Special Considerations - Anterior Vertebral Body Avulsion Fracture in the Postpartum Period: A Case Report

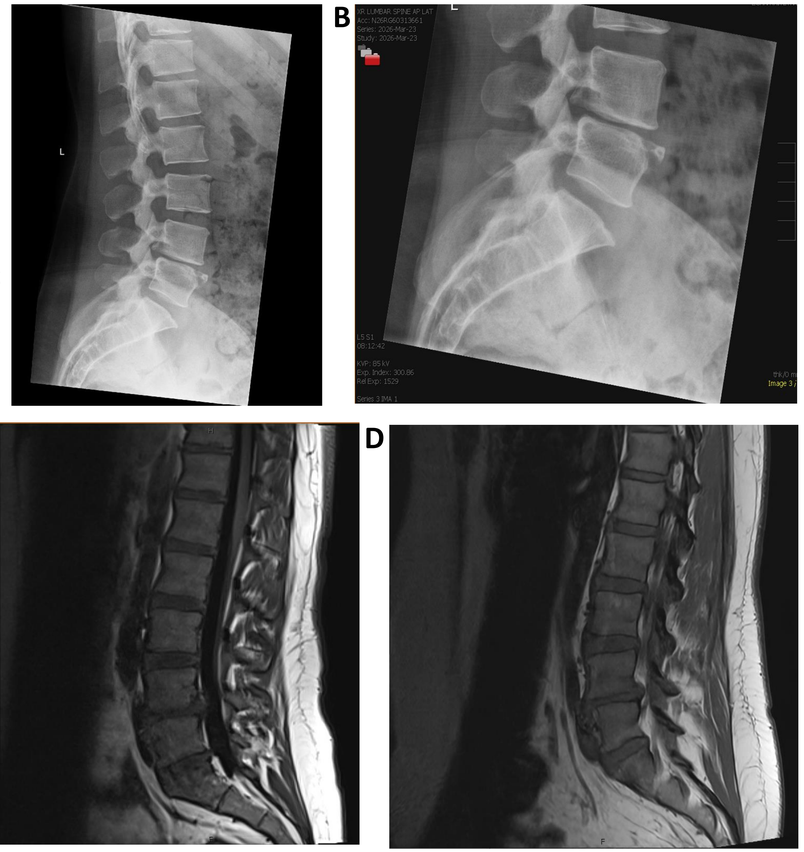
Dip Rana, MD[1,2] , Kaitlyn Egan, MD [1,2]
[1]Shirley Ryan Ability Lab, Chicago, IL; [2]McGaw Medical Center of Northwestern University, Chicago, IL

Background

- Corticosteroid injections are commonly used in the management of chronic back pain, but their potential effects on bone health remain an important consideration, particularly in women of childbearing age.
- Research has shown an association of epidural steroid injection (ESI) with decrease bone mineral density and increased vertebral fracture risk.[1]
- The potential interaction between recent lactation-associated skeletal remodeling in the postpartum period, vitamin D deficiency and prior epidural corticosteroid exposure has not been well characterized.
- We present a case of vertebral fracture following relatively mild trauma in a young woman with such risk factors.

Case Description

- A 34-year old female with a history of chronic facetogenic back pain due to a prior skiing accident resulting in L4-L5 disc herniation and 6 transverse process fractures presented to a clinic after falling down two steps.
- She went to urgent care, where a lumbar X-ray showed an avulsion fracture of the superior anterior aspect of L5.
- Then she underwent a lumbar MRI, which was not significantly changed from prior imaging per radiology, so she was conservatively managed with lumbosacral orthosis and oral pain regimen.
- She underwent a number of previous procedures prior to the fall:
  - L4-L5 Transforaminal epidural steroid injections (TFESI) x3 from 15 years prior
  - LF-S1 Interlaminar Epidural Steroid Injection (ILES) 14 months prior
  - Right L4-L5, L5-S1 facet joint steroid injections 5 months prior
- Notably, she discontinued breastfeeding approximately 6 months prior to the fall and was actively being treated for Vitamin D deficiency.
- This atypical fracture caused concern for her bone density in the setting of hx of steroid injections, Vitamin D deficiency, and recent lactation status.



A. Lateral lumbar XR exhibiting avulsion fracture at the L5 superior anterior aspect **B.** Lateral lumbar XR with clearer visualization of avulsion fracture s/p fall. **C.** Sagittal T1 MRI lumbar spine from 1 year prior **D.** Sagittal T1 MRI after avulsion fracture

Discussion

- Although postpartum or lactating status alone is not considered an absolute contraindication to corticosteroid injections, evidence regarding their safety in this population remains limited.[2]
- Lactation is associated with substantial, hormonally mediated skeletal remodeling and resorption; although recovery begins after weaning, it may remain incomplete at 6 months or less, not returning to baseline until 12 months after weaning.[3]
- The intersectionality of other co-morbid issues may increase the risk of vertebral fragility fractures in these patients, such as vitamin D deficiency.[4]
- In our case, a woman with numerous prior TFESI, an ILESI, and facet injection suffered a vertebral fracture after a relatively mild fall.
- She recently stopped breastfeeding and was found to be Vitamin D deficient, which may have contributed to fragility.
- More research is necessary to delineate risk factors contributing to fragility fractures in women in the post-partum period, with special consideration when evaluating these patients for future ESI.

Conclusion

- Our case elucidates potential considerations for steroid injections women of childbearing age, which may be ameliorated by addressing patient specific factors and shared-decision making with patients.

References

1. Kerezoudis P, Rinaldo L, Alvi MA, et al. The effect of epidural steroid injections on bone mineral density and vertebral fracture risk: a systematic review and critical appraisal of current literature. *Pain Medicine.* 2018;19(3):569-579.
2. D'Souza RS, Zheng P, Christolias G, Holder EK, Lee H, Miller DC, Raghunandan A, Smith CC, Patel J; International Pain and Spine Intervention Society's Patient Safety Committee. FACTFINDERS for PATIENT SAFETY: Preventing procedure-related complications: Epidural lipomatosis and postpartum steroid exposure. Interv Pain Med. 2024 Apr 6;3(2):100408.
3. Kovacs CS. Pregnancy and Lactation Associated Bone Fragility. Journal of the Endocrine Society. 2025;9(9):bvaf126.
4. Maier, G. S., Seeger, J. B., Horas, K., Roth, K. E., Kurth, A. A., & Maus, U. (2015). The prevalence of vitamin D deficiency in patients with vertebral fragility fractures. *The bone & joint journal*, *97-B*(1), 89–93.

Contact Information:
Dip Rana drana@sralab.org | Kaitlyn Egan kegan@sralab.org