



COMPARATIVE STUDY BETWEEN FLAP PRESERVATION AND FLAP REMOVAL TECHNIQUE IN ENDOSCOPIC DACROCYSTORHINOSTOMY

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ABSTRACT **Background:** Dacrocystorhinostomy is a surgical procedure that perform in ephiphora due to nasolacrimal duct obstruction with the event of nasal endoscope endoscopic DCR has come in existence and now days it is preferable over external dcr due to cosmetic reasons, although both procedure have comparable success rate, endoscopic dcr is helpful in avoiding scar in face and also avoid injury to near by structure. there also preservation of lacrimal pump, direct visualization of rhinostomy site, improve hemostasis from mucosal surface, in over study in endoscopic dcr we used flap preservation and flap removal technique and finally we compared results ,outcome , complication in both techniques

Material & Methods: A prospective analytical longitudinal study was conducted from sep 2018 to oct 2019 in the dept. of ent jhalawar medical college raj. Total 50 case taken for surgery .in 25 case flap preservation and in 25 flap removal technique is used. finally we compared the results.

Results: in our study after complete discussion we conclude that flap preservation technique is better than flap removal technique. Success rate is good compared to flap removal technique. post operative granulation formation is less in flap preservation technique and rhinostomy sit well mucosalized in flap preservation technique.

KEYWORDS :

INTRODUCTION

Dacrocystorhinostomy [DCR] is a surgical procedure that perform in ephiphora due to nasolacrimal duct obstruction [NLD]. With the event of nasal endoscope endoscopic DCR has come in existence and now a days it is preferable over external DCR due to cosmetic reasons. although both procedure have comparable success rate. endoscopic DCR is helpful in avoiding scar in face and also avoid injury to near by structure. There also preservation of lacrimal pump, direct visualization of rhinostomy site, improve hemostasis from mucosal surface. various studies have shown the success rate of endoscopic DCR at around 93%, also having short duration of surgical procedure and safe comparative to external DCR. Endoscopic DCR was first describe by Caldwell. several modalities and adjunct such as Kerrison punch, power drill, laser has been described in endoscopic dcr with the aim of improving operating technique, success and reducing complications.

A preliminary study of 50 case of endonasal endoscopic dcr performed in department of otorhinolaryngology in JHALAWAR MEDICAL COLLEGE by two technique 25 patients is operated in flap preservation [posterior based] and 25 patient is operated by flap removal technique than we compared the outcome and result.

MATERIALS AND METHODS

A prospective analytical, longitudinal study was conducted from September 2018 to October 2019 in the department of otorhinolaryngology jhalawar hospital and medical college JHALAWAR RAJASTHAN. All the cases were diagnosed clinically by external examination and palpation of medial canthus and endoscopic examination of nasal cavity, syringing, diagnostic probing and irrigation of lacrimal sac to check patency of nasolacrimal pathway ruling out presacral [canalicular and common cannalicular] obstruction.

1. SYRINGING were performed in every case prior to surgery to identify to level of obstruction
2. x ray PNS were performed in every case to rule out associated sinusitis
3. CECT PNS were performed in few case to detect associated anatomical or pathological conditions.
- 4 All routine and specific investigation required for General anaesthesia were done.

Operative Technique

All the case were operated under general anesthesia after written consent using a 0 degree 4mm endoscope, nasal cavities were packed with cotton soaked in decongestant solution [4 amp adrenaline mixed with 30 ml of 4% lignocaine [LOX 4%] for a period of about 10-15 minute. any anatomical abnormalities present was corrected first. septoplasty done in 7 cases, removal of concha bullosa in 3 cases, to make the enough space at operating site.

Injections were also given containing 2% lignocaine with adrenaline [1:2 lac] over the lateral wall in the vicinity of the axilla and anterior to the uncinate process.

To avoid trauma of neighbouring tissue, the rectangular incisions of nasal mucosa are made using a scalpel blade no. 15 and nasal mucosal flap must include the periosteum. A posterior based c shaped mucosal flap of about 1 to 1.5 cm is created using a suction elevator 1cm above the axilla of the middle turbinate and run forward by 1 cm than the blade is turned vertically and 1.5 cm [second] incision is made downwards. The blade is then turned posteriorly and a 1cm horizontal [third] incision is made for posterior based flap procedure. By reflecting [25 patients] or completely excising [25 patients] the mucosal flap, the lacrimal bone and the adjoining part of frontal process of maxilla are exposed.

The appropriate and adequate exposer of lacrimal fossa can be confirmed by plain forceps. tip of one flange of forceps is kept over the lacrimal sac area from outside, such that the other flange is placed inside the nose over the lateral wall.

The tip of intranasal flange will correspond to the area of the lacrimal fossa. The thin lacrimal bone can be easily elevated off with a freer elevator or removed with a forceps. Kerrison punch used for bone removal at lacrimal fossa and exposed to entire medial wall of the lacrimal sac.

The sac is made bulge medially by irrigating with saline. medial wall of the sac is incised with blade no 11/sickle knife.

In 25 cases we repositioned mucosal flap to cover the exposed bone but care is taken to prevent the mucosa from overlapping the newly created nasolacrimal fistula region.

In remaining 25 cases we removed the entire mucosal flap and leave the exposed bone bared.

Syringing was done through the lower punctum and the free flow of saline was established. no stent or mitomycin c used in our surgery. hemostasis is achieved and nose is packed by merocele. that removed after 24 hrs.

AIMS AND OBJECTIVES

Compared The Postoperative Results And Outcome In Flap Preservation And Flap Removal Technique In Endoscopic Dacryocystorhinostomy [endo DCR].

Post Operative Care

patients usually started on intravenous antibiotics, intravenous fluids, intramuscular analgesics eye drop ciprofloxacin for first few[two]days. than patients is discharge with advised of oral antibiotics, saline nasal irrigation, oral antihistamics, oral anti inflammatory for first 7 days. saline nasal douche for 3 weeks .nasal cavity is cleared of all clots and crusts on second post operative day by anterior rhinoscopy /nasal endoscopy in out patient department, after removing the nasal pack, lacrimal syringing is performed in every followup through lower punctum patients are generally to be reviewed in the out patient department at 1st week,4thweek,and 3 month after surgery. Nasal endoscopy is performed in these visits to remove any crust in the nasal cavity and to confirm the patency of the nasolacrimal fistula by direct visualizing the flow of saline during lacrimal syringing.

During follow up patient were checked for anatomical and functional success of operation. During follow up nasal cavity was inspected and patency of tract was checked by syringing. few our case there was obstruction of the tear flow with failed syringing at 3 months follow up because of presence of fibrosis, excessive granulation formation and scarring resulting from underlying bare bone at rhinostomy site due to inadequate mucosal approximation, crusting between lateral nasal wall and middle turbinate. patients was called to the OT and fibrous tissue and crust were removed establishing the patency of the tract. In further follow up there was no obstruction in tear flow.

S.N.	NAME OF PATIENT	AGE/SEX	SITE	TECHNIQUE[FLAP PRESER./FLAP REMOVAL]
1.	Payal	18yr/f	Rt	Flap preservation
2.	Geeta bai	65yr/f	Lt	Flap removal
3.	chandarkala	35yr/f	Rt	Flap preservation
4.	Kalu lal	55/m	Rt	Flap removal
5.	Sunita	32/f	Rt	Flap preservation
6.	Nirmal kanwar	62/f	Lt	Flap removal
7.	Bhuri bai	36/f	Lt	Flap preservation
8.	Prem bihari	60/m	Rt	Flap removal
9.	Nandu bai	35/f	Lt	Flap preservation
10.	Shanti bai	50/f	Lt	Flap removal
11.	Sheela	40/f	Rt	Flap preservation
12.	Krishna	48/f	Lt	Flap removal
13.	Bhagwati	28/f	Rt	Flap preservation
14.	Kusum	45/f	Rt	Flap removal
15.	Ramkala	65/f	Lt	Flap preservation
16.	Tulsi bai	35/f	Rt	Flap removal
17.	Karma	24/m	Rt	Flap preservation
18.	Sumitra	18/f	Rt	Flap removal
19.	Shantaram	75/f	Lt	Flap preservation
20.	Durgesh	18/m	Lt	Flap removal
21.	Seeta bai	37/f	Rt	Flap preservation
22.	Kamala bai	45/m	Lt	Flap removal
23.	Bali bai	25/f	Rt	Flap preservation
24.	Kazodi bai	43 /f	Lt	Flap removal
25.	shakila	56 /f	Rt	Flap preservation
26.	mumtaj	42/f	Rt	Flap removal
27.	kiran	26/f	Rt	Flap preservation
28.	Moolchand	59/m	Lt	Flap removal
29.	meena	47/f	Rt	Flap preservation
30.	Daulat bai	67/f	Lt	Flap removal
31.	Janki bai	44/f	Rt	Flap preservation
32.	Rajulal	37/m	Rt	Flap removal
33.	rukshar	43/f	Lt	Flap preservation

34.	shabana	51/f	Rt	Flap removal
35.	gobrilal	46/m	Rt	Flap preservation
36.	urmila	69/f	Lt	Flap removal
37.	shakuntala	43/f	rt	Flap preservation
38.	tarranum	19/f	lt	Flap removal
39.	Kamala bai	71/f	rt	Flap preservation
40.	Sohan bai	58 f	rt	Flap removal
41.	nafisha	64/f	lt	Flap preservation
42.	Lakhan singh	74/m	rt	Flap removal
43.	Laxminarayan	69/m	lt	Flap preservation
44.	arif	39/m	rt	Flap removal
45.	farzana	62/f	lt	Flap preservation
46.	Prem bai	60 /f	lt	Flap removal
47.	Ratanlal	41/m	lt	Flap preservation
48.	Shanti bai	66/f	lt	Flap removal
49.	surajmal	54 /m	rt	Flap preservation
50.	koshalaya	33/f	lt	Flap removal

FOLLOW UP

In our study we performed follow up at 1wk ,3wk,6wk, 3 month, and at 6 month in follow up we reported

- 1.symptoms[epiphora]or failure
- 2.swelling over medial canthus or failure
- 3.Nasal endoscopy
 - Condition of stoma
 - Granulation formation
 - Flap over laping
 - Synechia formation
 - Nasal obstruction

On the basis of final of 6 th follow up we prepared result as given in table.

OBSERVATION

Table 1 :- Age Wise Distribution Of Patients

S.N.	AGE[yr]	No.of patients	% of patients
1	0-20	4	8%
2	21-40	15	30%
3	41-60	19	38%
4	61-80	12	24%
5	>80	0	0%

Table 2 :- Sex Wise Distribution Of Patients

S.N.	SEX	NO.OF PATIENTS	%OF PATIENTS
1	MALE	13	26%
2	FEMALE	37	74%
3	TOTAL	50	100%

Table 3 :- Site Wise Distribution Of Patients

S.N.	SITE[Rt or Lt]	No.of patients	%of patients
1	Rt	27	54%
2	Lt	23	46%
3	Total	50	100%

Table 4 :- Technique Wise Distribution Of Patients

S.N.	Technique	No of patients	% of patients
1	Flap preservation	25	50%
2	Flap removal	25	50%
3	Total	50	100%

Table 5 :- Rhinostomy Site On Nasal Endoscopy And Patency On Syringing [During Follow Up] Wise Distribution Of Patients.

S.N.	Rhinostomy site	1wk	4wk	3 month
1	Well muosalized	39	42	43
2	Granulations	11	8	7
3	Patent	48	45	45
4	Partially blocked	1	3	2
5	Blocked	1	2	3

Table 6:-Result After 3 Month.

S.N.	RESULTS	Flap preservation [technique]	Flap removal [technique]
1	Well mucosalized	23	20
2	Granulations	2	5
3	Patent	23	22
4	Blocked [failure]	2[8%]	3[12%]
5	%of success	92%	80%

DISCUSSION

Over the past decade endoscopic dcr has proved itself to be safe and effective technique for treatment of nasolacrimal duct obstruction. Traditionally, DCR is done externally with its potential complication like unwanted external scar and failure. Failure is mainly attributed to the closure of the intranasal stoma created by surgery, the presence of cutaneous scar, potential for injury to medial cantal structures, cerebrospinal fluid rhinorrhea, and functional interference with the physiological action of the lacrimal pump are but few of the disadvantages of this procedure. postoperative morbidity including periorbital bruising, epistaxis, and late failure have led to the search for a less invasive approach to the operation. Caldwell in 1893 described the first intranasal DCR since then, many variations and modification the technique are described by different authors but with each modification the complexity of the surgery increase. With the growth of using endoscopic procedures along with better understanding of the lateral nasal wall anatomy, endonasal DCR became the preferred approach for performing DCR. the development of the endonasal DCR surgery has many advantages over the traditional external approach. however, the endoscopic approach avoids the morbidity of a facial incision. furthermore, endoscopic techniques have the potential to reduce patients morbidity through improved intraoperative hemostasis, greater utilization of local anaesthesia, and shorter hospitalization as compared with conventional techniques. many modification of the original procedure were developed along with the process of development and refinement of surgery and are reported throughout the world with different success rates. Some of the modifications that were described include various mucosal flap technique, marsupialization, application of mitomycin C, suturing of flaps using fibrin glue, using laser, using powered instruments and microdebrider, with/without uncinectomy, with stents, without stents etc. As the use of nasal endoscope has greatly increased the surgical field vision, DCR has safer operation and it became easier to do post operative assessment of the ostium to ascertain the ostium patency. the minimum invasiveness of the procedure has made the procedure applicable during acute condition too. the feasibility of the endonasal approach has been such that even such surgery done under direct vision using laser has been described. The use of stents causes granulation formation, add extra cost and increases patient discomfort. The gel foam patch used to secure the flap prevented the need of nasal packing.

In this study we compared result in flap preservation and flap removal technique.

Table 1 showed the age related incidence of case maximum case appeared in the age group 41-60[38%] followed by age group 21-40[30%] age group 61-80[24%] age group <20[8%].

Table 2 show sex wise distribution of case. maximum case reported in female sex 37 case[74%] male 13[26%].

Table 3 Rt ephiphora case 27[54%] and Lt ephiphora case is around 23 case[46%].

Table 4 show total case 50 is operated. 25 operated by flap preservation and 25 flap removal technique.

Table 5 show the rhinostomy site after 3 month of surgery. rhinostomy site well mucosalized in 43 case[86%] and granulation found in 7 case[14%] also the patency after 3 month by syringing after 3 month Patent 45[90%], partially blocked 2[4%] and blocked 3[6%].

Table 6 show result comparison in both technique after 3 month

Well mucosalized FP/FR, 23/20, 92%/80%.

Granulations FP/FR, 2/5, 8%/20%

Patent FP/FR, 23/22

Failure FP/FR, 2/3, 8%/12%

Success FP 92%, FR 80%

CONCLUSION

Endoscopic DCR has become the preferred surgery for NLD obstruction. In our study after complete discussion we concluded that flap preservation technique is better than flap removal technique. Success rate is good compared to flap removal technique, post operative granulation formation is less in flap preservation technique and rhinostomy site is well mucosalized in flap preservation technique. When closure of the opening is a concern, the following points are good preventive factor against such complication.

1. wide opening of the stoma [approx... 1 cm]
2. well healed marsupial ostium.
3. lesser chances of osteitis as the bone are well covered with mucosa.
4. less crusting.
5. No chances of accident closure of adhesion in immediate post operative period as no fibrin glue is used.

Harvinders, rosalinds et al. in their study with mucosal flap achieved a success rate of 91.66%. these results are better than many other endoscopic technique and those describe for conventional external DCR techniques as more otolaryngologist and ophthalmologist become trends in the endoscopic DCR it is likely that this approach will become the most commonly utilized technique for the treatment of patients who present with ephiphora and dacryocystitis from nasolacrimal duct obstruction. with the advancement in surgical techniques and better understanding of the nasal anatomy, endonasal DCR has become more defined and the success rate have risen. This affect combined with the advantage of a minimal access surgery and the avoidance of external scar, endonasal DCR is a better surgical option for treatment of NLD obstruction. This new technique of removing the medial lacrimal wall and mucosa flush with the borders of each other has given equivalent 200% surgical success in treating the obstruction.

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DR ARUN PATEL

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