

Parotid Duct Transfer in Dry Conjunctiva

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Dryness of conjunctiva occurs as a sequel to Trachoma; Ocular pemphigus; Sjogren Syndrome; Exfoliative dermatitis and severe deficiency of Vitamin A of long standing. Due to lack of lacrimal secretion, the conjunctiva and cornea become dry with opacity of cornea. Entropion; conjunctival adhesions; corneal ulcerations and diminished vision even to the point of blindness result as the condition progresses.

Various treatments like artificial tears; surgical blocking of punctum; transfer of free graft of buccal mucosa to conjunctiva; tarsorrhaphy and high doses of Vitamin A have been tried in the past and have proved unsuccessful.

Considerations for Parotid Duct Transfer

Close resemblance in chemical composition of the Parotid and Lacrimal secretions have made many surgeons use parotid secretions as a good substitute of lacrimal secretions.

Composition of Lacrimal and Parotid Secretions

	Lacrimal	Parotid
(I) Translucency	Clear	Clear
(II) Lysozyme	Present	Present
(III) Osmotic Concentration	Physiological	Physiological

(IV) pH	5.2 to 8.35	5.3 to 7.8
(V) Total Solids	1.8%	1.6%
(VI) Proteins	0.669%	0.2 to 0.4%
(VII) Chlorides	0.394%	0.0312%

In the present series 8 parotid duct transfers have been done on 5 patients.

Details of Surgical Procedure

- (1) Operation is performed under general anaesthesia.
- (2) Lacrimal probe is passed through parotid duct upto its origin and total length of parotid duct measured.
- (3) For successful transfer to conjunctival sac total length that is required of duct is measured.
- (III) Total length of normal parotid duct when measured is found to be between 4 to 5 cms. and the length that is required to reach the end of the parotid duct in the lower conjunctival sac is between 6.5 to 7 cms.
- (IV) This additional length of 1.5 to 2 cms. required is gained by tubing a mucosal flap planned around the duct orifice in oral cavity. (Fig. 1).
- (V) A curved skin incision is made, near the origin of the parotid duct, following the normal skin crease of the face

and the duct is exposed. The duct is carefully dissected and mobilised upto the orifice. Incision is made around the orifice to dissect out the mucosal flap as designed. Care being taken not to injure the duct.

- (VI) Distal part of stenson's duct along with mucosal flap are then delivered through the skin incision on the face.
- (VII) Mucosal flap is tubed over 22 polythene tube that is passed upto the point of emergence of duct from gland substances. (Fig. 2)
- (VIII) An incision is then made in the for-

nix at the outer third of the lower conjunctival sac.

- (IX) A subcutaneous tunnel is then made to connect conjunctival incision with the facial skin incision.
- (X) Parotid duct alongwith mucosal extension is introduced in this tunnel and delivered in the fornix at the other end.
- (XI) End of mucosal tube is sutured to the edges of the incision made in the lower conjunctival sac with atraumatic 4/0 catgut, polythene tube is carefully fixed over the cheek.
- (XII) Surgical wounds in the oral mucosa

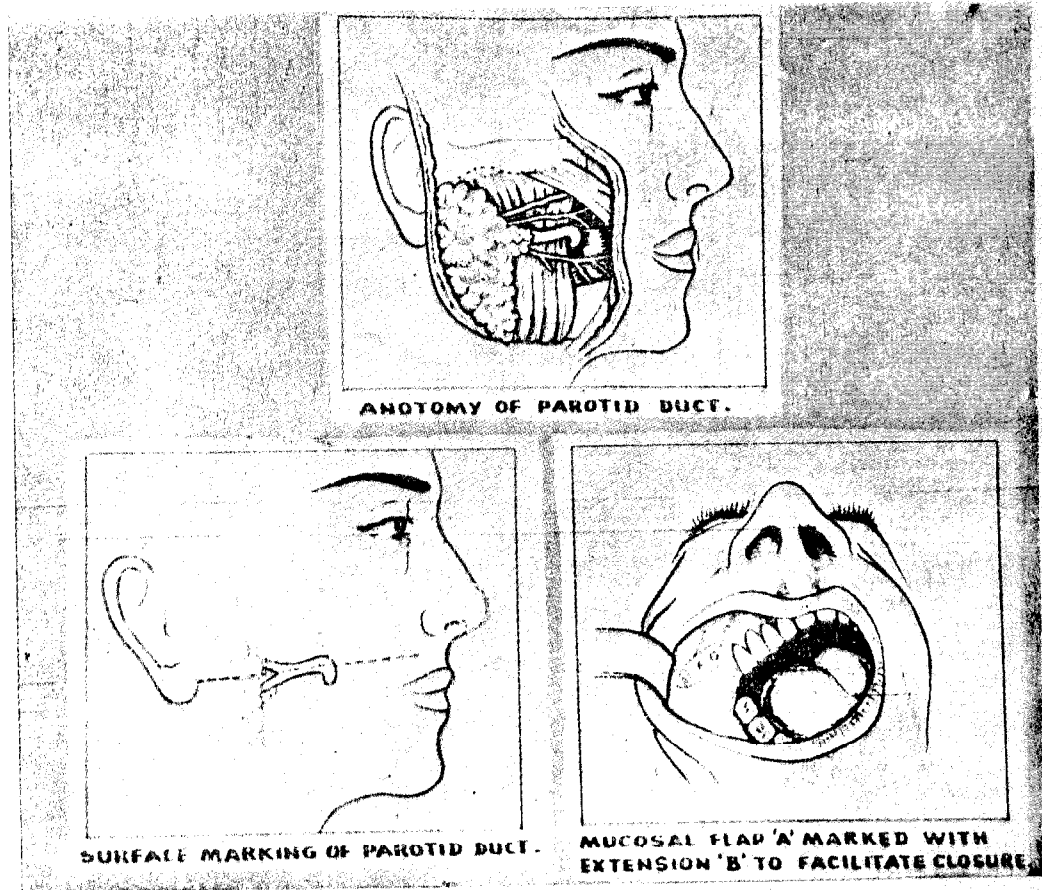


Fig. 1 Photograph showing anatomy of the parotid duct and marking of mucosal flap.

and skin closed by direct approximation of the edges.

Results

In the present series 8 parotid duct transfers were done in 5 patients of which 2 were unilateral and 3 patients had bilateral transfers. There was complete absence of secretion after 10th post-operative day in one unilateral duct transfer. One of the transfers aggravated the pre-existing entropion. Scanty and viscid secretions were noticed in one of the transfers due to partial stenosis of the duct. In one parotid duct transfer,

cystic swelling appeared in the line of transferred duct. Exploration of the swelling revealed localised dilatation of the mucosal tube with the leak of thick parotid secretions in the subcutaneous tissue. The conjunctival end of the mucosal tube was completely stenosed. Rest of the 4 transfers were free from any complication. The vision in all 4 transfers improved. In one case, of bilateral transfer of parotid duct, both the Corneas were densely opaque. The lusture of the Cornea and Conjunctiva improved but in order to get vision, keratoplasty will be necessary (Fig. 3).

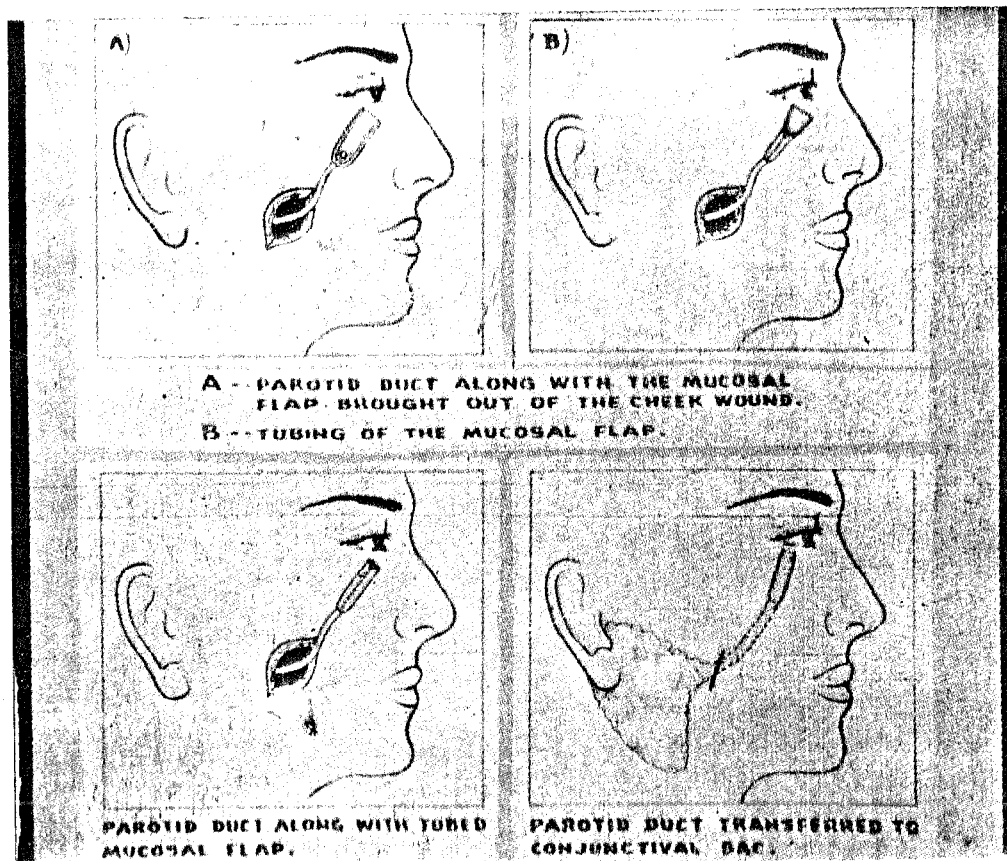


Fig. 2--Showing tubing of the mucosal flap.

Discussion

Problems that may arise after successful transfer of the parotid duct into the conjunctival sac are—

(1) Epiphora

Excess secretions into the conjunctival sac with resultant epiphora is most marked at the meal times. Benett and Bailey (1957)



Fig. 8. Preoperative condition of the eyes showing loss of the lustre of conjunctiva and cornea with severe degree of corneal opacity.

have suggested various procedures, for the management of excessive secretions to the conjunctival sac like gravity drainage of additional secretions by conjunctivo antrorrhinostomy, radiation of parotid gland and denervation of parasympathetic secretory fibers to the parotid gland.

One of our patients had most trouble-

some epiphora after bilateral parotid duct transfer (Fig. 6). Conjunctivo antrorrhinostomy on one side was tried and the patient was completely relieved of epiphora on the operated side (Fig. 8). In our opinion, this procedure seems to be most practical answer to this problem.



Fig. 4. Photograph showing polythene tube in the transferred duct left eye. Right parotid duct transfer done one month before the left.

Radiation of parotid gland seems to be doubtful method. Dosage sufficient to diminish secretions but insufficient to destroy cells result in only a temporary suppression of parotid activity. In our opinion, it is difficult to find out the correct dose of radiation which will diminish the secretion.

The approach to the parasympathetic

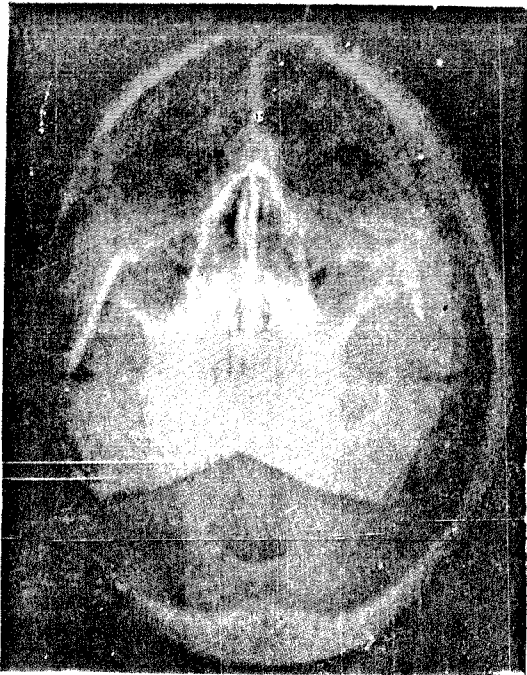


Fig 5—X-ray showing contrast media in the right transferred duct.



Fig. 6—Post-operative photograph after right and left duct transfer showing excessive lacrimation (both eyes).

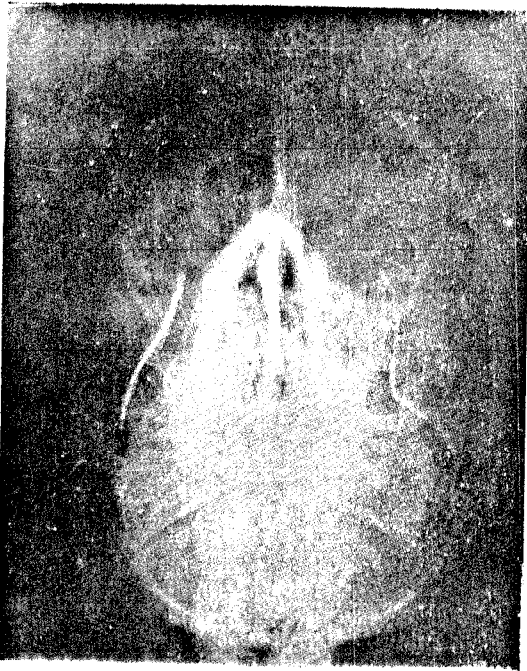


Fig 7—X-ray showing the contrast media in the right and left transferred ducts.



Fig.8—Showing no epiphora in the right eye after conjunctivo-antro-rhinostomy.

fibres of the seventh nerve is most difficult procedure.

(2) **Stenosis of the duct end and cyst formation of tubed mucosa**

This complication is mostly due to the stenosis of the duct near conjunctival sac. In our opinion, this complication can be avoided by keeping polythene tube in the duct at least for a period of two weeks. In the present series, this complication was noticed only in the case where the polythene tube was removed too early.

(3) **Aggravation of entropion of lower eye-lid**

Pre-existing entropion is made worse due to shortness in the length of the parotid duct causing traction. This can be avoided if the duct is lengthened adequately by mucosal tube.

(4) **Complete absence of secretions post-operatively**

In Sjogren syndrome where condition is progressive and the glands are atrophied, parotid secretions may be completely absent if the preoperative assessment is not done carefully. Hence it is suggested that in all cases, selected for Parotid duct transfer,

preoperative study of parotid secretions must be carried out. In one of my cases the secretions were completely absent after 10th post-operative day. Undue traction of the duct due to inadequate length resulting into necrosis and complete stenosis may be the cause of absence of secretions.

Summary and Conclusions

- (1) Parotid duct transfer to the conjunctival sac for dry conjunctiva is practical.
- (2) Eight parotid duct transfers on five patients in 4 years period were carried out and results are presented.
- (3) The length of the duct is short by 1.5 to 2 cm. for successful transfer to the conjunctival sac. The additional length may be gained by tubing the mucosal flap to avoid undue traction on the transferred duct.
- (4) Conjunctivo-antro-rhinostomy seems to be the answer to relieve the patient from most troublesome complications of excessive secretions in conjunctival sac.

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