Pneumocephalus and Left Hemicord Infarction after Cervical Spine Pain Injection Treated with Hyperbaric Oxygen Therapy

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Introduction

- Pneumocephalus is a rare but known occurrence after spinal injections. A traumatic head injury usually causes it.
- Pneumocephalus typically resolves within 2-3 weeks, and if asymptomatic, no treatment is necessary.
- Limited data have shown that hyperbaric oxygen therapy (HBO) may be beneficial. Hemicord infarction is also rare and not generally considered a known complication of spinal injections.
- This is a unique case that describes a middle-aged woman who, after a cervical spine epidural injection for pain, suffered from both pneumocephalus and a cervical spine left hemicord infarction.
- This was treated with a lumbar cerebrospinal fluid (CSF) drain and hyperbaric oxygen therapy, with improvement in her symptoms.

Case Description

- A 51-year-old female with a history of cervical foraminal stenosis and chronic back pain presented to an outlying rural hospital with headache, chest pain, arm and leg weakness after receiving a cervical spinal epidural injection.
- She woke up from sedation with a 9/10 headache and chest heaviness and could not move her arms.
- A head CT was performed, which revealed several foci of gas in the basal cisterns “presumably related to the epidural spine injection”. [Figure 1]
- The patient was then transferred to a tertiary hospital, where she reported improvement of her right arm weakness but new numbness and weakness of her left leg.
- Neurology recommended admission with MRI of the brain and cervical spine, elevation of the head of the bed, and intermittent 100% O_2 supplementation using a non-rebreather mask.
- MRI of the cervical spine without contrast showed a left hemicord infarction beginning at the C3 level and extending down into the visualized upper thoracic spine. [Figure 2]

Figure 1. Initial CT scan showing the revealed several foci of gas in the basal cisterns (red arrows and red circled area).

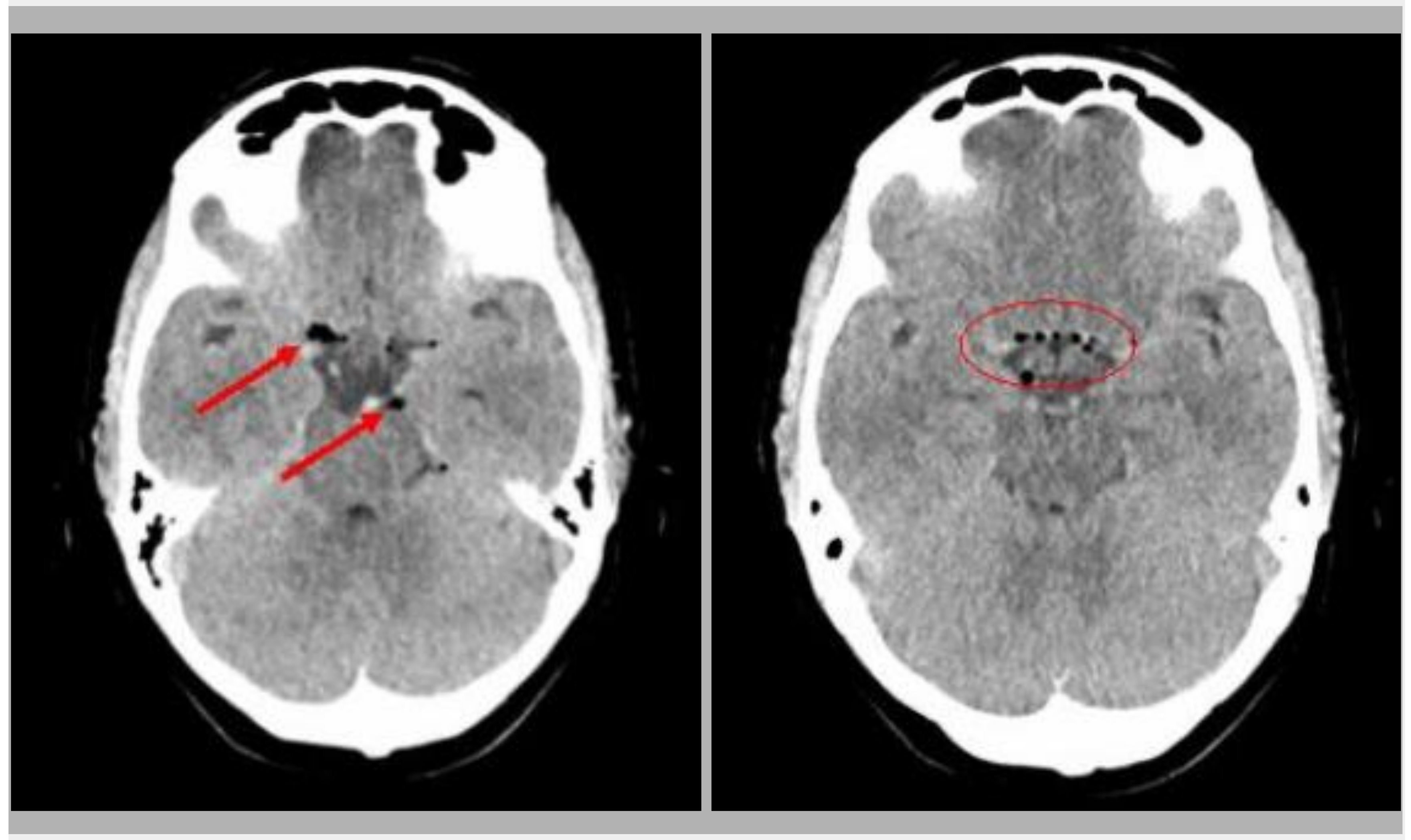
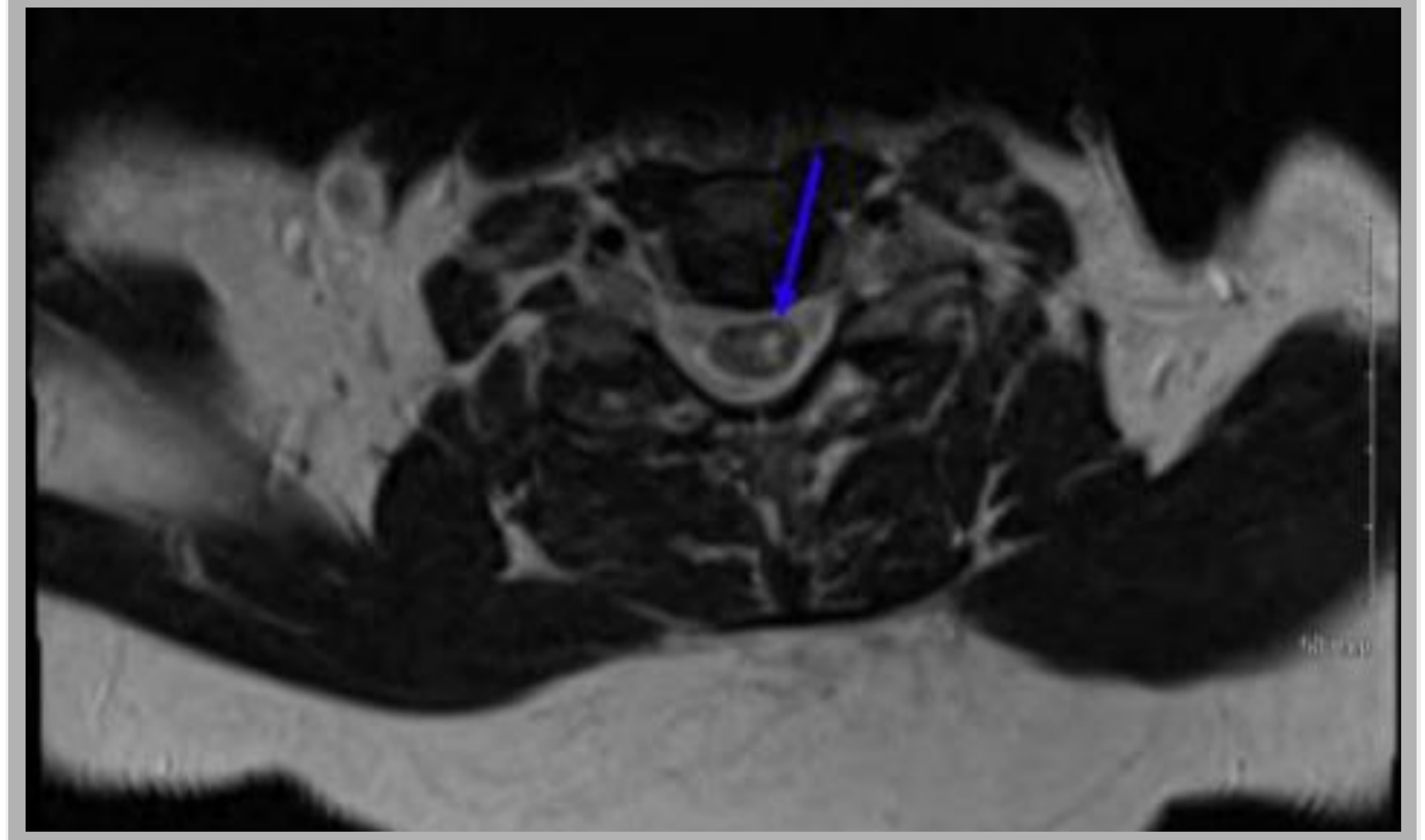


Figure 2. Initial Cervical MRI showing area of hemicord infarction (blue arrow).



Intervention

- A lumbar puncture was performed, and a lumbar drain was placed to improve adequate spinal perfusion.
- She was given dexamethasone 10mg IV followed by 4mg q6 hours. She started treatment with hyperbaric oxygen (HBO) on hospital day #2.
- She had a total of five hyperbaric treatments after which point, her symptoms plateaued.
- Physical exam findings showed objective improvement in her weakness when compared to her initial presentation.
- She was then discharged to an acute rehab hospital in stable and improving condition.

Conclusion

- This case is unique in that the patient suffered both pneumocephalus and a hemicord infarction after a routine cervical spine injection for chronic pain control.
- This case represents a reminder of rare but serious complications that can occur and demonstrates the potentially effective treatment of HBO therapy for pneumocephalus and spinal cord infarction.
- Further research is certainly needed, but HBO therapy should be highly considered for future treatment of spinal cord infarctions, even in the absence of pneumocephalus.