

## Case Report

# Space occupying epidural air necessitating emergent cesarean delivery

Michael W Best, Chaim Golfeiz and Manuel C Vallejo\*

Magee-Women's Hospital of UPMC, 300 Halket Street, Suite 3510 Pittsburgh, PA 15213.

\*Corresponding author E-mail: [vallejomc@anes.upmc.edu](mailto:vallejomc@anes.upmc.edu), Tel: 412-641-4260, Fax: 412-641-4766.

Accepted 14 September, 2013

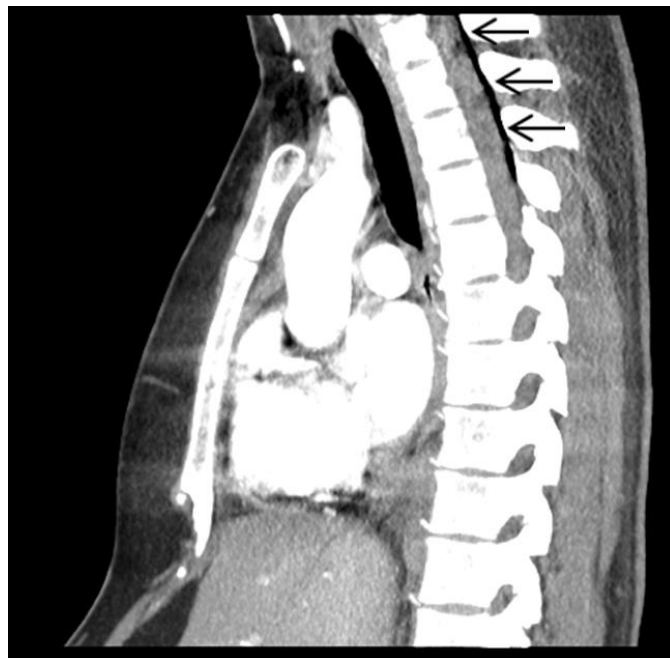
A 31-year-old prime at 40 weeks gestation requested epidural analgesia. An L3-L4 patient controlled epidural analgesia (PCEA) catheter was placed without complication. PCEA initial bolus consisted of 10 mL 0.0825% bupivacaine with fentanyl 100 µg, 8 mL/hr continuous infusion, 8 mL demand bolus, 8 minute lockout, and 1-hour lockout of 24mL. Four hours later after pressing the PCEA button, she complained of constant, severe (10/10 verbal pain scale), sharp, bilateral subscapular back pain radiating to her left shoulder and arm. Pain intensified during respiration, relieved minimally sitting up (8/10), unable to lie supine or laterally.

Both neurological and chest roentgenogram exam were unremarkable, and electrocardiogram revealed sinus tachycardia. The epidural catheter was replaced without incident but she still complained of severe back and shoulder pain. Differential diagnosis included epidural hematoma, acute coronary syndrome, pulmonary embolism, and dissecting aortic aneurysm. Upon reexamination, she was 7 cm cervical dilatation, 90% effacement, -1 station, and it was decided to proceed with cesarean delivery. Under general anaesthesia, a healthy infant was delivered without complication. After recovery, magnetic resonance imaging and computerized tomography studies of her chest and abdomen revealed air in the thoracic T2-T5 epidural space (Fig).

Epidural air with pain symptoms is a known complication. We are unaware of any reported case of back and shoulder pain caused by thoracic epidural air in a laboring parturient who gave consent for publication. It is difficult to determine how  $\leq 3$  ml of air using the loss of resistance technique injected in the lumbar epidural space collected and caused problems remote from epidural placement. Pneumocephalus resulting from inadvertent dural puncture can occur [1], but she did not have an inadvertent dural puncture. We speculate air

could have migrated cephalad and or residual air in the PCEA tubing may have migrated into the epidural space when she pushed the PCEA button. Another etiology could be catheter misconnection or tube leak allowing air entrainment.

**Figure 1.** Sagittal computerized tomography of the spine with distribution of epidural air at T2-T5.



The decision to deliver may have been an overreaction. However, we believed severe chest pain with radiation to the left arm in a patient unable to lie supine, unresolved

with epidural replacement, necessitated timely diagnosis and treatment. Eight hours later, her back pain relented as symptoms got progressively better as air was reabsorbed. Oxygen and hyperbaric chamber therapy reportedly accelerate reabsorption [2]. In conclusion, we present a case of thoracic epidural air causing severe back and shoulder pain.

**Acknowledgements:** Assistance with the study: None

Financial support and sponsorship: None

## REFERENCE

1. Gómez-Ríos MÁ, Fernández-Goti MC. Pneumocephalus after inadvertent dural puncture during epidural anesthesia. *Anesthesiology*. 2013;118:444.
2. Overdiek N, Grisales DA, Gravenstein D, Bosek V, Nishman R, Modell JH. Subdural air collection: a likely source of radicular pain after lumbar epidural. *J Clin. Anesth*. 2001;13:392-7.