

Pneumocephalus and pneumorachis after dural tear in lumbar spine - A case report

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INTRODUCTION

- Pneumocephalus or pneumorachis, is the presence of air in the cranial cavity or in the spinal canal respectively.
- Only a few case reports have been published with a primary spinal cause.
- Only two cases have been reported in the literature presenting with both of these findings concomitantly after lumbar spine surgery.
- We report such a rare case with peculiarity of association with late presenting dural leak and the involvement of both cervical and lumbar regions of the spine.

CASE REPORT

- ❑ 70 years, male was operated at ISIC for LCS L4-5,L5-S1, Decompressive two level laminoforaminotomy was done and he was discharged after an uneventful postoperative course. There was no dural tear intraoperatively.
- ❑ He presented again one month after surgery with complaints of profuse discharge of clear watery fluid from the surgical site which started one week after discharge from the hospital along with headache since four to five days from presentation.
- ❑ There was no history of fever, vomiting or pain at the surgical site. He was a known case of Type II DM with hypertension adequately controlled on medications.
- ❑ On examination, he was afebrile and without neck rigidity. The surgical site showed wound gaping but no signs of infection or inflammation. There was continuous discharge of clear watery non foul-smelling fluid from the surgical site suggestive of CSF leakage.

Pneumocephalus and Pneumorachis – REVIEW OF LITERATURE

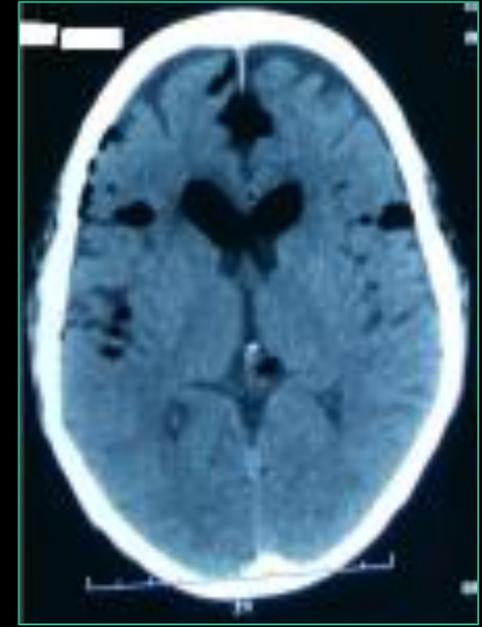
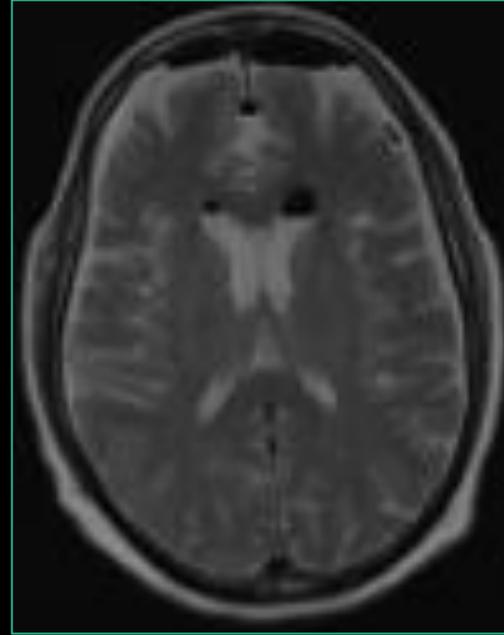
- ❑ Routinely encountered complications of CSF leakage are meningitis, CSF fistula and pseudomeningocele formation. Pneumocephalus and pneumorachis are extremely rare complications of CSF leakage.
- ❑ Only one case report of pneumorachis due to incidental durotomy has been found in the existing literature. The presence of both pneumocephalus and pneumorachis is furthermore rare with only 2 cases reported till date due to a primary spinal cause.
- ❑ Our case is hence rare with respect to occurrence of both pneumocephalus and pneumorachis after spine surgery. The association with late presenting dural tear make it extremely uncommon to encounter such a case in the usual practice.



- ❑ Pneumocephalus has been reported mostly after trauma, infections, neoplasms, dural puncture and rarely after spinal surgery. Pneumorachis has been reported commonly after injury to the respiratory system, cranial injuries or injury to abdominal viscera. Spinal causes are rare with reported etiologies to be a vacuum herniated disc, epidural abscess, dural tear and lumbar puncture. It usually presents in the cervical region. Involvement of both cervical and lumbar regions like in our case is hence very rare.

MANAGEMENT

□ MRI and CT scan of the brain and spine revealed air in the subarachnoid and intraventricular spaces and intraspinal in the cervical and lumbar spines.



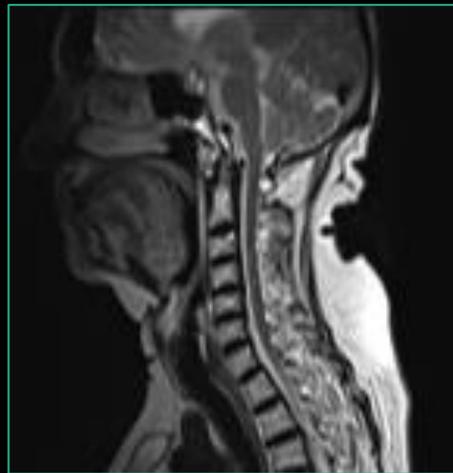
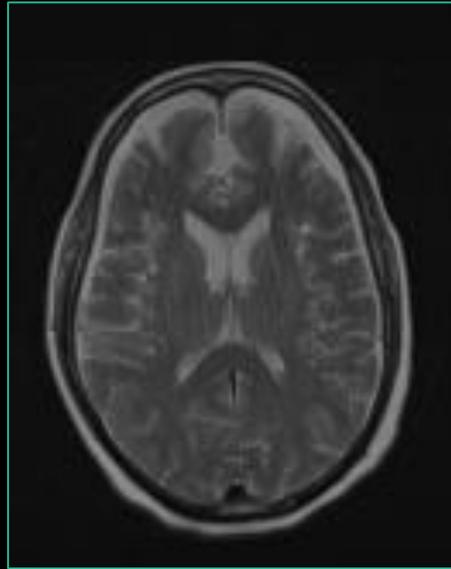
□ wound debridement and layered closure of the wound was performed one day after admission. No attempt of duroplasty was done. Empirical intravenous antibiotics were started to prevent meningitis.

□ He was started on high flow oxygen 5 Liters per minute via face mask and adequate hydration maintained. Analgesics were started for headache.

CONCLUSION AND FOLLOW UP

□ The wound healed normally and stitch removal was done after two weeks. Gradually the headache also improved and there was resolution in the pneumorrhachis and pneumocephalus as documented on MRI and CT scans done after 1 month.

□ The patient continues to be in our follow up and was asymptomatic till last visit at two years after index surgery.



REFERENCES :-

- 1). Prabhakar H, Bithal PK, Ghosh I, Dash HH: Pneumorrhachis presenting as quadriplegia following surgery in the prone position. *Br J Anesth* 97: 901–903, 2006
- 2) Dolgun H, Gurer B, Sari O, Sekerci Z: Isolated subarachnoid pneumorrhachis. *Neurol India* 59: 139–141, 2011
- 3) Yun JH, Kim YJ, Yoo DS, Ko JH: Diffuse pneumocephalus: a rare complication of spinal surgery. *J Korean Neurosurg Soc* 48: 288–290, 2010