Sphenoid sinus encephalocele

A sphenoid sinus encephalocele is a protrusion of brain tissue through a defect in the skull base that extends into the sphenoid sinus. This type of encephalocele can be congenital or acquired and is typically associated with a bony defect that allows brain tissue to herniate from its normal position.

Key Features: Symptoms: These can vary depending on the size and location of the encephalocele. Common symptoms may include headaches, cerebrospinal fluid (CSF) rhinorrhea (leakage of CSF through the nose), visual disturbances, and in some cases, recurrent infections such as meningitis. Diagnosis: Imaging studies like computed tomography (CT) and magnetic resonance imaging (MRI) are crucial for identifying the location, extent of the encephalocele, and the underlying bony defect. Treatment: Typically surgical, aiming to repair the bony defect to prevent CSF leakage and brain tissue herniation. The approaches can range from transnasal endoscopic techniques to more invasive procedures, depending on the case specifics. It is a rare condition but essential to diagnose and treat properly to prevent complications like recurrent meningitis and other neurological issues.

Types

Two types of sphenoid encephaloceles exist: medial perisellar encephaloceles, and lateral sphenoidal encephaloceles. Surgical correction of the lateral sphenoid recess encephalocele is achieved via one of two endoscopic approaches: extended sphenoidotomy or transpterygopalatine. Extended sphenoidotomy is preferred if the angle between the access door and lateral extension of bone defect is greater than 35°1. Otherwise, the transpterygopalatine approach is used. Intraoperative video demonstrating an extended sphenoidotomy approach to correcting a lateral recess sphenoidal encephalocele has not previously been published. Here we present a case of a 41-year-old female who presented with meningitis, a cerebrospinal fluid leak, and an incidental sphenoid mass. Brain MRI redemonstrated the mass in the sphenoid sinus consistent with an encephalocele occupying Sternberg's Canal. The patient consented to the procedure. The video demonstrates the skull base approach, encephalocele extraction, collagen inlay, and nasal septal bone and vascularized pedicled nasoseptal flap placement. Postoperative imaging confirmed the placement of the collagen inlay and nasal septal bone autograft. The patient recovered from surgery and was discharged on post-operative day 3 with no cerebrospinal fluid (CSF) leak recurrence. Postoperative follow up demonstrated viable nasoseptal graft without evidence of CSF leak. For patients with favorable anatomy, an extended sphenoidotomy approach to lateral sphenoid sinus encephalocele resection is a preferred alternative to the transpterygoid approach. This surgical video demonstrates the technique for managing lateral sphenoid sinus encephaloceles occupying Sternberg's canal, including endonasal approach, encephalocele resection and posterior sphenoid wall repair [1)]

1)

Sindewald RW, Brandel MG, Wali AR, Yan CH, Santiago-Dieppa DR. Surgical management of a lateral sphenoid sinus encephalocele: 2-Dimensional operative video. World Neurosurg X. 2024 Sep 27;25:100402. doi: 10.1016/j.wnsx.2024.100402. PMID: 39484663; PMCID: PMC11526047.