

Intraventricular pneumocephalus in the sitting position

Sachkova et al. performed a retrospective chart review of 307 consecutive patients (147 men, 160 women) treated at the Department of Neurosurgery, Georg-August University [Göttingen](#), Germany by intracranial surgery in the sitting position from January 2010 to October 2014. Ventricular air entrapment with lack of arousal or neurologic deterioration requiring external ventriculostomy (EVD) was defined as ventricular tension pneumocephalus (VTP). Demographic variables were recorded along with radiological and clinical data. The occurrence of pneumocephalus was correlated with patient-related and surgical variables.

VTP was observed in 12 cases (3.9%). These patients had higher intraventricular air volumes (48.5 cm³ (CI 95% [29.06-67.86])) compared to asymptomatic patients (7.4 cm³ (CI 95% [5.43-9.48])). Opening of the fourth ventricle was the most potent predictor of VTP (OR = 34.7, CI 95% [4.4-273.5], p = 0.001). In patients undergoing no additional treatment for pneumocephalus, ventricular air volume declined to an average of 41.7% of the initial postoperative volume on postoperative day 3.

Entrapment of intracranial and particularly ventricular air requiring emergent EVD occurred in 3.9% cases of intracranial surgery in the sitting position. Especially the opening of the fourth ventricle was associated with the development of VTP, which should warrant particularly diligent postoperative observation of these patients. In cases without neurological symptoms, the rate of spontaneous air resorption is sufficiently high to warrant expectant management ¹⁾.

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Sachkova A, Schemmerling T, Goldberg M, Solomiichuk V, Rohde V, von Eckardstein KL, Schatlo B. Predictors of ventricular tension pneumocephalus after posterior fossa surgery in the sitting position. *Acta Neurochir (Wien)*. 2018 Jan 6. doi: 10.1007/s00701-017-3444-1. [Epub ahead of print] PubMed PMID: 29307024.

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