



Introduction

Narrowing of the spinal canal or foramina is a common finding in spine imaging of the elderly and when symptoms of neurogenic claudication and/or cervical myelopathy are present the diagnosis of spinal stenosis is made. The etiology is commonly degenerative disc disease, ligamentum hypertrophy, a combination of both and in rare cases an exogenous mass compression. We present an interesting case in which this mass effect was missed by the MRI and was finally diagnosed intraoperatively.

Case

71-year-old African American woman with a medical history of HTN, substance use disorder (cocaine EtOH) and two years of worsening neck pain with bilateral numbness and pain in her upper extremity with fine motor difficulties. MRI revealed severe cervical spinal stenosis, and she underwent C4–C6 laminectomy with partial at C3 and C7. Interestingly, once surgical visualization of the affected cervical level was established, the patient was found to have abnormal caseating tissue at the site not visible on MRI. The final pathology report characterized the tissue as fibrocartilage and ligament with degenerative changes.

Imaging

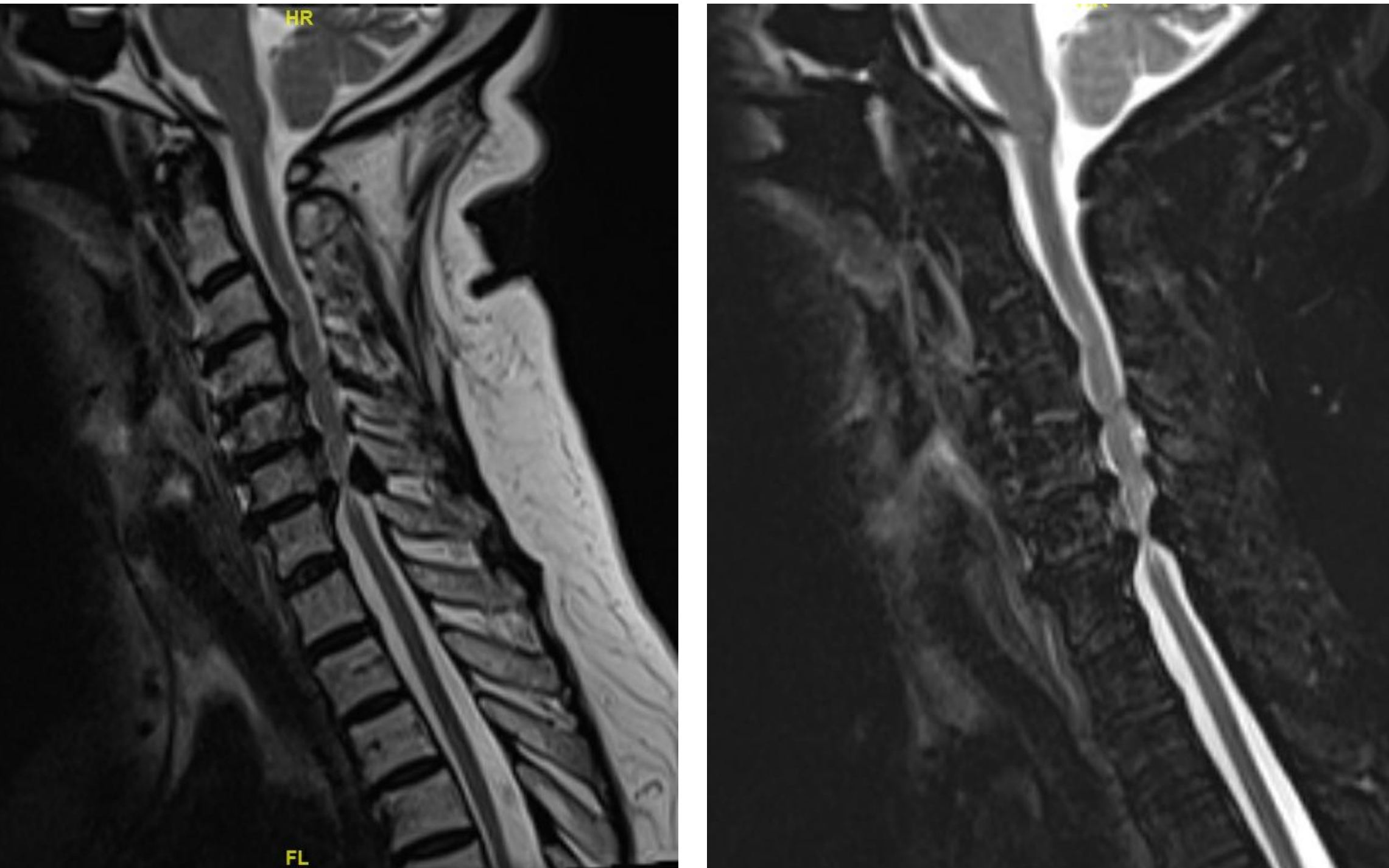


Fig 1.: T2 Weighted imaging with and without fat suppression

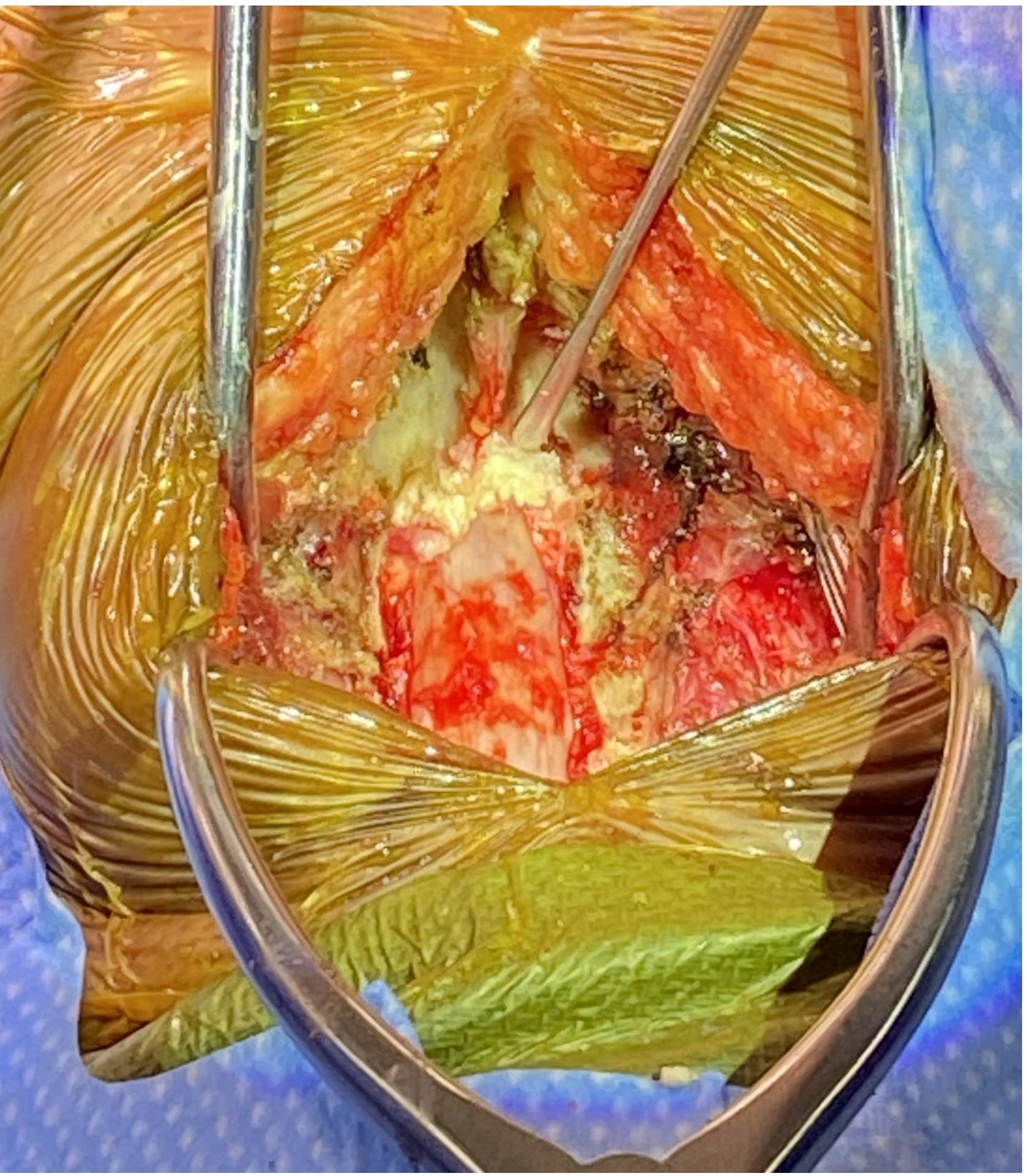


Fig 2.: Visualization of granuloma during surgery

Discussion

Ligamentum flavum hypertrophy, can be caused by several factors: aging, repetitive stress, trauma, or chronic inflammation. Additionally other spinal conditions like slipped discs, facet joint hypertrophy, or spondylolisthesis can cause the ligamentum flavum to thicken to maintain spinal stability.

The surgical findings in this case resemble granulomatous degeneration. In most cases, this is in response to the presence of persistent endogenous and exogenous irritants that depend on the state of the host immune reaction. It is characterized by the accumulation of modified macrophages called epithelioid cells. Infected granulomas may be due to bacteria (TB, syphilis, leprosy, and tularemia), fungal ((histoplasmosis, cryptococcosis, blastomycosis and Para coccidioidomycosis) (1), and non-infective granulomas may be secondary to chronic inflammatory diseases, such as sarcoidosis, amyloidosis, and Wegener's (2). Correct treatment of granulomatous lesions relies on patient age, gender, location of lesion and specific knowledge of imaging findings.

This patient did not have any laboratory evidence suggesting chronic inflammatory disease or infectious causes, but given her racial background, she was at higher risk of undiagnosed sarcoidosis.

The MRI (fig 1.) findings of patient with sarcoidosis (3) present with intra and extra parenchymal lesions affecting the cord that will manifest with radicular symptoms as in this case, but the image will typically display as increased T2 signal, which was not seen in this patient.

It is more likely that this case represented reparative giant cell granuloma (4), which originates as a reactive response to hemorrhage secondary to either trauma or chronic inflammation. This lesion on CAT scan would appear as a heterogeneous soft tissue mass and on an MRI it would have also a heterogeneous appearance in T1 in T2 weighted images with an inhomogeneous enhancement which is more compatible with this case.

Conclusion

This case highlights the diagnostic challenges associated with atypical causes of spinal stenosis, particularly when standard imaging modalities fail to detect the underlying pathology. The unexpected intraoperative discovery of caseating tissue underscores the importance of maintaining a broad differential diagnosis in patients with spinal stenosis. While infectious and inflammatory etiologies were considered, the absence of systemic markers and imaging characteristics suggests a reparative giant cell granuloma as the most plausible diagnosis. This case emphasizes the role of surgical exploration in cases where imaging is inconclusive and reinforces the need for a multidisciplinary approach to diagnosing and managing rare spinal pathologies. Furthermore, it underscores the necessity of advancing imaging techniques to better identify and characterize unusual spinal lesions, ultimately improving diagnostic accuracy and patient outcomes.

References

- 1.Weber A, Siciliano A. CT, and MR imaging evaluation of neck infections with clinical correlations. Radiol Clin North Am 2000;38:941–68.
- 2.Som PM, Brandwein M. Inflammatory diseases. In: Som PM, Curtin HD, editors. Head & Neck Imaging. 4th ed. St. Louis: Mosby Year Book; 2003. p. 193–259.
- 3.Zajicek JP, Scolding NJ, Foster O, Rovaris M, Evanson J, Moseley IF, Scadding JW, Thompson EJ, Chamoun V, Miller DH, McDonald WI, Mitchell D. Central nervous system sarcoidosis--diagnosis and management. QJM. 1999;92(2):103–17. doi: 10.1093/qjmed/92.2.103
- 4.Morris JM, Lane JJ, Witte RJ, et al. Giant cell reparative granuloma of the nasal cavity. Am J Neuroradiol 2004;25:1263–5