GERIATRIC ACETABULAR FRACTURES

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NO DISCLOSURES

PLAN OF ATTACK

- Introduction
- Treatment modalities and outcomes
- Cases

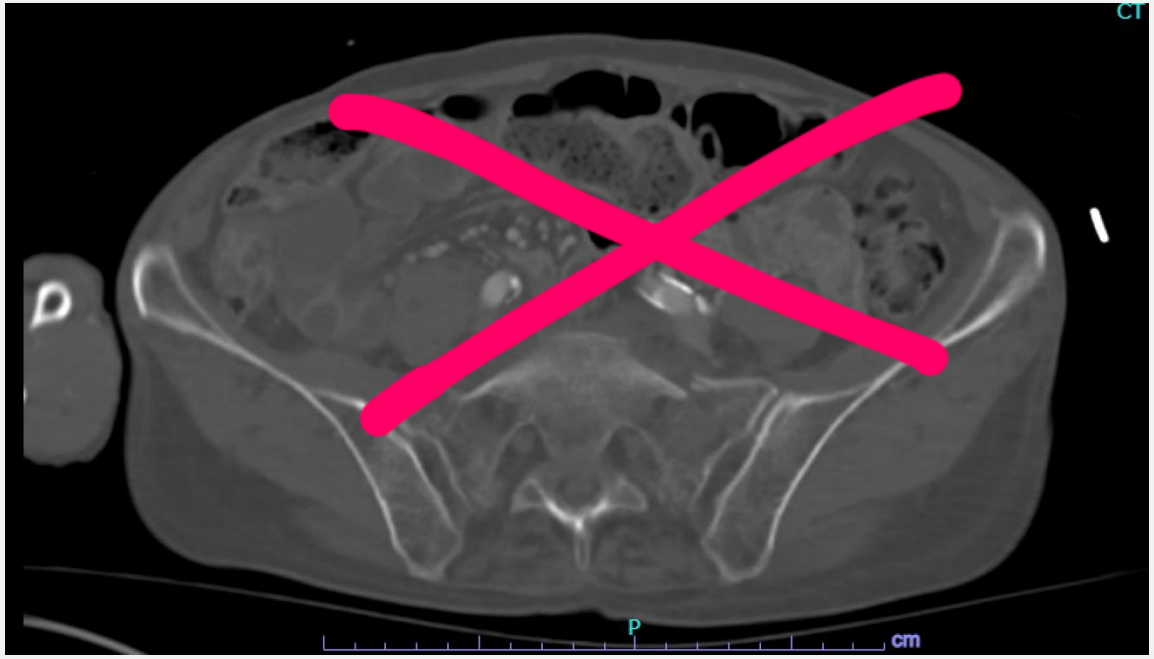
Generally the result of low energy trauma such as falls

We are speaking about physiologic and chronologic elderly, not the spry 70yo who rides bike 10 miles a day

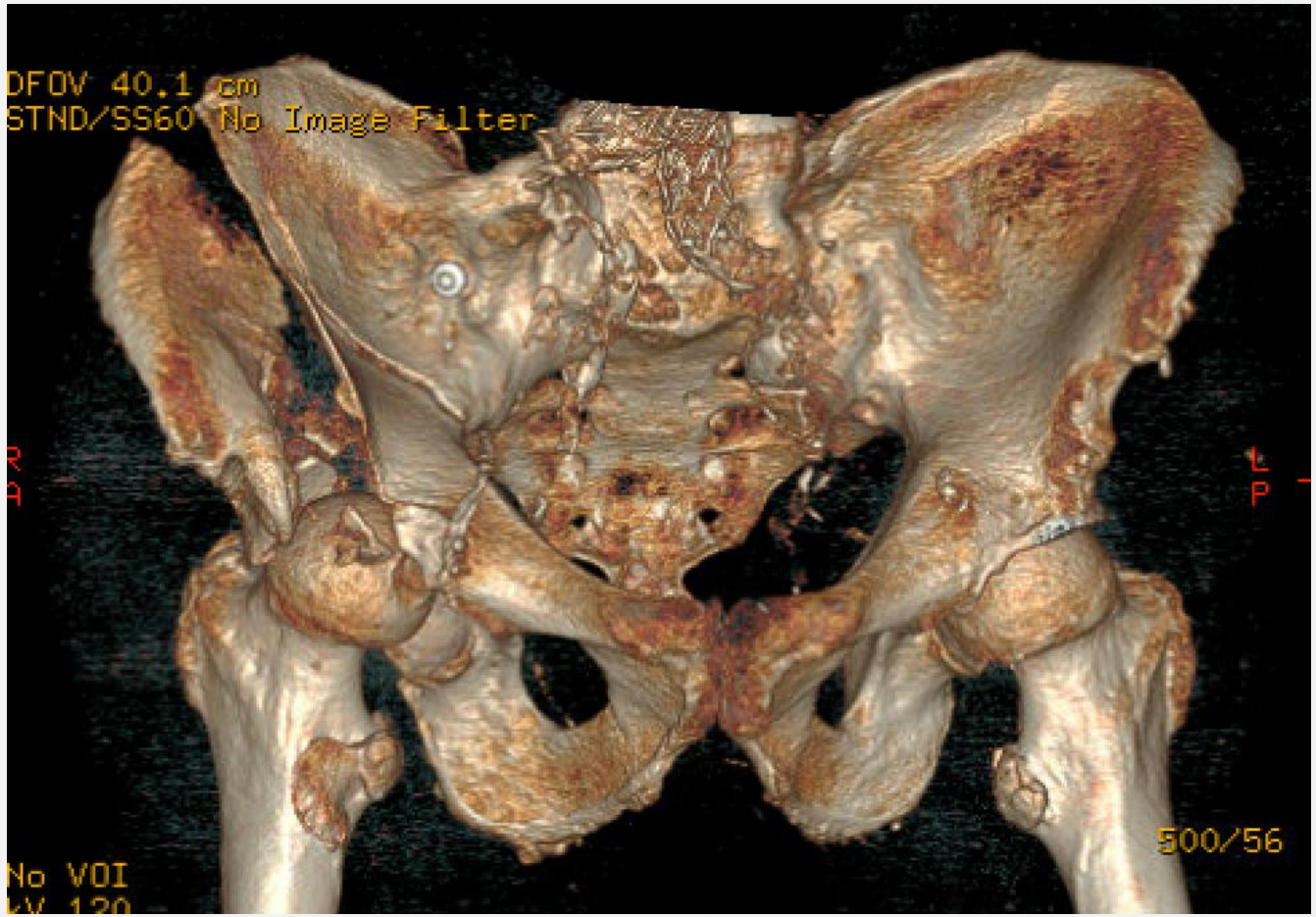
Incidence increasing as population ages and people remain active

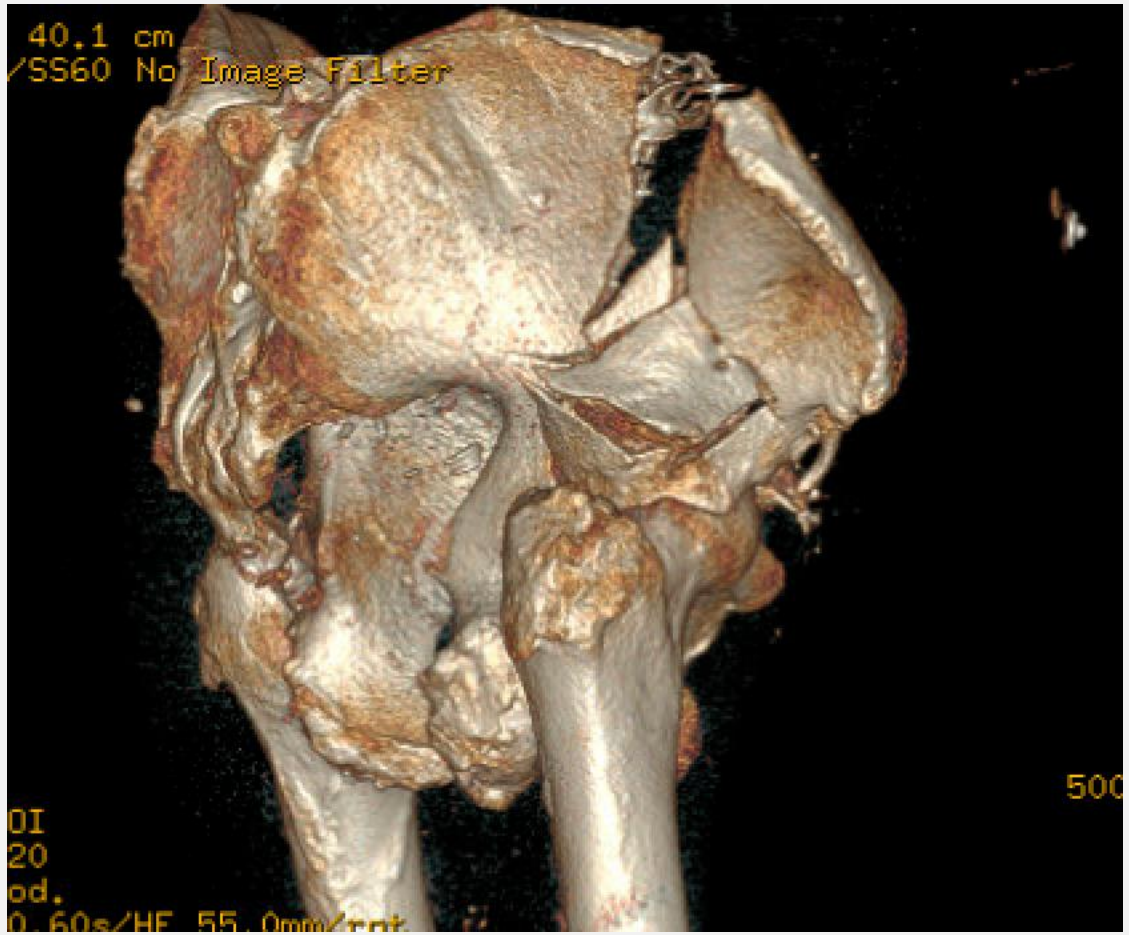
Estimated to be about 1.5-3% of fractures in the elderly

WHAT ARE WE TALKING ABOUT?



TALKING ABOUT FRACTURE INVOLVING THE HIP JOINT PROPER



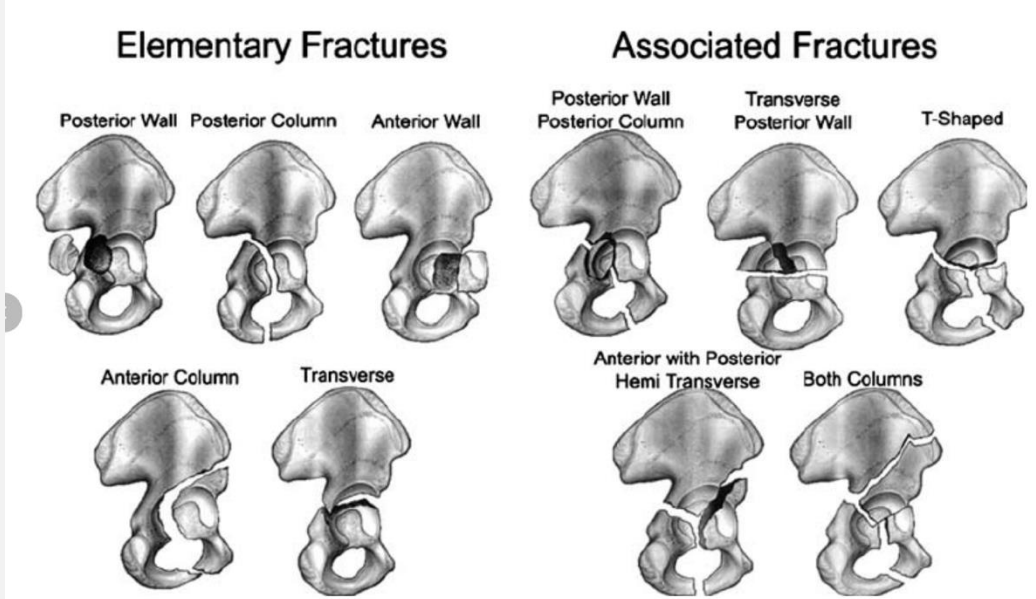


DIFFERENT IN ELDERLY VS YOUNG

- Low energy
- Poor bone quality
- Compromised health
- Limited physiologic reserves
- Possibly different treatment goals
- Pre-existing implants?
  - THA? Hemi?

- High energy
- Good bones
- Healthy
- Large physiologic reserves
- Goal to mobilize, gain anatomic reduction, and minimize risk of post traumatic arthritis

FRACTURE PATTERNS ALSO DIFFERENT YOUNG VS ELDERLY



The Judet and Letournel acetabular fracture classification system

ELDERLY PATTERNS

- Tend to be:
- Anterior column +- posterior hemitransverse
- Anterior wall
- Both column
- Dome impaction (gull sign)
- Protrusio with quadrilateral plate involvement

ELDERLY PATTERNS

- Also see lots of plastic deformation
  - Fractures may be incomplete due to plastic deformation
  - Unlike young, bone can often be pushed back into reduced position without necessarily having to osteotomize
  - Especially along the quadrilateral surface

GOALS OF TREATMENT

- Preserve life
  - Don’t kill grandma to avoid a hip replacement
- Allow mobility
- Less important: maintaining native hip joint

TREATMENT MODALITIES

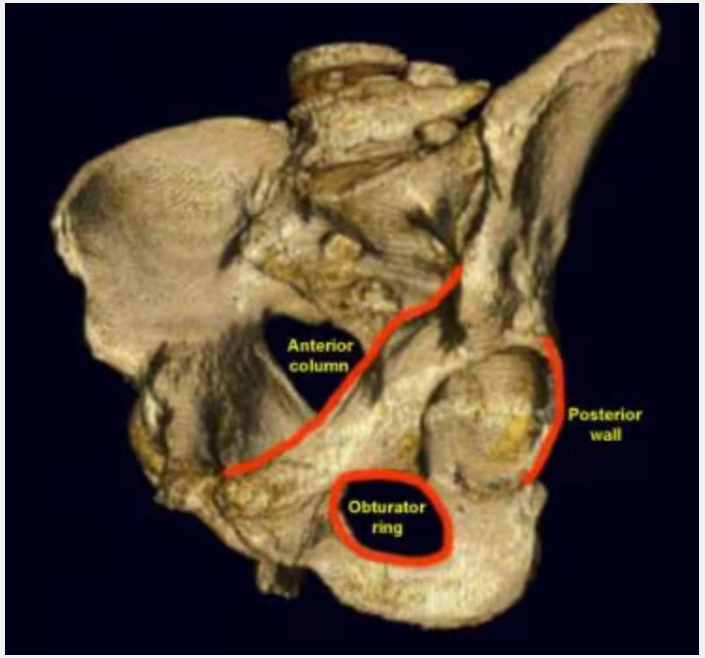
- Non operative
- ORIF
- ORIF plus THA
- Delayed THA

NON OPERATIVE TREATMENT

- Minimally displaced fractures
- Stable patterns
  - Approximately 7% displace (argument against prophylactic fixation)
- Sick patients
- Posterior patterns usually not amenable to closed treatment
  - Unstable
  - Posterior wall, posterior column

NONOPERATIVE TREATMENT

- Minimal displacement = less than 2mm on obturator oblique xray
  - Beyond that has poorer prognosis for joint longevity, pain
  - Again, consider overall characteristics of the patient
    - May need to accept the step off

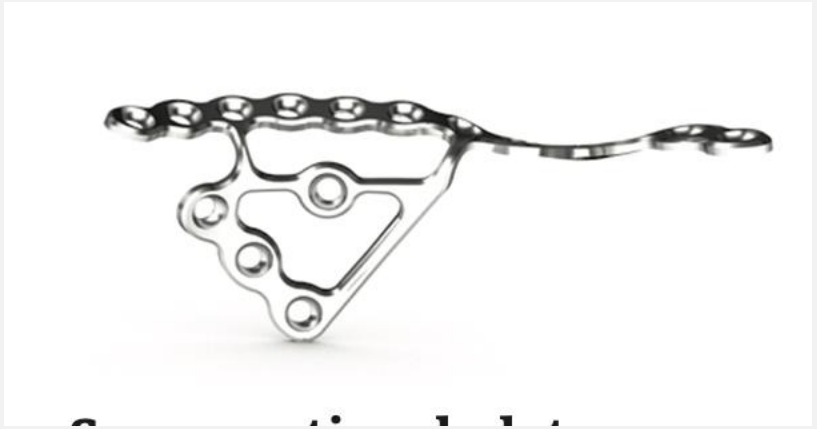


ORIF

- Goal to restore articular congruity
- Again, don't kill grandma to preserve the joint
- Most approaches are on the table
  - Kocher Langenbeck
  - Ilioinguinal
  - Stoppa / intrapelvic
  - Smith Peterson
  - Possibly combined
  - Probably would recommend against extended iliofemoral

ORIF

- Need to contend with dome impaction and protrusion
- Some improved plate designs last few years give much better control of medial acetabulum and dome



ORIF PLUS THA

- Just what it sounds like
- Improved outcomes last decade or so
- Most series small in size
- May allow earlier weight bearing
- May prevent need for a second surgery
- Historically somewhat poor results
  - High loosening rate
  - High dislocation rate

ORIF PLUS THA

- Schmidt, AH, 2016 review article
- Recommends considering THA in elderly patient with dome impaction, head impaction, posterior wall comminution, marginal impaction
- Results similar to primary THA
- Recommends: "Surgeons should choose an operative plan that is appropriate to their particular training and skills, the patient's particular fracture, and hospital resources."

ORIF PLUS THA

- Boraiah et al, JOT 2009
- 420 ORIF actab fxs, of those 21 ORIF plus THA
- 18 patients for f/u
  - 1 underwent revision to restrained acetab due loosening
  - 1 femoral stem loosening on xray at 2y

ORIF PLUS THA

- Manson et al, Injury 2022
- Age >60, dome impaction, femoral head impaction, posterior wall fracture
- 47/165 underwent ORIF plus THA
  - Harris Hip Score 12.3 points better in ORIF + THA group at 1y
  - Decreased risk of reoperation by 28%

ORIF PLUS THA

- “Surgeons should choose an operative plan that is appropriate to their particular training and skills, the patient’s particular fracture, and hospital resources.” Schmidt, et al.

DELAYED THA

- Just what it sounds like
- Treat without surgery initially with plan for THA once sufficient fracture healing occurs
- Usually 6 weeks or greater
- I generally reserve for non re-constructible cases
  - Poor health
  - Extreme fracture patterns
  - Femoral head impaction

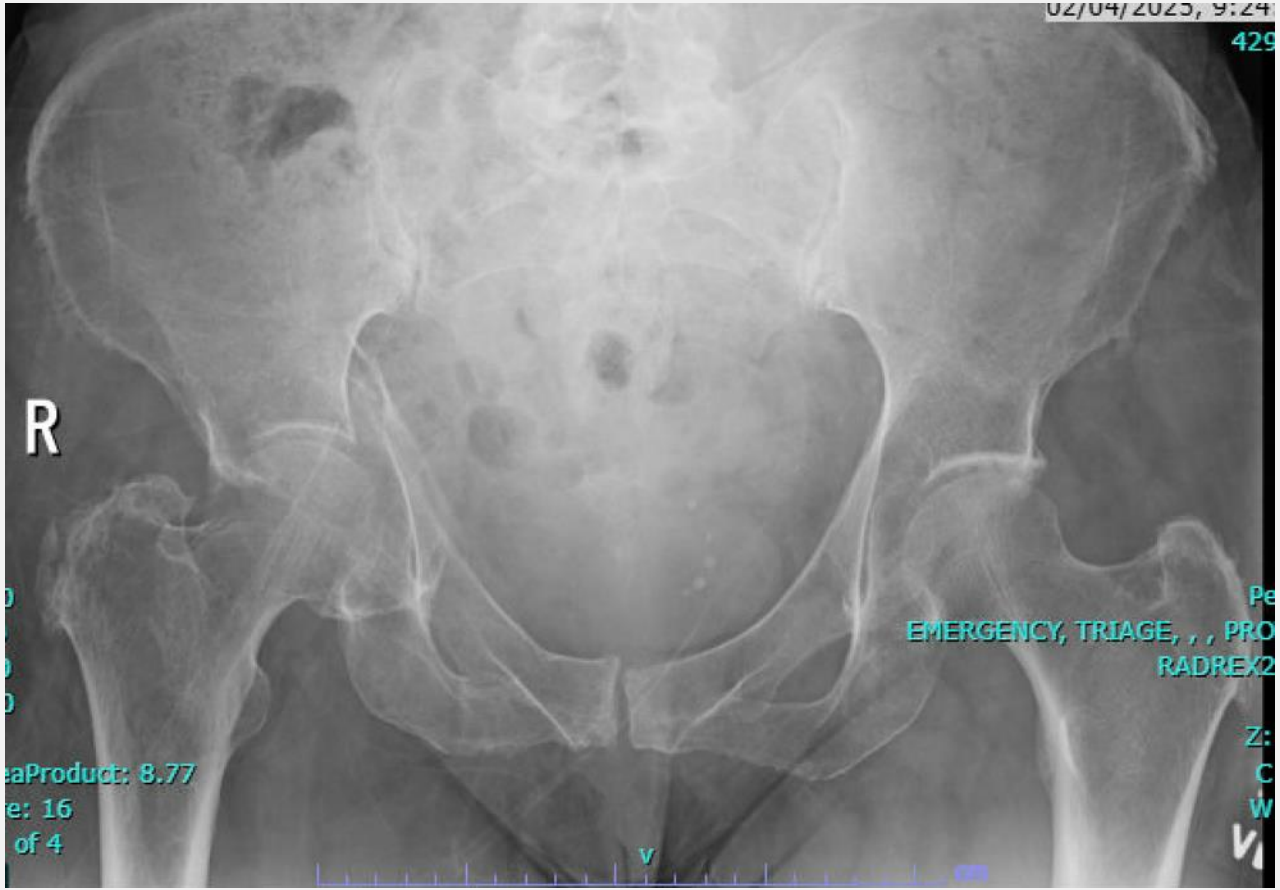
OUTCOMES: MORTALITY
MIR, JOT 2014

Isolated fractures

- 86 pts
- Average age 71
- 64% ORIF
- Hospital = 1.2%
- 30d = 2.3%
- 3m = 5.8%
- 6m = 8.1%
- 1y – 8.1%

- Non isolated fractures
- 90 pts
- Averag age 69.7
- 54% ORIF
- Hospital = 17.8%
- 30d = 18.9%
- 3m = 20.0%
- 6m = 21.2%
- 1y = 23.3%

66YO MALE

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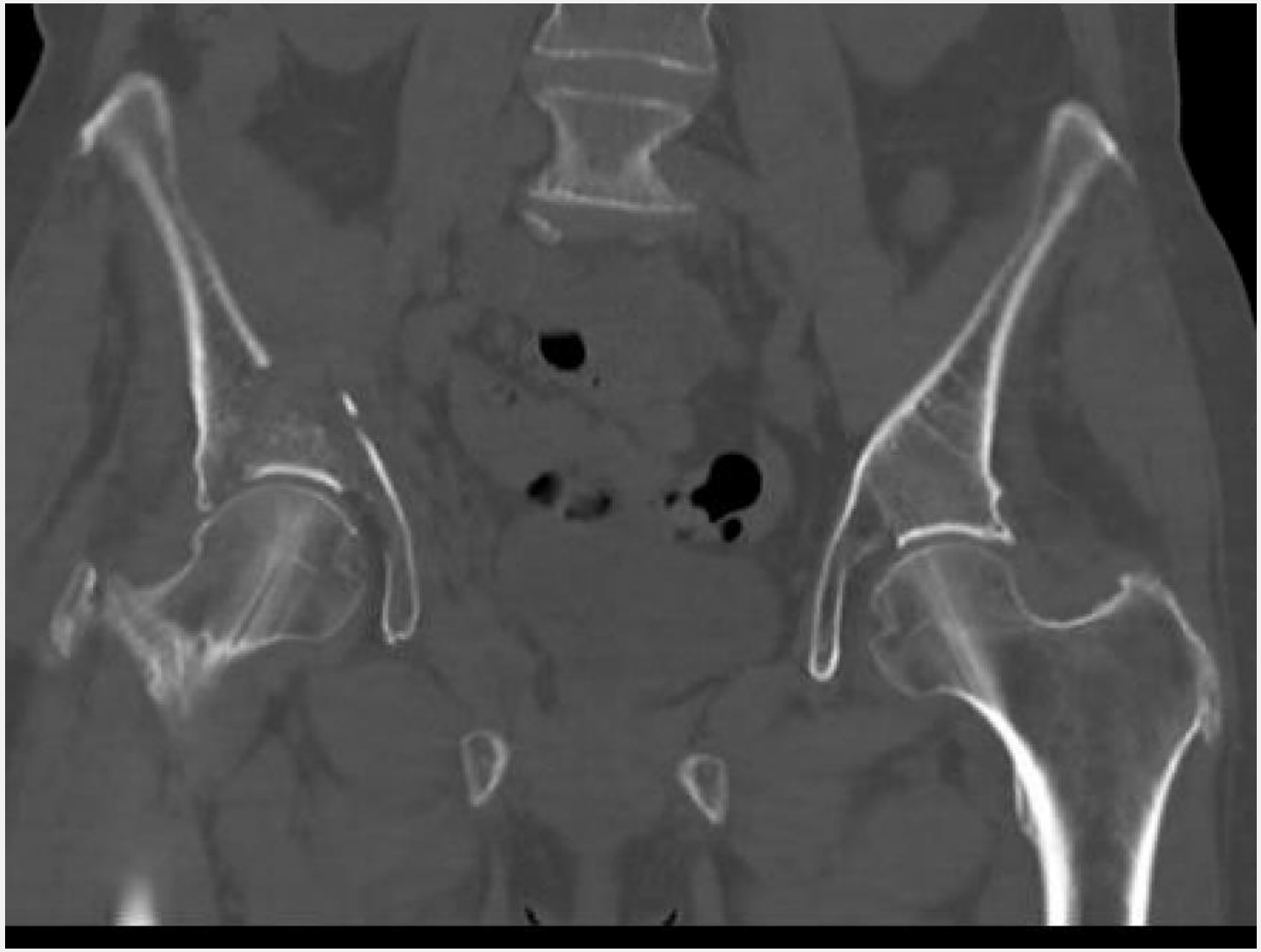

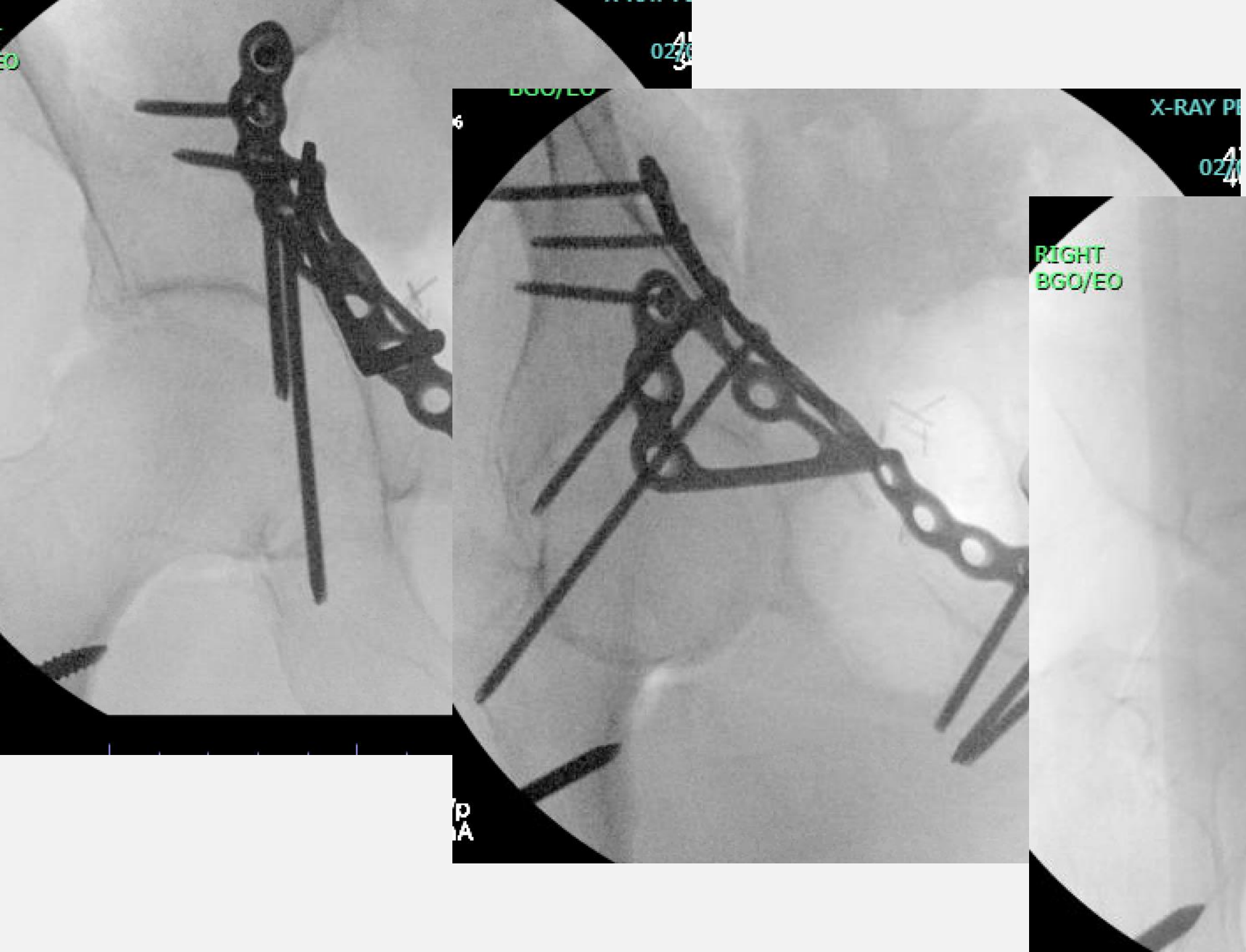
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84YO MALE


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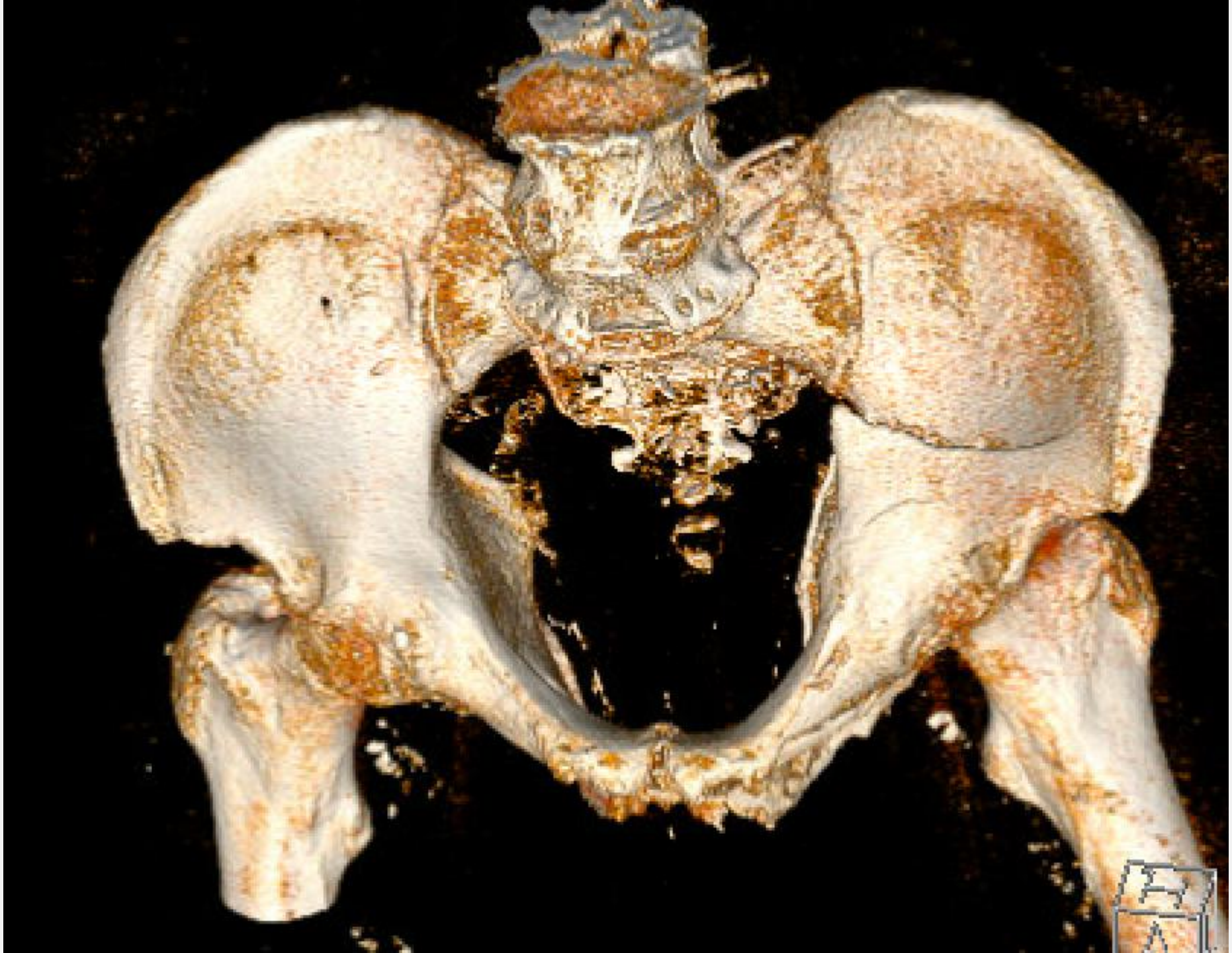

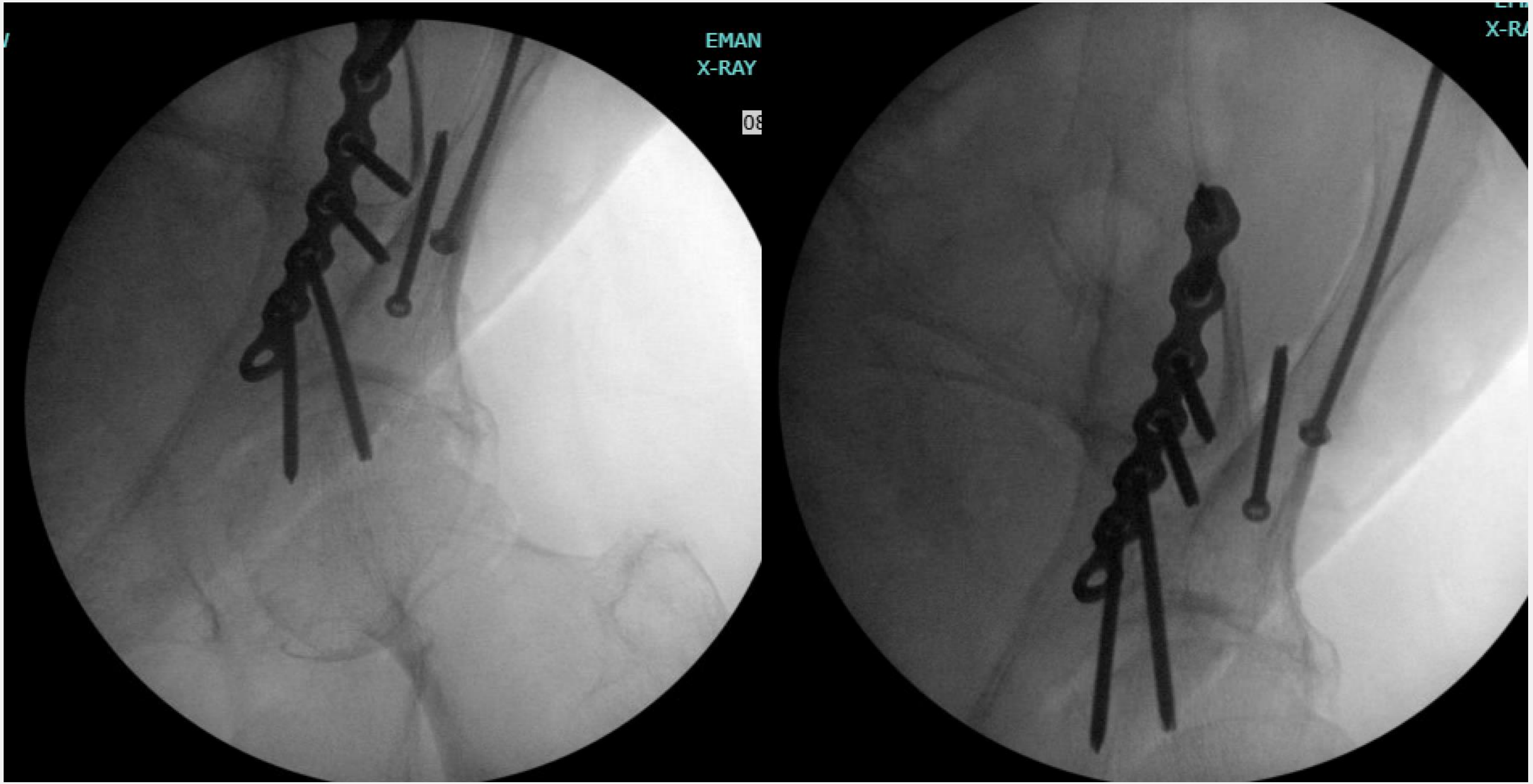
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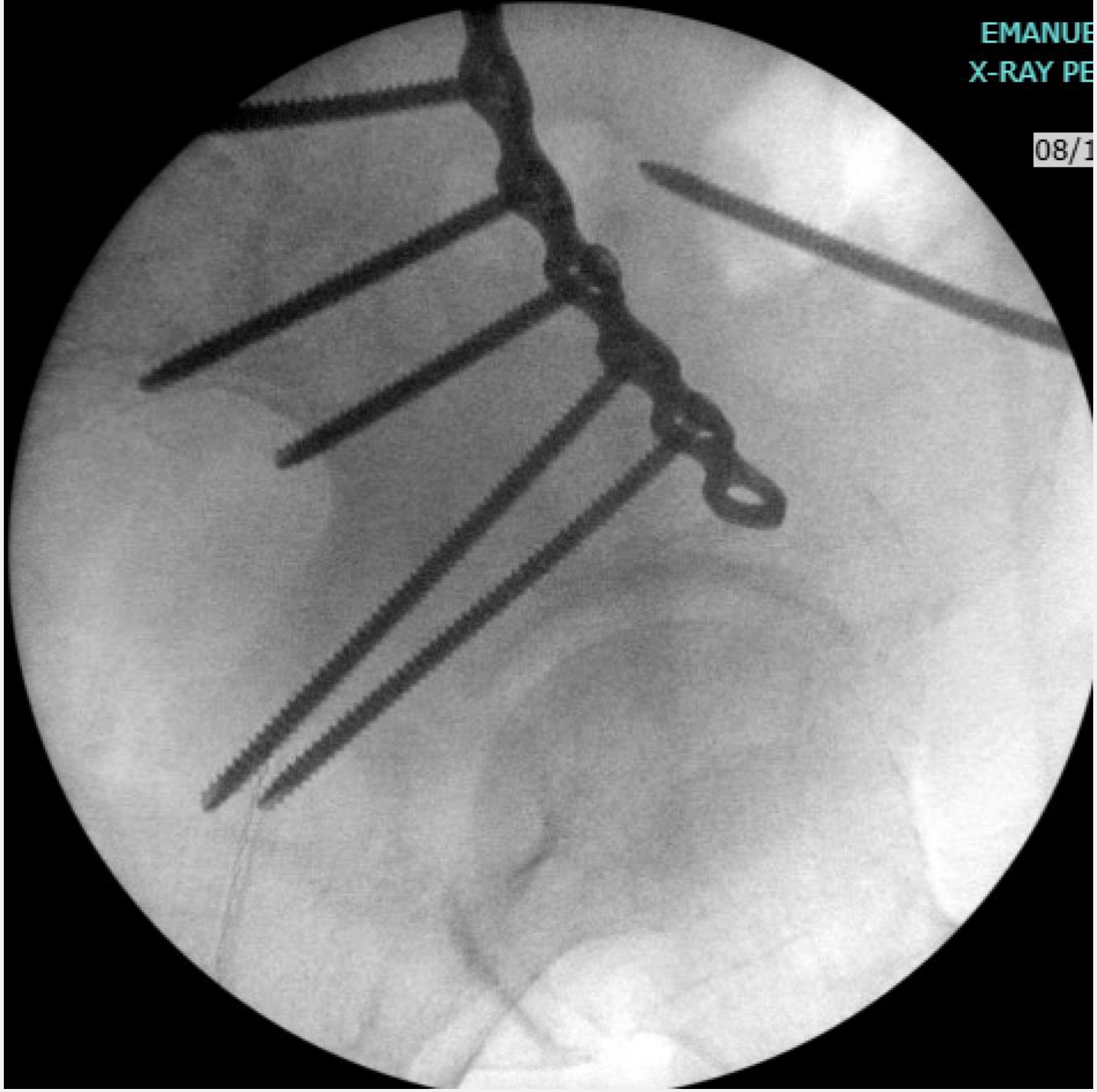
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84YO MALE #2


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CONCLUSIONS

- Lower energy fractures
- Goals are different than young acetabular fractures
- Trends beginning to lean toward acute fix and replace in certain patterns
- Treatment tailored to individual patient and pattern