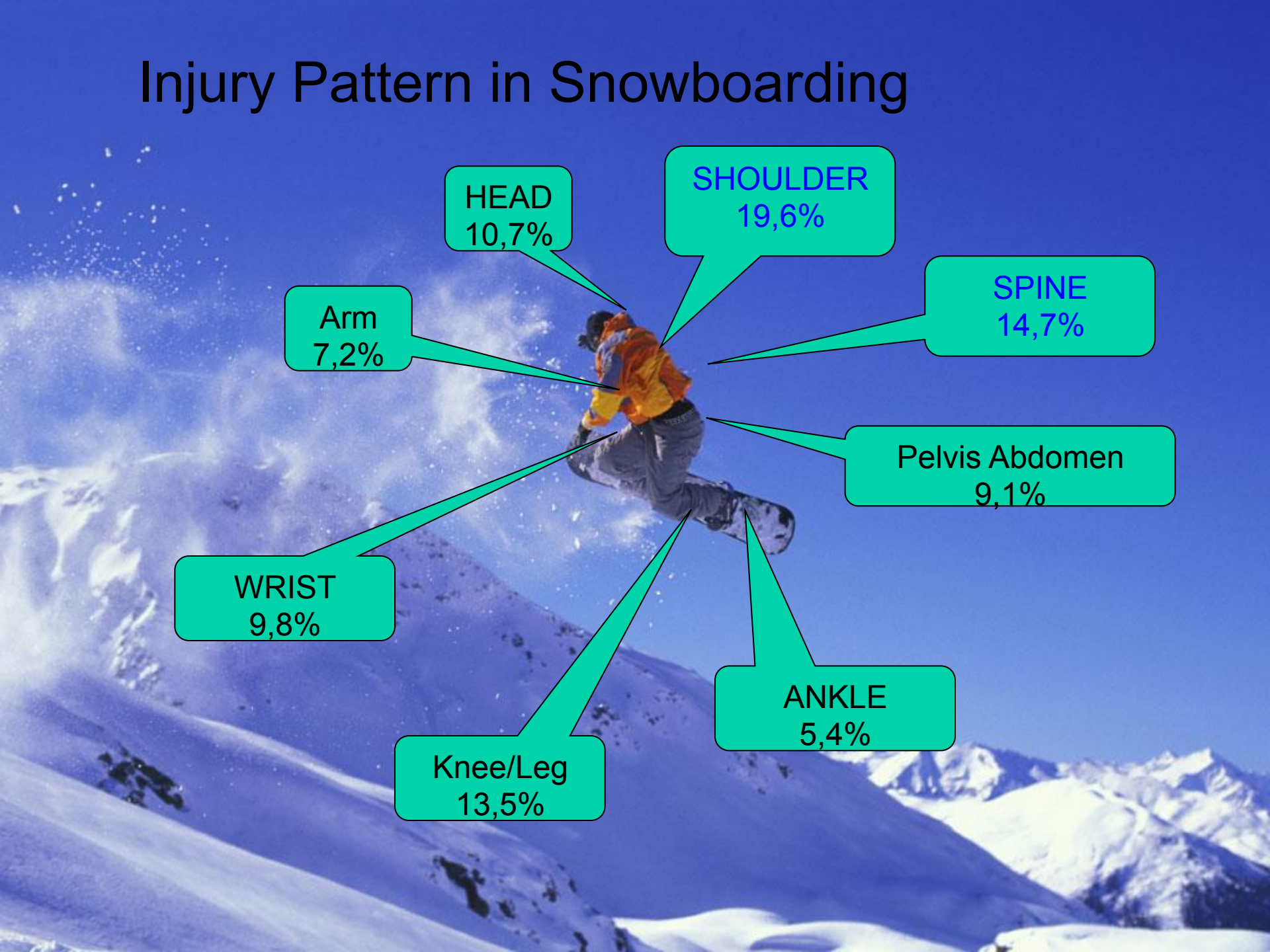
35 th Congress of
S.I.T.E.M.S.H
March 13th to 17th, 2016
Inawashiro, Japan

Proximal Humeral Fracture
Surgical Treatment

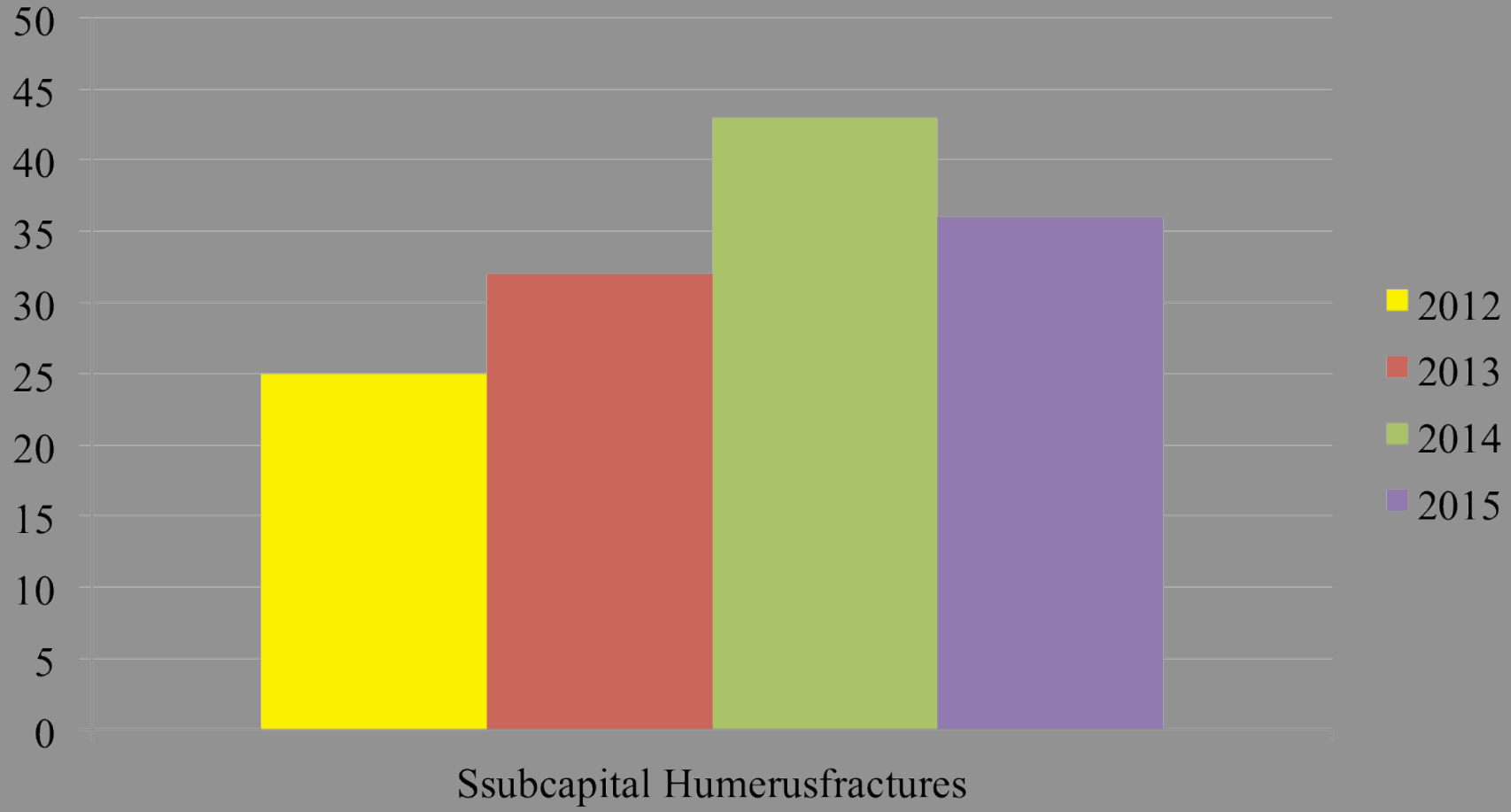
A.Genelin, Austria
Department of traumatology
General Hospital Hall i. Tirol

Injury Pattern in Skiing

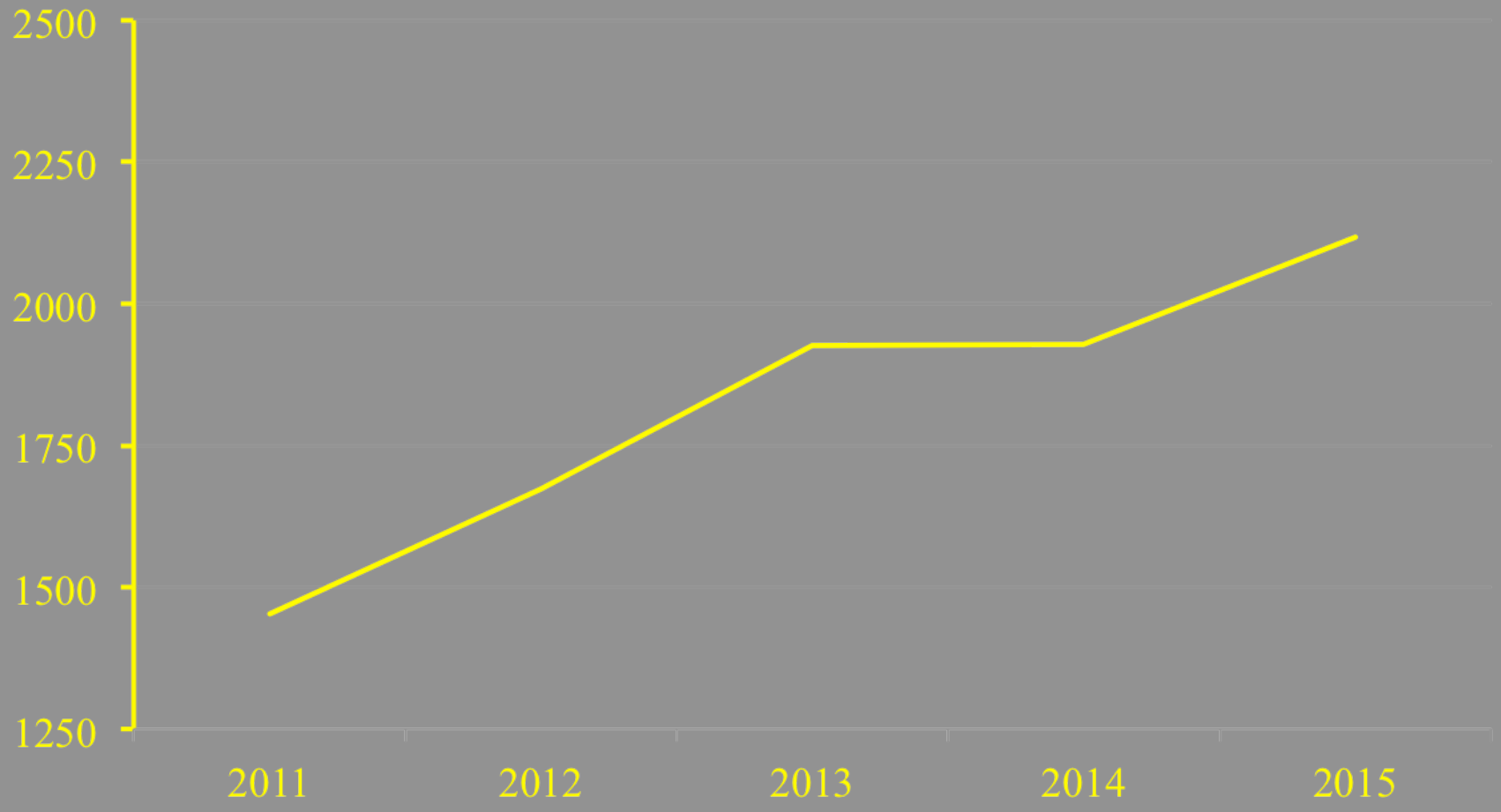
Injury Pattern in Snowboarding



subcapital Humerusfractures in skiing over the years 2011 - 2015



Increase in Shoulder injuries



Shoulder injuries still a challenge

- Implant:
  K-wire,IMC ,Plate, Nail, Shoulder prosthesis
- Timing:
  immediate or planned surgery
- Outcome:
  ? correct anatomy & good function ?

treatment opportunities

- Conservative (cast, mitella retelast fixation)
- Pins/Screws
- Humeralplate
- Humeral Nail Antegrad
- IMC/ Flexnail

conservative

advantage:

- no additional risk
- cheap

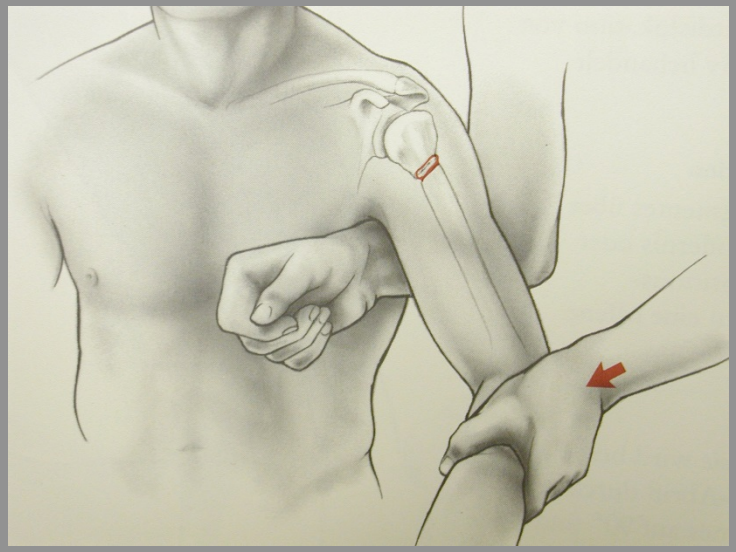
disadvantage:

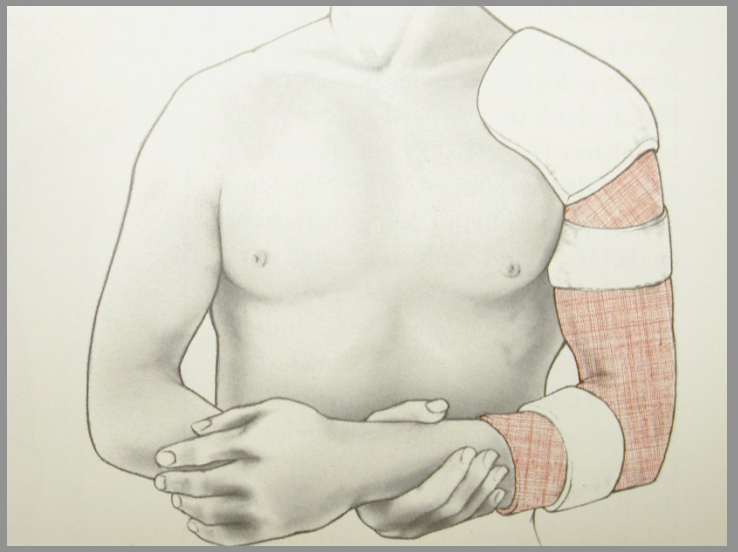
- immobilisation needed
- loss of correction possible
- no anatomical reduction

Proximal Humeral Fracture

Conservative Treatment

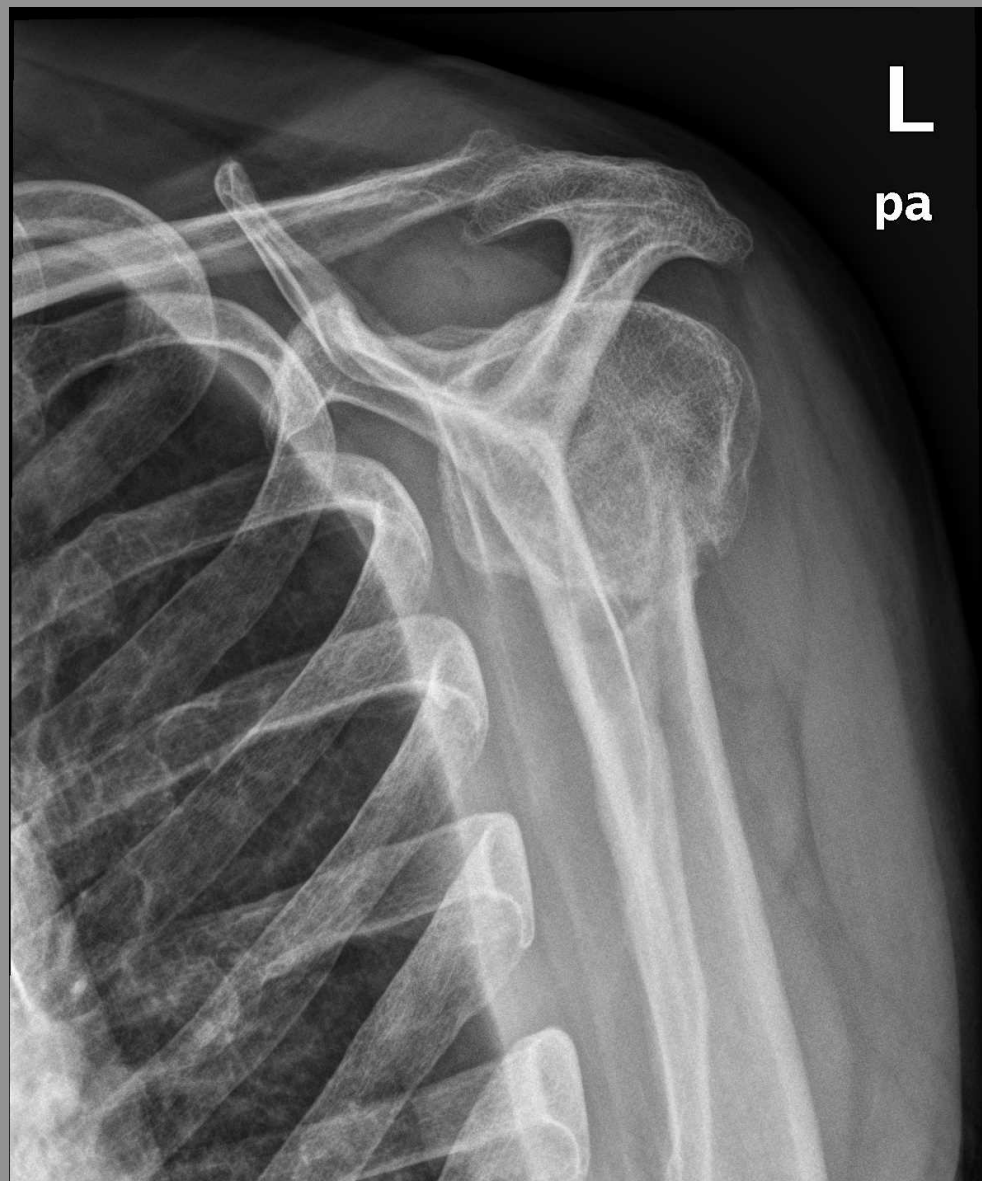
All none displaced Fractures (80 %)





Desault- or Gilchrist Fixation

Skiing accident 80a male

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LKH Hall i. Tirol
M 79 2001551801
DoB: Oct 03 1934
Ex:Sep 04 2014
Se:4
Volume Rendering No cut
DFOV 20.0 cm
STND/SS50 No Filter
P
I
P
L
S
A
450/6
No VOI
kV 120
mA Mod.
Rot 0.80s/HE+ 39.4mm/rot
0.6mm 0.984:1/0.62sp
Tilt: 0.0 HR
01:46:09 PM
W = 2000 L = 450
IAL


3D
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SPL
Hussl Burkhard Dr.
LKH Hall i. Tirol
M 79 2001551801
DoB: Oct 03 1934
Ex:Sep 04 2014
Se:4
Volume Rendering No cut
DFOV 20.0 cm
STND/SS50 No Filter
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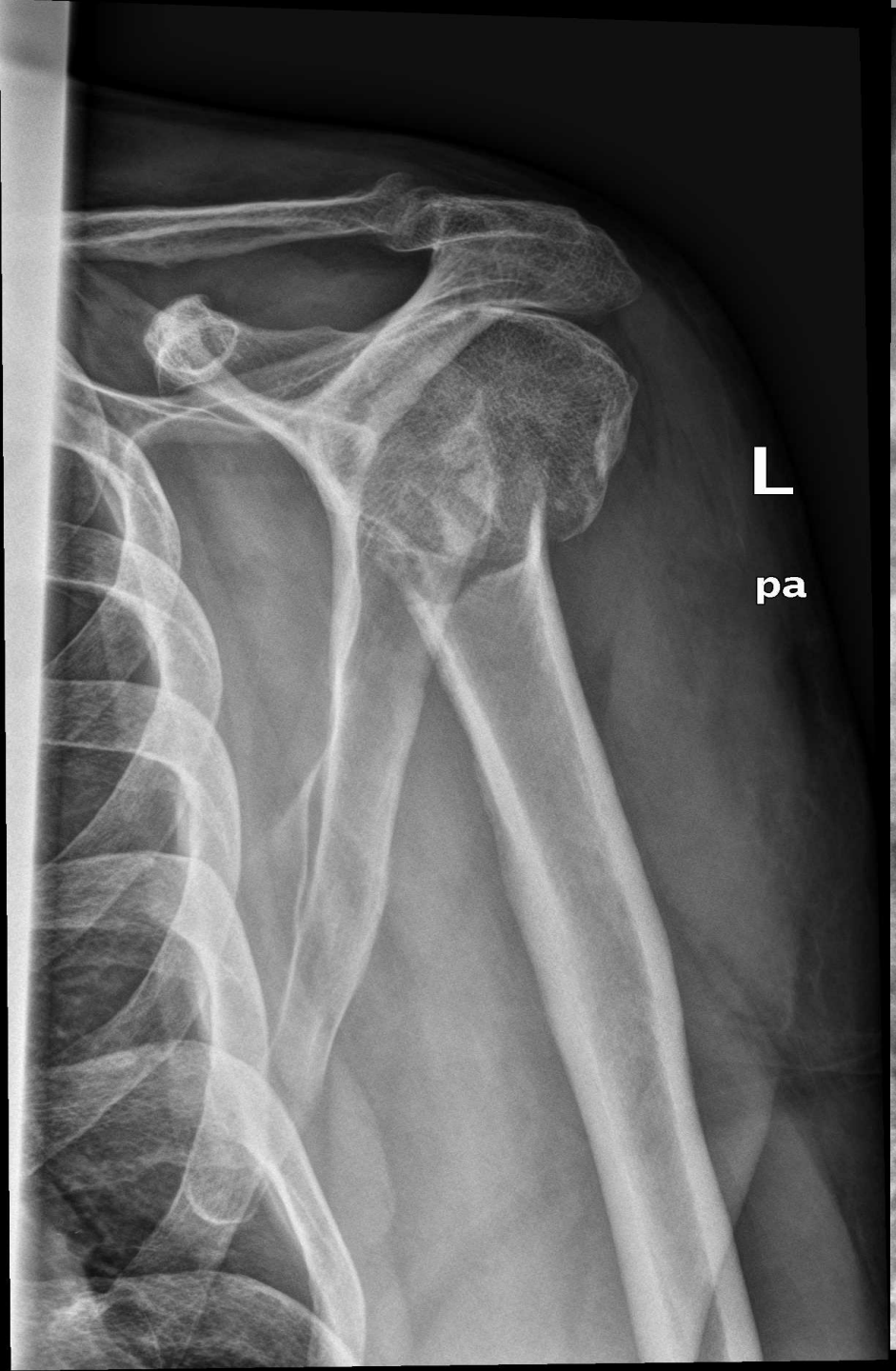
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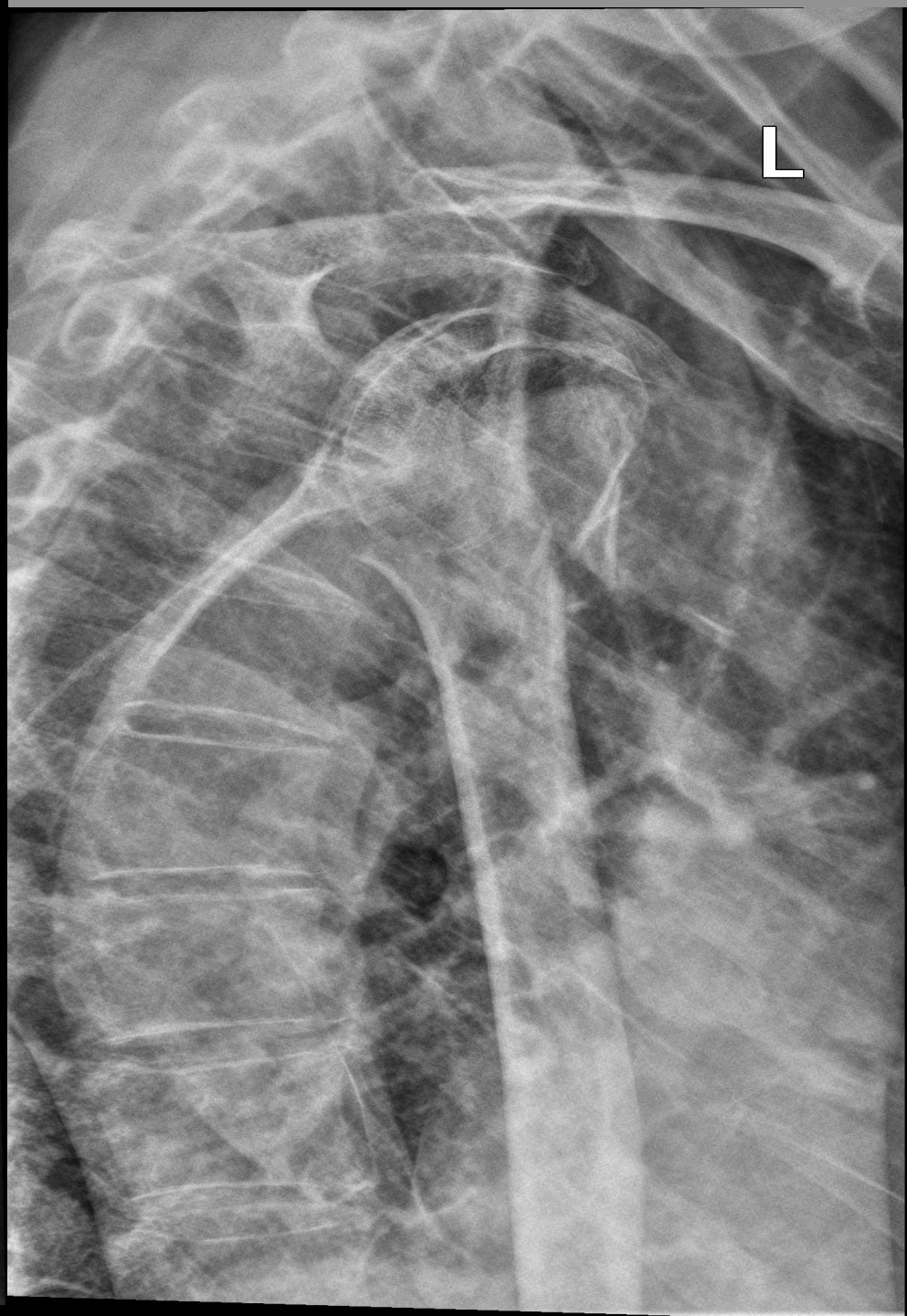

L

Result: 8 months post op.

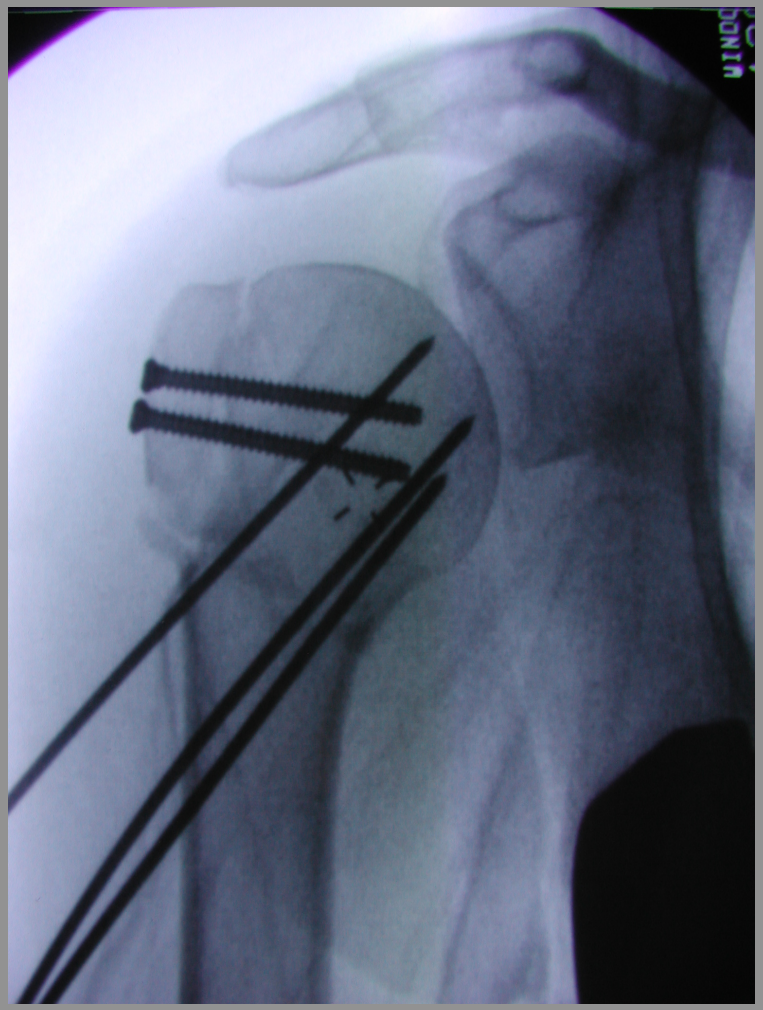
Conservative Treatment

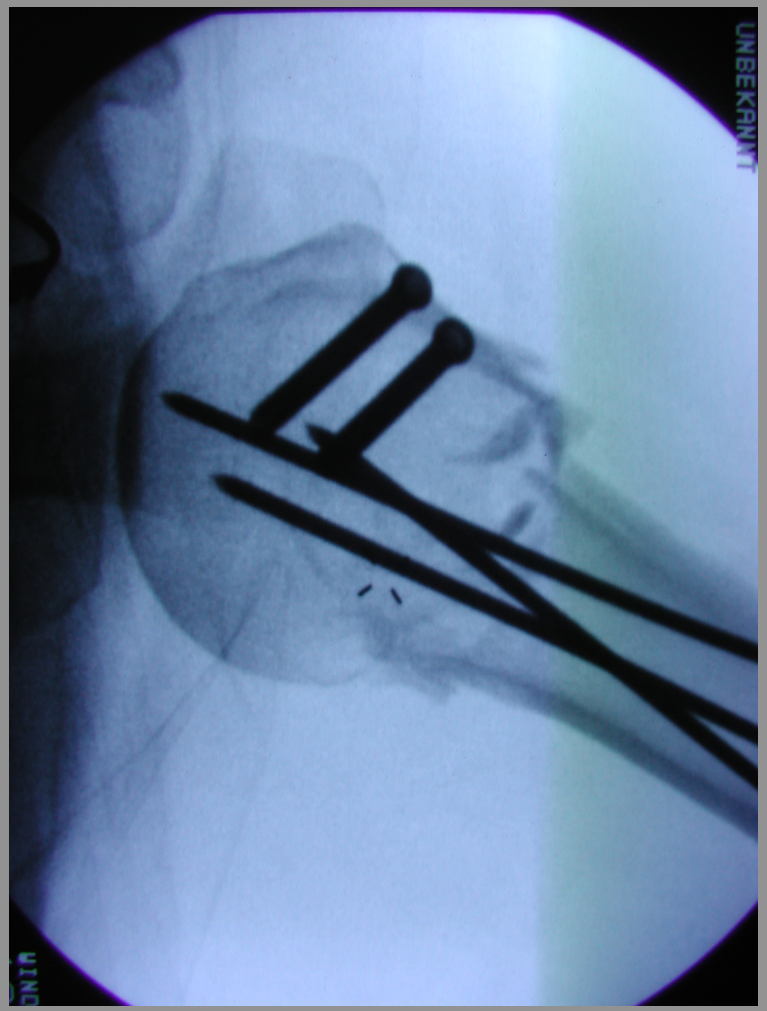
Operative Treatment

All none sufficient reducible fractures

Percutaneous techniques

Pins and Screws





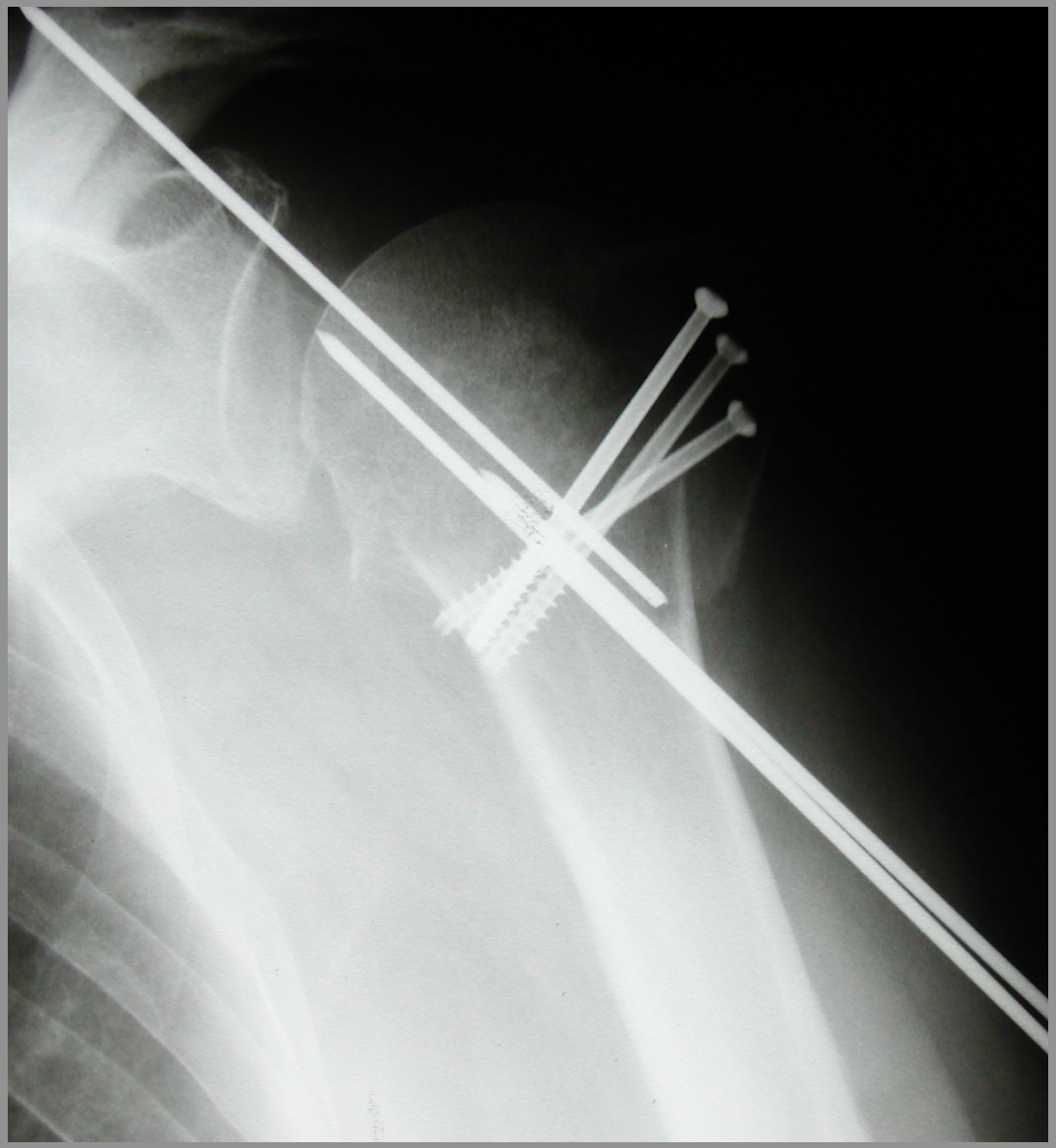
pins

advantage:

- easy procedure
- one surgeon only
- cheap

disadvantage:

- immobilisation post op
- questionable stability
- pin migration



platesystems

advantage:

- stable construct
- fits almost every fracture
- anatomic solution

disadvantage:

- invasive procedure
- post op immobilisation
- long rehab time

nailing antegrad

advantage:

- minimal invasiv
- one surgeon
- no inmobilistaion necessary

disadvantge:

- no dynamic compression on fracture
- rotatory cuff injuries

IMC

advantage:

- easy technique
- intramedullary splinting
- early mobilisation
- cheap

disadvantage:

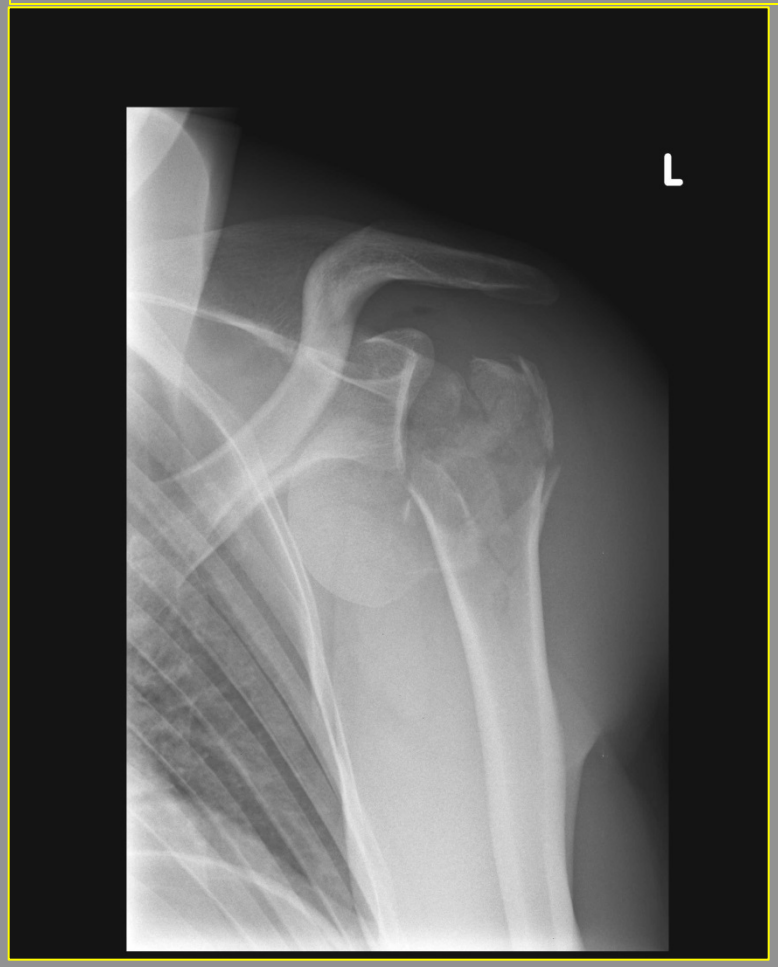
- immobilisation
- no absolute stability
- loss of correction
- ***not apt for calcar fractures and four part fractures***

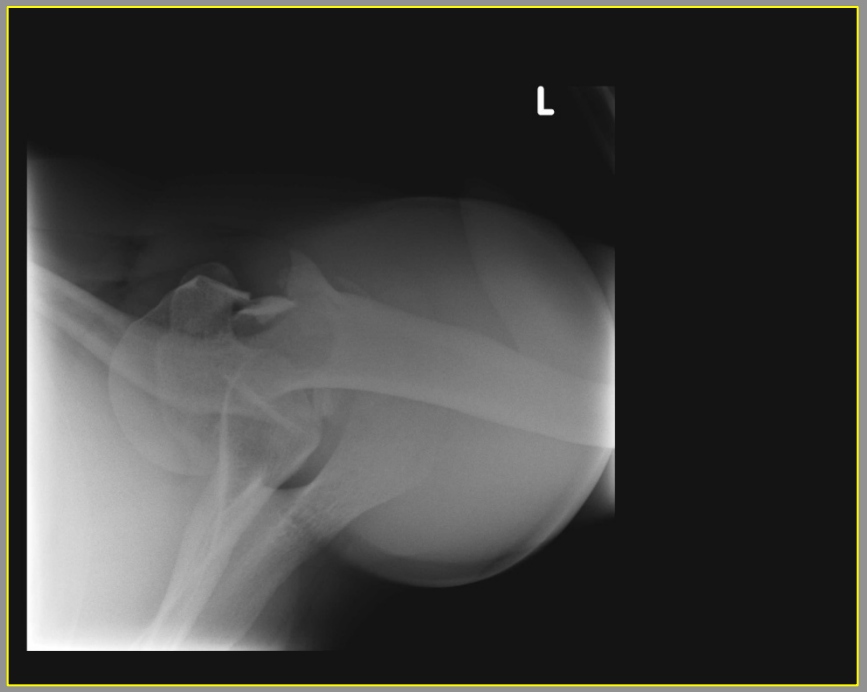
Case 1: 44 male

post surgery

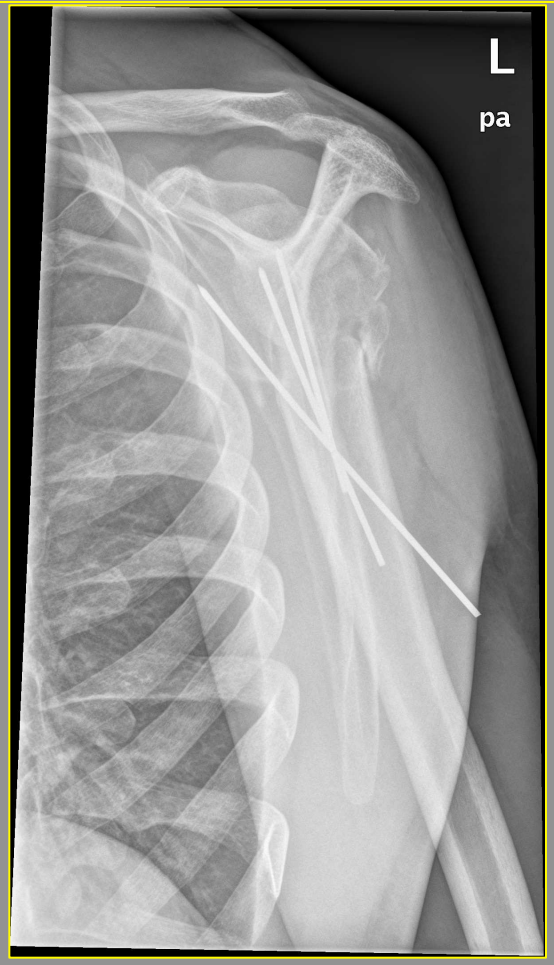
result

Case 2: 35 male



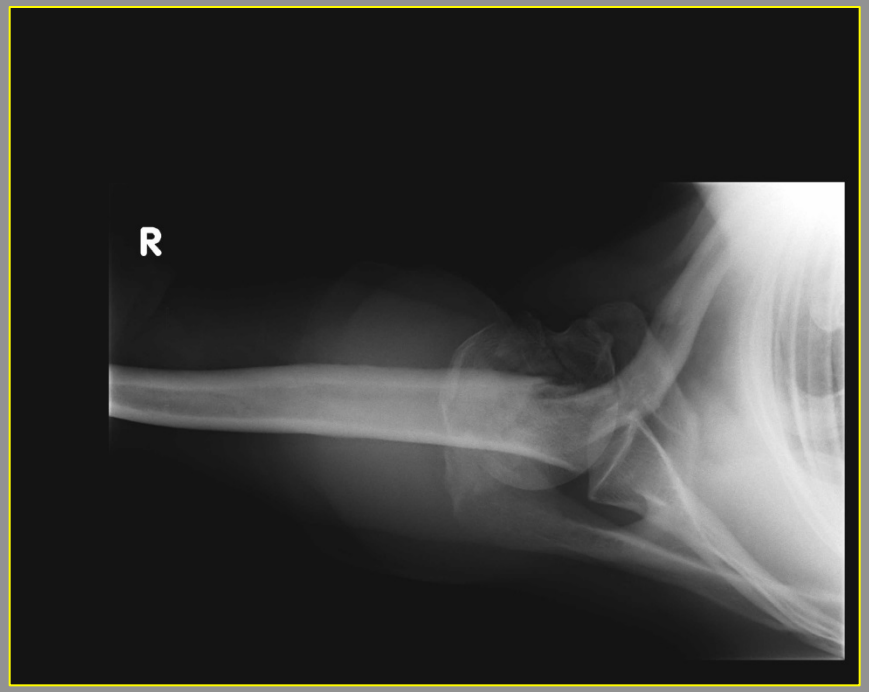


post surgery



result

Case 3: 60 male

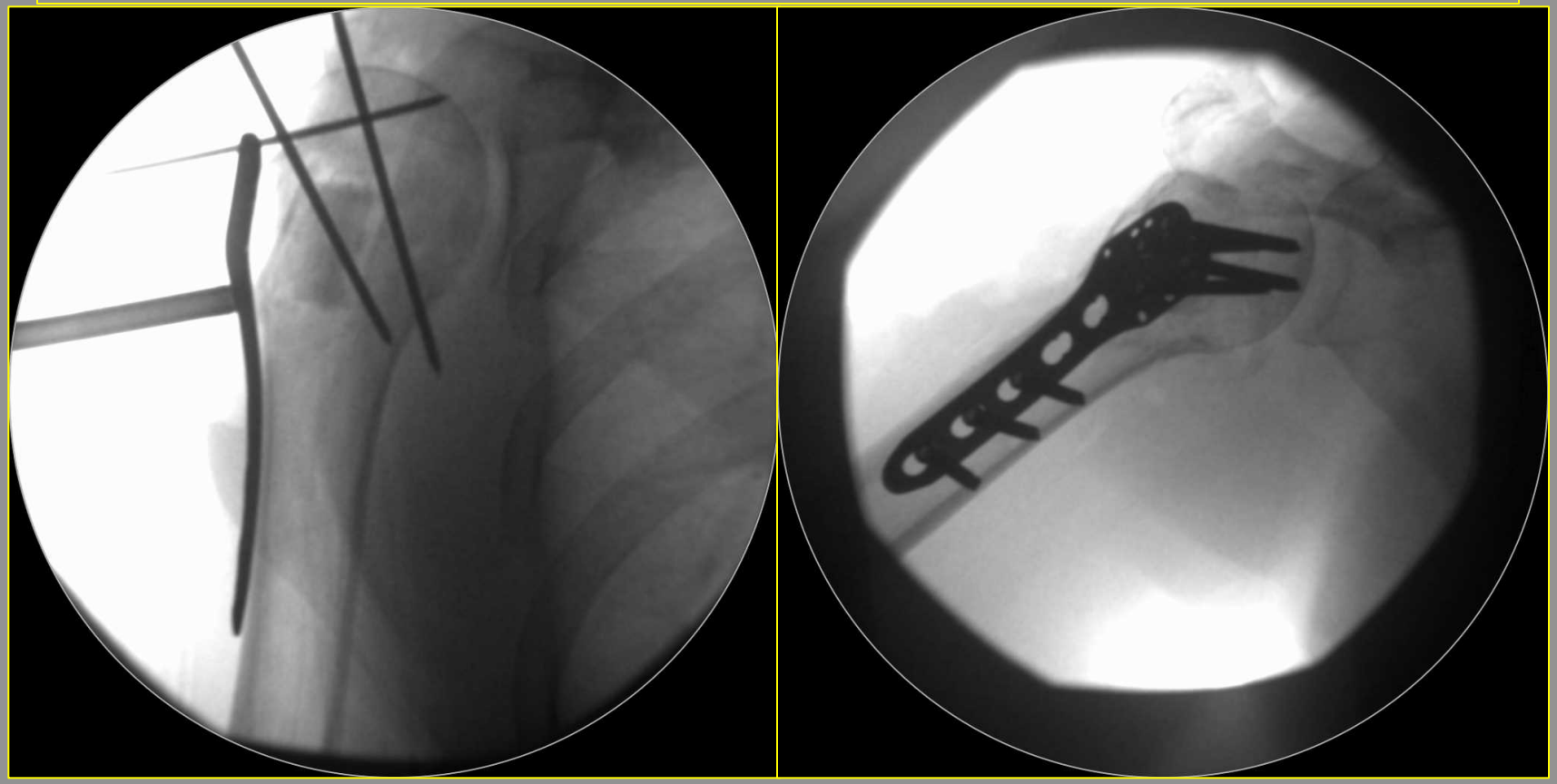


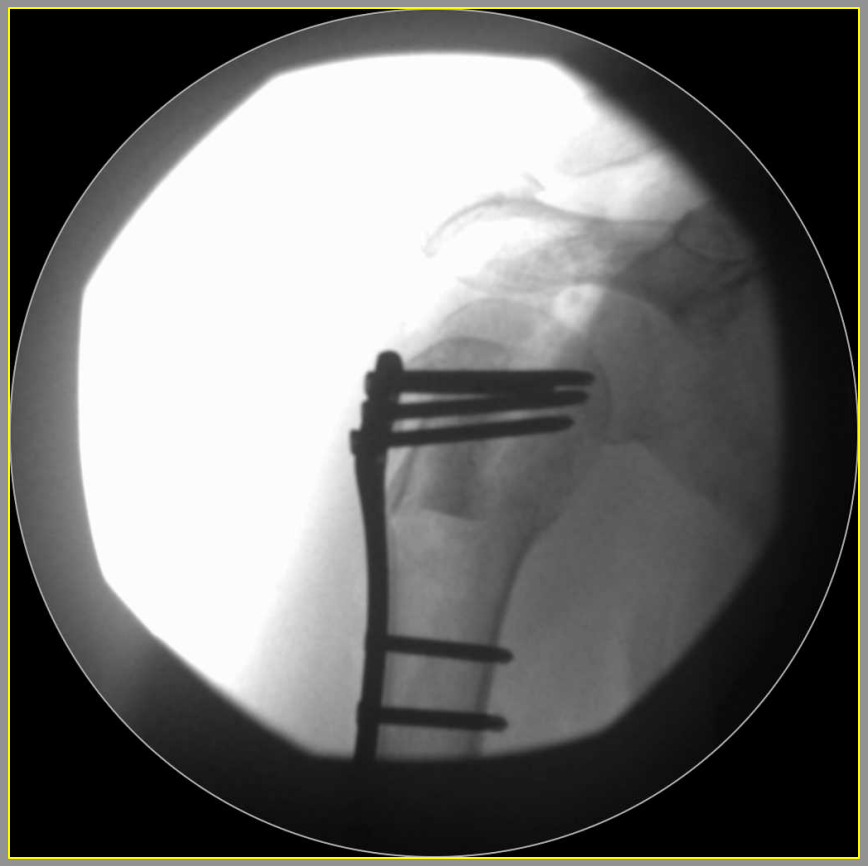
surgery images

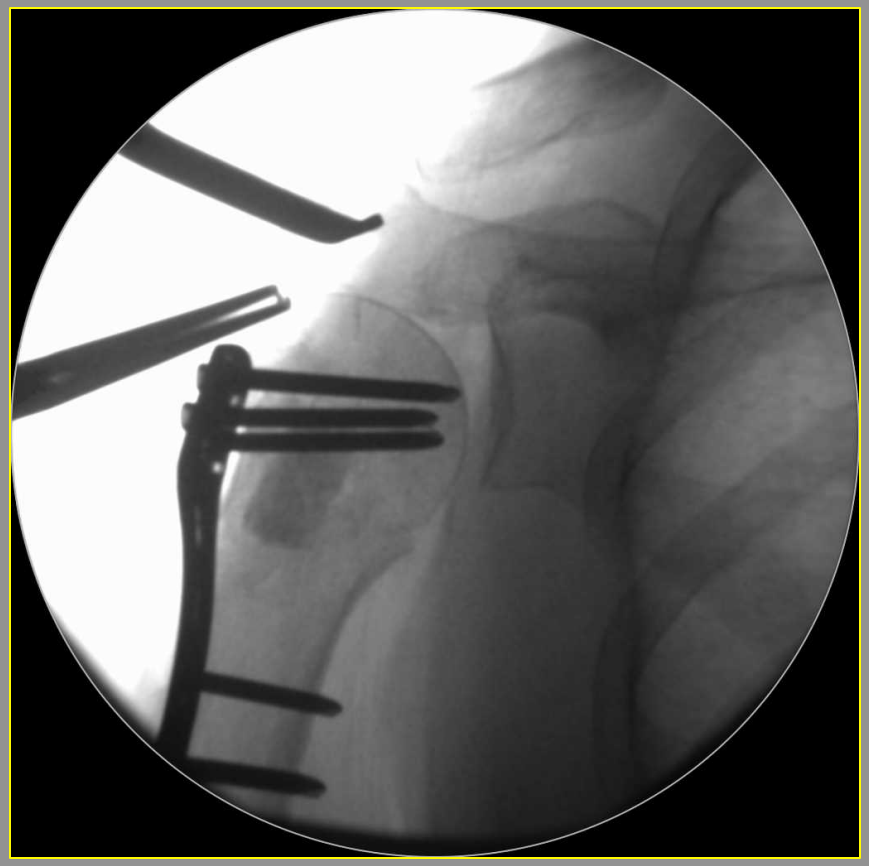
result

Case 4: 55 female

surgery images

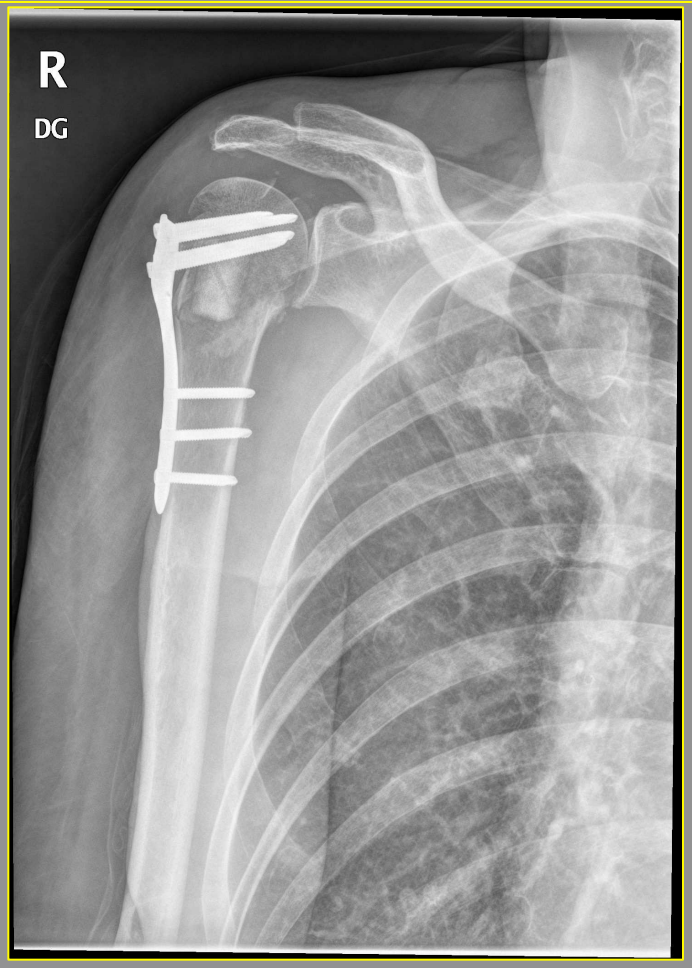






after surgery

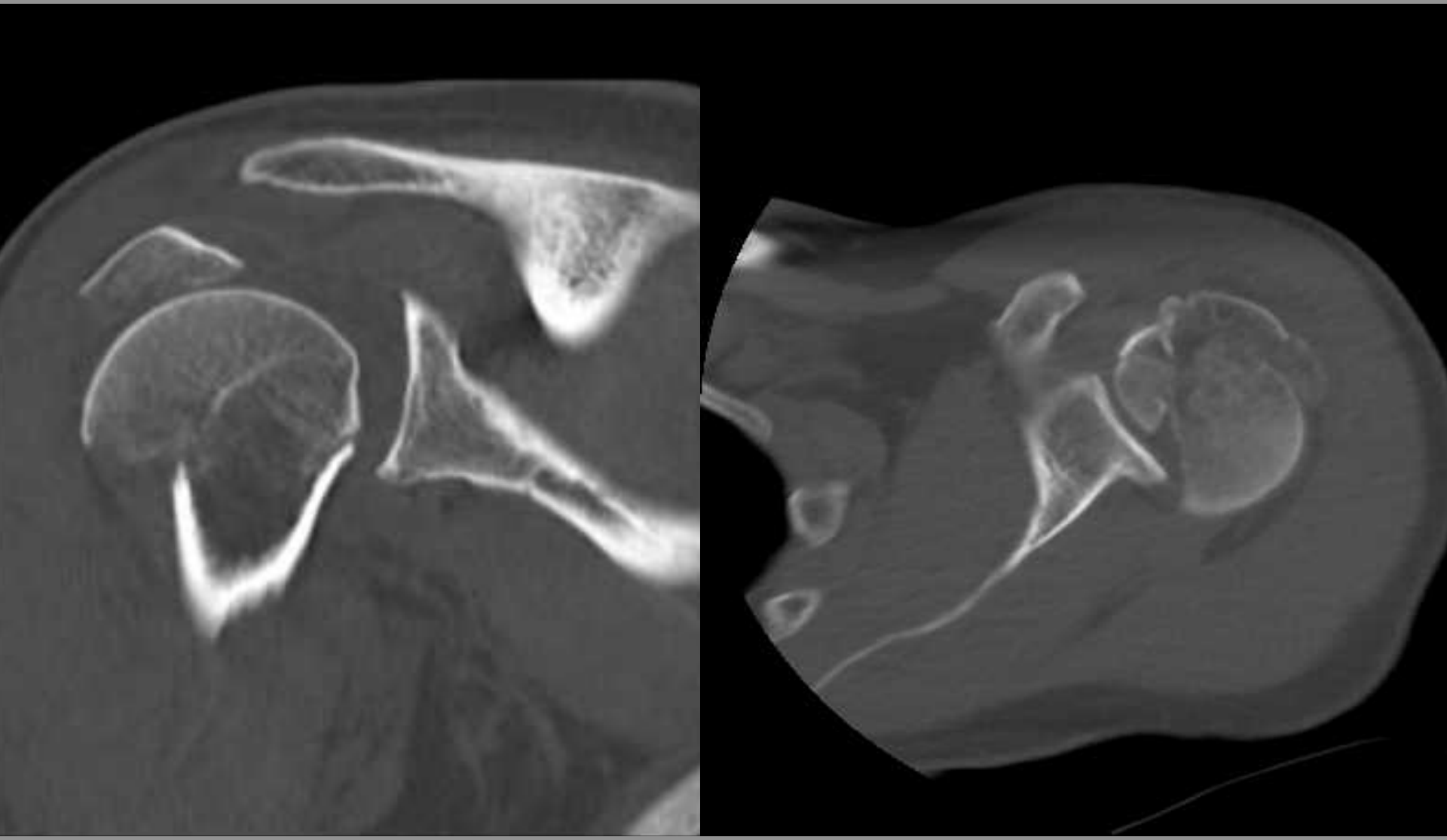
3 months post surgery

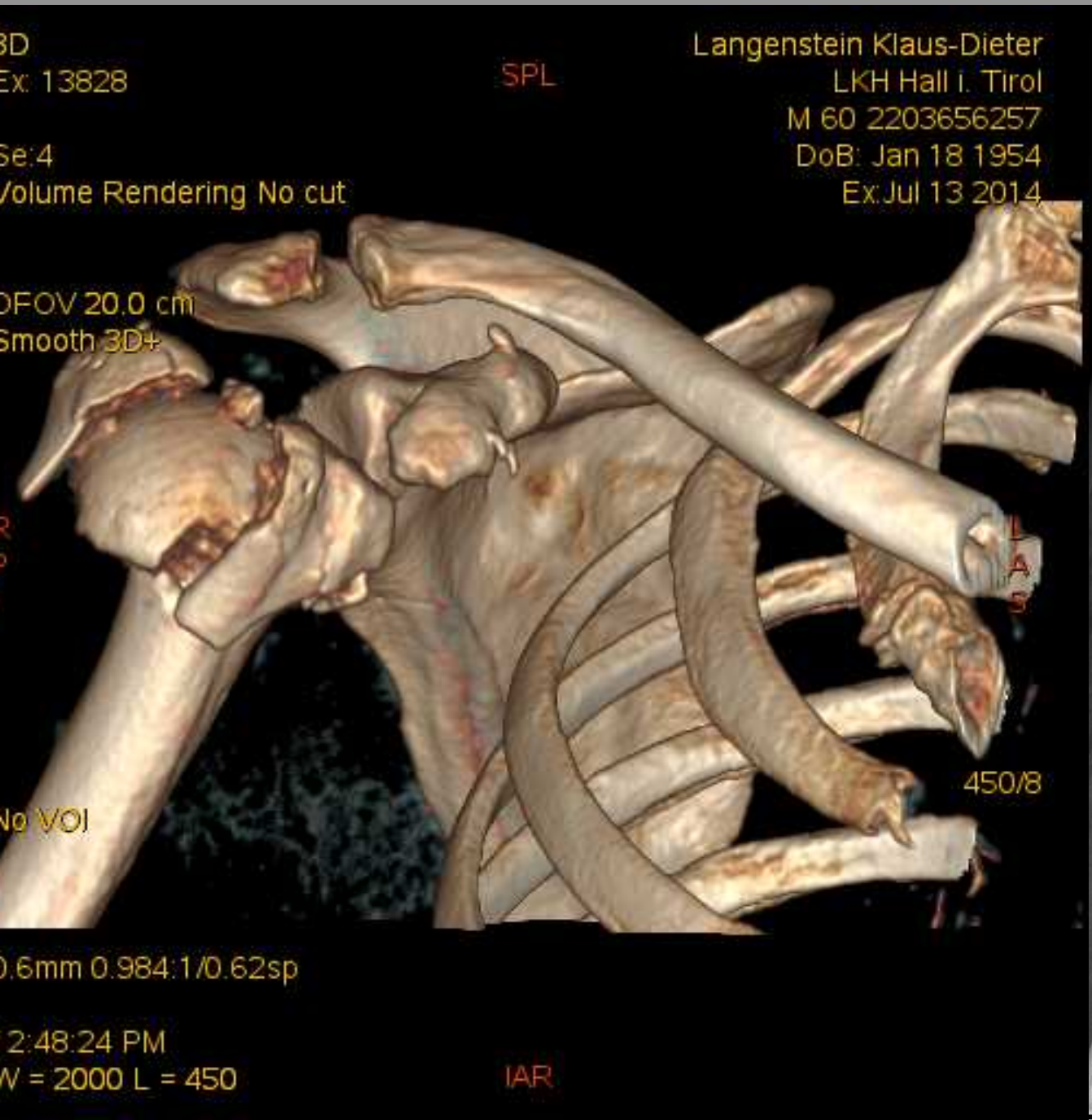


6 months post surgery

result

Case 5: 40a male

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LKH Hall i. Tirol
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Ex:Jul 13 2014
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DFOV 20.0 cm
Smooth 3D+
L
A
S
450/8
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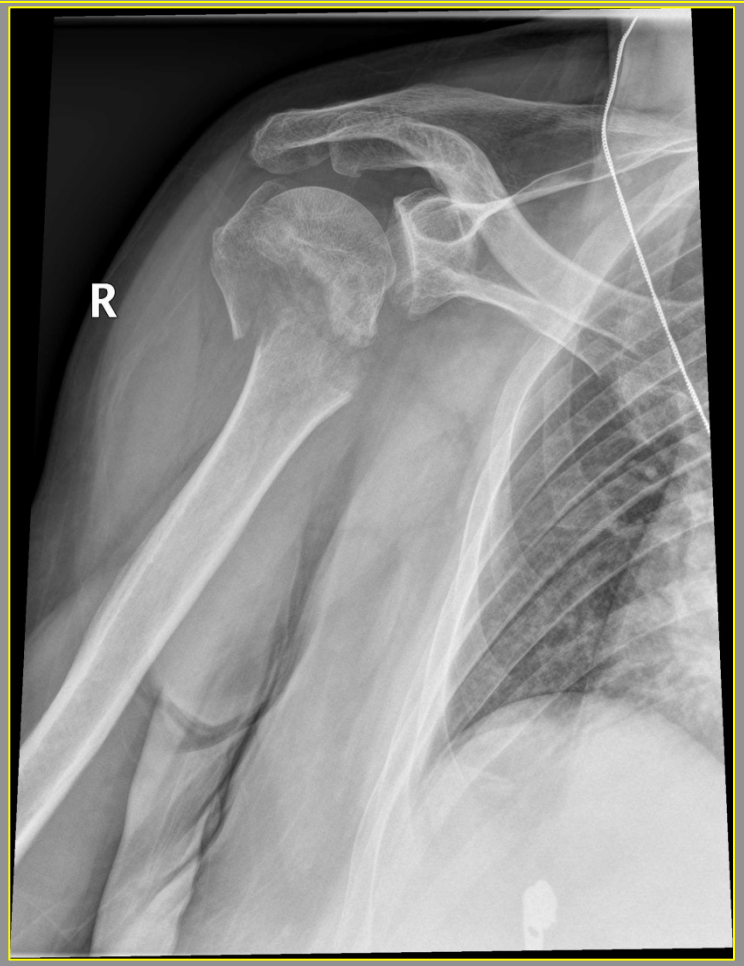
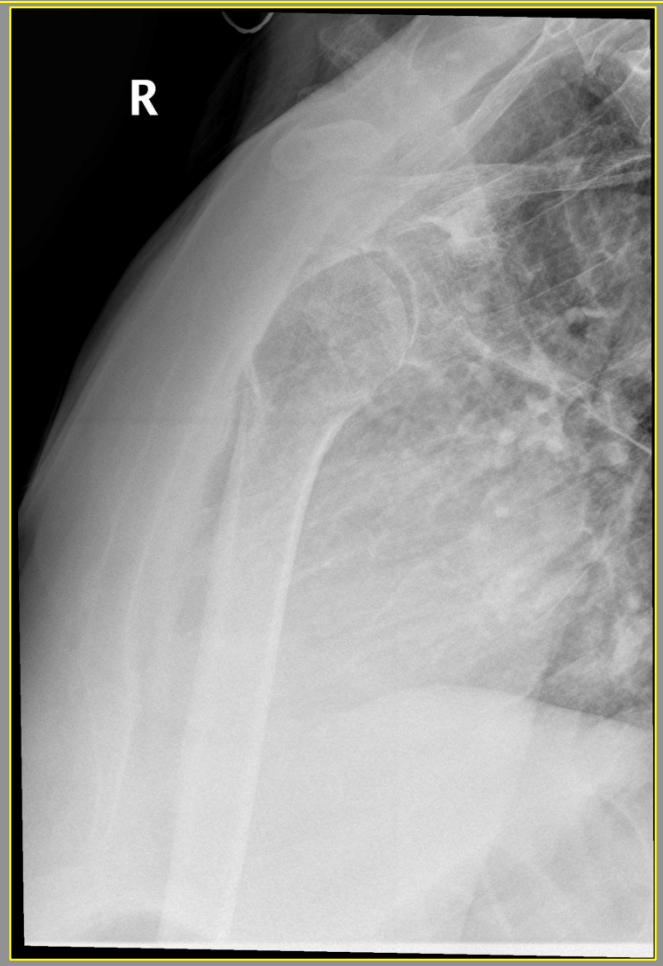
0.6mm 0.984:1/0.62sp
2:48:24 PM
W = 2000 L = 450
IAR

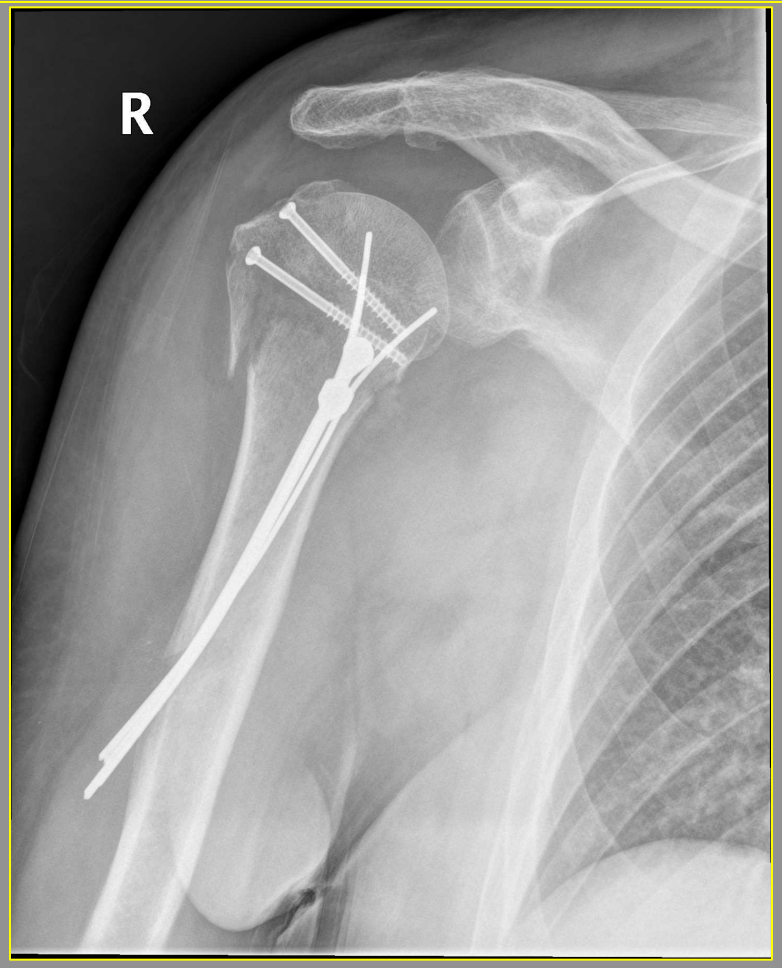

R
AS

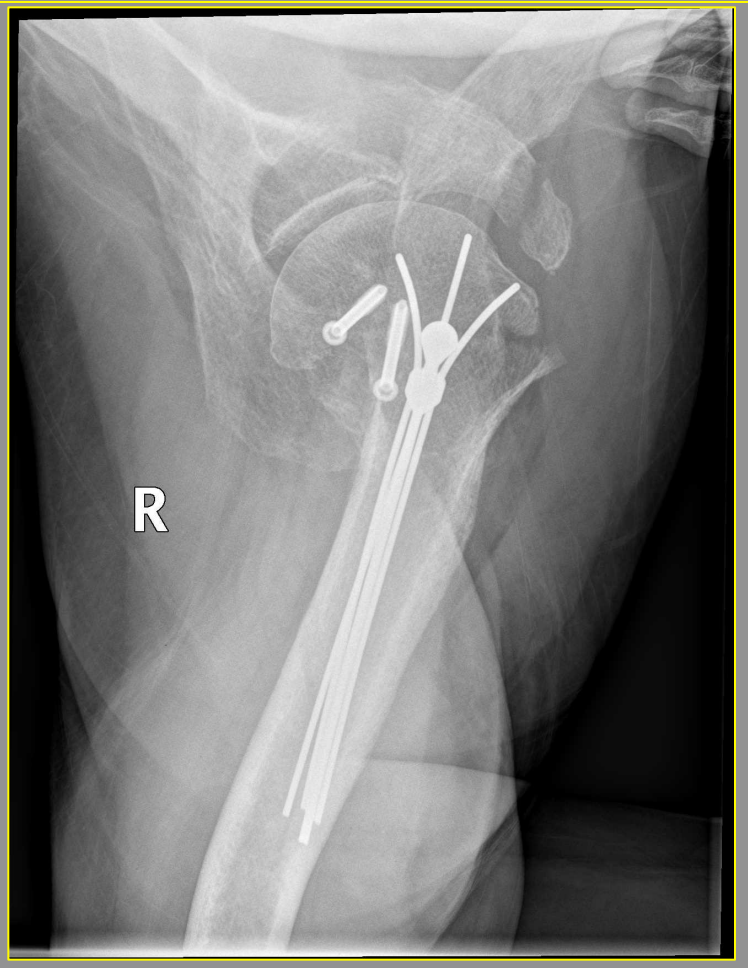
Case 6: 64 male



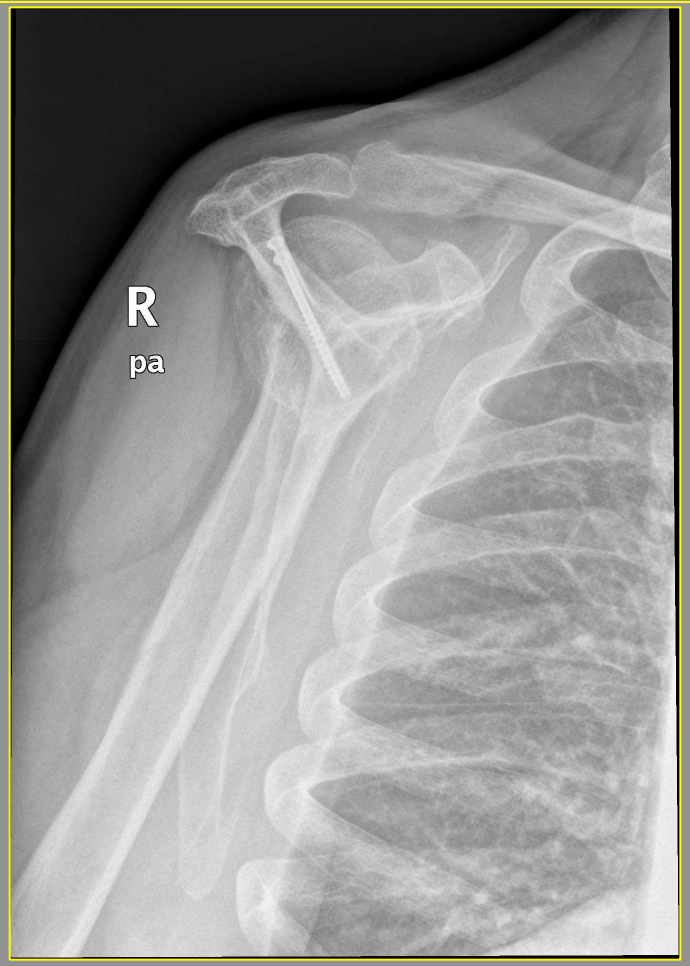


post surgery

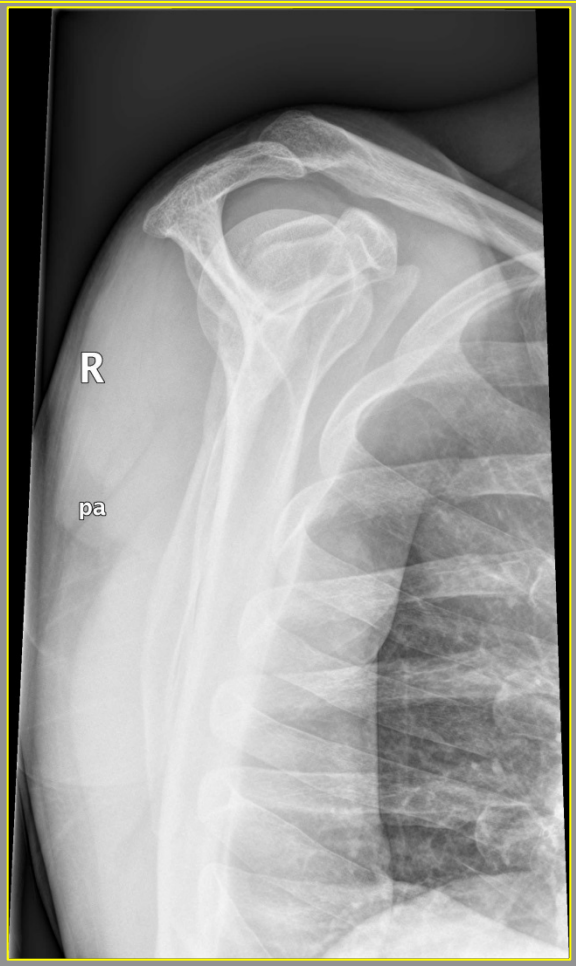




result

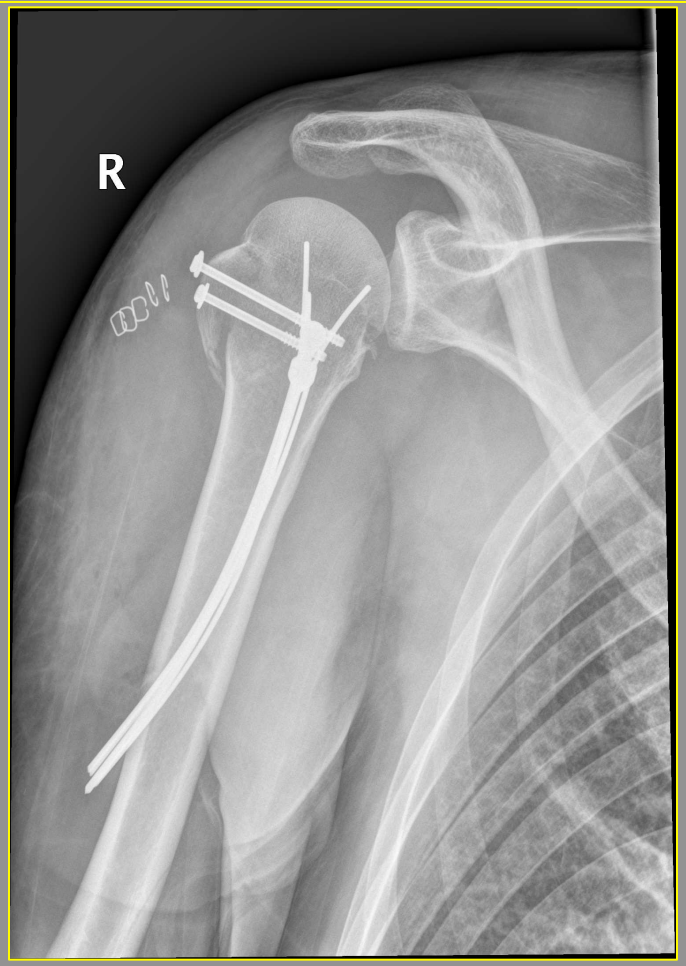


Case 7: 64 male



surgery images

post surgery



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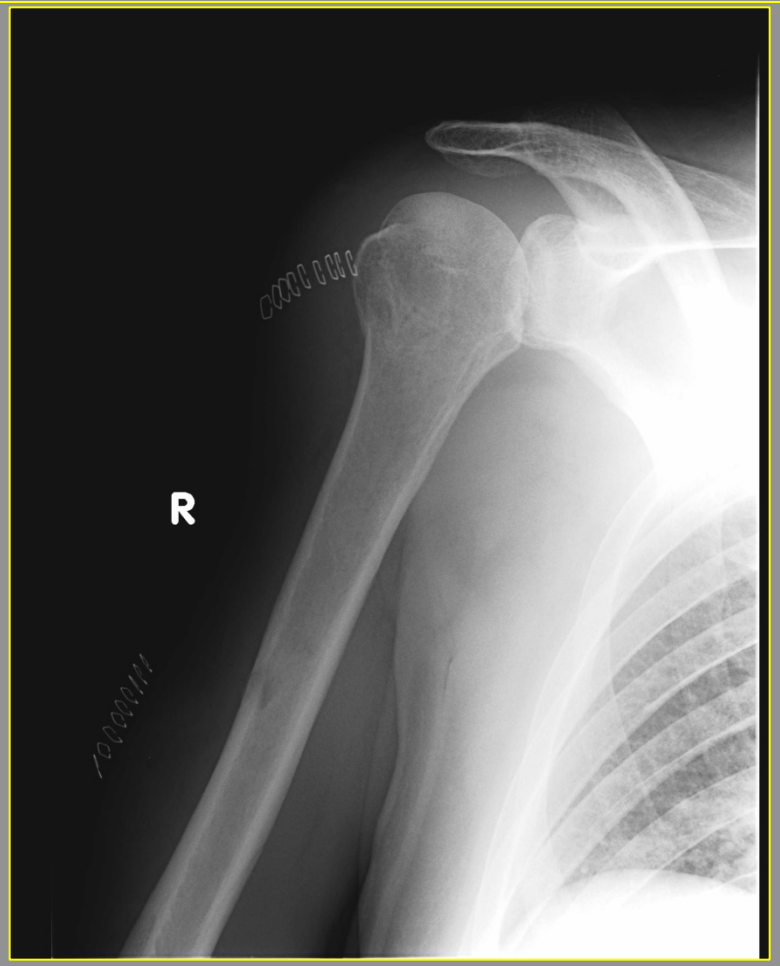
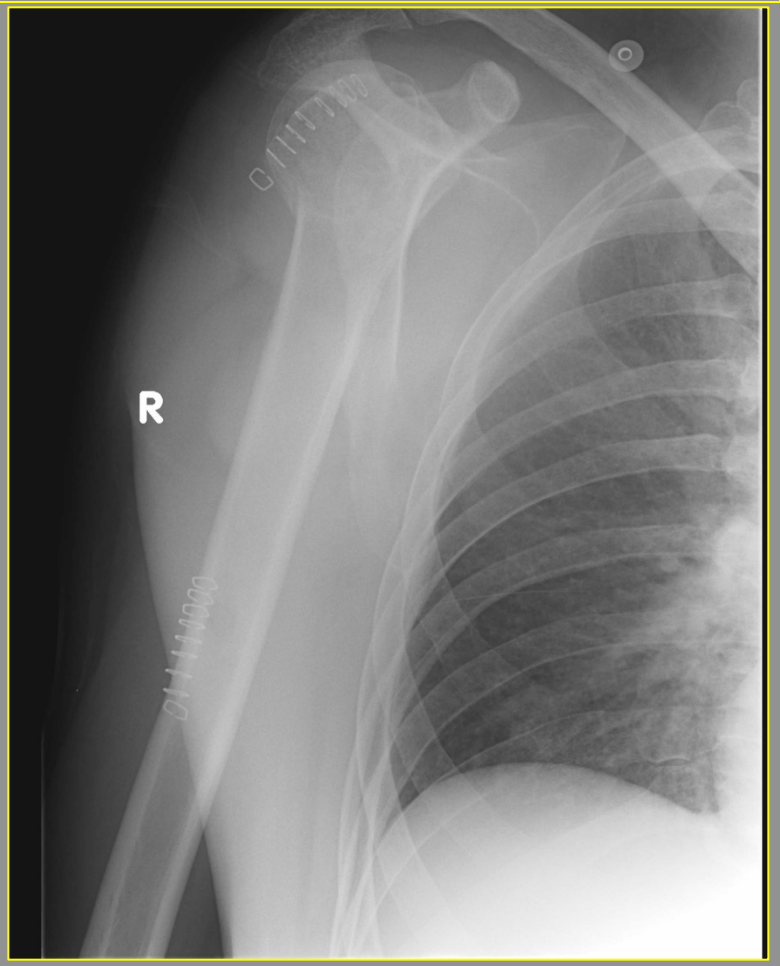
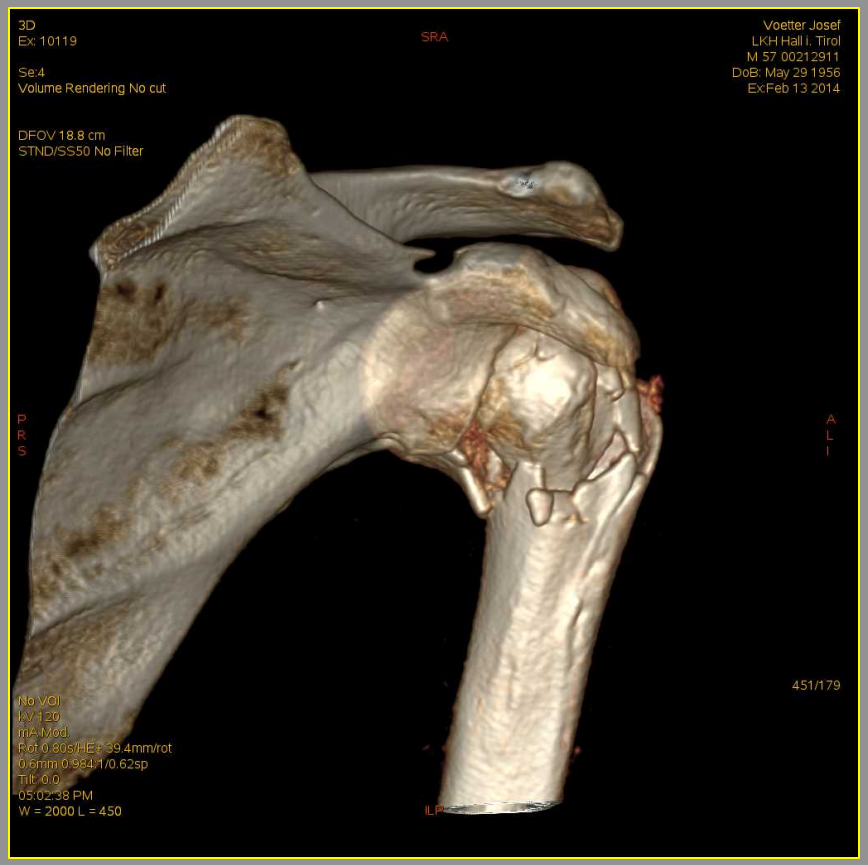




Case 9: 38a female

Case 9: 62 male

CT images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Voetter Josef
LKH Hall i. Tirol
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DoB: May 29 1956
Ex:Feb 13 2014
P
R
S
A
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451/179
No VOI
kV 120
mA Mod.
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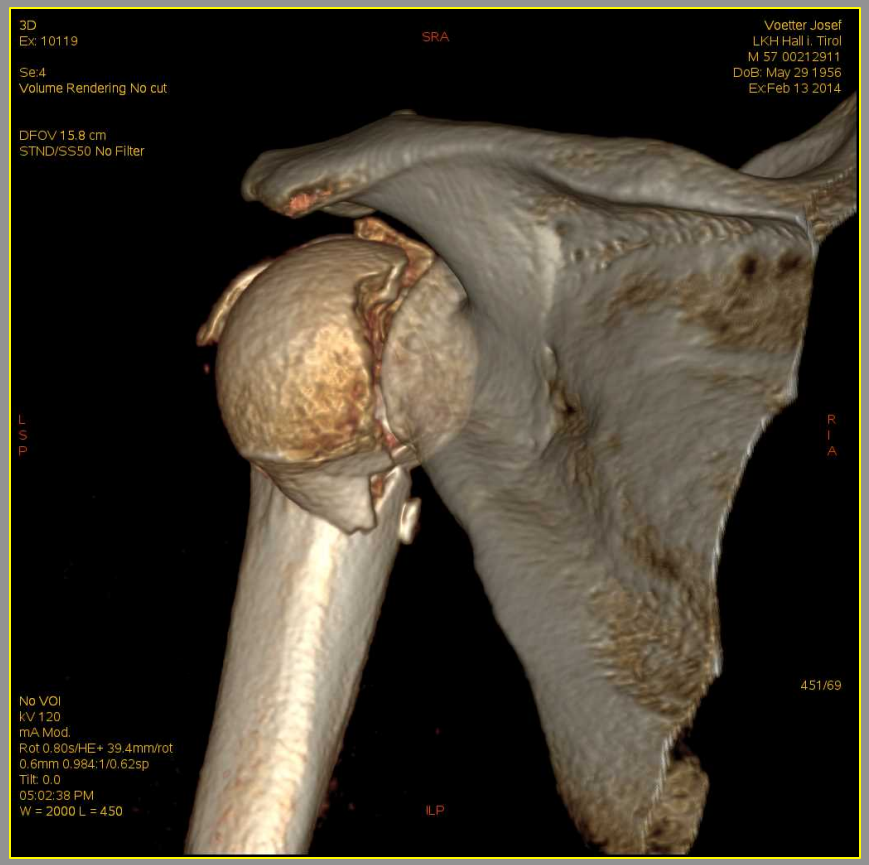
ILP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451/69
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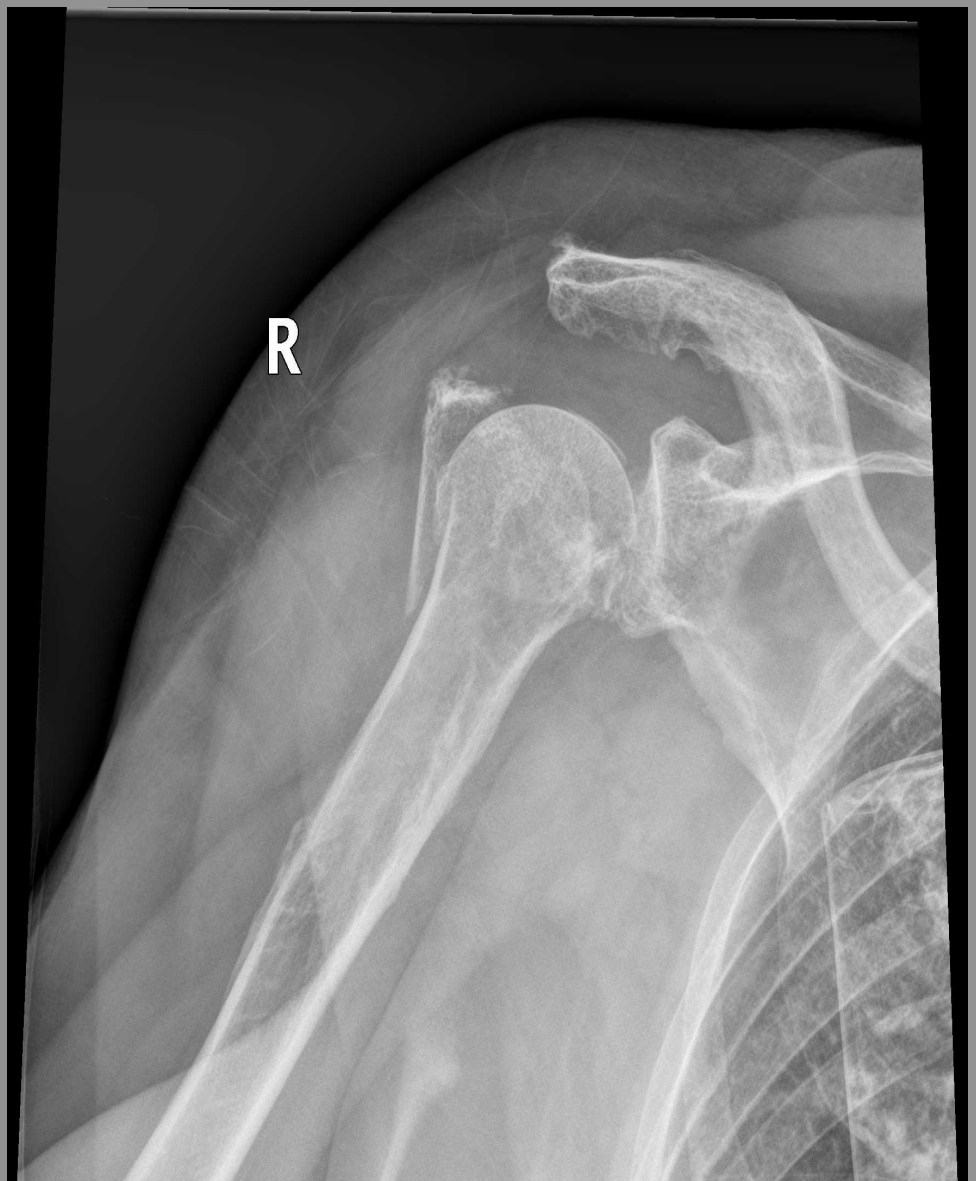
W = 2000 L = 450
ILP

surgery images

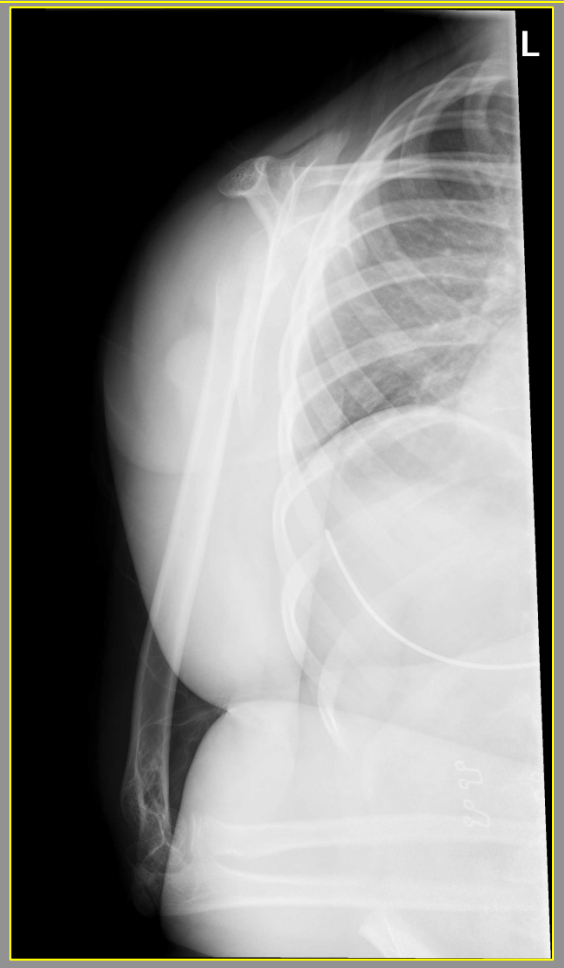
post surgery

result

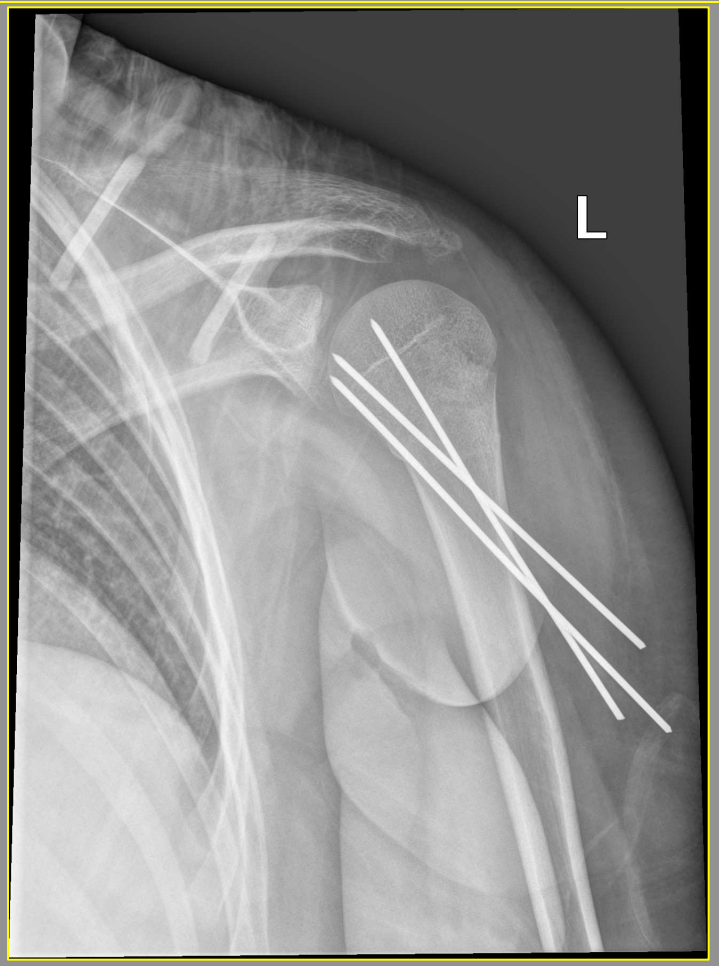
Case 10: 72a female



Case 11: 11a female

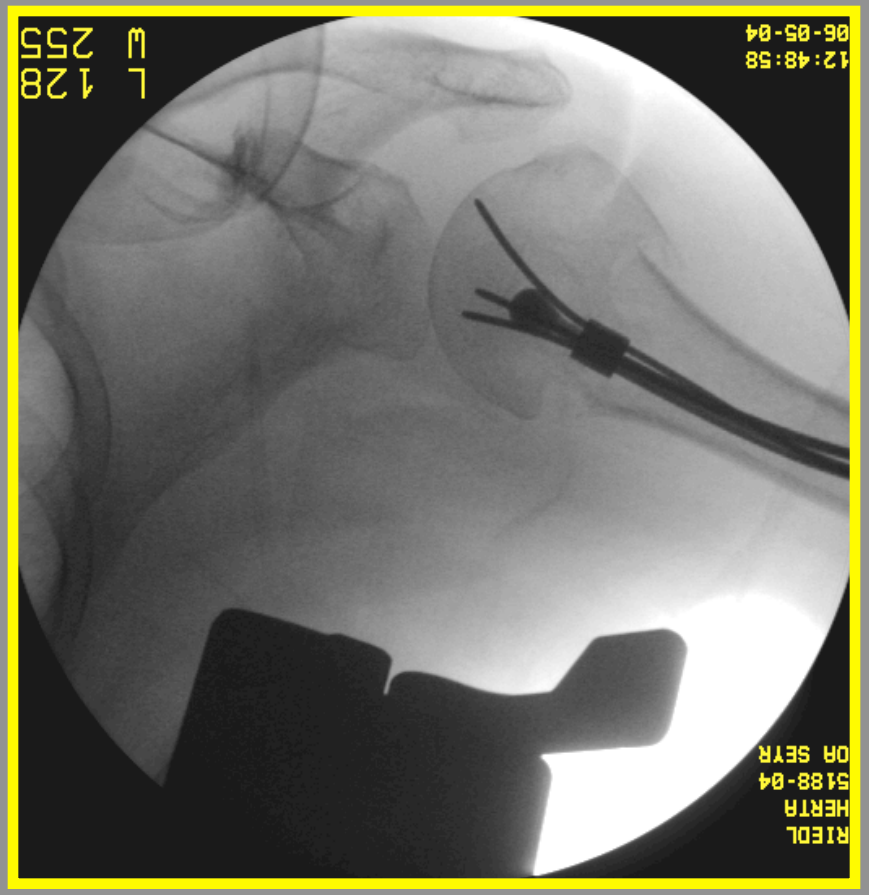


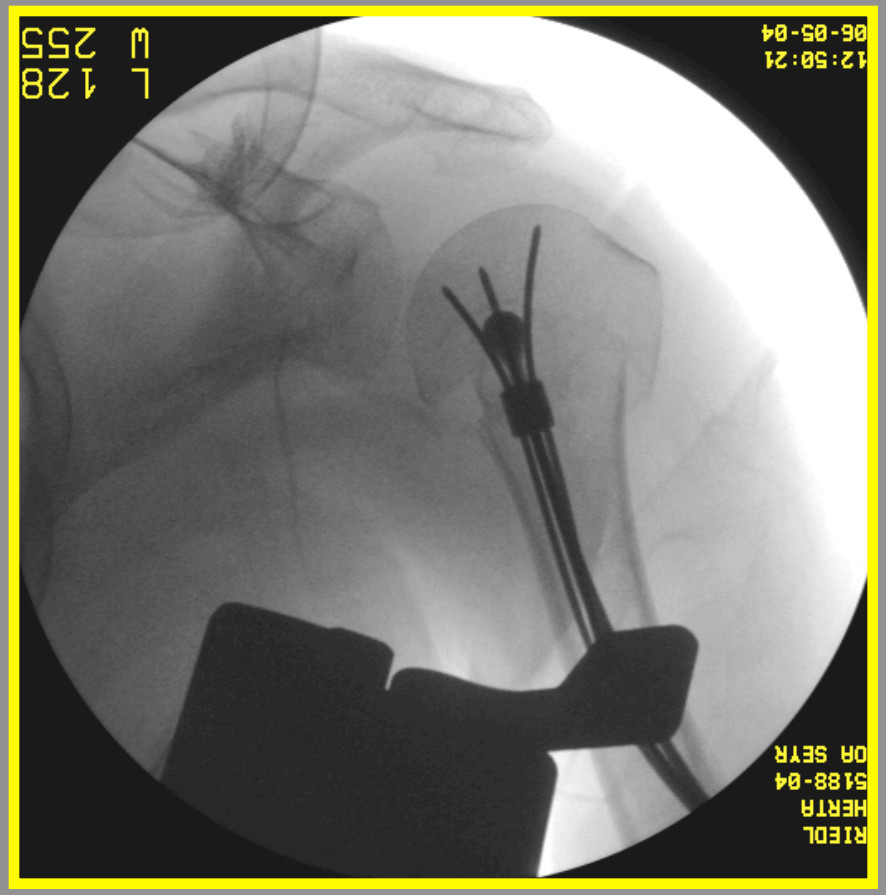
post surgery



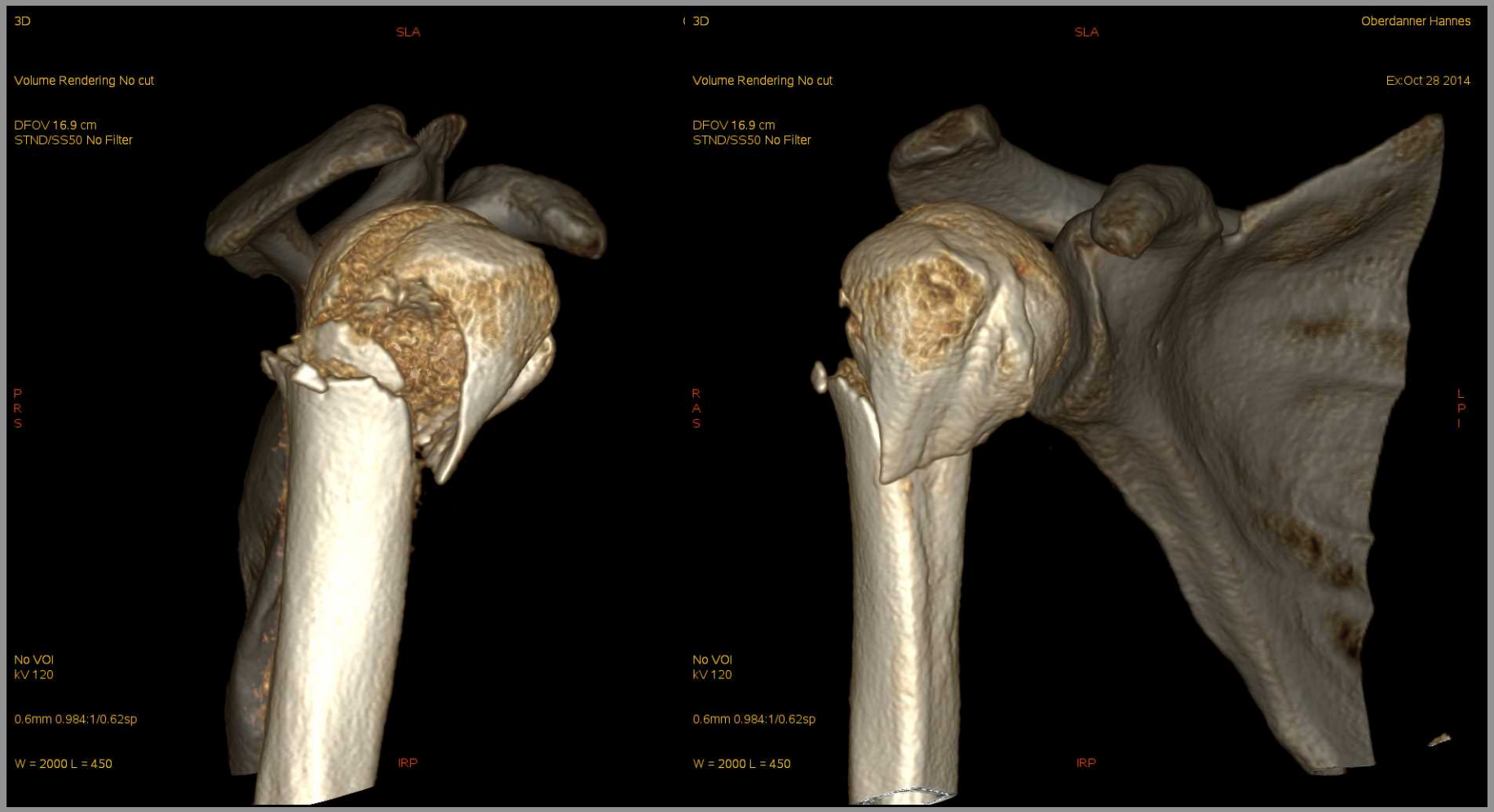
result

IMC
3-dimensional alignement of pins





SET UP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kV 120
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W = 2000 L = 450
IRP
3D
SLA
Oberdanner Hannes
Volume Rendering No cut
Ex:Oct 28 2014
DFOV 16.9 cm
STND/SS50 No Filter
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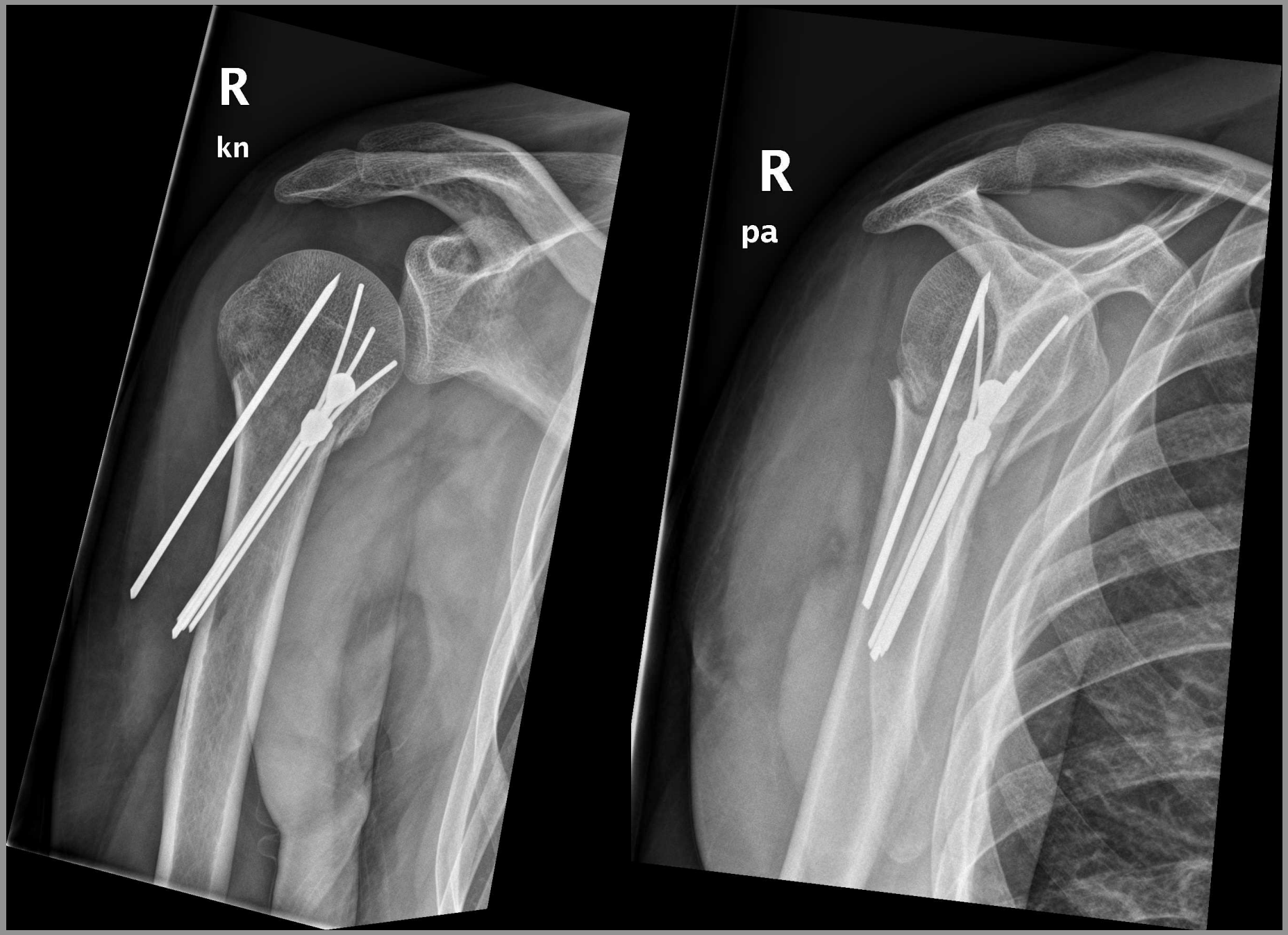
IRP


R
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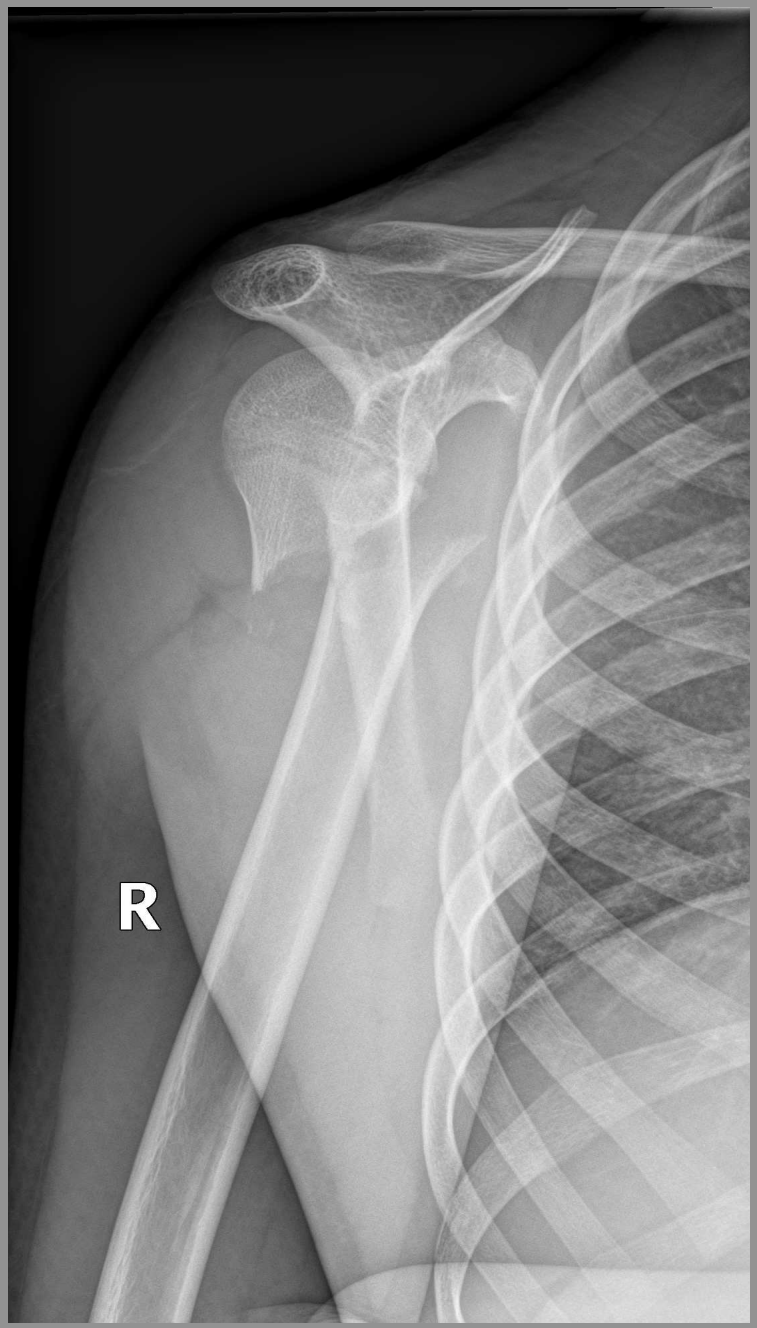
R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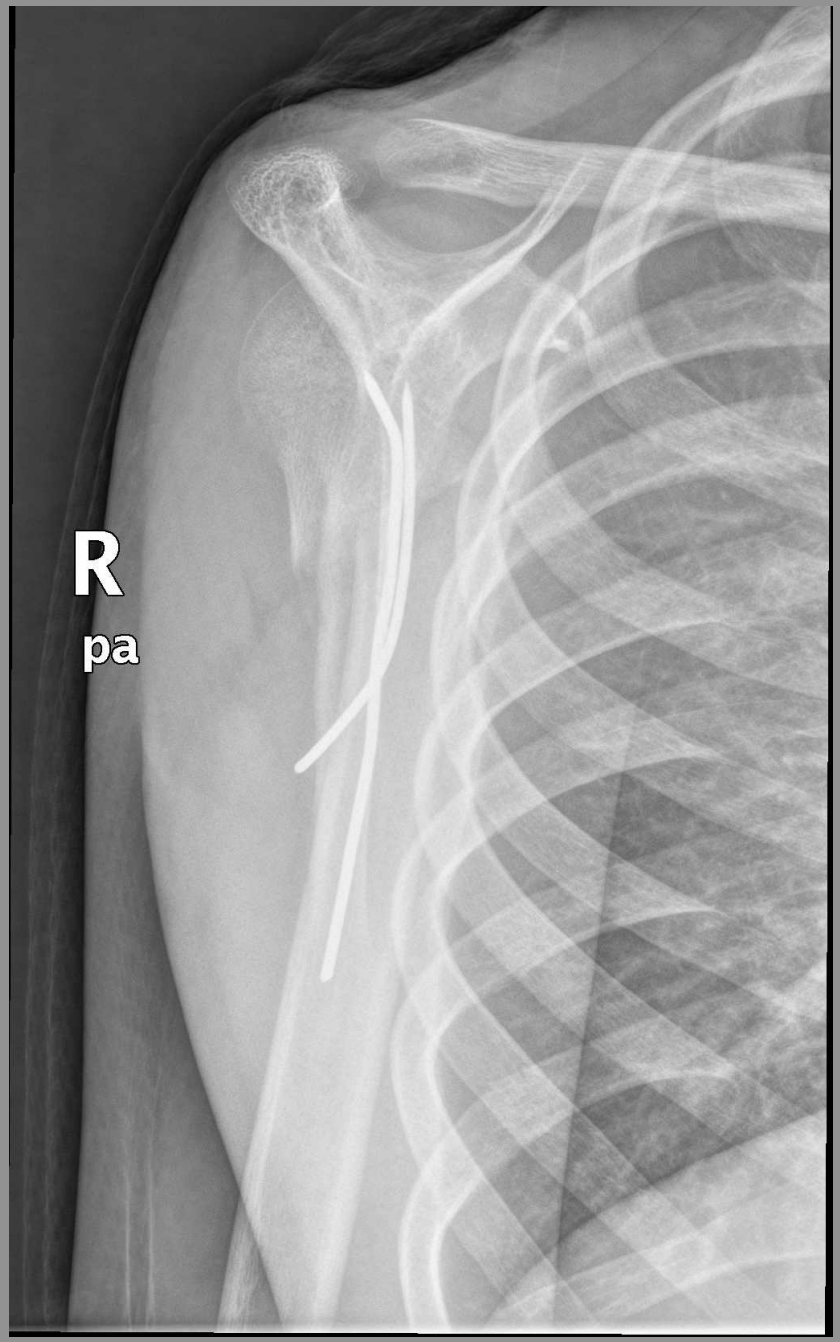
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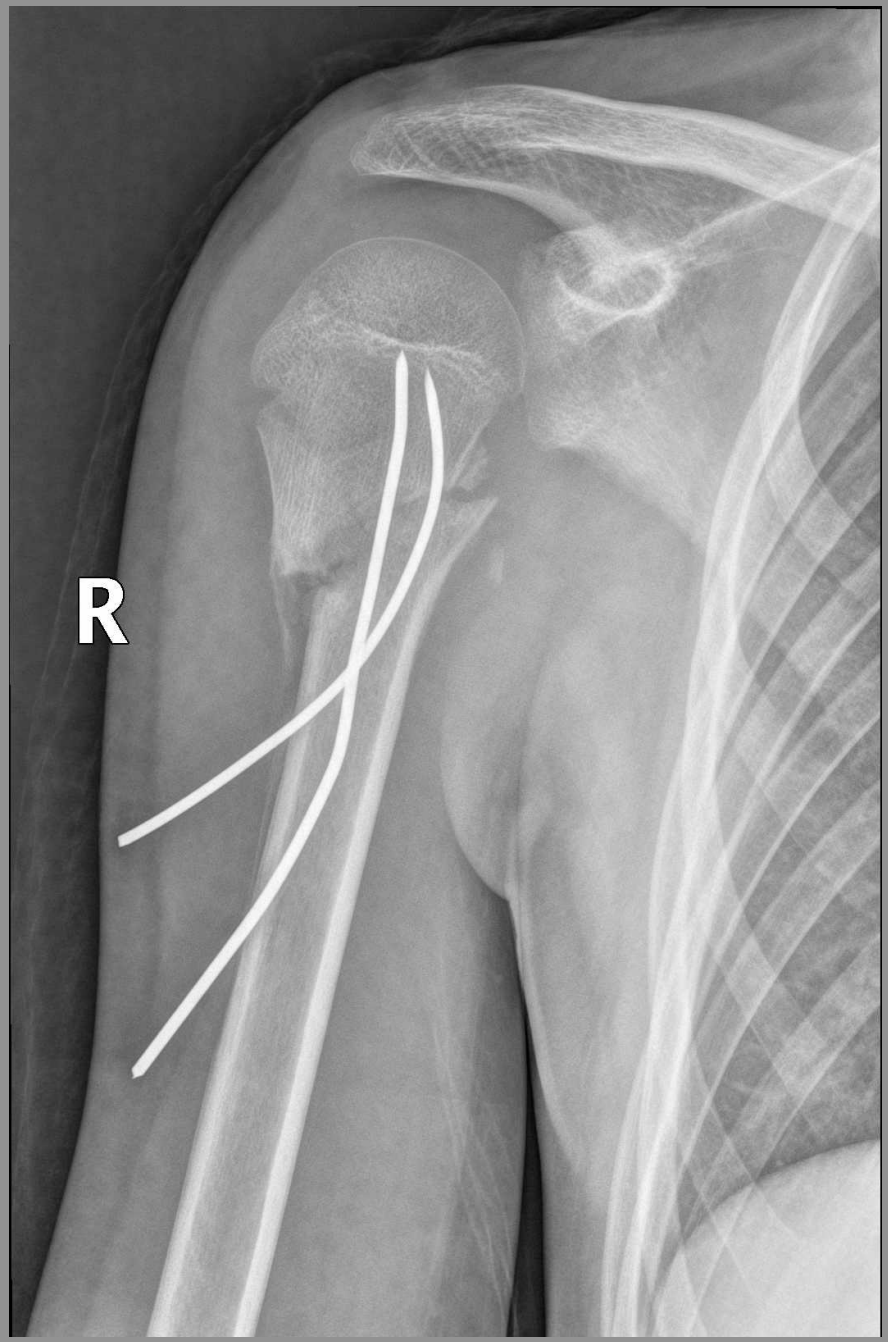
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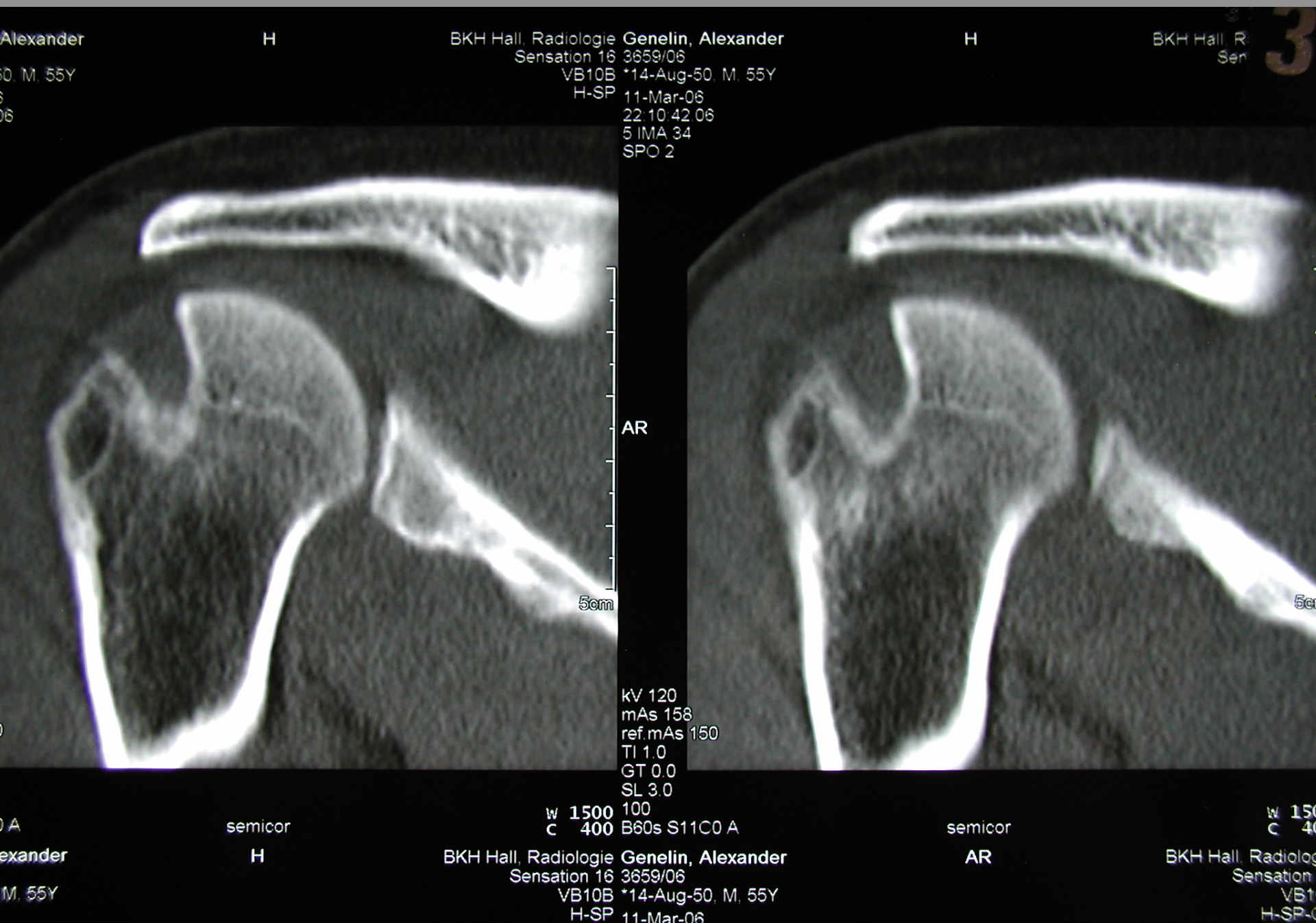
conclusion

sometimes less can be more


Thank you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VB10B
H-SP
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3659/06
*14-Aug-50, M, 55Y
11-Mar-06
22:10:42.06
5 IMA 34
SPO 2
AR
5cm
kV 120
mAs 158
ref.mAs 150
TI 1.0
GT 0.0
SL 3.0
100
W 1500
C 400
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semicor
H
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semicor
AR

Bankart Avulsion


R
8

R