

Endoscopic transnasal surgery for closure of CSF leakage

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Abstract

Cerebrospinal fluid (CSF) rhinorrhea refers to the loss of CSF through the nasal cavity. Its causes can be classified as either spontaneous or non-spontaneous. Spontaneous causes of SCF rhinorrhea include congenital anatomical defects and are extremely rare, while nonspontaneous CSF rhinorrhea causes are head injuries and tumor in skull base. Possible complications of a cranial CSF leak that is left untreated include meningitis and tension pneumocephalus. The treatment of CSF rhinorrhea most commonly involves an endoscopic transnasal repair of the defect.

Case presentation 1.

We present a case of spontaneous CSF rhinorrhea in a 50-year old male with CSF leakage over 24 days. The patient said that he had a high intracranial pressure when he was a child.

CT cisternography found the cribriform plate defect.

Method of closure of the defect: Bath-plug technique

At first a fat was harvested from the abdomen and was plugged underneath the defect. The fat was covered with Surgicel and Tachosil was placed on top. Then the lateral wall of the middle concha was separated from its bony part and the free mucosal flap was turned over the defect over for further vascularization.

Postoperative management:

1. He was prescribed medication (diacarb 250 mg once per day, 3 days)
2. Wide range of antibiotics
3. Cut off the procedures that can lead to high intracranial pressure

2 months after the surgery he complained of headaches. Intracranial hypertension and hidrodefalia were found. Afterwards, the patient had undergone a neurosurgical operation-a ventriculoperitoneal shunt was used to drain extra CSF from the brain in order to lower intracranial hypertension.

Case presentation 2.

The patient was a 41-year old male with CSF leakage due to pituitary microadenoma. The patient was prescribed a drug (dostinex) and as a result the tumor became smaller and the patient had a rhinorrhea, which required a surgical intervention due to the failure of conservative management. The tumor was places in chiasm-sellar region and had made abrasion of the posterior wall of sphenoid sinus.

Method of closure of the defect: Bath-plug technique

The bony part of the septum was extracted from the mucosa in order to both visualize the tumor and make a mucosal pedicle graft. Afterwards, fat was harvested from the abdomen and was placed underneath the defect. The fat was covered with Surgicel and Tachosil was placed on top. Then the mucosal pedicle graft was turned over and placed on the already covered defect. Finally, a piece of Gelfoam was glued over the grafted area and one large Gelfoam was placed for nasal packing.

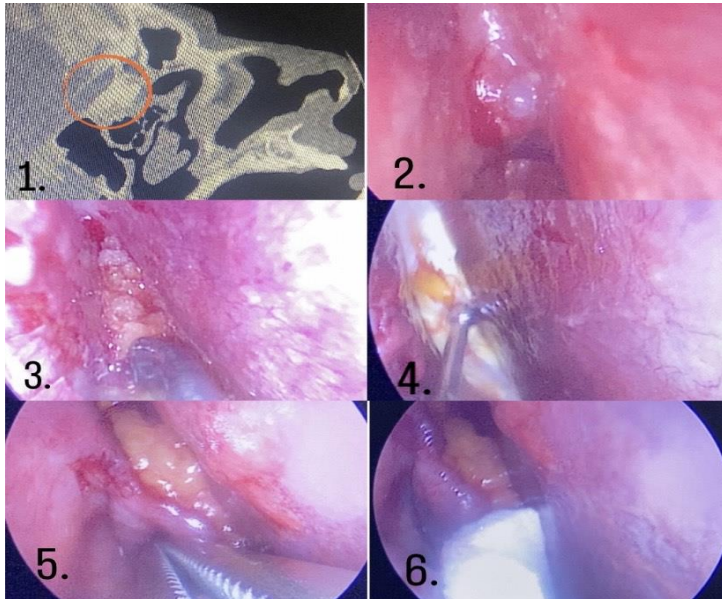
Postoperative management:

1. Wide range of antibiotics, 7 days
2. Sleeping with elevated head position
3. Every 3 months he sees the doctor for videoendoscopy

Results: It has been 8 months since the surgery and there have been no complications.

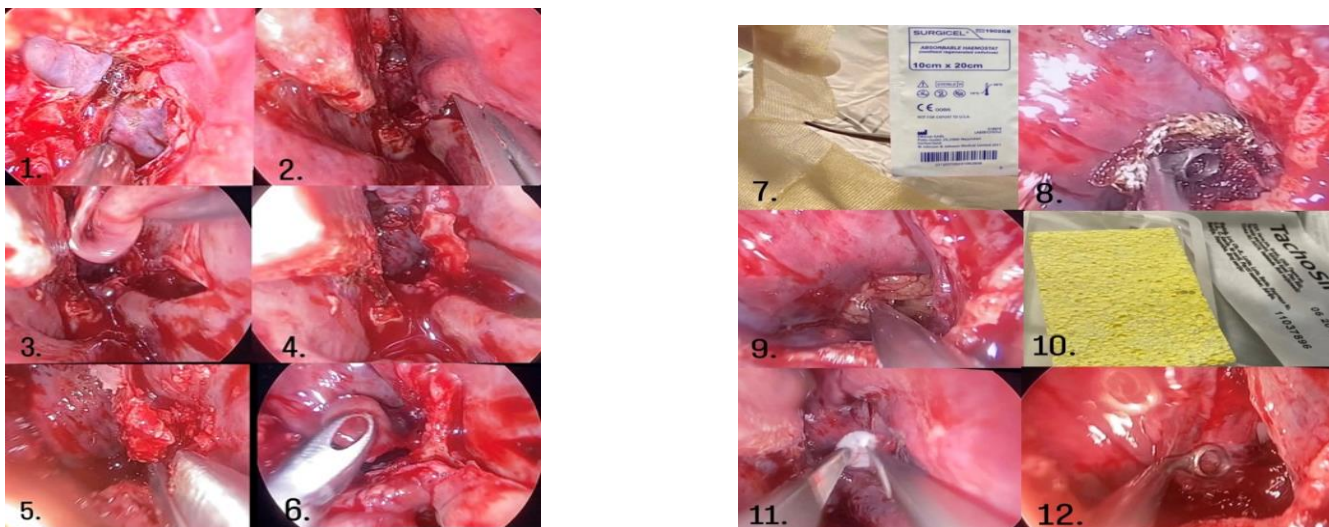
Discussion: The bath-plug technique for closure of anterior skull base CSF leaks was a reliable technique for most cases.

Case 1.



1. Cribriform plate defect (Gadolinium-enhanced),
2. CSF leakage,
3. Fat placing,
4. Tachosil placing,
5. Middle concha mucosal flap turning over,
- 6.covering with gelfoam.

Case 2.



1. Sphenoid sinus,
2. Resection in septum
3. Making a mucosal pedicle
- 4.5. Removing bony part of the septum,
- 6.Removing the tumor
7. Surgical placing
8. Fat placing
- 10.Tachosil placing, 12.Pedicled graft turned over.