Imperforate puncta with blocked naso-lacrimal duct

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The isolated anomaly of imperforate lacrimal puncta was noted by Zehender (1867, 1883). Similarly, blockage of the naso-lacrimal duct was noted by Crigler (1923) and Guerry and Kendig (1948), the anomaly usually being due to failure in canalization. The simultaneous occurrence of these two anomalies would appear to be very rare (Fig. 1) and an extensive search of the literature has revealed only one previous case on the left side (Veirs, 1955).

FIG. 1 *Imperforate puncta with blocked naso-lacrimal passage on the right side*

DEVELOPMENT

The lacrimal passages develop as a solid cord of ectodermal cells at the line of fusion of the maxillary and the lateral nasal process. As growth proceeds, the maxillary process overlaps the paraxial mesoderm around the eye, leaving a fold of thickened ectoderm buried in the mesoderm between itself and the lateral nasal process (Duke-Elder, 1964; Duke-Elder and Cook, 1963). As the buried epithelial cells become separated from the surface ectoderm, forming a cord of cells, two buds develop from the upper end. The buds are the future lacrimal canaliculi. The region of the ectodermal cord where the upper and lower canaliculi first budded enlarges somewhat to form the lacrimal sac. The lower end of the naso-lacrimal duct enters the inferior meatus of the nasal cavity. Just before birth these structures become patent by a process of canalization.

Case report

A 17-year-old boy came to the Eye Clinic on June 4, 1971, complaining of watering of the right eye since early infancy. Examination under the microscope revealed a complete occlusion of the

right upper and lower puncta by fine membranes. The positions of the openings were marked by slight dimples. No other abnormality of the eye or eye lids was found. There was no history of injury, and no family history of watering. With the patient under general anaesthesia, a sharp probe was used to rupture the thin membranes which occluded the puncta. After dilation of the puncta (Fig. 2), thick mucoid regurgitation from both the upper and the lower puncta was noted on syringing with saline; this suggested obstruction in the naso-lacrimal passage, which was confirmed by a dacryocystogram (Fig. 3). The epiphora was relieved completely by dacryocystorhinostomy.

FIG. 2 Right lower punctum after opening with a sharp probe

FIG. 3 Right dacryocystogram, antero-posterior and lateral views, showing dilated lacrimal sac due to blocked naso-lacrimal duct

Discussion

This patient had suffered from watering of the right eye since infancy. He was found to have imperforate puncta, which on opening revealed also obstruction at the junction of the lacrimal sac and the naso-lacrimal duct, a very rare combination. It appears that the canaliculi had developed normally and that the imperforate puncta were due to fine membranes which persisted because of failure in dehiscence of the overlying epithelium. The associated naso-lacrimal duct obstruction was probably due to non-canalization at

the junction of the lacrimal sac and naso-lacrimal duct. The mucoid regurgitation after opening the puncta suggests most probably congenital naso-lacrimal duct obstruction, rather than a secondary phenomenon.

Summary

A case is presented of imperforate puncta with blocked naso-lacrimal duct, a very rare congenital anomaly.

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References

- CRIGLER, L. W. (1923) *J. Amer. med. Ass.*, **81**, 23
 DUKE-ELDER, S. (1964) "System of Ophthalmology", vol. 3, part 2, p. 923. Kimpton, London
 ——— and COOK, C. (1963) *Idem*, vol. 3, part 1, p. 241
 GUERRY, D., and KENDIG, E. L. (1948) *Arch. Ophthalm. (Chicago)*, **39**, 193
 VEIRS, E. R. (1955) "The Lacrimal System", p. 43. Grune and Stratton, New York
 ZEHENDER, W. (1867) *Klin. Mbl. Augenheilk.*, **5**, 131
 ——— (1883) *Ibid.*, **21**, 520

Note

Post-Graduate Course on Neuro-ophthalmology

Beirut, December 1 and 2, 1972

A post-graduate course in neuro-ophthalmology will be held at the American University Medical Centre, Beirut, Lebanon, on December 1 and 2, 1972. The course is organized by the Department of Ophthalmology and those participating, in addition to the members of the ophthalmology department, include Prof. S. Thompson, M.D., and Mr. M. D. Sanders, F.R.C.S., M.R.C.P.