Unusual causes of epiphora

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Most cases of epiphora are accepted as being due either to trauma, in which case there is usually a relevant history, or to stenosis of the nasolacrimal duct following some vague inflammatory process. The following cases are of interest, as a definite cause of epiphora could be demonstrated in each of them.

Case reports

Case 1, a 54-year-old female, presented with a history of unilateral epiphora of 7 years' duration. There was no history of injury or of inflammation and the exact date of onset could not be determined. There was, however, a long history of chronic irritation for which drops of various kinds had been instilled over a period of many years. She had been seen previously when, after lacrimal syringing, she was advised that there was no lacrimal pathology; drops were prescribed.

On examination the lacrimal system appeared to be normal; this was confirmed by dacryocystography. Slit-lamp examination, however, revealed the cause of the epiphora. A granuloma, attached by a pedicle to the posterior surface of the lower lid, was occluding the punctum, like a cork in a bottle (Fig. 1). This granuloma was supplied by a blood vessel traversing its pedicle and when withdrawn from the punctum was found to have a conical shape as a result of moulding within the punctum. When in position, it caused epiphora by occluding the punctum, but it could be displaced quite easily by a lacrimal cannula, which entered the canaliculus without difficulty.

FIG. 1 Case 1. Granuloma moulded to shape of lacrimal punctum, simulating occlusion

COMMENT

Once noticed, the cause of obstruction was quite obvious even to the naked eye, especially when the puncta on each side were compared. A normal punctum should always look patent, and on slit-lamp examination its whole depth can be seen. When it does not look

patent suspicion should be aroused. Occlusions of this kind may follow prolonged use of certain drops (*e.g.* I.D.U.), disuse (*e.g.* in ectropion), and burns from heat, chemicals, or ionizing radiation.

Case 2, a 67-year-old female, complained of bilateral epiphora of "many years" duration. She was most reluctant to submit to lacrimal investigation as she recalled her previous painful experiences. She had attended out-patients departments on several occasions and "got no relief from the drops and a lot of pain from the needle".

Examination revealed gross bilateral conjunctivitis, with very obvious epiphora, excoriation of the skin of lower lids, and commencing bilateral ectropion. Inspection of the puncta suggested an abnormal appearance and a slit-lamp examination was carried out. Each punctum showed a tiny wisp of "cotton-wool like" material extruding from it. Gentle manipulation showed that a complete cast of each canaliculus could be withdrawn from both sides and from both lids (Fig. 2). Each cast demonstrated the irregular lumen of the canaliculus.

FIG. 2 Case 2. Canalicular casts. Irregular outlines confirm similar shape of canalicular lumen

Microscopical examination of one of the casts failed to disclose any pathological organisms. Histopathologically, the cast was composed of fragments of degenerating cells and an amorphous material. Suspected fungi were not demonstrated.

COMMENT

This case illustrates the need for a 'closer look' at the puncta if the immediate naked eye appearance is in the least suspicious.

Sometimes the punctum will be 'obstructed' by an eyelash and the patient will present with a red watery eye (Fig. 3). The redness is always localized to the area of contact between the globe and the protruding eyelash, and ulceration may occur at the site if it has been present for any length of time. The signs and symptoms are much worse if the

FIG. 3 Eyelash impacted in upper lacrimal punctum

impacted 'hair' is not an eyelash but a fragment of hair, such as one sees following a haircut. The epiphora is secondary, *i.e.* not due to the obstruction of the punctum but to the irritation from constant rubbing.

Cure is dramatic.

Case 3, a 57-year-old female, was referred because of a 5-year history of persistent bilateral epiphora. Her history went back to a time when she noticed a change in her facial appearance and a diagnosis of leontiasis ossea was made (Fig. 4). She was treated at first with drops and later with bilateral 3-snip operations; neither of which relieved her symptoms.

FIG. 4 Case 3. *Leontiasis ossea* (lateral view)

FIG. 5 Case 3. *Dacryocystogram*, showing extensive bony overgrowth with displacement and narrowing of lacrimal canal

On examination, bilateral 3-snips were noted, and on syringing each sac was entered easily; patency was demonstrated with some pressure. The true state of affairs and the cause of her epiphora were demonstrated by dacryocystography (Fig. 5a and b).

COMMENT

This case demonstrates how syringing can mislead by giving inadequate information, leading to inaccurate diagnosis and unsuccessful treatment. While it is true that this patient's tear passages were patent on syringing, this finding was only elicited by increasing

pressure on the syringe, which helped to overcome the resistance of narrow nasolacrimal ducts. Normal patency was mistakenly inferred.

In investigating a case of epiphora the following points are considered important. The anatomical arrangement along the whole of the lacrimal apparatus must be borne in mind. Any obstructions encountered should not be overcome forcibly at the time of the investigation. This will only result in discomfort to the patient and a little bleeding, followed by further fibrosis. Both canaliculi must be investigated, as it is commonly found that the upper is patent, whereas the lower may be blocked.

The passage of fluid into the nose during syringing conveys little positive information. If it is remembered that flow equals pressure over resistance ($F = \frac{P}{R}$), then it becomes

obvious that the pressure exerted by the thumb on the plunger of the syringe will overcome the resistance of a partial obstruction, showing apparent patency. It is true that experience will indicate how much pressure is required to achieve flow, but the most adequate diagnostic information can be obtained only by dacryocystography. The dacryocystogram is an essential part of the investigation of epiphora. It not only localizes the site of obstruction but gives additional information – for example, the presence of loculi, foreign bodies, etc. Briefly, the method consists of injecting Neohydriol into the sac through the upper or lower canaliculus, depending on which is patent. There is no pre-determined quantity of fluid that needs to be injected. The quantity is determined by the volume of the sac. If partial patency exists, the patient is asked to say when the fluid is tasted. If obstruction is complete the fluid will regurgitate immediately through one or other of the puncta. If the medium regurgitates immediately through the opposite punctum the x ray may be somewhat deceptive as only a small quantity will have entered the sac. This need not necessarily mean that the sac is obstructed. Experience has shown that this usually means that the common opening is isolated by adhesion of the mucosal folds guarding the common opening in the valve of Rosenmüller. It may be true that the sac is completely obliterated, but one's suspicions should be aroused as to other possibilities and special attention should then be directed to the common opening at the time of surgery. Failure to appreciate this point will result in failure to achieve success. One further point should be considered. If, when the opaque medium is injected, none is regurgitated or tasted by the patient, one should suspect one of two possibilities; either a false passage may have been created forcing the fluid into the surrounding tissues with discomfort to the patient (this is of little consequence and is eventually absorbed) or, in cases of middle third fracture of the face, the lower end of the nasolacrimal duct is displaced. The upper end may then empty into the maxillary sinus and the opaque medium in such a case may fill the maxillary sinus so that the usual symptoms of a full sac are not forthcoming.

In this case the puncta may well have been reduced in size but a 3-snip operation should never be performed without first establishing that the rest of the lacrimal apparatus is normal. This could only have been shown by dacryocystography.

Case 4, a 60-year-old male, presented with unilateral epiphora of sudden onset. There was no relevant previous history other than one of recurring nasal polypi, which had been treated surgically. On closer questioning he thought that his epiphora had started after the most recent operation on his nose, and it was established that this was an inferior turbinectomy.

On investigation he was found to have normal puncta, canaliculi, and sac, but there was a complete obstruction at the lower end of the nasolacrimal duct. This was established by dacryocystography (Fig. 6, opposite).

COMMENT

This was a case of obstruction of the end of the nasolacrimal duct by fibrosis following turbinectomy, and illustrates the need to pursue a history, so that where possible, logical cause-and-effect relationships can be established. Occasionally, patients forget previous incidents, especially if in understandable ignorance they think that there is no link between the symptom and the underlying pathology. On several occasions the author has been surprised to find Summerskill tubes embedded in the lacrimal area during the course of a dacryocystorhinostomy, the patient having forgotten completely that he has had previous surgery.

FIG. 6 Case 4. Total obstruction of lacrimal duct

FIG. 7 Case 5. Lateral view of dacryocystogram, showing filling defect suggestive of a dacryolith which was confirmed at operation

Case 5, an otherwise healthy 38-year-old female, presented with a year's history of unilateral epiphora. During the course of detailed questioning no attributable cause of obstruction was revealed; a chance remark about occasional epistaxis went unnoticed.

On lacrimal syringing, partial patency was achieved after applying a little pressure on the plunger of the syringe. Dacryocystography showed partial obstruction of the nasolacrimal duct with a filling defect in the sac suggesting the presence of a dacryolith (Fig. 7).

Surgery confirmed the presence of a dacryolith surrounded by much soft granulomatous tissue. The sac wall itself was spongy, with a tendency to bleed and a grossly undulating mucosal surface. The pathology report read as follows:

“Micro: (1) Sections of the ‘granuloma’ show hyperplastic lymphoid tissue in the wall of the lacrimal sac. The sac lining consists of a single layer of columnar epithelium. In places this appears to be partly destroyed by a chronic inflammatory infiltrate. No specific infective agent is apparent either in haematoxylin and eosin sections or in special stains.

(2) The ‘lacrimal sac’ appears to me to have the structure of an angioma rather than a lacrimal sac. There are several vascular spaces, one quite large, apparently communicating, in a connective tissue stroma diffusely infiltrated with chronic inflammatory cells.

Diagnosis: (1) Reactive lymphoid tissue in wall of lacrimal duct (or sac).

(2) Para lacrimal duct (sac) angioma."

COMMENT

It is tempting to postulate that this patient's epiphora was caused by an angiomatous malformation. This would explain the epistaxis and the slow development of lacrimal stasis, leading to dacryolith formation. In turn this would give rise to an inflammatory reaction which then precipitated the symptoms. Dacryocystorhinostomy relieved the patient of her symptoms.

Cases 6 and 7 Both these patients were young married women (one a qualified nurse) who claimed that epiphora commenced after taking oral contraceptives. When these were withdrawn the epiphora ceased.

COMMENT

The association of epiphora with 'The Pill' should be kept in mind when young women complain of watering eyes without apparent cause. A few unnecessary dacryocystorhinostomies may be avoided by withdrawing the pill to see if the symptoms disappear. As yet, there is no positive proof of this association or the mechanism by which epiphora is produced.

It is a pleasure to express my gratitude to the staff of the Department of Medical Photography, Queen Victoria Hospital, East Grinstead, for the excellence of the photographs.