

Spontaneous CSF Rhinorrhoea An Experience at King Khalid University Hospital Riyadh

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ABSTRACT

Objective: Spontaneous CSF rhinorrhoea is relatively uncommonly diagnosed entity. The objective of this study was to find out the common features in the study group and try to establish the cause of rhinorrhoea in these patients.

Materials and Methods: In this retrospective study, files of all the patients who underwent surgery from January 1996 to December 2007 for spontaneous CSF rhinorrhoea were reviewed. Patients who had history of head trauma or cranial surgery were excluded from the study. All the patients had CT scan brain with CT cisternography whereas only three patients had MRI brain as well. All the patients had transcranial repair of CSF fistula. Patients were followed for 5 – 12 months with average follow up of 8 months.

Results: A total of 7 patients were operated for spontaneous CSF rhinorrhoea between Jan 1996-Dec 07. Four (57%) were females and three (43%) were males. Age range was 6 years to 47 years with mean age of 35.8 years. Duration of fistula ranged from 3 months to 216 months. Two patients had one episode of meningitis. All the patients had CT scan brain with CT cisternography whereas additional MRI was done in 3 patients. Thin cuts coronal CT with CT cisternography picked the lesions in all the patients. All the patients had congenital dehiscence of cribriform plate. All the patients had transcranial repair of CSF fistula. No patient had post-operative CSF leak.

Conclusion: All patients in this study group had congenital dehiscence of cribriform plate. CT cisternography with thin cut coronal CT is good diagnostic tool in CSF rhinorrhoea. Early diagnosis and management is mandatory to avoid meningitis.

Key Words: Spontaneous rhinorrhoea, Idiopathic rhinorrhoea CSF rhinorrhoea.

INTRODUCTION

Spontaneous CSF rhinorrhoea has been reported as 3-4% of all CSF leaks.¹ It is some times difficult to differentiate this condition from nasal secretions caused by rhinopathy, which results in delay in diagnosis. The presence of congenital dehiscence in cribriform plate and formation of small meningocele are the most likely etiological basis of this condition.² Valsalva like effects may cause dural rupture at the site of defect thereby leading to rhinorrhoea. Females are more affected than males. Age range is variable but symptoms usually appear in the young and middle aged.³

Contrast CT imaging is the best modality for investigating these patients.² MRI T₂ weighted images have also been proved to be useful for the detection and localization of CSF leaks.⁴ Immunofixation of beta 2 transferrin is claimed to be always positive in cases of CSF rhinorrhoea.⁵ Spontaneous CSF leaks are unlikely to heal conservatively and they need to be repaired. Mostly repairs are performed through a transcranial approach. However minimally invasive endoscopic technique is claimed to have more than a 90% success rate⁶

MATERIALS AND METHODS

This is a retrospective study in which we reviewed all the files of the patients who underwent surgery from Jan 1996 to Dec 2007 in King Khalid University Hospital Riyadh. Patients with head trauma and previous cranial surgery were not included in the study. All the patients had CT scan brain and CT cisternography whereas MRI brain was done in only three patients. All the patients had bifrontal craniotomy. Dural defect could be visualized in all patients. Small defects were repaired with pericranium whereas in larger defects fascia lata was used. Postoperative lumbar drain was placed in two patients. Patients were discharged in 8 – 10 days and were followed for 5 – 12 months.

RESULTS

Sex Incidence

Four patients (57%) were female and three patients (43%) were male (Table 1).

Table 1: Sex Incidence.

No of Patients	Male	Female
7	3 (43%)	4 (57%)

Age Range

The age range was 6 – 47 years with mean age of 35.8 years. Only one patient was a child with age of 6 years, rest of the patients ranged between 32 – 47 years.

Duration of Fistula

Duration of fistula ranged between 3 months to 216 months (18 years) with average of 62 months.

Incidence of Meningitis

Two patients (28%) had single episodes of meningitis.

Side of CSF Leak

Four patients (57%) had leak on left side and 3 patients (43%) on right side.

Investigations

CT scan

All the patients had thin cuts coronal CT scan and CT

cisternography. Coronal thin cut CT (Fig 1) showed bony defects in all the patients whereas CT cisternography (Fig 2) visualized the site of fistula in all of our patients.

MRI

MRI was done in three patients (Fig 3) that also pinpointed the site of fistula.

Management

All the patients had transcranial repair of CSF fistula.

Complications

Two patients had seizures on the day of surgery and on female patient developed DVT.

Hospital Stay

Postoperative hospital stay was 8-11 days with an average stay of 8 days.

Follow up

Patients were followed for 5-12 months with average of 8 months. No patient had recurrent leak.

Table 2: Dural Repair.

No of patients	Fascia Lata	Pericranium
7	4 (57%)	3 (43%)

DISCUSSION

Spontaneous CSF rhinorrhoea is not relatively rare but clinically often difficult to differentiate from nasal secretions due to rhinopathy. Out of 25 patients who had repair of CSF fistula at King Khalid University hospital Riyadh, 7 patients (28%) had spontaneous CSF rhinorrhoea whereas in another study out of 34 patients, 15 (44%) were of spontaneous nature.³ Females are more affected than males in our study comparable with other reports.³ Symptoms usually appear in young or middle age.³

Since the condition mimics running nose therefore diagnosis is usually very late. Patients remain symptomatic, for a long time before diagnosis or till they develop meningitis. It is important not to miss the diagnosis in view of real potential complication of meningitis, which is reported as 85% if left untreated.⁷ Immunofixation of beta 2 transferrin fluorescein

lumber puncture and high-resolution contrast CT are other diagnostic tools.

In our cases metrizamide CT cisternography picked the lesion in all the cases.

MRI was done in only three patients, which also suggested the site of leak.

We did transcranial repair in all of our case where as endoscopic technique to repair CSF leaks are claimed to be successful in 88-93% of cases.^{2,6}

Postoperatively two of our patients developed seizures on the day of surgery, which were controlled symptomatically. One patient developed DVT. We had good experience with transcranial repair. None of our patient had postoperative CSF leak.

CONCLUSION

All patients in this study group had congenital dehiscence of cribriform plate. CT cisternography with thin cut coronal CT is good diagnostic tool in CSF rhinorrhoea. Early diagnosis and management is mandatory to avoid meningitis.

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Fig. 1: Thin coronal cut CT scan of a patient showing the defect in the cribriform plate.

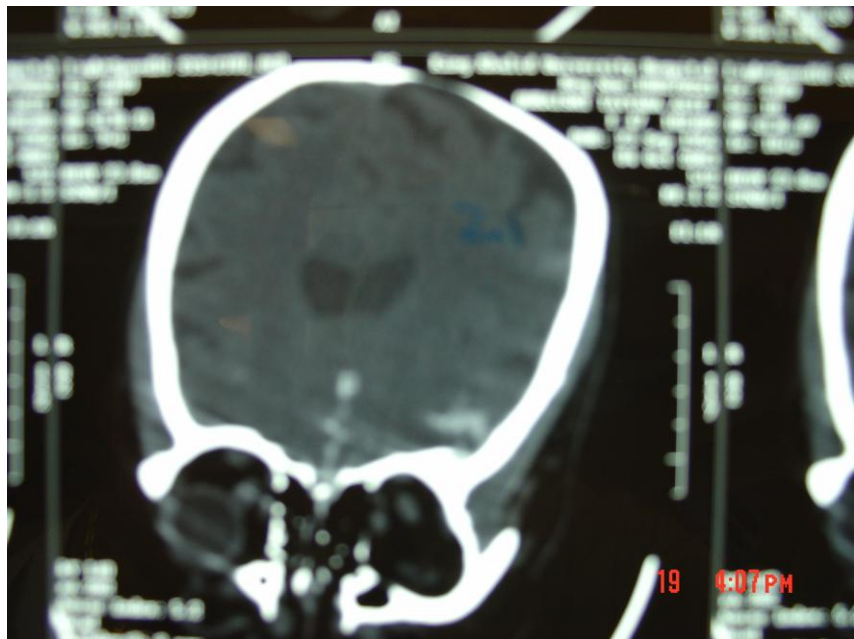


Fig. 2: CT cisternography visualizing the site of CSF leak.

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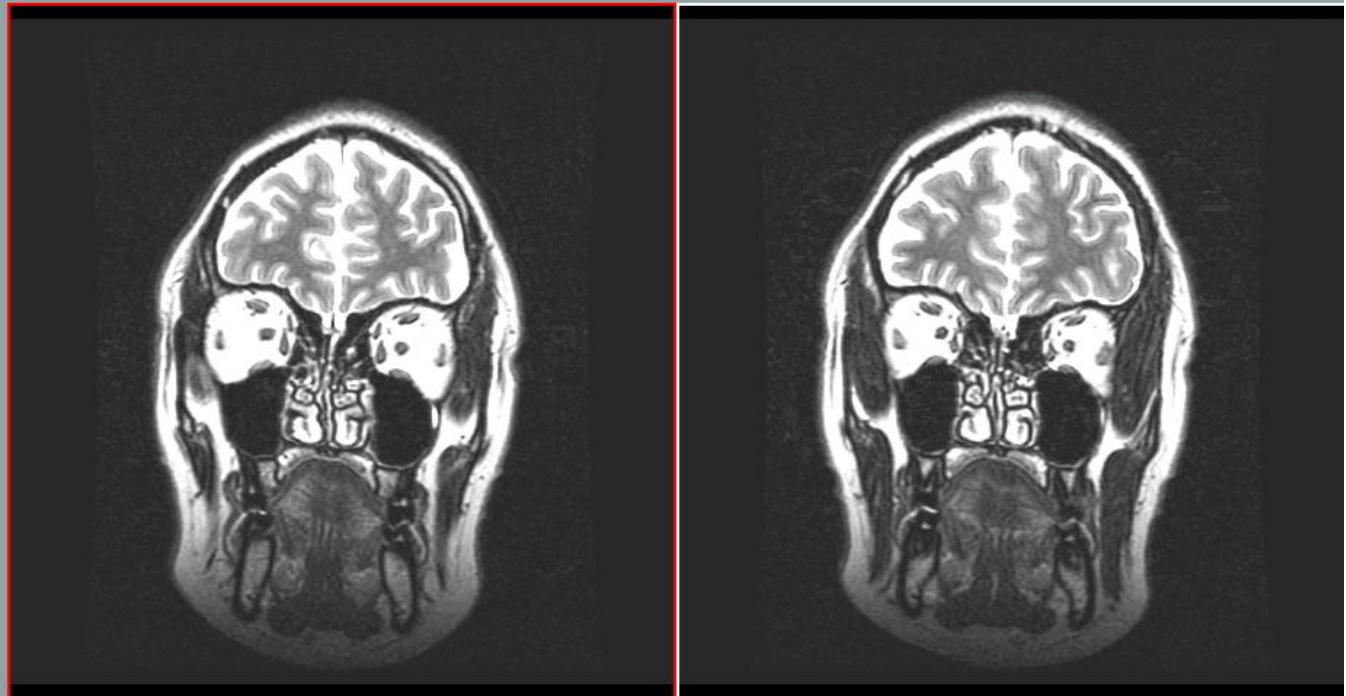


Fig. 3: MRI Brain of the patient with CSF rhinorrhoea visualizing the defect and site of leak.

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