Short Communication

Chronic Rhinorrhea

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A 15 – year old boy, resident of Lahore, was referred by medical department to eye OPD, for evaluation of his right drooping lid and double vision. It was associated with running nose and severe temporal headache. Past history revealed head trauma with loss of consciousness for ten minutes, eleven years back. It was followed by running nose on bending down. He had several episodes of meningitis after that trauma which settled without squeal. On examination, he had pupil involving third nerve palsy and chemical analysis of nasal discharge revealed CSF rhinorrhoea. The patient was referred to neurosurgical department for management.

Conclusion: Careful history, examination and investigations remain key to the sensible management of patients. Patients with recurrent meningitis should be evaluated for a CSF leak.

Keywords: CSF rhinorrhoea, third nerve palsy, intra cranial hypotension, Traumatic CSF leak.

CSF rhinorrhea is a potentially devastating condition that can lead to a myriad of complications leading to morbidity and mortality. CSF formed by the choroid plexus and drained through the arachnoid villi, circulates in a closed system. Any disruption between the sino-nasal cavity and the anterior and middle cranial fossae will result in discharge of CSF into the nasal cavity. Complications include intracranial infections, cranial nerve palsies and pneumocephalus.

CASE REPORT

We report a case of 15 – year old Pakistani male referred from medical department for evaluation of double vision and drooping of his right eyelid for four days. It was associated with fever, severe headache and running nose. Probing into past history revealed that he had a fall from roof eleven years back. He had loss of consciousness for ten minutes. It was relieved without any medical support but was followed by an episode of vomiting which contained blood. Years passed by without any investigations and medication except some drugs for rhinorrhea. The patient continued to have recurrent attacks of meningitis during the last eleven years, which settled with medications without any residual morbidity. This time he had fever but it was associated with drooping of right eye and double vision. On examination, there was visual acuity of 6/6 and intra-ocular pressures of 10mm of mercury in each eye. Right pupil was fixed and dilated. Left pupil was round, regular and normally reacting to light and accommodation. Slit lamp examination and fundoscopy was unremarkable. Both optic discs were normal (no signs of papilledema). We diagnosed it as 'pupil involving third nerve palsy' in right eye. Other cranial nerves were intact except Olfactory, which was damaged on both sides. No other neurological deficit was detected. Other systems were normal. Nasal discharge was clear, watery and increased with bending and straining. We referred our patient to ENT department for rhinorrhea. CSF rhinorrhea was suspected and nasal discharge was sent for chemical examination. Chemistry of nasal discharge was consistent with CSF. We performed MRI, which showed fluid tract from cribriform plate of left ethmoid sinus through left frontal sinus, left anterior ethmoidal cells into left nasal cavity. There was dural tear and fracture of cribriform plate of left side. Medical management for

his fever was sought and we referred the patient to neuro-surgery department for surgical management of fractured cribriform plate.

Fig. 1: Patient with right third nerve palsy.

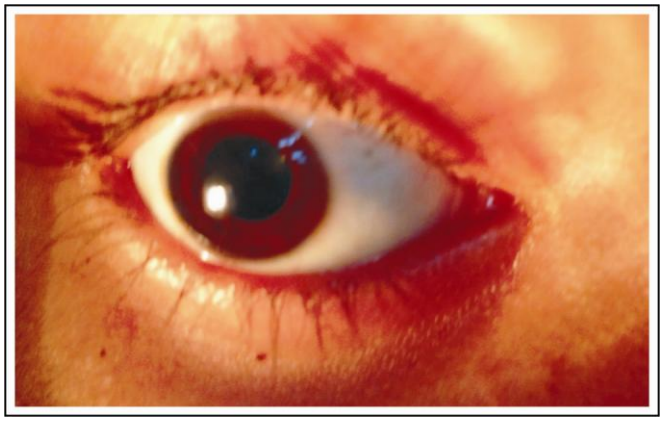

Fig. 2: Dilated and fixed pupil of right eye.

DISCUSSION

Approximately 500 ml of CSF is produced daily. CSF produced at the choroid plexus, circulates through the subarachnoid space and is reabsorbed via the arachnoid villi. Normal CSF pressure is approximately 10 – 15 mm Hg. Any breach in this closed loop of CSF circulation will lead to its leakage resulting in different conditions; e.g, otorrhea, rhinorrhea and oculorhea.[1] CSF leaks are broadly classified as spontaneous, traumatic and iatrogenic.[2] Traumatic CSF leak is either immediate or delayed. Immediate CSF leaks are easy to diagnose but delayed fistulas may remain undetected. Our patient had delayed CSF rhinorrhea and it remained undetected for almost eleven years. Such delayed cases may result in complications, which include intracranial hypotension (ICH), headache and cranial nerve (CN) disorders. It is presumed that these complications are related to sagging of the brain and brainstem and traction on the dura[3].

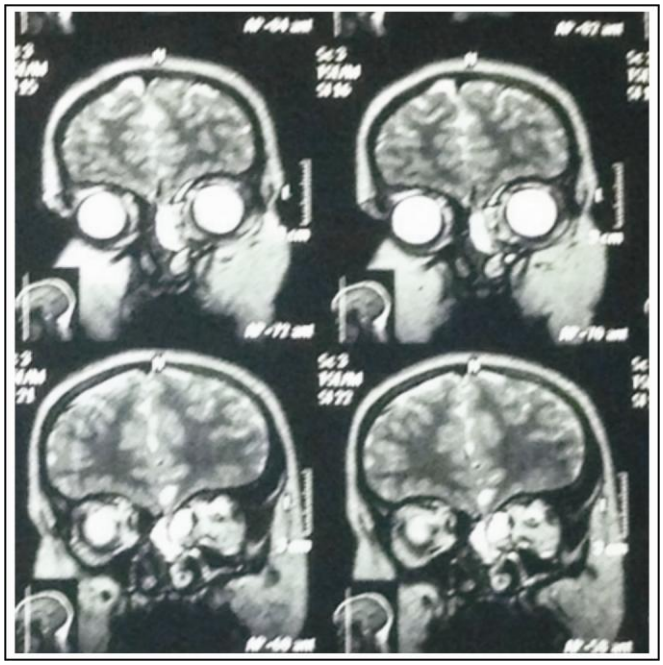

Fig. 3: T2 weighted MRI showing tract of CSF leak on left side

This particular patient had intermittent CSF leak and chronic headache. CSF leak was taken as allergic rhinitis and he continued to take medicines for that purpose. Prior to presenting in our department he had severe headache and profuse discharge from the nose which led to third nerve palsy. There are many case reports of cranial nerve palsies due to intracranial hypotension irrespective of the cause. Although trauma is the most discussed cause of ICH, other causes are also described in literature which include; lumbar discectomy[4], CSF shunt procedures[5], spontaneous intracranial hypotension[6].

The most commonly encountered cranial nerve deficit from Intracranial hypotension is sixth nerve palsy[7]. It is proposed that sixth nerve due to its long course is more vulnerable to damage when brainstem sags down as a result of decreased intracranial pressure[8]. Second common nerve to be involved in ICH is third nerve as in our case[9,10]. Sometimes cranial nerve palsy is the only presenting sign of spontaneous ICH Multiple cranial nerve palsies can also occur. In the absence of any cranial nerve palsy, diagnosis of a

delayed CSF leak becomes difficult unless an accurate history is taken and proper examination is done. Intermittent cases of CSF leak (as in our case) might be due to accumulation of CSF in one of the paranasal sinuses which later drain with changes in head position. This is called reservoir sign.

There are other signs which can help in localizing site of CSF leak. Our patient had anosmia on both sides, which pointed towards a defect in the anterior cranial fossa. Optic nerve function deficits are indicative of lesions in posterior ethmoid sinuses but this nerve was spared in our case.

Meningitis is a very important complication of CSF leak. This particular patient had multiple attacks of meningitis but only conservative management was done without looking for the cause of recurrent attacks. Hence, cases of recurrent attacks of meningitis must be thoroughly investigated for any CSF leak to prevent mortality and morbidity.

CONCLUSION

The patient was referred to us for management of third nerve palsy. Prompt referral to ENT and neurosurgical department saved patient from morbidity and mortality. Careful history, examination and investigations remain key to the sensible management of patients. Patients with recurrent meningitis should be evaluated for a CSF leak.

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