

# Intraventricular pneumocephalus

Ventricular [pneumocephalus](#) is a rare but potentially life-threatening complication of cranial surgery in the [sitting position](#).

see [Pneumocephalus in the sitting position](#).

Although [pneumocephalus](#) and pneumoventricle are well known entities in neurosurgery practice, delayed intraventricular tension pneumocephalus following [shunt surgery](#) is extremely rare.

see [Spontaneous intraventricular pneumocephalus](#).

## 2010

a 23yr old male student, a motorcyclist involved in a road traffic accident during which he sustained head injury associated with basal skull fracture. He had brief loss of consciousness for about five minutes and had transient CSF leak from the left ear. His Glasgow coma score (GCS) on admission was 14. He was admitted for observation but was noticed to be deteriorating neurologically after few hours on admission. His GCS dropped to 9 and the left pupillary size increased to 5mm from 3mm. A cranial CT scan was done which showed multiple air in the intracranial cavity mostly in the intraventricular space (figures 1a & 1b). These findings are noted with features of intracranial hypertension but no gross midline shift. He had an emergency right frontal ventriculostomy to let out the air and then to drain the CSF. Few minutes after the procedure, he gained consciousness and sustained improvement in his neurological complaints. He continued to make clinical progress and the ventricular drain was removed on the fifth day. He sustained neurological improvement until the parents requested for discharge after eight days on admission. He has been lost to follow-up <sup>1)</sup>.

## 2006

A patient with intraventricular pneumocephalus after the accidental perforation of the dura mater using the loss of resistance with air technique.

Female patient, 26 years old, 75 kg, 1.67 m, physical status ASA I, with a 38-week pregnancy, was referred to the obstetric service for a cesarean section. Venipuncture was performed after placement of the monitoring. The patient was placed in a sitting position for administration of the epidural anesthesia. During the identification of the epidural space with the loss of resistance with air technique, an accidental perforation of the dura mater was diagnosed by observing free flow of CSF through the needle. The technique was modified to epidural anesthesia and anesthetics were administered by the needle placed in the subarachnoid space. In the first 24 hours, the patient developed headache and she was treated with caffeine, dypirone, hydration, hydrocortisone, and bed rest; despite those measures, the patient's symptoms worsened and evolved to headache in decubitus. A CT scan of the head showed the presence of pneumocephalus. After evaluation by a specialist, the patient remained under observation, with progressive improvement of the symptoms and was discharged from the hospital in the fifth day, without complications.

Pneumocephalus after accidental perforation of the dura mater presented headache with the characteristics of headache secondary to loss of CSF, but with spontaneous resolution after the air

was absorbed. Invasive measures, such as epidural blood patch, were not necessary <sup>2)</sup>.

1)

[http://www.ajns.paans.org/article.php3?id\\_article=351](http://www.ajns.paans.org/article.php3?id_article=351)

2)

Barbosa FT, Cunha RM, Rocha AP, Silva Júnior HJ. [Intraventricular pneumocephalus after accidental perforation of the dura mater: case report.]. Rev Bras Anesthesiol. 2006 Oct;56(5):511-7. Portuguese. PubMed PMID: 19468597.

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