

AMSER Case of the Month

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HPI 96-year-old female presenting with severe L hip pain after fall

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Patient Presentation

- **HPI** 96-year-old female presenting with L hip pain after fall from standing height
- **PHM** Anxiety, Insomnia, muscle weakness, and Schizoaffective disorder
- **Physical Exam**
 - Musculoskeletal: Tenderness to L proximal femur, able to range L hip, strength equal, no shortening or deformity or swelling.
 - Neuro: non-focal
- **Labs:** Noncontributory

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 1:

Acute hip pain. Fall or minor trauma. Suspect fracture. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
Radiography hip	Usually Appropriate	☼☼☼
Radiography pelvis	Usually Appropriate	☼☼
Radiography pelvis and hips	Usually Appropriate	☼☼☼
CT pelvis and hips with IV contrast	Usually Not Appropriate	☼☼☼
CT pelvis and hips without and with IV contrast	Usually Not Appropriate	☼☼☼☼
CT pelvis and hips without IV contrast	Usually Not Appropriate	☼☼☼
MRI pelvis and affected hip without and with IV contrast	Usually Not Appropriate	○
MRI pelvis and affected hip without IV contrast	Usually Not Appropriate	○
Bone scan hips	Usually Not Appropriate	☼☼☼
US hip	Usually Not Appropriate	○



This imaging modality was ordered by the ER physician

Findings (unlabeled)

Se:1
Im:1/1

R

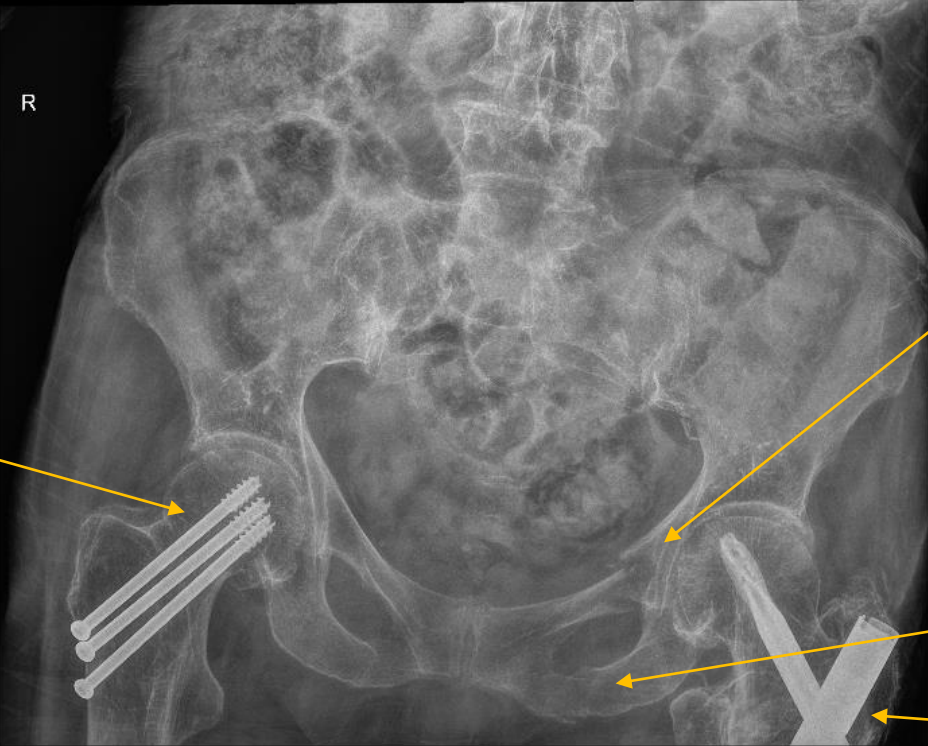


5
cm
L

Findings (labeled)

HIP LEFT INCL PELVIS IF PERFORMED 2 OR 3 VIEWS 73502
AP
Se: 1
Im: 1/1

08:29:46



3 intertrochanteric screws

Acute comminuted mildly displaced fracture of the left superior pubic ramus



Left inferior pubic ramus fracture

Intramedullary rod

*Bones are diffusely osteopenic

Final Dx:

Acute Fractures of Left Superior and Inferior Pubic Rami

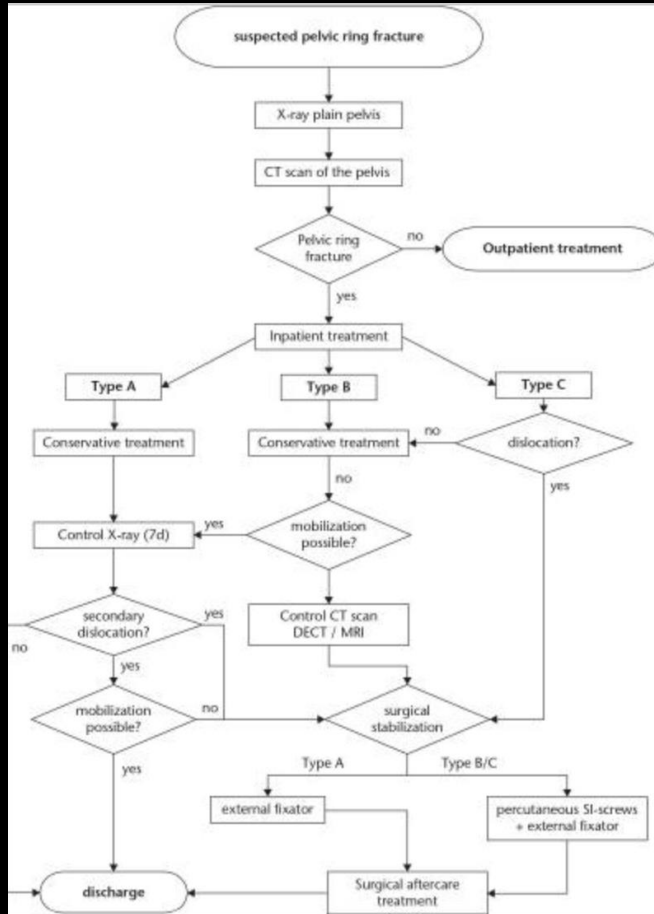
Case Discussion

- In the US pelvic fracture occur in 37 in 100,000 individual per year
 - Incidence is highest in 15-28 age group
- Most Pelvic Fractures are due to trauma
 - MVC (50%)
 - Pedestrian vs. motor vehicle (30%)
 - Fall from height (10%)
 - Motorbike (4%)
 - Other causes include sports injuries and low energy falls
- Pelvic insufficiency fractures due to low energy mechanism are common in the elderly

Case Discussion

- While hip fractures 3 times more common, pelvic fractures are associated with similar mortality
 - Inpatient mortality 7.6%, 1 year mortality 27%
- Pelvic fractures can be complicated by hemorrhage
 - Intrabdominal bleeding occurs in up to 40% of cases
 - Suspect pelvic bleeding in patient with continued instability in the absence of intrabdominal hemorrhage
- 1 year post injury 52% of elderly patients report decreased self sufficiency

Case Discussion – Management



Treatment algorithm for suspected pelvic ring fractures Küper et al³

- Main goal of treatment is minimizing time to re-mobilization
 - Prevent further osteopenia, pulmonary infections, and DVT
- Non-operative treatment of pelvic ring fractures consists of three major pillars: Analgesia, mobilization and osteoporotic medication
- Posterior pelvic ring usually can be stabilized using percutaneous SI screws
- Anterior pelvic ring stabilized with ORIF with plate osteosynthesis



Classification of Pelvic Ring Fractures Küper et al³

References:

1. Morris RO, Sonibare A, Green DJ, et al. Closed pelvic fractures: characteristics and outcomes in older patients admitted to medical and geriatric wards. *Postgraduate Medical Journal* 2000;76:646-650.
2. Dong J, Hao W, Wang B, Wang L, Li L, Mu W, Yang Y, Xin M, Wang F, Zhou D. Management and outcome of pelvic fractures in elderly patients: a retrospective study of 40 cases. *Chin Med J (Engl)*. 2014;127(15):2802-7. PMID: 25146617.
3. Küper MA, Trulson A, Stuby FM, Stöckle U. Pelvic ring fractures in the elderly. *EFORT Open Rev*. 2019 Jun 3;4(6):313-320. doi: 10.1302/2058-5241.4.180062. PMID: 31312519; PMCID: PMC6598730.
4. Davis DD, Foris LA, Kane SM, et al. Pelvic Fracture. [Updated 2022 Aug 7]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK430734/>
5. Harvey H, Tan W, Shaggah M, et al. Pelvic fractures. Reference article, Radiopaedia.org (Accessed on 15 Apr 2023) <https://doi.org/10.53347/rID-15002>
6. Broadwell SR, Ray CE. Transcatheter embolization in pelvic trauma. *Semin Intervent Radiol*. 2004 Mar;21(1):23-35. doi: 10.1055/s-2004-831402. PMID: 21331106; PMCID: PMC3036204.