

Endoscopic Repair of CSF Rhinorrhoea with Hadad Flap

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ABSTRACT

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As the experience and success of endoscopic sinus surgery increased over decades, so have its applications. Now the endoscopic approach is being successfully employed for a variety of conditions like Repair of CSF leaks, Dacryocystorhinostomy, Orbital and Optic nerve decompression, Resection of sinonasal and skull base tumors etc etc.

This article is a brief account of my technique for Endoscopic Repair of CSF rhinorrhoea.

Keywords: Endoscopic Repair, CSF Rhinorrhoea, Hadad Flap

*See End Note for complete author details

Pathology of CSF Rhinorrhoea

The presence of a CSF leak implies a breach in arachnoid, dura, bone over the dura and its adjacent mucosa.

Dura lacks the capacity to regenerate. Spontaneous closure can occur in cases with traumatic CSF leak, this is secondary to closure with fibrous tissue or mucosa.

Symptoms

Clear watery Rhinorrhoea.

- usually unilateral & salty tasting,
- increased by bending head, straining and valsalva-manoeuvre.

Causes

1. TRAUMATIC	<ul style="list-style-type: none"> → HEAD INJURIES → IATROGENIC
2. TUMORS	<ul style="list-style-type: none"> → BY INVASION OF SKULL BASE → DURING TREATMENT OF TUMORS → BY OBSTRUCTION OF CSF OUTFLOW
3. CONGENITAL	
4. SPONTANEOUS (NO CAUSE IDENTIFIED)	

Diagnosis and Localization

- a. To confirm as CSF- Beta 2 Transferrin or Beta trace protein detection can be done to confirm that the fluid collected is CSF. These tests are expensive and time consuming and are not required if the site of leak and the presence of leak are clearly visible on clinical examination.
- b. To Localize the defect- Nasal endoscopy, HRCT, CT Cisternography, MR Cisternography.

MANAGEMENT

Treatment of a case of CSF rhinorrhoea depends on its cause. If the CSF leak is secondary to another pathology, then it should be corrected before closing the CSF leak. CSF leaks left unrepaired can lead to meningitis and so it is important to repair the leak.

Operative technique

Endoscopic closure is preferred over open surgery/ craniotomy, because of higher success rate and decreased morbidity when compared to craniotomy.

Different materials have been used to plug the defect causing CSF Leak.

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Bone, cartilage, fat, temporalis fascia, fascia lata, artificial dura, free mucosa, pedicled mucosa etc are being used with variable success rates.

The technique of endoscopic closure of the defect with fat and vascularized pedicled flap of nasal septal mucosa called Hadad flap, gives an excellent success rate; and is currently employed by many endoscopic skull base surgeons across the world. This technique is being employed in our clinic for the past 1 year and the outcomes are excellent.

The defect is first identified and it is plugged with fat harvested from ear lobe, thigh or abdomen. This is further covered by septal mucosal flap based on a branch of sphenopalatine artery (Hadad flap). The flap being vascularized has an excellent take up rate when properly employed.

CONCLUSION

Endoscopic closure of CSF rhinorrhoea is the preferred technique, as this technique has an excellent success rate and very little morbidity when compared to craniotomy. The technique of using vascularized

pedicled flaps like hadad flap further improves the outcomes of endoscopic CSF leak closure.

END NOTE

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