

Osteogenesis Imperfecta Imperfect Imaging?

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Background ^{1,2,3}

- Osteogenesis imperfecta (OI) “aka Brittle Bone Disease” is a disorder characterized by abnormal internal bone structure that leads to fragility
- Individuals with OI have decreased resistance to traumatic forces (higher likelihood of stress or other fractures)
- OI often leads to deformity in joints and growth retardation
- Injuries may present as vague and non-specific, resulting in a delay in proper diagnosis and increase in major complications
- Healthcare workers must consider possibility of fractures or complications from undiagnosed previous fracture during treatment

Patient History

- 37 year-old female previously diagnosed with Osteogenesis Imperfecta
- Presented with persistent left low back and hip pain after carrying heavy items up and down stairs
- Radiographs inconclusive – Referred to PT with diagnosis of left hip strain
- Physical Therapy exam suggested acetabular or hip stress fracture



Significant Exam Findings

Significant Objective Exam Findings

- Trendelenburg gait
- 2-/5 hip abductor strength due to hip/pelvis pain
- Pain stopped active SLR on the left
- Pain limited left hip flexion, internal rotation, and adduction range of motion
- Discomfort in the hip/pelvis with the heel tap test
- MRI read as no fracture

References

1. Borland S, Gaffey A. Congenital and metabolic disorders leading to fracture. *Trauma*. 2012;14:243-246
2. Roberts TT, Cepela DJ, Uhl RL, Lozman J. Orthopaedic considerations for the adult with osteogenesis imperfecta. *J Am Acad Orthop Surg*. 2016;24:298-308.
3. Sheridan BD, Gargan MF, Monsell FP. The hip in osteochondrodysplasias: general rules for diagnosis and treatment. *Hip International*. 2009;19:S26-S34.

Discussion

- Patient’s vague, non specific symptoms made it challenging to provide an accurate diagnosis.
- Negative radiographic results for fractures led to hip strain diagnosis which was plausible, though unlikely due to having symptoms for 6 weeks
- Patient signs and symptoms were congruent with stress fracture; but imaging did not confirm
- MRI imaging is not “foolproof”
- Treating as a stress fracture in the absence of confirming imaging produced a successful result

Conclusion

- Imaging may not always provide an accurate diagnosis and should be used with caution
- Reflective reassessment is necessary when a patient does not improve as anticipated
- It is Important to considering all information from patient history, imaging, and physical examination during each patient encounter
- Considering conditions out of the ordinary is imperative during treatment/rehabilitation