The Journal of Laryngology & Otology
February 2003, Vol. **117,** pp. 130–131

How I do it

Ipswich lacrimal tube: pedicle nasal septal tube for the reconstruction of lacrimal drainage passage

M. W. Yung, S. Hardman-Lea

Abstract
Canalicular blockage of the lacrimal system still remains a major challenge for oculoplastic surgeons. The conventional treatment of conjunctival dacryocystorhinostomy using the Lester Jones bypass tube is often associated with tube migration and foreign body reaction. The authors report a new technique to reconstruct the lacrimal passage on a single patient with severe canalicular obstruction following repeated failures from previous Lester Jones tube operations. An epithelial-lined tube was recreated between the nasal cavity and the conjunctiva using a superiorly based mucoperichondrial flap from the nasal septum (Ipswich lacrimal tube). The pedicle of the flap was divided six weeks following the operation. The patient was still symptom free two years following the operation together with a positive dye test confirming the patency of the new lacrimal tube.

Key words: Lacrimal Duct Obstruction; Surgical Procedures, Operative; Nasal Septum; Surgical Flaps

Introduction and surgical technique

The treatment of distal lacrimal blockage by dacryocystorhinostomy (DCR) has a reported success rate of over 85 per cent. However, canalicular blockage still remains a major challenge for oculoplastic surgeons. The preferred treatment is still a conjunctival DCR with insertion of a Jones Pyrex tube, but tube dislodgement, infection and tract obliteration are common problems, producing a success rate of around 65 per cent.[1]

The authors report a new technique to reconstruct the lacrimal passage for patients who have proximal lacrimal obstruction (Figures 1–5). An endoscopic DCR with extensive removal of bone at the lacrimal fossa is initially performed using a 2 mm Kerrison bony rongeur. This is converted to a conjunctival DCR by creating a fistula from the area of the caruncle into the nasal cavity using a sharp trocar. The fistula is stretched to a diameter of at least 4–5 mm using a pair of mosquito artery forceps. A superiorly based mucosal flap of 1.5 cm-wide is then prepared from the nasal septum. The septal flap should have its root positioned as close as possible to the conjunctival DCR window and the length of the flap should reach the floor of the nasal cavity. The septal mucosal flap is gently pulled through the conjunctival DCR

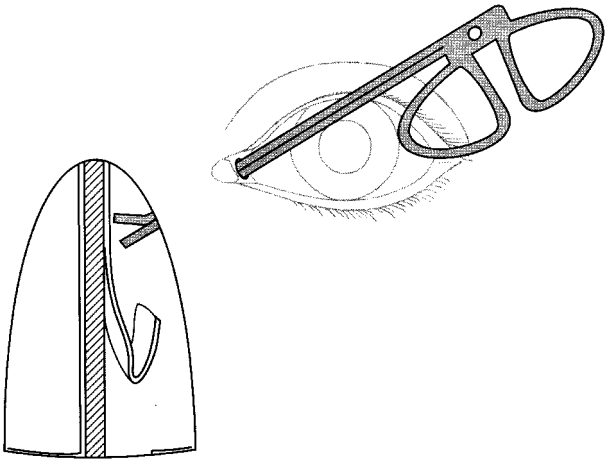

Fig. 1
A fistula is created from the area of the caruncle to the nasal cavity.

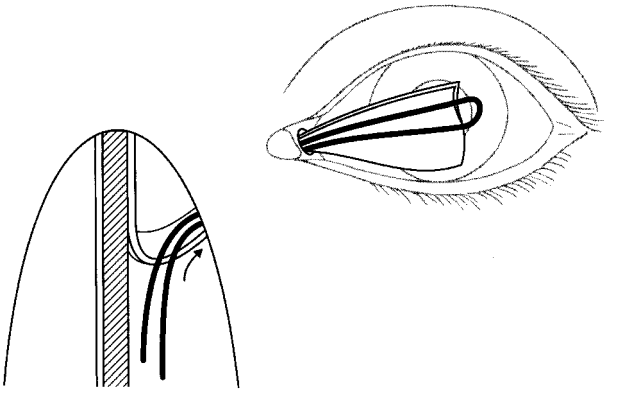

Fig. 2
A superiorly based septal flap (Ipswich lacrimal flap) is then pulled through the fistula to the conjunctival surface.

From the Departments of Otorhinolaryngology and Ophthalmology, The Ipswich Hospital NHS Trust, Ipswich, Suffolk, UK.
Accepted for publication: 3 October 2002.

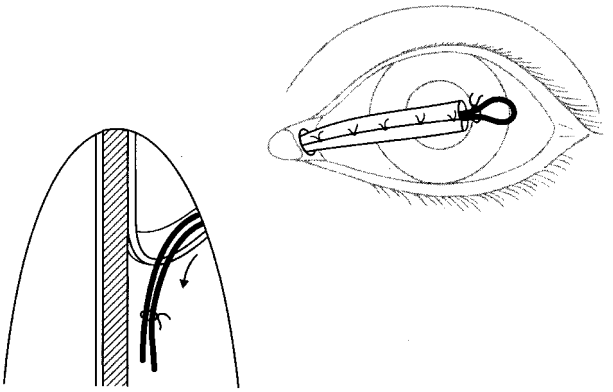

FIG. 3
The septal flap is then tubed around a double silicone stent to form a mucosal tube.

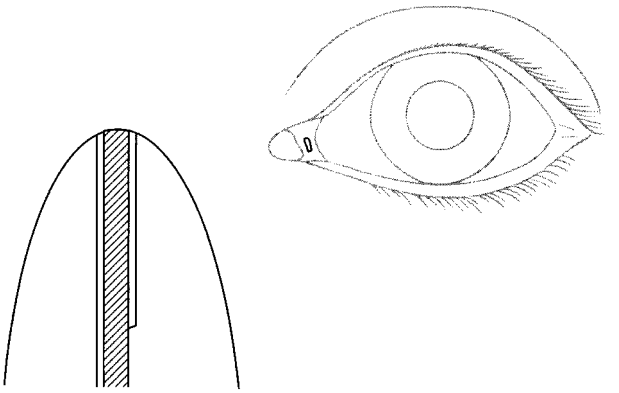

FIG. 5
The septal tube is divided at the nasal side at four weeks. The silicone stent is removed at the same time.

fistula onto the conjunctival surface and then tubed around a double silicone stent using 8-0 vicryl sutures. The free end of the mucosal tube is then anastomosed to the conjunctival opening of the fistula, which consists of the remnant of the caruncle medially and the conjunctiva laterally. The two free ends of the stent within the nasal cavity are sutured together while the loop silicone stent on the conjunctival side is secured to the lower tarsal plate using a 6-0 nylon transfixion suture through the lower eyelid, tied over a protective bolster. The silicone stent is removed after six weeks when the pedicle of the septal flap is also divided and returned to the nasal septum. The end result is mucosal lined tract between the lacrimal lake and the nasal cavity.

Case report

A 15-year-old girl presented to the ophthalmology department in 1979 with right-sided herpetic kerato-conjunctivitis and was treated with idoxuridine eyedrops. After resolution of the acute inflammation and ulceration of the ocular surface, the patient developed canalicular blockage of both the upper and lower canaliculi. After suffering from troublesome epiphora for 18 months, the patient was referred to a tertiary referral centre for treatment.

In 1982, the patient underwent an external dacryocystorhinostomy and a bypass operation using the Lester Jones tube. Between 1982 and 1993, she had seven further procedures to re-insert the Lester Jones tube under general anaesthesia due to repeated tube blockage and migration. She then remained relatively symptom free until 1997 when she again complained of excessive tearing in the right eye. She was referred to the watery eye clinic at the Ipswich Hospital NHS Trust. Extensive fibrous tissue was noted at the site of the previous DCR and the Lester Jones tube but the tube itself was missing. Lacrimal probing showed that the canalicular blockage was at 8 mm in both the upper and lower canaliculi. One final attempt was made to re-intubate the lacrimal system with a silicone stent. This did not cure the epiphora and the stent was removed after three months. The patient did not wish to have further attempts to have the Lester Jones tube re-inserted because of her previous disappointment. She was therefore offered the operation of right conjunctival DCR with an Ipswich lacrimal tube reconstruction with the clear explanation of the nature of the procedure and the fact that she would be the first patient to undergo the operation.

The patient had the operation in March 2000. The silicone stent was removed and the Ipswich lacrimal tube was divided near its base under local anaesthesia and returned to the donor site (nasal septum) after six weeks. At the eight-week follow-up, the patient had already noticed a dramatic reduction of the epiphora. Fluorescein dye was easily seen in the nose using a nasal endoscope after instillation into the right eye. At the most recent assessment, two years following the operation, the success was still maintained. The patency of the reconstructed lacrimal tube was confirmed by a positive dye test and the patient reported a small 'draught' in the right eye on nose blowing.

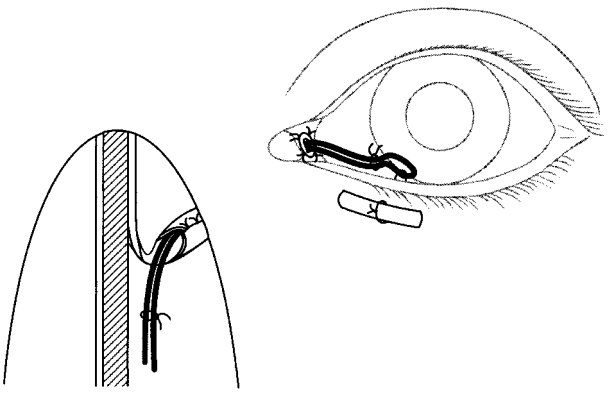

FIG. 4
The septal tube is then partially retracted back into the nasal cavity. The free end of the septal tube is sutured to the conjunctival end of the fistula. The silicone stent is anchored to the tarsal plate of the lower eyelid.

References

1 Hurwitz JJ, Rutherford S. Computerized survey of lacrimal surgery patients. *Ophthalmol* 1986;**93**:14–9

Address for correspondence:
Mr M. W. Yung,
Department of Otorhinolaryngology,
The Ipswich Hospital NHS Trust,
Heath Road,
Ipswich IP5 4PD, UK.

Mr M. Yung takes responsibility for the integrity of the content of the paper.
Competing interests: None declared