

SPONTANEOUS LIQUORRHEA NASALIS WHEN SKULL BASE DEFECT IS LOCATED IN SPHENOIDAL SINUS

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There has been considered a case of spontaneous nasal liquorrhea in a patient with lateral sinus wall defect and a sinus mass of non-neoplastic origin (pseudomeningocele) not associated with the operation on hypophysis and skull base structures; and shown the possibilities of an advanced endoscopic approach as an alternative to an intracranial technique. The details of surgical management and defect closure technique have been represented.

Key words: skull base defect; nasal liquorrhea; meningocele; endonasal approach.

There are two types of cerebrospinal rhinorrhea: spontaneous and posttraumatic (postoperative). Spontaneous cerebrospinal rhinorrhea occurs less frequently and the source locates mostly in the structures of the front cranial base. In the sphenoid sinus the source is rarely found. The lateral wall defect of sphenoid sinus is rather complicated in terms of a surgical approach [1–3]. A bone defect in sinus wall can result in meningocele or meningoencephalocele (changed cranial pia and arachnoid membranes and brain matter bulging through a skull defect), with outpouching filled by cerebrospinal fluid, and frequently accompanied by spontaneous cerebrospinal rhinorrhea. Spontaneous meningo(encephalo)cele in adults is rarely reported [4, 5]. The cases, when the cavity filled by cerebrospinal fluid under sinus mucosa is formed without bulging, are referred to as pseudomeningocele. Visual and radiological picture resembles that of a pseudopolyp or a pseudocyst [6, 7].

During the last decade an endoscopic endonasal surgery has become a method of choice in operations on cranial base structures including those for cerebrospinal-fluid fistula closure and meningoencephalocele removal using transnasal, transethmoidal, or transpterygoid approaches. For cerebrospinal-fluid fistula closure there are used the flaps formed from nasal mucosa, nasal septal perichondrium, nasal septal cartilage, temporal muscle, broad fascia, abdominal fat, synthetic materials, allotransplants, etc.

The following observation is presented.

In 2012, a 61-year-old woman with pathological mass in sphenoid sinus and cerebrospinal rhinorrhea signs was followed up. She complained of periodical transparent liquid flowing out the left part of nose, difficulty in the left nasal breathing

for a year. Preoperative examination included CT, MRI, a neurosurgeon consultation, endoscopic examination of the nasal cavity. The endoscopic examination showed a polypoid mass coming from sphenothmoidal pouch and extending into nasopharynx (Fig. 1). CT and MRI revealed a cystic mass in the left sphenoid sinus filled by fluid and prolapsing through a natural anastomosis into the posterior nasal cavity (Fig. 2). The lateral wall defect of the sphenoid sinus was 0.2 cm. According



Fig. 1. Polypoid mass in the posterior nasal cavity

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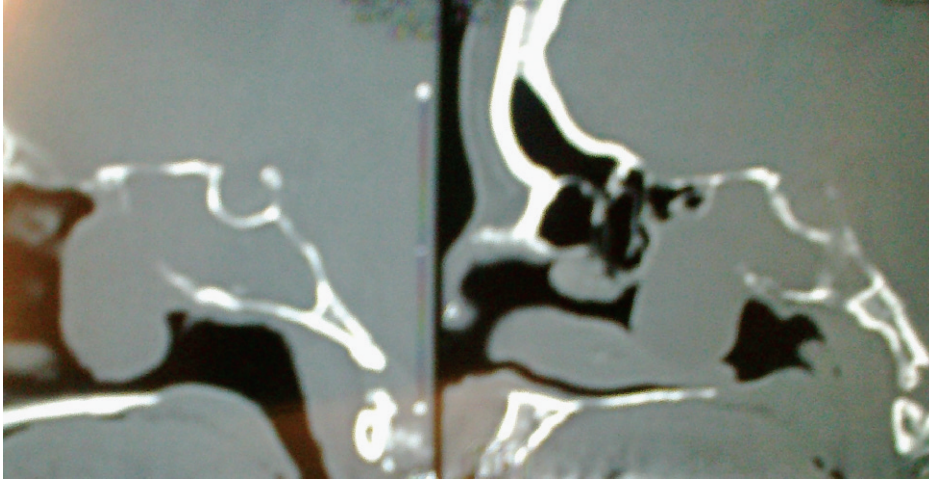


Fig. 2. CT-image, saggital view

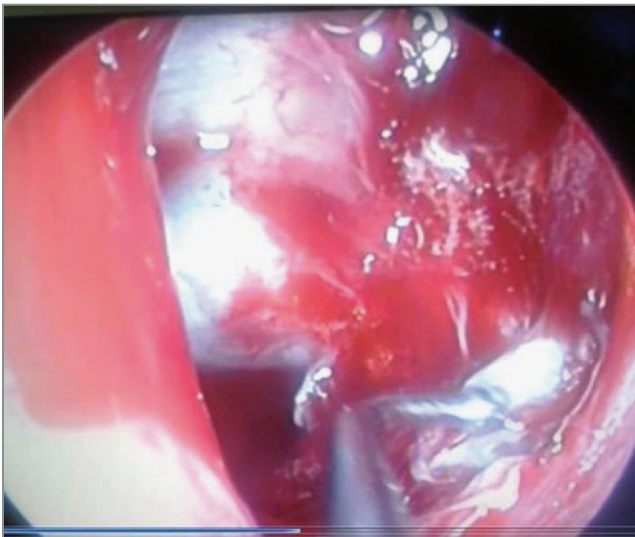


Fig. 3. A probe in bone defect view

to clinical, radiological, CT-, MRI-data the following diagnosis was made: “sphenoidal pseudomeningocele, cerebrospinal rhinorrhea”.

The patient was operated on using transnasal approach. The nasal cavity was examined under endoscopic control. There was found a polypoid mass coming from a gaping orifice of the sphenoid sinus. The mass membrane was removed, transparent liquid (spinal fluid) being found in the cavity. The mass base on the lateral wall of the sinus was the duplication of sinus mucosa; after its removal there was seen a bone wall defect, 0.2 cm in size, from which cerebrospinal fluid was moderately flowing out (Fig. 3). There might be a Sternberg canal as well. A place of defect was covered by a flap from the middle nasal concha, and the defect was sealed by synthetic materials. A neurosurgeon was present at the operation.

The postoperative period was uneventful. The woman was discharged from hospital on day 7. Lumbar drainage was not used.

A follow-up check-up 1, 3 and 6 months later revealed no rhinorrhea signs.

An expert should grow suspicious with regard to the defect of the sinus lateral wall with the development of meningo(encephalo)cele or pseudomeningocele if there are spontaneous cerebrospinal rhinorrhea with the signs of a cystic mass of sphenoid sinus, the visualization of a polypoid (cystic) mass in posterior nasal cavity coming from sphenoidal pouch. Surgical management is provided using endoscopic transnasal approach with a wide opening of the sinus anterior wall to visualize its lateral parts. A small cranial base defect (1–3 mm) can be closed using a pedicle flap, with pedicle taken from nasal mucosa or the middle nasal concha, or wide fascia with the secondary seal by synthetic materials, providing that there is good visualization.

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