



Outcome of Modified Anterior Flaps Anastomosis Technique of External Dacryocystorhinostomy

KEYWORDS

Dacryocystorhinostomy, surgical technique, anastomosis of flaps, external, success rate.

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ABSTRACT

Aim- To evaluate the success rate of modified anterior flaps anastomosis technique of external dacryocystorhinostomy.

Methods – Retrospective interventional study was done on eighty patients who underwent modified anterior flaps anastomosis technique of external dacryocystorhinostomy. In this surgical technique, anastomosis of anterior flaps was created by suturing anterior flaps of lacrimal sac and nasal mucosa whereas posterior flaps were excised. All surgeries were performed by the same surgeon. All routine investigations including thorough rhinological check up were carried out before dacryocystorhinostomy surgery. Patients were followed up for period of one year. Patency of lacrimal sac was considered as a successful result.

Results – The mean age in this study was 39.47 years (ranged 15 to 70 years). The ratio of male to female was 1:3. Dacryocystorhinostomy failure was reported in 3 patients. The success rate of modified anterior flaps anastomosis technique of external dacryocystorhinostomy was 96.25%.

Conclusion- This technique of external dacryocystorhinostomy with anterior flaps anastomosis simplifies the surgical procedure. It is effective in the management of obstruction of lacrimal drainage system beyond the common canalicular opening. It is easier and simpler to master. This procedure showed a success rate comparable with those found in traditional external dacryocystorhinostomy.

Introduction:

Nasolacrimal duct obstruction is one of the commonest diseases affecting the lacrimal drainage system. Nearly 70% obstructions occur at the level of junction of lacrimal sac and nasolacrimal duct. It is found more in females due to narrow lumen of bony canal. The symptoms due to nasolacrimal duct obstruction include persistent tearing, mucous or mucopurulent discharge from the lacrimal puncta, chronic conjunctivitis and swelling of lacrimal sac in the medial canthal area (acute or chronic dacryocystitis) ^(1,2,17). External dacryocystorhinostomy remains the choice of surgery for nasolacrimal duct obstruction. Dacryocystorhinostomy involves the creation of an alternative route for drainage of tears between lacrimal sac and nasal cavity bypassing the nasolacrimal duct. This is usually performed either by an external approach ^(5, 7, 8, and 9) or through nasal cavity using endoscope (endonasal dacryocystorhinostomy) ^(15, 16). The external dacryocystorhinostomy technique was originally described in 1904 by Toti ⁽¹²⁾ and subsequently modified by Dupuy-Dutemps by the addition of suturing of nasal and lacrimal mucosal flaps in order to form an epithelium-lined fistula ⁽¹¹⁾. Since then dacryocystorhinostomy has proved to be a reliable operation for the obstruction beyond common 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 ^(3, 4, 6, and 7). Several case series have estimated the success rate of external dacryocystorhinostomy to be between 85 % to 95 %. This study presents the surgical outcome and complications observed with modified anterior flaps anastomosis technique of external dacryocystorhi-

nostomy in eighty patients.

Materials and methods:

This retrospective study was conducted from January 2008 to December 2012 at SBH Government Medical College, Dhule and Government Medical College and hospital, Aurangabad. Eighty consecutive cases of chronic dacryocystitis with or without mucocele were selected irrespective of age and sex. Complete history was taken in every case and thorough clinical examination was conducted. Pre-operatively lacrimal sac syringing with antibiotics was performed in each case. External lacrimal fistula, congenital dacryocystitis, failed dacryocystorhinostomy and cases with nasal pathology were excluded from the study. A thorough rhinological check up was done to exclude the presence of grossly deviated nasal septum, nasal polyps, hypertrophied turbinates and atrophic rhinitis. All routine investigations including bleeding time, clotting time, haemogram was done. Aspirin and other non steroid anti-inflammatory drugs (NSAIDS) were stopped prior to the surgery. Local antibiotics eye drops were given eight days prior to the surgery. Nasal decongestant was given twelve hours prior to the surgery. All surgeries were performed by same surgeon. The ethical board of Government Medical College and hospital, Aurangabad approved this study. Informed and written consent was taken.

Technique of modified anterior flaps anastomosis in external dacryocystorhinostomy :

Premedication containing fortwin (penta-

zocine 1 ml), phenargan (promethazine

hydrochloride 1ml) and atropine sulphate 1 ampoule) was given intramuscularly 30 minutes prior to surgery. All surgeries were performed under local anesthesia using sensorcaine, adrenaline and hyaluronidase. The skin incision was curved conforming to the anterior lacrimal crest, 2 mm away & medial to medial canthus of eye. It was 20 mm vertical. Mullers's self retaining retractor was used for good exposure. The incision was deepened through orbicularis oculi muscle to expose the anterior lacrimal crest and the periosteum. Exposed periosteum was divided at the anterior lacrimal crest in order to enter the lacrimal fossa and gain access to the bony suture between thick maxilla anterior & thin lacrimal bone posterior. A bony ostium of approximately 15x15 mm wide was created in the frontal process of maxilla and lacrimal bone using increasing number of bone punches. Exposed nasal mucosa was incised to create large anterior flap and small posterior flap. Bleeding from nasal mucosa was stopped by packing the area with gauze soaked in adrenaline for few minutes. Lacrimal sac was opened on medial wall to create large anterior flap and small posterior flap. Posterior small flaps of sac and nasal mucosa were excised. Then anterior flap of lacrimal sac was sutured to anterior large flap of nasal mucosa with 6.0 vicryl suture. Gel foam was used to form space. Patency of lacrimal sac was tested on table. The incision was closed in two layers. Betadine dressing was done. Nasal cavity on operated side was packed with gauze soaked in liquid paraffin. Post-operative systemic antibiotics, analgesics were given for 5 days. Nasal decongestant and topical antibiotics eye drops were continued for 15 days. Follow up examination were scheduled on 3rd, 7th, post-operative day. Then 1, 3, 6 and 12 months from the date of surgery for patency of lacrimal sac.

Results:

The mean age in this study was 39.47 years (ranged 15 to 70 years). Male to female ratio was 1:3. (table 1). The majority of patients (71.25%) were between 21 to 50 years of age. Severe intra-operative bleeding occurred in 3 patients (3.75%) due to angular vein rupture. The vein was ligated and surgeries were successfully completed. After 3 months follow up 2 patients (2.5%) had symptom of epiphora. After 6 months follow up another 3 patients (3.75%) had symptom of sticky discharge. Lacrimal sac syringing with antibiotics was performed 3 times in a week for a week in 5 patients who had symptoms of epiphora and sticky discharge. This led to cessation of symptoms in 2 (2.5 %) patients leaving only 3 patients (3.75%) with persistent mucoid discharge suggestive of failed dacryocystorhinostomy. The success rate of modified anterior flaps anastomosis technique of external dacryocystorhinostomy was 96.25%

Table1. Age and gender distribution

Age group	Males		Females		Total	
	No.	%	No.	%	No.	%
1-10	0		0	0	0	0
11-20	4	5	1	1.25	5	6.25
21-30	6	7.5	13	16.25	19	23.75
31-40	4	5	23	28.75	27	33.75
41-50	3	3.75	8	10	11	13.75
51-60	3	3.75	10	12.5	13	16.25
61-70	0	0	5	6.25	5	6.25
Total	20	25	60	75	80	100

Discussion:

Age and gender distribution of patients in this study generally complies with figures in literature. The surgical outcome of modified anterior flaps anastomosis technique of external dacryocystorhinostomy showed very less complications. Epiphora was resolved in two patients by simple sac syringing with antibiotics. Persistent mucoid epiphora was documented in three patients suggestive of failed dacryocystorhinostomy. These cases might be failed due to occlusion of new tract by granulation tissue or by adhesions which is drawback of dacryocystorhinostomy⁽⁵⁾. The success rate is comparable with best results reported in previous studies on external dacryocystorhinostomy^(4,6,7,8,9). Possible complications of dacryocystorhinostomy are hemorrhage, wound sepsis, surgical emphysema, cerebrospinal fluid (CSF) leakage, and recurrence of epiphora⁽⁵⁾. Except recurrence of epiphora, no other

complications occurred in this study. Two cases showed cessation of epiphora after doing sac syringing with antibiotics. Three cases were not resolved even after doing sac syringing with antibiotics. Although suturing of both anterior and posterior flaps reduces mucosal scarring by edge to edge approximation of tissues, it is very difficult and takes considerable amount of time and success rate is low as comparable with variations in the mucosal flaps design^(3,4,6,7,13,14). Many options have been described for management of posterior flaps. Posterior flaps can be anastomosed, excised or not fashioned at all. 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 flaps to posterior flaps not fashioned at all⁽⁴⁾. Another study by Kamal Hashim Bennawi et al found similar success rate at the end of follow up period of one year in anterior single flap technique external dacryocystorhinostomy⁽⁷⁾. Similar study by Kacaniku G et al found same success rate after 17 months follow up in anterior flaps anastomosis in external dacryocystorhinostomy⁽¹³⁾. In our technique due to suturing of flaps there is less chance of collapse and adhesion of sac walls. This offers very attractive alternative to well established conventional technique of external dacryocystorhinostomy for management of chronic dacryocystitis. It is simple and easier technique to master and shows a success rate comparable to old procedures.

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