

## CSF Rhinorrhoea through the Clivus: a Case Report and the Review of Literature

**Danko Blažeka<sup>1</sup>, Marcel Marjanović Kavanagh<sup>2</sup>**

<sup>1</sup>Županijska bolnica Čakovec, I. Gorana Kovačića 1e, 40000 Čakovec, Hrvatska, <sup>2</sup>KBC Zagreb, Kišpatičeva 12, 10000 Zagreb, Hrvatska  
dankoblazheka@yahoo.com

**Abstract Background:** Cerebrospinal fluid (CSF) rhinorrhea occurs due to communication between the intracranial subarachnoid space and the sinonasal mucosa. It could be due to trauma, raised intracranial pressure (ICP), tumors, erosive diseases, and congenital skull defects. Some leaks could be spontaneous without any specific etiology. The potential leak sites include the cribriform plate, ethmoid, sphenoid, and frontal sinus. The primary spontaneous cerebrospinal fluid leak (CSF leak) at the clival region, occurring in the absence of recent trauma condition and not related to prior surgery, is a rare condition. The most common complication related to CSF leak is acute meningitis, a condition that can be life threatening. The exact location of the CSF fistulae is often difficult to detect and various diagnostic procedures are used. Once the diagnosis and location of leakage is established, surgical intervention is needed to seal the fistulae.

**Case description:** we present the case of a 57-year-old female who was admitted to the neurology departement with acute meningitis. After antibiotic treatment was administered, she did not respond to the therapy and a control CT brain scan was made that showed pneumoencephalon with suspicious clival defect. Through nasal endoscopy no definite sign of CSF leakage was observed, so intrathecal fluorescein was administered before surgery to identify the site of CSF leakage. She was surgically treated and the repair was performed endoscopically through transnasal approach.

**Review of the literature description:** we examined the available literature gathered through PubMed internet service on the topic of CSF rhinorrhea of the clival region in particular, and regarding the diagnostic procedures and treatment. Different diagnostic approaches are shown depending on the possible cause of CSF leak. The majority of patients presented through case reports were surgically treated and the surgical endoscopic approach is a treatment of choice in most cases reviewed in literature.

**Key words:** clival reagon, CSF leak, rhinoliqorrhea, endoscopical approach, fluorescein