

Title: Meningitis Complicated by Cerebrospinal Fluid Leak Secondary to a Skull Base Defect: A Case Report

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Abstract

Background: Bacterial meningitis is a treatable infectious cause of mortality, so it is important to understand and modify the factors that increase a patient's risk of meningitis. Cerebrospinal fluid (CSF) leak has been named one of the possible risk factors for meningitis. Ultimately, the treatment for CSF leak is surgery to address the cerebrospinal and/or dural defect which can help prevent meningitis.

Antimicrobial therapy needs to be considered if there are signs or symptoms for infectious process.

Case presentation: A 63-year-old female presented with headache, photophobia, and neck stiffness. Imaging studies and lumbar puncture evaluation suggested bacterial meningitis. She began to improve on empiric treatment with ceftriaxone, but she continued to have intermittent, clear rhinorrhea. Unexpectedly, she had an anterior skull base defect leading to CSF drainage from her nares which likely predisposed her to meningitis.

Discussion: In contrast with previous literature discussing trauma or iatrogenic injury most commonly causing CSF leak, she had no history of head or neck surgery or head trauma. Her CSF rhinorrhea was likely caused by idiopathic intracranial hypertension. There is also very little literature on how to treat patients who already have meningitis but need urgent surgery to repair an anterior skull base defect for tertiary prevention. Further research needs to be done to establish a timeline for surgical and antibacterial intervention that best improves patient outcomes.