Ethmoidal encephalocoele presenting as spontaneous cerebrospinal fluid rhinorrhea in an adult

Lokesh Kumar[1], Narayanam Anantha Sai Kiran[2], Kiran Kumar VA[2], Venkatesh M[3], Luis Rafael Moscote-Salazar[4], Amit Agrawal[5]

From [1]Assistant Professor, Department of ENT, [2]Assistant Professor, Department of Neurosurgery, [3]Assistant Professor, Department of Radiology, Narayana Medical College Hospital, Chintharedypalem, Nellore, Andhra Pradesh, India, [4]Neurosurgery-Critical Care, Red Latino, Organización Latinoamericana de Trauma y cuidado Neurointensivo, Bogota, Colombia, [5]Professor, Department of Neurosurgery, Narayana Medical College Hospital, Chintharedypalem, Nellore, Andhra Pradesh, India

Correspondence to: Dr. Amit Agrawal, Department of Neurosurgery, Narayana Medical College Hospital, Chintharedypalem, Nellore – 524 003, Andhra Pradesh, India. E-mail: dramitagrawal@gmail.com

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Spontaneous cerebrospinal fluid (CSF) rhinorrhea is an uncommon presentation of meningoencephalocele and is more common in pediatric population [1-3] than in the adult age group [4-8]. A 48-year-old male patient presented with a complaint of spontaneous watery discharge from the nose for 3 months. It was associated with an occasional headache and a low-grade fever. There was no history of vomiting, seizures, loss of consciousness, blurring of vision, or trauma. Furthermore, there was no history of diabetes or hypertension. His pulse rate was 76/min, blood pressure was 120/78 mmHg, and the temperature was normal. Cardiovascular, chest, per abdomen, and spine examination were normal. Higher mental functions and cranial nerves were normal. There were no motor/sensory deficits or meningeal signs. On prolonged sitting, he was having profuse watery discharge from the left nostril. Routine blood investigations were normal except raised total leukocyte count (14,300 cells/mm^3). His magnetic resonance imaging (MRI), brain screening, and computerized tomography (CT) cisternography suggested CSF rhinorrhea on the left side with CSF pooling in the left sphenoethmoidal recess. There was a focal defect in the cribriform plate on the left side (Fig. 1). The patient underwent endoscopic closure of CSF leak with fat, fascia lata, fibrin glue, and middle turbinate pedicle flap (Fig. 2). During surgery, there was a presence of encephalocele in the posterior ethmoidal cells (planum sphenoid region) on the left side. Encephalocele was traced till its origin, cauterized with bipolar and removed. Exploration was done for any other leaks in the posterior ethmoidal region on the right side, but no leak was found. The patient recovered well after surgery and there was no further leak at 6-month follow-up.

Meningoencephalocele is characterized by herniation of brain tissue through a skull defect [9] and basal encephaloceles are an uncommon cause of spontaneous CSF rhinorrhea in adults [10-14]. High-resolution multislice CT scan may not detect the site of the leak as it has low sensitivity; however, an addition of contrast, i.e., CT cisternography increases the sensitivity 80–85% in cases with an active leak [5]. MRI has a higher detection rate in localizing the site of leak including a presence on encephalocele,

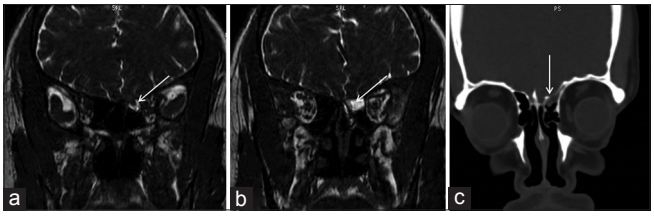

Figure 1: Coronal magnetic resonance imaging fast imaging employing steady-state acquisition images (a and b) showing pooling of cerebrospinal fluid (CSF) and herniated left frontal lobe (arrow) into the left ethmoidal air cells suggestive of meningoencephalocele and (c) coronal computerized tomography image shows bony defect (arrow) in the left cribriform plate with pooled CSF density fluid

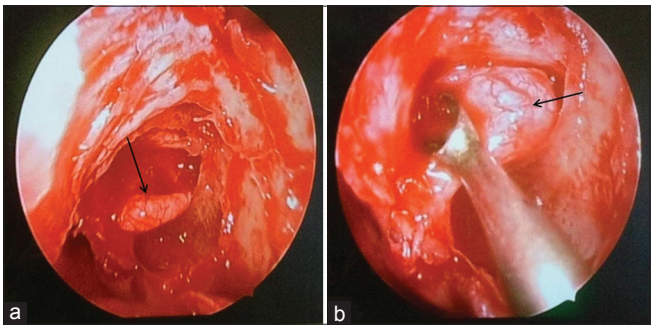

Figure 2: Endoscopic images (a and b) demonstrating the herniated brain parenchyma covered with meninges (arrow)

and it is complementary to the CT scan (CT provides the bony details for surgical planning) [11,14,15]. Management of ethmoidal encephalocele requires a team approach consisting of an experienced neurosurgeon and otolaryngologists familiar with endoscopic skull base repairs of the skull base defects [3,4,6,11,14,16-18]. Our patient did well after transnasal endoscopic repair of the defect.

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