Pneumocephalus is defined as the presence of air within any of the intracranial compartments.

Pneumocephalus without a known underlying cause is defined as spontaneous pneumocephalus.

When this circumstance causes increased intracranial pressure that leads to neurological deterioration, it is known as tension pneumocephalus.

see also Intraventricular pneumocephalus.

Epidemiology

It is a rare but potentially serious complication of spine surgery related in most cases with inadvertent dural tear during the operation. Most collections are small, behave benign, and respond to conservative therapy.

A review of 295 patients indicates that trauma is the most common cause, accounting for 75% of cases. Infection, most common chronic otitis media, accounted for 9% of the cases reviewed.

Etiology

Pneumocephalus Etiology.

Classification

Two types of pneumocephalus exist; simple and tension types.

see Tension pneumocephalus
The accumulation of intracranial air can be acute (<72 h) or delayed (≥72 h) \(^2\).

Others classified it as early (<7 days) or late PNC (≥7 days) \(^3\).

It can be located in the epidural, subarachnoid, intraventricular, intracerebral, or subdural space, with the subdural space most frequent. The common site is frontal, followed by the occipital and temporal areas \(^4\).

**Simple pneumocephalus**

Typically asymptomatic and requires no treatment.

**Tension pneumocephalus**

see Tension pneumocephalus

**Clinical**

Pneumocephalus clinical features.

**Diagnosis**

Pneumocephalus diagnosis

**Differential diagnosis**

Pneumocephalus differential diagnosis.

**Complications**

Intracranial abscess formation, traumatic skull base defects, and massive pneumocephalus are uncommon entities, which may be associated. It may be prudent to have heightened suspicion for the presence of intracranial abscess formation in patients with massive pneumocephalus secondary to anterior skull base trauma \(^5\).

see Tension pneumocephalus.

**Treatment**

Pneumocephalus treatment.

**Case reports**

An 84-year-old man presented with dysarthria and incontinence. Computed tomography revealed an intraventricular pneumocephalus, thinning in the petrous bone, fluid in the air cells, and cleft in temporal lobe. A right subtemporal extradural approach was taken to detect bone-/dural defects, and
a reconstruction was performed using a musculo-pericranial flap.

This is the first patient of an isolated intraventricular spontaneous pneumocephalus without any other site air involved. Surgical approaches to repair such bone and dura defects should be considered an appropriate option.

References


