

CASE REPORT

Idiopathic Cerebrospinal Fluid Oculorrhea: An Unusual Case Report

¹Arvind Soni, ²Anchal Duggal

ABSTRACT

A cerebrospinal fluid (CSF) leak is an escape of the fluid that surrounds the brain and spinal cord. Any tear or hole in the membrane that surrounds the brain and spinal cord (dura) can allow the fluid that surrounds those organs to leak. Most commonly, the leak is known to occur from the nose (CSF rhinorrhea) or through the ears (CSF otorrhea). Also, etiology is posttraumatic in majority. However, idiopathic CSF leakage from the eyes is extremely uncommon.

Keywords: Cerebrospinal fluid oculorrhea, Cerebrospinal fluid rhinorrhea, Lamina papyracea.

How to cite this article: Soni A, Duggal A. Idiopathic Cerebrospinal Fluid Oculorrhea: An Unusual Case Report. Clin Rhinol An Int J 2016;9(2):87-89.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

Cerebrospinal fluid leakage into the orbit (CSF orbitorrhea) or through the orbit to the exterior (CSF oculorrhea) occurs when there is a communication between the orbit and subarachnoid space.

We report an unusual case of a 47-year-female who presented with sudden-onset clear watery discharge from the eyes.

CASE REPORT

A 47-year-old female patient presented to IAH OPD with chief complaints of clear watery discharge from her right eye since 4 days (Fig. 1). She had prior history of clear watery discharge from the right nostril since 1 month, which was diagnosed to be CSF. Patient was under conservative management since then for the same until 4 days ago when she started complaining of heaviness in the right eye with redness and clear watery discharge. On local examination, there was conjunctival chemosis and proptosis. There was no alteration in her

vision. On nasal endoscopic evaluation, there was no evidence of watery discharge (according to patient, watery discharge had stopped spontaneously 7 days earlier).

Discharge from the eyes was collected and sent for CSF evaluation, which came out to be positive. Radiological investigation was done. Magnetic resonance imaging cisternography confirmed the leak and revealed a small defect lateral to right cribriform plate and inferior displacement of the right olfactory nerve (Figs 3 and 4). Trace of fluid was seen in right olfactory recess with increase in this fluid on prone position without definite continuous CSF column. Non contrast computer tomography (NCCT) nose and Paranasal sinuses (PNS) showed a defect lateral to the cribriform plate and fluid in the right frontoethmoidal recess. Patient was then taken up for surgery.

Intraoperatively, it was found that there was a breach in the right lamina papyracea and lateral to the right cribriform plate with normal anatomic anterior and posterior ethmoid cells missing (Figs 5 to 7). Finally, repair was done with fascia lata (Figs 8 and 9) using overlay technique and tisseal glue was used. Postoperatively, patient has been bearing well so far (Fig. 2).

DISCUSSION

Cerebrospinal fluid (CSF) leak is an uncommon but well-documented occurrence typically manifesting as otorrhea or rhinorrhea. In rare cases, however, CSF can transverse



Fig. 1: Preoperative picture with CSF from Right Eye

¹Senior Consultant, ²Resident

^{1,2}Department of ENT and Head and Neck Surgery, Indraprastha Apollo Hospitals, New Delhi, India

Corresponding Author: Arvind Soni, Senior Consultant Department of ENT and Head and Neck Surgery, Indraprastha Apollo Hospitals, New Delhi, India, e-mail: arvindsonidr@gmail.com



Fig. 2: Ten days' postoperative picture



Fig. 3: Magnetic resonance imaging cisternogram showing leak and right ethmoids filled with CSF



Fig. 4: Magnetic resonance imaging cisternogram showing defect in right lamina

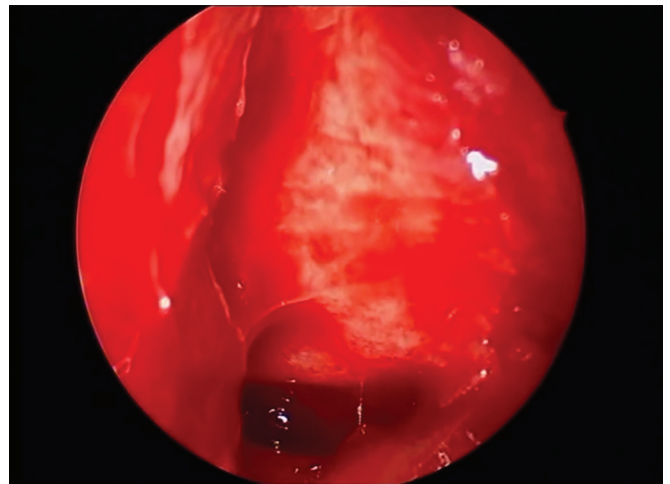


Fig. 5: Cerebrospinal fluid leak

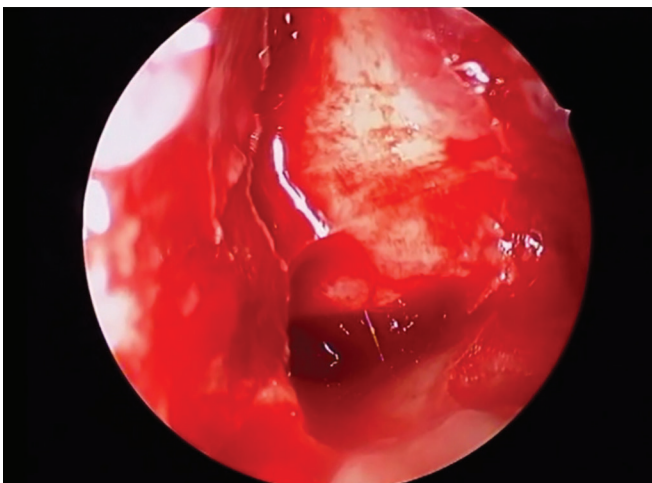


Fig. 6: Leak and collected CSF near defect in lamina

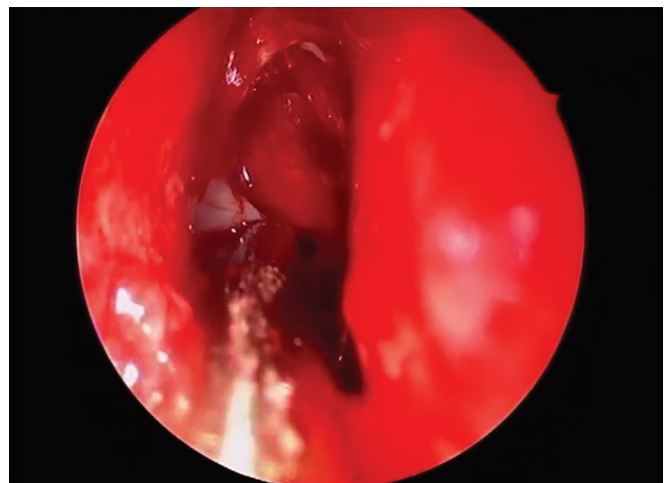


Fig. 7: Preoperative picture showing defect in lamina

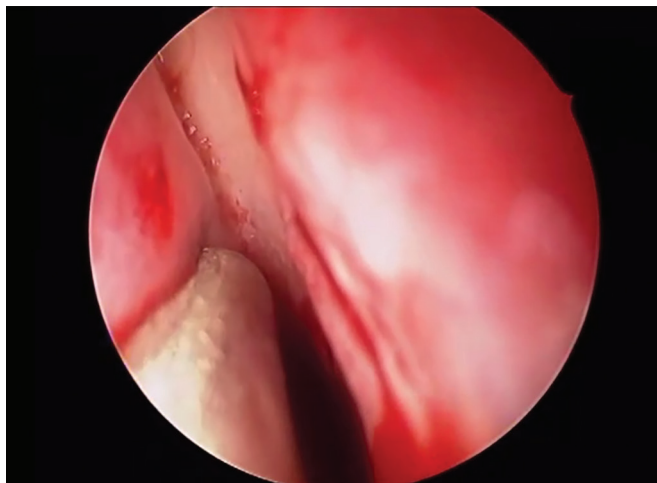


Fig. 8: Normal intact cribriform

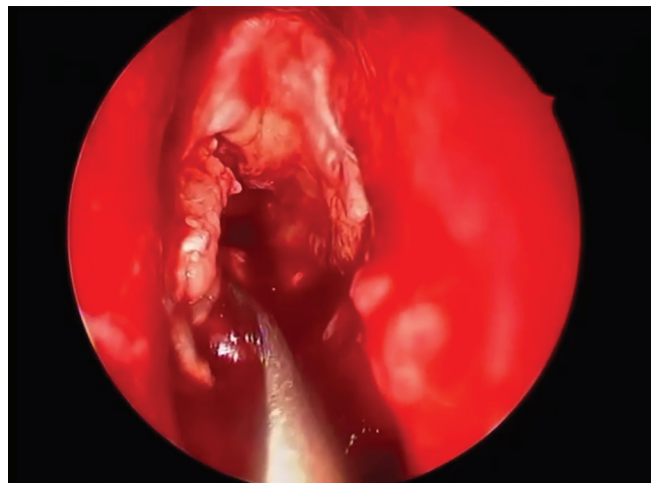


Fig. 9: Facia lata graft over site of leak and being placed over lamina

the orbit and exit via the eye, mimicking tear formation. Salame et al¹ described this phenomenon as oculorrhea.

Very few data are available regarding the same. Chi et al² had reported one case of oculorrhea following surgery for recurrent sphenoid wing meningioma. Similarly, Apkarian et al³ reported orbital CSF collection following blunt head trauma. Likewise, Pease et al⁴ had conducted a study on 20 posttraumatic oculorrhea cases. But very limited literature is available for idiopathic CSF oculorrhea.

In our case, CSF leakage from eye was idiopathic. The possible explanation could be that prior CSF rhinorrhea would have accumulated in the ethmoid sinuses. Gradually, postaccumulation secondary infection and pressure-induced bony thinning could have occurred, which could have led to a breach in the lamina wall causing CSF to accumulate in the orbit, thus causing proptosis. With persistent leakage, further changes could have caused conjunctival rent and leak from eyes (oculorrhea).

CONCLUSION

Although oculorrhea rarely develops, suspicion should nevertheless be maintained to facilitate more prompt diagnosis and management.

REFERENCES

1. Salame K, Segev Y, Fliss D M, Ouaknine GE. Diagnosis and management of posttraumatic oculorrhea. *Neurosurg Focus* 2000 Jul 15;9(1):e3.
2. Chi M, Kim HJ, Koktekir BE, Vagefi R, Kersten RC. Iatrogenic cerebrospinal fluid oculorrhea. *J Craniofac Surg* 2014 Mar;25(2):469-470.
3. Apkarian AO, Hervey-Jumper SL, Trobe JD. Cerebrospinal fluid leak presenting as oculorrhea after blunt orbitocranial trauma. *J Neuroophthalmol* 2014 Sep;34(3):271-273.
4. Pease M, Marquez Y, Tuchman A, Markarian A, Zada G. Diagnosis and surgical management of traumatic cerebrospinal fluid oculorrhea: case report and systematic review of the literature. *J Neurol Surg Rep* 2013 Jun;74(1):57-66.