AN ADVOCACY OF EXTERNAL DACRYO-
CYSTORHINOSTOMY*

BY

F. N. SHUTTLEWORTH

LEEDS

ALTHOUGH the British ophthalmologist has not adopted Toti's operation or its modifications, in the treatment of chronic dacryocystitis, with the enthusiasm of his Continental colleagues, the British ophthalmic literature of the past fifteen years contains articles extolling the superiority of this operation over the simple excision of sac. Traquair, 1932 and 1941, Lyle, Cross, Simpson and Fraser, 1948, have all published figures with a high percentage of successes, which are in themselves a forcible recommendation for this operation.

This paper is based on the cases of external dacryocystorhinostomy, sixty in all, performed in the Leeds General Infirmary between October, 1941, and December, 1947. The operation was undertaken infrequently at first, but its frequency increased as its good results became obvious and its comparative simplicity was realised. Now it is the operation of choice for chronic dacryocystitis up to the age of sixty years.

The purpose of this article is not to quote further results in complete agreement with those already published, but rather to show that the exact technique is not of very great importance, and that the operation can be undertaken with equally good results by the less experienced ophthalmic surgeon. Traquair emphasises this when he says, speaking of external dacryocystorhinostomy . . . "gives excellent results even in the hands of relatively inexperienced operators."

In the sixty cases quoted, the operation was an external dacryocystorhinostomy, and only two were carried out with the assistance of an E.N.T. surgeon, once to assist an ophthalmic chief, and once to assist an ophthalmic registrar. The numbers are divided more or less equally between the two ophthalmic firms of the Leeds General Infirmary, each of which has its own method of performing the operation.

Method "A." Except for details of local anaesthesia, the technique is substantially that of Traquair. The anaesthesia is produced by the Moffett method of postural anaesthesia for intranasal surgery, using Brompton cocaine solution,

cocaine hydrochlor. grs. 26.

2 per cent. soln. potass. sulph. $\frac{1}{2}$ fl. oz.

soln. acid carbol. 1 : 500 ad. $1\frac{1}{2}$ fl. oz.

liq. adren. 1 : 1000 to be added 1 : 3.

* Received for publication, May 26, 1948.

Intra-nasal anaesthesia takes thirty minutes, is complete by this method, and is supplemented by infiltration of the tissues in the lacrimal sac area and the infra-orbital notch, by 4 per cent. novocaine with 1 min. of 1:1000 adrenalin per c.c. added. The anaesthesia so produced is intense, and complaints of discomfort from patients are very infrequent. After the usual incision through the skin, the sac together with the periosteum of the anterior lacrimal crest and fossa is displaced laterally, by a dental packing tool (Claudius Ash No. 178, stainless steel) as modified

by Marshall of Glasgow (Fig. 1). Traquair's mucous membrane separator (Fig. 2) is used to find the weakest point of the floor of the lacrimal fossa, to break through it by gentle pressure, and then to separate the nasal mucous membrane before inserting the small Kofler's punch forceps to cut away the bone of the floor of the fossa and the lower part of the anterior lacrimal crest, down to the level of the inferior orbital margin, thus exposing the top of the lacrimal canal. The mucous membrane separator is invaluable if a friable nasal mucous membrane is to be preserved intact. The bone is removed over a rhomboidal area approximately 1.75 x 1.25 cm., and the nasal mucous membrane so exposed, is cut on three sides to form a flap, the intact side being anterior. The

medial wall of the sac is removed and the flap of nasal mucous membrane turned forwards and sutured to the sac, over the entrance of the canaliculi. The duct is syringed on the fourth day. The patient goes home on the fifth day. The operation takes thirty to thirty-five minutes.

Method "B." General anaesthesia is employed, and the nose is packed pre-operatively with ribbon gauze soaked in 20 per cent. cocaine plus 1 in 1,000 adrenalin. The floor of the lacrimal fossa is prepared as in Method "A." The anterior lacrimal crest is removed by means of a hammer and chisel, the floor of the fossa with Dupuy-Dutemps forceps. The only mucous membrane so exposed is incised to produce a flap with its base hinged posteriorly. The lacrimal sac is incised to produce a similar flap hinged anteriorly. No attempt is made to suture the nasal and lacrimal mucous membranes. A rubber tube is inserted *via* the nose, and its end lies between these two flaps. The tube remains concealed, but is held by a silk stitch which is tied on the surface.

Results	ANALYSIS OF RESULTS			Per cent.
	Staff Surgeons		Registrars	
	Method "A"	Method "B"	Method A & B	
* No passage	1	2	2	8.5
Passage clear but occasional epiphora	5	2	2	15
Passage clear, symptom-free	18	14	14	76.5
	24	18	18	60

* (1) Patient had a Toti operation performed in February, 1943. Since then she has had alcohol injection of lacrimal gland, incision of ductules and excision of lacrimal gland region, and still complains of epiphora, though the lids are not stuck in the mornings.

(2) Patient had a Toti operation performed in June, 1945. The duct was not patent and the lacrimal sac area was re-opened on 1st April, 1946. The remains of the sac were incised; the window in the lacrimal bone was reported as "filled with bone."

(3) Patient had a Toti operation performed in December, 1945. She has considerable trachoma-scarring of both lids and ectropion. No pus is regurgitated upon pressure over the lacrimal sac area.

Twenty-five per cent. of these cases have been seen from one to four years after operation. A further fifty-four per cent. have been seen from three to twelve months after operation.

The anterior flap is sutured to the inner end of the internal palpebral ligament, and so conceals the end of the tube. The skin is sewn up by interrupted sutures. The tube is removed *via* the nose on the seventh day.

From the figures it will be seen that results are equally good whether an exact anastomosis between the nasal mucous membrane and the remains of the sac is achieved or not. It will also be seen that equally good results have been achieved by the less experienced operators, the eighteen cases in the third column having been operated upon by five different ophthalmic registrars between 1942 and now. These figures, too, agree remarkably with those quoted by others. Traquair, for example, quotes 80 per cent. successes when using a flap of nasal mucous membrane, and 71 per cent. successes when using no flap. (In a personal communication to Mr. John Foster, Traquair estimates successes now at 90—95 per cent.) Lyle *et alii* quote 78 per cent. complete cure, 13 per cent. much improved, and 9 per cent. no improvement, using an anterior and a posterior nasal mucous membrane flap.

Tyrrell (1944-45), in a film shown to the Royal Society of Medicine, claimed to perform external dacryocystorhinostomy in ten minutes, using three blows of a hammer and chisel to remove the anterior lacrimal crest and making no attempt at an anastomosis. He recommended frequent post-operative syringing to preserve patency, and estimates 50 per cent. successes.

Spaeth, in his "Principles and Practice of Ophthalmic Surgery," describes numerous methods of performing this operation, the main variations being in the manner of performing the osteotomy and in the preparation of the anastomosis—from two flaps to no flaps. It is sometimes said that numerous methods of carrying out one task mean that no one method is a successful one, yet this is hardly true of the external dacryocystorhinostomy. It would seem that the essential feature is an adequate opening through the bone into the nose, rather than careful anastomosis between the nasal mucous membrane and the remains of the sac.

From the successful cases in this series, certain features stand out:—

(1) Whilst in all cases the anastomosis was patent upon discharge from hospital, three cases, which failed to attend for some time, were found to be blocked when next seen. The interim period varied from three weeks to two months. All were probed and then syringed. When last seen, from two months later in one case to seven months in another, all three were patent; two symptom-free and the third with epiphora in cold weather. Because of this, I feel that regular syringing for a time after operation has value.

(2) On three occasions in the past twelve months, the bony window has opened into ethmoid cells. Whilst this complication had made the operation technically more difficult, the end results have been satisfactory.

SUMMARY

(1) The results of sixty cases of external dacryocystorhinostomy operation performed in the Leeds General Infirmary are reviewed.

(2) Consideration of the figures show little difference in the results :—

- (a) Of the two different methods employed, or
- (b) The experience of the operators.

I wish to thank both Mr. J. Foster and Mr. G. W. Black for permission to carry out this review, and for their helpful criticism.

REFERENCES

1. LYLE, CROSS, SIMPSON and FRASER (1946).—*Brit. Jl. Ophthalm.*, **30**, 102.
2. SPAETH.—"Principles and Practice of Ophthalmic Surgery." (Third edition published 1944, pp. 110-112, 114-120).
3. TRAQUAIR, H. M. (1932).—*Trans. Ophthalm. Soc. U.K.*, **52**, 149.
4. ——— (1941).—*Arch. of Ophthalm.*, **26**, 165.
5. TYRRELL, T. M. (1944-5).—*Proc. Roy. Soc. Med.*, **38**, 472.
6. MOFFETT, A. J. (1941).—*Jl. Lar. Ot.*, **56**, No. 12.

VISITS TO CONTINENTAL OPHTHALMIC CLINICS, 1948

UNDER the auspices of the Faculty of Ophthalmologists three parties, each of some twenty ophthalmologists, visited clinics on the Continent in the summer of 1948. A debt is owing to the Professors and their assistants at the several clinics visited, and they will be interested to hear of the eulogy with which their efforts are related, and the gratitude with which they are remembered.

The HOLLAND visit was organised by John Foster (Leeds), who reports that at Leiden the party was received by Professor van der Hoeve, the doyen of Dutch ophthalmology. A series of papers was read by the Professor and his assistants. Dr. Copper has modified and developed the Piezometric device of Guttman