DACRYOCYSTORHINOSTOMY AN OUT-PATIENT PROCEDURE*

BY

J. D. E. STRONG

Royal Victoria Infirmary, Newcastle upon Tyne

CONSIDERABLE stress has been laid on the necessity of careful in-patient treatment and post-operative care in cases of dacryocystorhinostomy. In most busy hospital departments it is sometimes extremely difficult if not impossible to cope with all the chronic dacryocystitis cases who require this operation and consequently the waiting list tends to get out of hand, and many of these waiting cases return in the interval with acute attacks of dacryocystitis and all its attendant complications. To overcome this problem we have for some years treated these cases as out-patients in an attempt to show that hospitalization may not be necessary. This procedure enables the patient to be given an appointment for operation straight away, and as the operation is seldom more than 3 weeks ahead the waiting list is eliminated.

Pre-operative Investigations

All patients have an E.N.T. examination to eliminate the possibility of intra-nasal disease. Secondly it is noted whether there is positive evidence of patency of the canaliculi. In cases in which it is not possible to pass the cannula into the sac, this fact is entered in the patients' notes, and the surgeon is then prepared to treat an ampullary block at operation as well as the possibility of a blocked naso-lacrimonal duct. Many of these cases of apparent ampullary stenosis are found at operation to be perfectly patent, the stenosis being in fact due to kinking. This is particularly true of patients with rather tight mucocoeles, which are distorting the anatomy and pressing on the medial end of the canaliculi before they pass in to the sac. This demonstration of patency on the operating table is simpler than many methods involving radio-opaque substances and radiological diagnosis.

Operative Technique

Where possible, patients are given a local anaesthetic before they go to the operating theatre; this anaesthetic is administered in three ways:

- (1) By local infiltration with procaine and adrenalin. This injection aims at:
 - (a) Infiltrating the infra-orbital canal.
 - (b) Picking off the infratrochlear nerve.
 - (c) Infiltrating the subcutaneous area at the site of operation.

* Received for publication March 2, 1961.

(2) A cocaine pack is placed in the nose on the appropriate side against the mucous membrane corresponding to the medial wall of the lacrimal fossa.

(3) If possible, the sac is irrigated with a small amount of cocaine solution (5 per cent.).

Incision.—Despite the recommended technique of striking down to the bone with the first incision far less bleeding has been found to accrue when one dissects through the structures. Small veins may be picked off before they are cut and the anatomy is far less disturbed. As the operation is being performed between the medial palpebral ligament and the lower part of the anterior lacrimal crest, the incision is limited to a shade more than this length which gives an average of 20 to 25 mm. The incision is begun 3 mm. medial to the inner canthus from a point just above the medial palpebral ligament, and it is carried in a straight line parallel with the side of the nose. It is important that the incision is straight; any curve tends to give rise to puckering and formation of the appearance of epicanthus.

The separation of the fibres of the orbicularis oculi muscle reveals the glistening lacrimal fascia, and as the soft tissues are pushed medially its continuation with periosteum covering the frontal process of the maxilla is revealed. The anterior lacrimal crest is identified with a sharp rugine. The periosteum is split from the level of the medial palpebral ligament down to the lowest point of the crest following its curvature. The instrument is then inserted backwards so that the lacrimal sac with its lacrimal fascia tacked around it is levered in a lateral direction and the floor of the lacrimal fossa is exposed. A ground-down von Graefe's knife with a sharp point is now passed into the sac near the medial border. A lacrimal cannula can then be passed into the sac, and saline can be syringed down the duct demonstrating indisputably any blockage which may be present.

On the rare occasions when the duct is found to be patent one can direct one's attention to the upper part of the lacrimal apparatus and perform whatever procedure is indicated. Proceeding with the dacryocystorhinostomy, the puncture mark is extended in the vertical plane, thereby isolating the medial wall of the sac with its covering of lacrimal fascia. This medial wall is completely excised. At this point one can check the patency of the upper lacrimal tract and as before should it be defective, *e.g.* through ampullary stenosis, then the procedure for dealing with this is combined with the dacryocystorhinostomy.

The periosteum lying medial to the lacrimal crest is now stripped and pushed medially to expose the bone. The vertical suture line between the lacrimal bone and the frontal process of the maxilla is now identified, and a small sharp flat-bladed instrument is inserted in to it and twisted forwards sufficiently to allow the entrance of the mucous membrane elevator. Bone nibblers are then inserted and with alternate elevation of mucous membrane and nibbling of bone an ostium is made. This extends from the anterior

border of the lacrimal bone to a point about 8 mm. medial to the lacrimal crest. It is limited above by the medial palpebral ligament and is continued below to within a few millimetres of the lower end of the lacrimal crest. It works out to be about the size of a sixpence. Although this would appear to be a less elegant method of making the ostium than say the use of a trephine, in fact, of the fifty cases in this series, not one had damage to the mucous membrane.

The mucous membrane is now cut so as to produce a single flap hinged at the anterior border of the ostium. This is sewn by two fine catgut sutures to the anterior border of the cut edge of the lacrimal sac, one suture above and one suture below. No attempt is made to suture the posterior part of the anastomosis, for at this point the posterior cut edge of the sac lies parallel to the cut edge of the mucous membrane and is separated by the mere flake of the lacrimal bone and stitching is unnecessary. The orbicularis oculi is laid back into position and the skin is then closed by five or six interrupted black silk sutures. When the operation is finished the nasal pack is removed and a little saline is flushed through to remove any residual blood clot. The average operating time for the fifty cases presented was 40 minutes.

Post-operative Treatment

The patient is kept in the recovery room for 2 hours after the operation and is allowed to sit up or walk about. Provided there has been no oozing from the nose or into the throat the patient is allowed to go home with exact instructions as to what he should do should any oozing appear.

Of the fifty cases described it was deemed necessary to admit only one patient for one night. This was a hypertensive patient 70 years old, who had some oozing during the 2-hour waiting period but who in fact had no further trouble and was allowed to go home the following morning. The patients are seen again in 7 days and the sutures are removed. A further 3 weeks is allowed to elapse before syringing is performed. If the naso-lacrimal duct is freely patent the patient is seen in 6 months for follow-up.

To date there has been no case in which post-operative bleeding either early or late was sufficient to warrant the patient's return to hospital before the stipulated 7 days. This covers over 250 cases treated in this way in the past 5 years, by various surgeons.

Post-operative Results

For this purpose fifty consecutive personal cases treated between July, 1958, and December, 1959, have been analysed. The patients' ages were as follows:

Age Group (yrs)	20-29	30-39	40-49	50-59	60-69	70 and over	Total
No. of Patients	1	10	11	15	10	3	50

Of these fifty cases, forty-five were found to be patent and symptom-free, and five to be blocked. Not all of them had drained for a full 2 years (which may be accepted as a cure), but none had drained for less than 12 months.

The operative history may be summarized as follows:

Excessive Bleeding		Minor Bleeding		Ethmoids Encountered during Operation	Mucous Membrane Flap Obtained
At Operation	Post-operative	During 1st 12 hrs	After 1st 12 hrs		
11	0	7	1	6	50

Of the five failures, three now show ampullary blockage. The fourth is no longer available for examination owing to a chronic wasting disease; the block was present at the last examination, but its exact site was not noted. The fifth was a man who had had a severe facial war injury including laceration of the lacrimal tissues and a compound fracture of the maxilla.

Discussion

That this operation can be successfully performed as an out-patient procedure there is no doubt, but the question must arise whether it is a safe procedure. The only dangerous complication which may occur is haemorrhage at one of the following sites:

- (a) Soft tissue lateral to the ostium;
- (b) Soft tissues medial to the ostium;
- (c) The bony ostium itself.

(a) There should be no difficulty in obtaining complete and permanent haemostasis.

(b) There is always initial bleeding on cutting the mucous membrane flap, but in our experience this stops within minutes and is always dry by the end of the operation. This site may account for slight post-operative oozing but not for severe bleeding.

(c) Haemorrhage from the bony ostium is the most likely to give trouble, but if it does occur it will show itself during the operation. It is usually fairly easily controlled, either by local cautery or by further nibbling of the bone, which may crush the bleeding vessel more adequately thereby stopping the flow. Nevertheless, a severe primary haemorrhage from the bone, though it may apparently be stemmed by the above technique, is an indication for special post-operative precautions, particularly in the older patient.

Summary and Conclusions

A relatively simple operative procedure has been described for the treatment of chronic dacryocystitis with naso-lacrimal block. It has been shown that this procedure may be carried out on a wide range of patients without the need for hospitalization.

The conclusions which may be drawn from these results are as follows:

- (1) The results obtained in this series of fifty cases done over a period of 18 months compare reasonably with those obtained by other techniques.
- (2) Selected cases may require to be admitted for one night when circumstances (either operational or environmental) indicate this.
- (3) Post-operative interference, with syringing, irrigation, etc., is not necessary except to demonstrate patency.

I should like to thank Mr. H. Vernon Ingram and Mr. L. H. Lake for allowing me to treat these cases and for their helpful comments.