



Massive Pneumocephalus and Pneumorrhachis after Severe Skull Base Fracture

Hosseinali Khalili¹, Amin Niakan², Fariborz Ghaffarpasand^{2*}

¹Trauma Research Center, Rajaee (Emtiaz) Trauma Hospital, Shiraz University of Medical Sciences, Shiraz, Iran

²Department of Neurosurgery, Shiraz University of Medical Sciences, Shiraz, Iran

*Corresponding author: Fariborz Ghaffarpasand

Address: Resident of Neurosurgery, Department of Neurosurgery Office, Nemazee Hospital, Nemazee Square, Shiraz, Iran

Tel: +98-917-3095214

e-mail: Fariborz_ghaffarpasand@yahoo.com

Received: June 17, 2016

Revised: August 5, 2016

Accepted: August 18, 2016

Please cite this paper as:

Khalili H, Niakan A, Ghaffarpasand F. Massive Pneumocephalus and Pneumorrhachis after Severe Skull Base Fracture. *Bull Emerg Trauma*. 2016;4(4):248-249.

A 30-year-old man was transferred to our center after a road traffic accident (vehicle collision) with decreased level of consciousness. On admission he had a Glasgow Coma Scale (GCS) score of 12 (M: 6, V: 3, E: 3) and equal and brisk pupils with severe cerebrospinal fluid (CSF) leakage from right ear. He underwent computed tomography (CT) scanning of brain and cervical spine revealing tension and massive

pneumocephalus giving the appearance of so-called Mount Fuji sign (Figure 1A). In cervical spine images, massive pneumorrhachis was detected (Figure 1B). He was diagnosed to have severe skull base fracture with otic capsule sparing petrous bone fracture and ruptured right tympanic membrane. He was admitted to ICU and received conservative management. He developed meningitis and ventriculitis with *Acinetobacter baumannii*

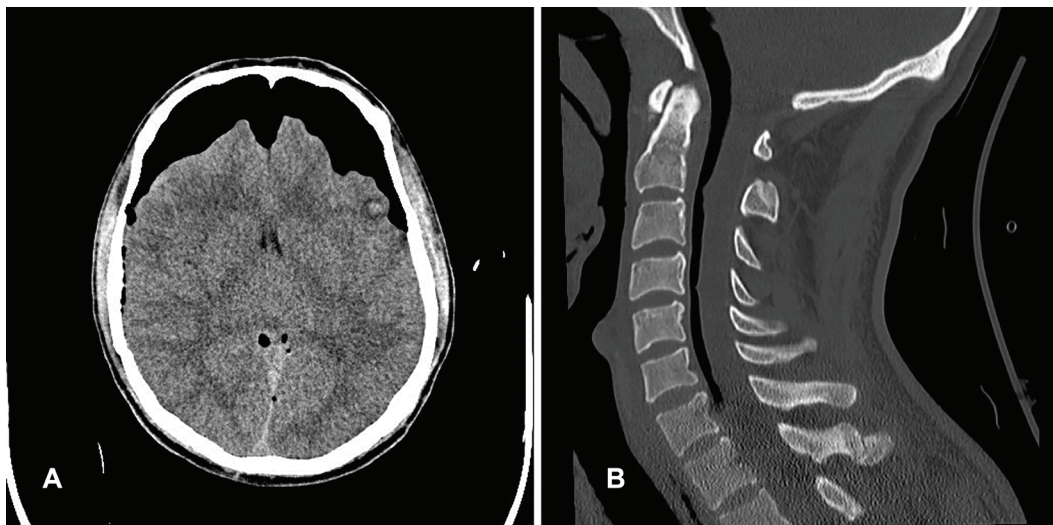


Fig. 1. A) Axial brain CT-scan of the patient demonstrating so-called Fuji Mount sign in favor of massive pneumocephalus; B) Sagittal cervical CT-scan of the patient demonstrating massive pneumorrhachis at the anterior aspect of the dural sac descending to the C7 vertebra.

for which appropriate intravenous and intrathecal antibiotic was started. Bilateral ventriculostomy and aggressive antibiotic therapy (intravenous and intrathecal) was given for a 14-day course followed by a 14-day oral antibiotic. The CSF was clear after 10 days and the ventriculostomy was removed afterwards. The patient was discharged from the hospital after 35 days with Glasgow outcome scale (GOS) of 3. His GOS was 4 in 3-month follow-up.

Presence of air in the cranium and spinal canal is referred to pneumocephalus and pneumorrhachis

respectively. The most common cause of these conditions are traumatic skull base fractures [1]. But some reports of spontaneous and iatrogenic cases exists in the literature [2,3]. CSF fistulas are the main causes of these conditions that provide a pathway through which the air enters the cavities and the CSF pass away. The proper management of these conditions include CSF divergence, oxygen therapy and meticulous infection control.

Conflict of Interest: None declared.

References

1. Derakhshan N, Baghban F, Haghnegahdar A. Cervical Pneumorrhachis. *Bull Emerg Trauma*. 2013;1(4):186.
2. Yuce I, Akbulut A, Ergun F, Sade R, Kantarci M. Massive lumbar pneumorrhachis after severe cranial trauma. *Spine J*. 2016;16(1):e3.
3. Singh S, Thakur H. Pneumorrhachis as a result of epidural anesthesia. *Acta Anaesthesiol Taiwan*. 2016;54(1):37.