A rare case of posttraumatic eyelid swelling: cerebrospinal fluid blepharocele

Case report

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Posttraumatic herniation of brain and CSF into the eyelid, variously termed as blepharocele, blepharoencephalocele, or encephalocele, is not a common entity. Periorbital ecchymosis is the most common cause of lid swelling following head injury involving the anterior skull base. We describe a case of posttraumatic craniopalpebral fistula leading to CSF blepharocele, a rare case of posttraumatic lid swelling.

Case Report

History. This 4-year-old girl was seen for gradually increasing left upper eyelid swelling after she had sustained a blunt head injury due to a fall from height. A few days later she developed swelling of the upper eyelid. Posttraumatic CSF blepharocele was suspected. The patient underwent surgery with excellent cosmetic outcome. This case is discussed with a review of literature.

Operation and Postoperative Course. A bicoronal flap with left frontal craniotomy was made. Through the fracture of the orbital rim, brain matter and CSF had herniated into the upper eyelid. Necrotic brain was suctioned out, the basal dural defect was repaired with pericranium, and the bone defect was also repaired. The patient made an uneventful recovery. At 1 year postsurgery, the patient was asymptomatic with an excellent cosmetic outcome.

Discussion

Posttraumatic CSF leakage complicates 2% of all head injuries and 12%–30% of all basilar skull fractures. Although penetrating head trauma is an obvious cause of

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both transient and persistent CSF fistula, most traumatic CSF leaks occur as a result of blunt trauma because of the higher incidence of blunt head trauma overall. The most common forms of posttraumatic CSF leaks are CSF rhinorrhea or CSF otorrhea. Rarely, orbital fracture with dural injury is associated with leakage of CSF into the orbit (orbital encephalocele) and very rarely with lacrimation (CSF oculorrhea). Infrequently, CSF may leak into the soft tissues of eyelids, causing lid swelling (CSF blepharocele). Rarely, anterior skull base fractures may involve the orbital rim, with a dural tear and soft-tissue injury to eyelids. The CSF and injured brain matter may track into the upper eyelid, causing blepharocele. The rare configuration of this injury can be explained by the direct impact to the orbital rim. If the content is only CSF, the eyelid swelling may be transilluminant; transillumination may be absent in the presence of pulped and necrotic brain matter.

Most orbital injuries associated with an orbitocele or blepharocele have been reported in children; adults are rarely affected. Often mistaken for posttraumatic ecchymosis, eyelid swelling secondary to CSF blepharocele does not show sequential resorption, and on the contrary may increase in severity. Awareness of the lesion is essential to diagnose the condition early; it should be suspected when palpebral swelling fails to resolve. Especially in patients in whom the orbitoceles and eyelid cysts are accompanied by frontobasilar and superior orbital roof fractures, cranioorbital fistulas must be suspected. The onset of the fistulas may be seen in the form of eyelid swelling late after the trauma; this was the case in our patient, who developed eyelid swelling a few days after the trauma and was receiving treatment for posttraumatic ecchymosis for 15 days without any response.

Most traumatic CSF leaks resolve spontaneously, the majority within the first 24–48 hours, as a result of blood products and/or inflammatory adhesions at the site of the dural breach and associated skull fracture. Herniation of the brain tissue into the traumatic defect may also play a role in the cessation of the leak. Persistent posttraumatic CSF leakage frequently complicates skull base fractures. Although many CSF leaks will cease without treatment, patients with leaks that persist for more than 24 hours may be at increased risk for meningitis, and many will require surgical intervention.

Although the MRI modality may be a better investigation for evaluation of traumatic CSF blepharocele, CT scans give necessary information regarding bone injury. Aspiration of posttraumatic eyelid swelling may result in disastrous consequences and should not be done. A CSF blepharocele requires surgical repair of the dural
defect, either primarily or with a substitute. The bone defect should be repaired if feasible to give a good cosmetic outcome.

Disclosure

The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

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References


Fig. 3. Photograph of the patient at the follow-up visit 1 year after surgery.