Dacryocystorhinostomy

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The foundation of dacryocystorhinostomy was laid in 1904 by Toti, the famous Italian rhinologist of Florence. After him many modifications of the technique were devised aiming at better results. In the original Toti's operation, the lacrimal sac is exposed and opened on its medial side, a piece of the bone in the lacrimal fossa is punched out and a corresponding area of nasal mucosa is resected. No sutures were used for anastomosis and the results were 10–15 per cent. success only. West (1910) and Polyak (1911) described intranasal operations but their results were also unsatisfactory. In 1920 great improvement in the technique was achieved by Dupuy-Dutemps and Bourguet in France and by Ohm in Germany who introduced suturing of the nasal mucosa to the lacrimal sac. In 1938 Arruga established his technique for proper anastomosis; he exposed the sac through cutting of the medial palpebral ligament, opened the bone of the lacrimal fossa by cylindrical trephines operated by a dental motor, made vertical incisions in the medial wall of the sac and the nasal mucosa and sutured the edges together. The results have been reported as 80–96 per cent. success but Foster in 1961 reported the successes as 55 per cent. only. This last technique is the one followed by most surgeons now.

The main causes of failure of this operation are:

1. It is known that the sac has great susceptibility to cicatrization when exposed through cutting of the medial palpebral ligament and the canaliculi are liable to be implicated in the cicatrix.

2. Stenosis and closure of the bone opening may occur due to granulations and oesteoblastic reaction from the free edge of the periosteum.

These two points have been avoided in the technique used by the author.

The Author's Technique

A vertical skin incision about 2 cm. long is made medial to the inner canthus by about 7 mm. The periosteum is incised medial to the attachment of the medial palpebral ligament to the bone without cutting the ligament itself. By elevation of the periosteum the lacrimal crest is defined and the lacrimal fossa is widely exposed retracting the sac with its periosteal covering. A deliberate opening is done in the bone using a dental drill for about $1 \cdot 6 \times 2$ cm. (Fig. 1). Excision of the intervening ethmoid air cells is sometimes necessary for mobilization of the nasal mucosa. The sac is transected at its lower end to allow its mobilization medially, and then it is slit vertically together with its periosteal covering as one layer giving tough flaps. The nasal mucoperiosteum is incised by a horizontal H-shaped incision allowing anterior and posterior flaps to be turned outwards (Fig. 2). Partial middle turbinectomy is sometimes done if the turbinate comes in the way. The flaps are sutured together using silk No. 4 zero with fine needles

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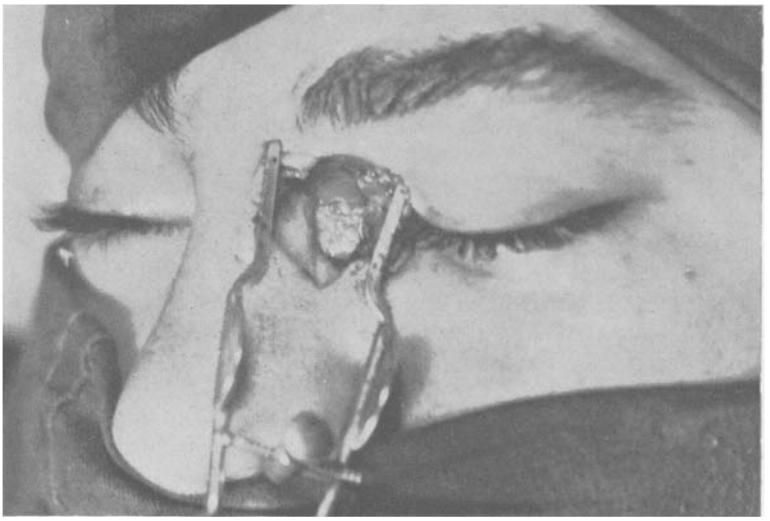


FIG. 1.
Opening in the bone done and nasal mucoperiosteum exposed.

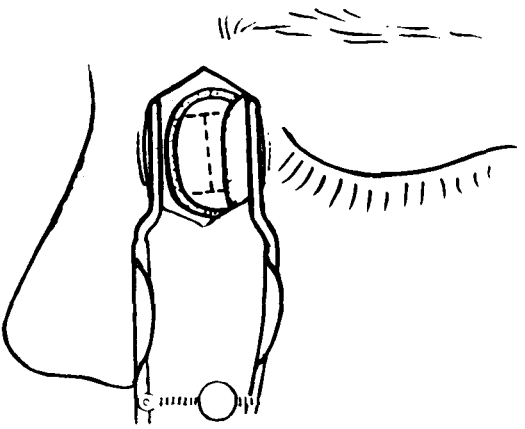


FIG. 2.
Diagram showing opening in the bone and H-shaped incision in the nasal mucosa.

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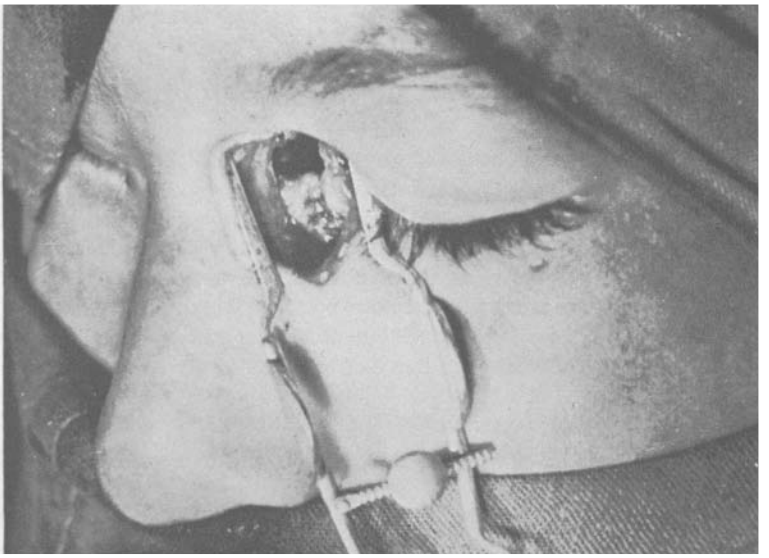


FIG. 3.
The sac and the nasal mucoperiosteum are sutured together.



A *B*

FIG. 4.
Mucocele of the lacrimal sac.
A. Before operation.
B. After operation.

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making all the knots inside the lumen (Fig. 3). The periosteum and the muscular layer are sutured and then the skin is closed.

Ninety-four cases were operated upon by this technique and they presented as follows:

79 cases: Idiopathic obstruction of the duct.
10 cases: Lacrimal fistulae; 6 cases followed unsuccessful dacryocystectomy and 4 cases followed abscess formation.
4 cases: Mucocele of the lacrimal sac (Fig. 4).
1 case: Cicatrical stenosis after trauma.

A good prognostic sign before the operation is the presence of a lacrimal regurge through the punctum by pressure on the sac. This indicates patency of the canaliculi and presence of a dilated non-shrunken sac which allows easy anastomosis.

The Results

Out of the 94 cases operated upon only 6 failures were met with. These were:

One case got keloid of the scar.

Five cases got stenosis of the canaliculi at their junction with the sac. This occurred most probably due to probing and dilatation of the canaliculi done after the operation and such manipulations should better be avoided.

Accordingly the success of this technique is 93·5 per cent.

Summary

A technique for dacryocystorhinostomy is described avoiding exposure of the sac through cutting of the medial palpebral ligament. The periosteum of the lacrimal fossa is elevated together with the sac. Anterior and posterior flaps of the wall of the sac together with its periosteum covering are sutured to opposite flaps of the nasal mucoperiosteum. 94 cases were operated upon with 93·5 per cent. success.

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