



The Success Rate of Modified Anterior Flap Technique External Dacryocystorhinostomy at Govt. Medical College and Hospital, Aurangabad

KEYWORDS

Modified anterior flap, dacryocystorhinostomy, osteotomy window, success rate.

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ABSTRACT

This retrospective interventional study was done on 82 patients to present the success rate of modified anterior flap technique external dacryocystorhinostomy at medical college and hospital, who underwent modified anterior flap technique external dacryocystorhinostomy. All surgeries were performed by the same surgeon. All routine investigations including rhinological check up were carried out before dacryocystorhinostomy surgery. Patients were followed up for the period of one year. Patent lacrimal sac was considered as successful result. The mean age of study sample was 39.9 years ranged (9-70 years). The ratio of male to female was 1:2.9. The success rate was 97.5%. Dacryocystorhinostomy failure was reported in 2 patients. This study adds on the usefulness of modified anterior flap technique external dacryocystorhinostomy. It is simpler, easier, less time consuming and assures the best success rate comparable to that of conventional methods in literature.

Introduction:

Tears are secreted by the lacrimal gland with secretory volume of approximately 10 ml per day. Tears pass from the lacrimal lake into the canaliculi through the puncta mainly by capillarity. It is important that the puncta of each lid contact the opposite lid on closure and thereby become physiologically occluded. When the lids separate, capillary draws the tears into empty canaliculi. Tears then flow to the common canaliculus and lacrimal sac. Tears then flow into the inferior meatus of the nose through the effect of lacrimal pump, gravity and to a lesser extent pressure changes within the nose due to respiration. Valves within the drainage system permit only one way flow of tears. Nearly 70% of obstructions occur at the level of junction of sac & nasolacrimal duct. It is found more in females than males due to narrow lumen of bony canal. Obstruction causes stasis of sac contents. The vicious cycle of stasis & mild infection develops into dacryocystitis. Persistent tearing, mucous or mucopurulent discharge from the puncta, chronic conjunctivitis and swelling of the lacrimal sac in the medial canthal area (acute or chronic dacryocystitis) are the symptoms that patient may experience due to nasolacrimal duct obstruction.^(1,2)

The ideal option for the treatment of nasolacrimal duct obstruction is external dacryocystorhinostomy that involves the fistulisation of lacrimal sac into the middle meatus of the nasal cavity .

Toti (1904, Italy) first described the technique of external dacryocystorhinostomy . Dupuy-Dutemps and Baerret (1921, France) described the modern external flap dacryocystorhinostomy technique. ^(17, 18) Since then dacryocystorhinostomy has proved to be a reliable operation for the obstruction beyond the canalicular opening. Numerous modifications in various surgical steps of the original dacryocystorhinostomy procedure have been introduced over

the years for a better surgical outcome without altering its basic concept.

This study presents the surgical outcome and complications encountered with this technique in 82 patients in Government Medical College (tertiary centre)

Materials and methods:

This retrospective interventional study was conducted in tertiary centre from 1st June 2010 to 31 May 2012. Eighty two consecutive cases of chronic dacryocystitis with or without mucocele were selected irrespective of age & sex. Complete history was taken in every case & through clinical examination was conducted. Pre-operative sac syringing was performed in adult cases. External lacrimal fistula and failed dacryocystorhinostomy cases were excluded. A thorough rhinological check up was done to exclude the presence of grossly deviated nasal septum, nasal polyps, hypertrophied turbinates & atrophic rhinitis. All routine investigations including haemogram, bleeding time, clotting time were done. Aspirin & other NSAIDs were stopped prior to surgery. Local antibiotics eyedrops were prescribed 8 days prior to surgery. Nasal decongestant was given 12 hrs prior to surgery. The local ethical review board approved this study. Written & informed consent was taken from the patients undergoing surgery.

Technique of modified anterior flap external dacryocystorhinostomy:

Premedication containing fortwin(pentazocin 1 ml), phenargan(promethazine 1ml) and atropine sulphate 1 ampoule) was given intramuscularly 30 minutes prior to surgery. All surgeries were performed under local anesthesia using sensorcaine, adrenaline & hyaluronidase except congenital cases which were performed under general anesthesia. The skin incision was curved conforming to the anterior lacrimal crest, 2 mm away & medial to me-

dial canthus of eye. It was 20 mm vertical. Four stay sutures were taken for good exposure. The incision was deepened through orbicularis oculi muscle to expose the anterior lacrimal crest & the periosteum. Exposed periosteum was divided at the anterior lacrimal crest in order to enter the lacrimal fossa & gain access to the bony suture between thick maxilla anterior & thin lacrimal bone posterior. A bony ostium of approximately 12x12 mm wide was created in the frontal process of maxilla & lacrimal bone using increasing number of bone punches. Exposed nasal mucosa was excised making window of approximately 10x10 mm. Bleeding from nasal mucosa was stopped by packing the area with gauze soaked in adrenaline for few minutes. The sac was opened on medial wall to create large anterior flap & small posterior flap. Posterior flap of sac was excised. Anterior flap of sac was then sutured to the margin of periosteal cut near the lacrimal crest with 6.0 Vicryl suture. The incision was closed in two layers. Betadine dressing was done. Post-operative systemic antibiotics, analgesics were given for 5 days. Nasal decongestant & topical antibiotics were continued for 15 days. Follow up examination were scheduled on 3rd, 7th, post-operative day. Then 1,3,6 & 12 months from the date of surgery for patency of sac.

Results:

The mean age in this study was 39.9 years ranged (9-70 years). The ratio of male to female was 1:2.9 (table 1). The majority of patients (71.9%) were younger than 50 years of age. In only 2 (2.4%) patients intra-operative haemorrhage was noted due to angular vein rupture, it was ligated and surgery was successfully completed. Suture abscess was noted in 1 (1.2%) patient in which betadine dressing was done and systemic antibiotics were prescribed. This patient had mucoid regurgitation after one month, so sac was explored and removed. Mucopurulent discharge was noted in another 1 (1.2%) patient after 6 months of follow up suggestive of failed dacryocystorhinostomy. There was no case of post-operative epistaxis, orbital haemorrhage, orbital emphysema, CSF leakage in our study. The success rate of this technique was 97.5%

Table: Age and gender distribution

Age group In years	Males		Females		Total	
	No.	%	No.	%	No.	%
1-10	1	1.21	1	1.21	2	2.43
11-20	4	4.87	2	2.43	6	7.31
21-30	6	7.31	13	15.85	19	23.17
31-40	3	3.65	20	24.39	23	28.04
41-50	3	3.65	6	7.31	9	10.97
51-60	3	3.65	13	15.85	16	19.51
61-70	1	1.21	6	7.31	7	8.53
Total	21	25.55	61	74.35	82	100

Complications

In Two cases angular vein was ruptured. Vein was ligated & surgery was successfully completed. Single case got suture abscess after 1 month. Betadine dressing was applied and systemic antibiotics were given. Lacrimal sac was explored & was removed. One case got mucopurulent discharge after 6 months follow up, in which DCT were done.

Discussion:

External dacryocystorhinostomy is highly successful pro-

cedure in managing epiphora due to NLD obstruction^(17, 18). The reported success rate varies between 85% to 99%^(6, 7, 10). However it is not technically easy & it require not only considerable time but also considerable experience. In recent times endoscopic dacryocystorhinostomy & endolaser dacryocystorhinostomy have been gaining popularity over traditional dacryocystorhinostomy owing to advantages of no scar, less tissue damage & less surgery time^(4,5,11,12,13). However these procedures have their own limitations & long term results are lower than external dacryocystorhinostomy⁽¹¹⁾

We had presented the modification of original technique by excision of the posterior flap of lacrimal sac & excision of nasal mucosa. We had sutured anterior flap of lacrimal sac to the margin of periosteal cut near the anterior lacrimal crest. By this technique we avoid adhesions of posterior sutured flap which usually contributes to failure of old dacryocystorhinostomy technique⁽¹⁵⁾. Large nasal mucosa window of this technique helps to maintain patency of lacrimal sac for long time after dacryocystorhinostomy surgery. These results in better post-operative outcome as was reflected in our study i.e. 97.5%. Age and gender distribution of patients in this study generally complies with figures in literature. The surgical technique in this study showed minimal complications⁽⁹⁾. Failed dacryocystorhinostomy was documented in only 2 cases. The success rate is comparable with best results reported in previous studies using different flap technique designs⁽⁶⁻¹⁰⁾. A study by Elwan et al found statistically similar success rate by the end of follow up period of 11 months when comparing excision of posterior flap to posterior flap not fashioned at all⁽⁷⁾. Another study by Kamal Hashim Bennawi et al found similar success rate at the end of follow up one year in anterior single flap technique external dacryocystorhinostomy⁽¹⁰⁾

Conclusion:

This study adds on to the usefulness of modified anterior flap external dacryocystorhinostomy technique. It is simpler and easier to master. It is less time consuming and assures the best success rate comparable to that of conventional methods in literature.

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