Acute Central Cord Injury with Pneumocephalus: A Rare Complication of Cervical Epidural Steroid Injection

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INTRODUCTION

Cervical epidural steroid injections (CESI) are often used to treat neck and arm pain secondary to cervical disc disease, stenosis, and radiculopathy refractory to conservative management. Though generally safe when performed under fluoroscopic guidance, serious complications include dural puncture, epidural abscess, neurological injury, and mortality. This case describes the clinical course, management, and rehabilitation outcomes of a patient who sustained acute cord injury and pneumocephalus following CESI, a complication rarely reported in current literature.

METHODS

This is a single patient case report. Clinical data was gathered via retrospective chart review of the electronic medical record following admission to acute care. Information including emergency room documentation, serial physical and neurological examinations, consultant notes, imaging findings, laboratory studies, and inpatient and acute rehabilitation documentation were reviewed. Unfortunately, procedural records were unable to be obtained as the patient's CESI was performed at a private outside facility. This case was deemed exempt from IRB review according to New York City Health and Hospitals institutional policy because no identifiable patient information is presented.

CASE

The patient is a 51-year-old female with history of motor vehicle accident in 2021 that yielded chronic neck, arm, and shoulder pain attributed to discogenic disease. She has received a CESI every 3-6 months for management of her symptoms.

She received a CESI in December 2025. While in the recovery room, she developed acute onset left-sided face, neck, arm, and leg pain and paresthesias for which she went to the emergency room. There, she also reported chest and back pain. Her initial exam was notable for decreased strength in left upper and lower extremity as well as decreased sensation to temperature and pinprick in the left upper extremity and chest wall. Cranial nerves were intact. Cardiac work-up was benign. She underwent both CT and MRI of the brain and full spine, where were notable for pneumocephalus in the posterior fossa cisterns and a T2 hyperintensity in the left central cord from C5-T5 with suspected gray matter affected. No significant foraminal narrowing or stenosis were noted. Given these findings, direct injury to the cord was the most suspected etiology.



Figure 1: MRI cervical spine, T2 weighted – Sagittal With T2 cord hyperintensity spanning C6-C7 level through to the T5 level

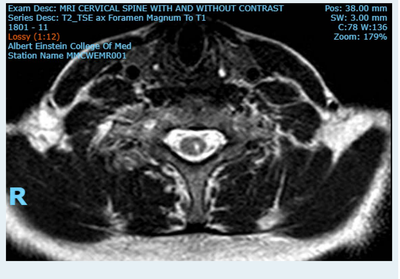


Figure 2: MRI cervical spine, T2 weighted – Axial Slice at C7 level. With a T2 hyperintensity in the left central aspect of the cord

MANAGEMENT AND REHABILITATION

She received a three-day course of dexamethasone and was discharged to acute inpatient rehabilitation. There, she received comprehensive therapy to work on impaired endurance, strength, and gait dysfunction, as well as speech and cognitive slowing. Her course was complicated by poor pain control, predominantly in her neck, head, and left arm which was partially managed with pregabalin, duloxetine, and acetaminophen. On admission, she ambulated with minimal assistance and performed functional tasks at contact guard level. She received comprehensive therapy and was discharged home on day thirteen at a supervision level using a rolling walker. Despite these functional gains, at 6-month follow-up, she was largely wheelchair dependent with persistent pain and sensory deficits.

CONCLUSION

Pneumocephalus with spinal cord injury is a rarely documented complication of fluoroscopy-guided CESI. Thus, the clinical course, optimal management, and prognosis remain poorly established. This case provides rare insight into the neurological deficits that can result, and the potential for acute rehabilitation in maximizing functional recovery. Given this patient's persistent decline from an independent baseline, it further underscores the importance of meticulous injection technique to minimize such complications.

REFERENCES

1. Rosenberg SK. Cervical epidural steroid injections. Tech Reg Anesth Pain Manag. 2005;9(2):58-61.doi:10.1053/j.trap.2005.05.002
2. Wadhwa H, Rohde M, Koltsov JCB, Cabell A, Smuck M, Hu SS, Kleimeyer JP. Incidence and risk factors for complications following cervical epidural steroid injections. Spine J. 2025;25(5):886-902.doi:10.1016/j.spinee.2024.12.003
3. Dydyk AM, Hu Y, Stretanski MF, Sekhri NK. Cervical epidural injection. In: StatPearls [Internet].StatPearls Publishing; 2026.
4. Schreiber AL, McDonald BP, Kia F, Fried GW. Cervical epidural steroid injections and spinal cord injuries. Spine J. 2016;16(10):1163-1166. doi:10.1016/j.spinee.2015.08.068
5. Shah AK, Bilko A, Takayesu JK. Epidural steroid injection complicated by intrathecal entry, pneumocephalus, and chemical meningitis. J Emerg Med. 2016;51(3):265-268.doi:10.1016/j.jemermed.2016.05.040