

## **DISTINCT CAUSES OF CEREBROSPINAL FLUID RHINORRHOEA: TWO CASE REPORTS**

***Arvīds Bušs*<sup>1</sup>, *Artūrs Balodis*<sup>2</sup>**

1. Faculty of Residency, Riga Stradins University, Riga, Latvia; Institute of Diagnostic Radiology, Pauls Stradins Clinical University Hospital, Riga, Latvia, 2. Department of Radiology, Riga Stradins University, Riga, Latvia Institute of Diagnostic Radiology, Pauls Stradins Clinical University Hospital, Riga, Latvia

### **Background / Objective**

Cerebrospinal fluid (CSF) rhinorrhea refers to a CSF leakage extracranially into the paranasal sinuses, then into the nasal cavity, and exits via the anterior nares.

CSF rhinorrhea is often seen whenever there is an osseous or dural defect of the skull base, mostly caused by head trauma or a post-operative complication of skull base surgery, or due to congenital defects.

We present two cases of CSF rhinorrhea caused by diverse etiology and treated with different surgical technique.

### **Methods**

A 72-year-old woman with a 6-month history of left-sided intermittent nasal discharge and mild headache. This was identified as CSF caused by intra-sphenoidal meningoencephalocele due to the persistence of the lateral craniopharyngeal canal (Stenberg's canal). The brain MRI identified a herniated temporal lobe through a bony defect that communicates the middle cranial fossa with the lateral recess of the sphenoidal sinus. Patient underwent a functional endoscopic sinus surgery – with the resection of meningoencephalocele and closure of the defect with fascia lata lever. There were no complications related to surgery and no recurrence of CSF leakage in 6 months.

A 41-year-old male with multiple skull and facial fractures (Le Fort III), a traumatic subarachnoid hemorrhage in the left frontal lobe, and traumatic brain injury resulting from altercations. He was primarily treated with subsequent facial bone osteosynthesis using mini and microplates. A month after this episode, the patient was re-admitted to another hospital due to progressive headache, subfebrile temperature, and persistent watery nasal discharge. Brain non-enhanced CT was repeated demonstrating diffuse pneumocephalus and cerebrospinal fluid circulation abnormalities with signs of transtentorial herniation and brain edema. Progressive widening of cerebral ventricles was noted, including temporal horns as well as periventricular edema. Most likely patient presented with acute communicating hydrocephalus due to meningitis. The patient underwent a right ventriculostomy with an antimicrobial drain, followed by a ventriculoperitoneal shunting procedure. Shortly after, the CSF rhinorrhea resolved.

### **Results**

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### **Conclusions**

CSF rhinorrhea is relatively rare condition occurring secondary to different etiology, however, diagnosing its possible cause can be challenging. A comprehensive diagnostic assessment of individuals clinically suspected of having CSF rhinorrhea is critical, along with an understanding of CSF components and imaging abnormalities.