Spontaneous Pneumocephalus

Suvrendu Sankar Kar¹, Jyotirmay Pal², Suvedu Jana³, Swati Kumar⁴, Partha Sarathi Karmakar², Anindya Sarkar⁴, Cankatika Chowdhuiy⁴

¹Assistant Professor, ²Professor, ³RMO cum Clinical Tutor, ⁴Junior Resident, Department of Medicine, R.G. Kar Medical College, Kolkata, West Bengal

Journal of The Association of Physicians of India • Vol. 65 • March 2017

Fig. 1: Pneumocephalus

A 33 year old non-diabetic, nonmotensive female presented with sudden onset, diffuse and deep boring headache and vomiting for 15 days. She also had complaints of watering from nose which was present in all postures. There was no history of convulsions, loss of consciousness or fever. There was no past history of trauma, surgical interventions or any features suggestive of CSF rhinorrhea or meningitis. Routine blood parameters were within normal hunt. CT scan of brain showed multiple hypodense lesions diffusely over brain parenchyma (Figure 1).

The diagnosis was pneumocephalus. ENT check up was normal. HRCT of base of the skull was done which revealed no break in the cribiform plate. A diagnosis of atraumatic pneumocephalus was made.

The patient was subsequently treated conservatively and recovered.

Pneumocephalus defined as presence of gas within any of the intracranial compartment. Pneumocephalus is usually caused by trauma (75%), neurosurgical procedure, neoplasm (13%) and infection (9%) or rarely it may be spontaneous. It is due to disruption of skull after trauma, surgery or by tumour. It was first recognised in autopsy in 1866 in a trauma patient. Wolff first coined the term pneumocephalus in 1914. Luckett used x-ray skull to recognise this entity.

Nowadays it is most easily diagnosed by CT scan brain, which can detect air is low as 0.5 ml. Depending on underlying cause air can be distributed in epidural, subdural, subarachnoid, intraventricular or intracerebral space or combination of these.

Common clinical manifestations are headache (38%), nausea, vomiting, seizure, dizziness. Treatment depends on underlying cause. It can resolve spontaneously or evacuation may be needed in tension pneumocephalus. Inhalation with 100% oxygen may increase resorption.

Pneumocephalus could be diagnosed by plain skull radiograph, CT scan, and MRI.

But CT is a gold standard for diagnosis of pneumocephalus. It only requires 0.55 ml of air to be detected, whereas a simple skull radiograph requires at least 2 ml. MRI is not as sensitive as a CT scan.

Pneumocephalus usually gets absorbed without any clinical manifestations.

The prognosis is largely related to the type of injury and the number of air bubbles or pockets. It has been shown that a pneumocephalus with multiple air bubble is prognostically unfavorable, regardless of the mechanism of injury.

References