

Original Research Paper

ENDOSCOPIC REPAIR IN CASE OF TRAUMATIC BILATERAL CSF RHINORRHOEA

Dr Yesha Shah	3^{rd} Year Resident, Department of ENT, Smt. N.H.L. Medical College, Ahmedabad
Dr Ajay Shah*	HON.PROF, Department of ENT, Smt. N.H.L. Medical College, Ahmedabad *Corresponding Author
Dr Madhavi Raibagkar	HOD, Department of ENT, Smt. N.H.L. Medical College, Ahmedabad
Dr Saurabh Gandhi	Assistant Professor, Department of ENT, Smt. N.H.L. Medical College, Ahmedabad
Dr. Kinnari Rathod	2^{nd} Year Resident, Department of ENT, Smt. N.H.L. Medical College, Ahmedabad
Dr. Khyati Patel	1^{st} Year Resident, Department of ENT, Smt. N.H.L. Medical College, Ahmedabad
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ABSTRACT Cerebrospinal fuld (CSF) minormodel is the leakage of CSF from the subaractinoid space into the hasal cavity due to a defect in the dura, bone and mucosa. CSF rhinorrhoea most commonly occurs due to head trauma, and destructive lesions of brain and iatrogenic trauma. Cerebrospinal fluid leak from the intracranial space to the nasal respiratory tract carries the risk of an ascending infection which can lead to fulminant meningitis. Diagnosis is made on the basis of 1) clinical CSF leak (clear watery nasal discharge), 2) presence of a skull based fracture on Computed Tomography. Beta-2 transferrin test is a confirmatory test because of its high sensitivity and specificity. Endoscopic repair is method of choice for majority of CSF leaks. It has minimal morbidity and higher success rates.

We report an uncommon case of traumatic bilateral CSF rhinorrhoea which was repaired by endoscopic approach using fascia latagraft.

KEYWORDS:



INTRODUCTION

Cerebrospinal fluid (CSF) rhinorrhoea is the leakage of CSF from the subarachnoid space into the nasal cavity due to a defect in the dura, bone and mucosa. CSF rhinorrhoea most commonly occurs due to head trauma, and destructive lesions of brain and iatrogenic trauma. Cerebrospinal fluid leak from the intracranial space to the nasal respiratory tract carries the risk of an ascending infection which can lead to fulminant meningitis. Diagnosis is made on the basis of 1) clinical CSF leak (clear watery nasal discharge), 2) presence of a skull based fracture on Computed Tomography. Beta-2 transferrin test is a confirmatory test because of its high sensitivity and specificity. Endoscopic repair is method of choice for majority of CSF leaks. It has minimal morbidity and higher success rates.

We report an uncommon case of traumatic bilateral CSF rhinorrhoea which was repaired by endoscopic approach using fascialatagraft.

INTRODUCTION

CSF rhinorrhoea occurs when there is disruption of barriers between sinonasal cavity and the anterior and middle cranial fossa. The fluid may escape directly into the nose from a defect in the anterior cranial fossa, either via the frontal, ethmoid or sphenoid sinuses or from the cribriform plate. Leaks from the middle or posterior cranial fossa may communicate with the nasal cavity via the mastoid cavity and middle ear through the Eustachian tube. Intracranial complications can occur due to spread of infection from nasal cavity to intracranial space via defect. The majority of patients will present with intermittent or continuousrhinorrhoea (watery discharge). There is often a history of previous surgery or a head injury. Some of the patients present with headache as a result of meningitis. Nasal endoscopic examination is performed to identify the site of leak and confirmed by various laboratory investigations and imaging modalities. Endoscopic approach is the method of choice for repairing the majority of CSF leaks. It has minimal patient morbidity and higher success rates. Various graft materials like nasal mucosal graft, free graft of nasal mucosa which may be a composite graft incorporating turbinate bone, septal or conchal cartilage, fascia lata and temporalis fascia are used to seal the defect. Fibrin glue can be used to seal graft.

CASE PRESENTATION

A 52 year old female presented at General Hospital with complains of continuous watery nasal discharge bilaterally for 2 months following head injury 2 months back and headache, fever with neck pain since last 7 days. On examination there was no obvious external nasal deformity. Though anterior rhinoscopy was found normal, on bending the head down there was presence of bilateral watery nasal discharge. On nasal endoscopy leak could not be detected on either side. Ear and throat examination was normal. CT cisternography showed fracture of both cribriform plates but there was evidence of leakage of contrast from subarachnoid space in left frontal region into left ethmoidal air cells. CSF routine microscopic examination suggested of meningitis. Patient was initially managed with injectable antibiotics and other supportive treatments for 10 days. Patient was taken for surgery after meningitis was controlled.



Endoscopic transnasal approach under general anaesthesia was

performed. The cribriform plate of left side was approached by going medial to middle turbinate, leak site exposed and raw area created around leak site and plugged with fat tissue, fascia lata graft and sealed with fibrin glue. Similarly the fracture site was exposed on right side which showed CSF leak over there and was sealed. Postoperative complete bed rest was advised with head tilted at 30 degree. Patient was given higher antibiotics with diuretics. Patient was discharged after 10 days with supportive treatment. On follow up after three months, patient was asymptomatic and had no complains of nasal discharge.



DISCUSSION

CSF rhinorrhoea occurs when there is an abnormal communication between subarachnoid space and nasal cavity. The onset of CSF rhinorrhoea may be delayed from the time of the initial insult. The possible reasons for this are dissolution of a hematoma at a fracture site, or intracranial pulsation causing herniation and eventual separation of the dura through a nonhealed fracture site.

Majority of CSF rhinorrhoea occurs as a result of trauma: head or face injury and iatrogenic injury. Head trauma is most common cause.

The origin of CSF may be from the anterior, middle and posterior fossae. The fluid may escape directly into the nose form a defect in anterior cranial fossa, either via the frontal, ethmoid or sphenoid sinuses, or from the cribriform plate Majority of patients present with intermittent or continuousrhinorrhoea (watery nasal discharge) which is usually unilateral, but may be bilateral as in this case. Nasal endoscopy should be performed to identify the site of leak. Intraoperatively, in cases of bilateral cribriform plate fracture with evidence of constrast leak on one side bilateral cribriform plate should be explored to identify any active leak as found in our case and must be repaired. Otoscopy should be performed to rule out a middle ear effusion, as a defect in middle and posterior fossa can lead to collection. Beta 2 transferrin is carbohydrate free transferrin which is exclusively present in CSF. Detection of beta 2 transferrin by immunofixation in rhinorrhoea fluid has got 100% sensitivity and 95% specificity. High resolution coronal and axial CT scans, computerized tomography cisternography, T2 weighted MRI are imaging modalities for CSF rhinorrhoea. Fluorescein as an intrathecal dye can be used preoperatively and intraoperatively for finding site of leak.

Conservative treatment has been advocated in cases of immediateonset CSFrhinorrhoea following trauma, given the high likelihood of spontaneous resolution of the leak. Conservative management consists of a 7-10 day trial of bed rest with the head end elevated approximately 15-30°. Larger defects or even smaller defects which has developed any impending complicationrequire surgical intervention.

There are mainly three approaches for CSF leak repair 1) endoscopic 2) intracranial 3) extracranial. Out of this endoscopic approach is method of choice for majority of CSF leaks because of minimal patient morbidity and higher success rate. Intracranial approach is method of choice in coexisting intracranial pathology causing leak that requires excision. Extracranial approach is method of choice for leaks from posterior wall of frontal sinuses. All methods require accurate localization of defect. The edges of defect are freshened.

The grafts material which can be used are a nasal mucosal flap, a composite graft incorporating turbinate bone, conchal or septal cartilage, temporalis fascia and fascia lata. Fibrin glue isused to seal the graft.

CONCLUSION

Post traumatic bilateral cerebrospinal fluid rhinorrhoea is uncommon.

Endoscopic transnasal approach is most excellent approach due to its safety, excellent operative results and minimal complications.

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