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Clinical Study on Surgical Outcomes of Endoscopic Endonasal Dacryocystorhinostomy (DCR) Technique with and without the Use of Silicon Stent Intraoperatively

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Abstract:
Background: *To Study the surgical outcomes of Endoscopic Endonasal Dacryocystorhinostomy (DCR) technique with and without the use of silicon stent intra operatively.*
Materials and Methods: *This is a combined retrospective and prospective study to evaluate the different causes of recurrence of epiphora in a case of endonasal DCR operation.*
Results *– Out of 40 cases of Endoscopic endonasal DCR 34 (85%) cases were successful and only 6 (15%) cases were failure.*
Conclusion *– Endoscopic Endonasal DCR with stent is a safe and minimally invasive procedure as it is a direct approach to the sac and no other structure is to be dissected.*
Key words*: epiphora, dacryocystitis, dacryocystorhinostomy, lacrimal stent.*

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I. Introduction

Epiphora is a common annoying symptom, embarrassing to the patient both socially and functionally and may even endanger the eye[7]. A watery eye is common complaint among ophthalmic patients. Among patients attending eye clinics, between 3-4% complain of excessive tears. It is in contradiction to lacrimation which occurs due to excessive tear production.

II. Aims and Objectives

To Study the surgical outcomes of Endoscopic Endonasal Dacryocystorhinostomy (DCR) technique with and without the use of silicon stent intra operatively.

III. Materials and Methods

This is a combined retrospective and prospective study to evaluate the different causes of recurrence of epiphora in a case of endonasal DCR operation. The study was conducted at Government ENT hospital, Osmania Medical College, Hyderabad, from September 2016 to September 2017, in which 40 patients were taken for study.

The study group consisted of 40 patients of both sex and above 20 years of age with having symptoms and signs suggestive of nasolacrimal duct blockage. All the cases and controls were randomly selected and included as the study groups. For each case one control was selected by matching the age, sex,symptoms and signs of nasolacrimal duct blockage.

- **Inclusion criteria:** All the new and revision cases of chronic dacryocystitis coming to out patient department of Government ENT hospital, Koti who were healthy and non immunocompromised.
- **Exclusion criteria :** Patients with any intraorbital (or) sinonasal tumours

Methods of study: 40 Patients of either sex complaining of epiphora, discharge from the eye, swelling in the medial canthus of the eye and obstruction to the flow of water on syringing were taken for evaluation. All the cases fulfilling the inclusion and exclusion criteria were selected for the study.

IV. Observation and Results

This is a combined retrospective and prospective study to evaluate the different causes of recurrence of epiphora in a case of endonasal DCR operation..In our study of 40 cases, 20 (50%) cases belongs to epiphora, 6 (15%) epiphora with swelling, 7 (17.5%) epiphora with discharge, 7 (17.5%) with epiphora and swelling had

been noted. 50%(20) of patients presented early in the course of the disease, out of 40 cases of Endoscopic endonasal DCR 34 (85%) cases were successful and only 6 (15%) cases were failure.

TABLE 1`: AGE DISTRIBUTION OF CASES IN GROUP A

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Age in years	No. of cases	Percentage
20-30	4	20%
31-40	15	75%
41-50	1	5%
51-60	0	0%
61-70	0	0%

In the present study 40 patients were enrolled as study population, Among all study population, the youngest age was 23yrs and oldest was 50yrs. In the present study, 20 patients were included as cases in Group A. And 20 patients were included as controls in Group B. Most of the patients were in the age group of 31-40 yrs (75%).

TABLE 2: AGE DISTRIBUTION OF CONTROL IN GROUP B

Age in years	No. of cases	Percentage
20-30	7	20%
31-40	11	75%
41-50	2	5%
51-60	0	0%
61-70	0	0%

TABLE 3: GENDER DISTRIBUTION (GROUP-A)

Sex	No. of Cases (n=20)	Percentage (%)
FEMALE	19	95%
MALE	1	5%
TOTAL	20	100%

In our study of 40 patients,3 4 (85%) were females and 6 (15%) were male patients Among the cases 19 (95%) were female and 1 (5%) was a male patient.

TABLE 4: Sex Distribution of Controls (GROUP-B)

Sex	No. of controls (n=20)	Percentage
FEMALE	15	75%
MALE	5	25%
TOTAL	20	100%

Among the controls 15 (75%) were females and 5 (25%) were males.

Side affected	No. of Cases (n=20)	Percentage
LEFT	12	60%
RIGHT	8	40%
TOTAL	20	100%

LATERALITY- TABLE 5: Side affected in Cases

In this study out of 20 cases, left side was affected in 12 (60%) patients and right side was affected among 8 (40%) cases. This shows that left side was more affected than the right side.

TABLE 6: Side affected In Controls

Side affected	No. of Controls	Percentage
LEFT	15	75%
RIGHT	5	25%
TOTAL	20	100%

Among all the controls left side was affected among 15 (75%) and right side was affected among 5 (25%) patients.

OCCUPATION: TABLE 7: Occupation of all Patients

Occupation	No. of patients (n =40)	Percentage
COOLIE	21	52.5%
HOUSE WIFE	16	40%
STUDENT	2	5%
WATCHMAN	1	2.5%

.According to the Kuppuswamy Socio-economic classification most of the patients belonged to lower (class V) and upper lower (class IV) families who lack in their cleanliness and scrupulousness in maintaining their eyes clean.

PRESENTING COMPLAINTS: TABLE 8: Presenting Complaints

Clinical feature	No. of cases	Percentage
Epiphora	20	50%
Epiphora with swelling	6	15%
Epiphora with discharge	7	17.5%
Epiphora with swelling and discharge	7	17.5%
TOTAL	40	100%

In our study of 40 cases, 20 (50%) cases belongs to epiphora, 6 (15%) epiphora with swelling, 7 (17.5%) epiphora with discharge, 7 (17.5%) with epiphora and swelling had been noted. 50%(20) of patients presented early in the course of the disease

TABLE 9: Nature of Regurgitant Fluid

Regurgitant Fluid	No. of Patients (N=40)	Percentage
Mucopurulent	33	82.5%
Purulent	5	12.5%
Clear fluid	2	5%
Total	40	100%

In our case study of 40 patients, the highest number of patients with mucopurulent discharge were 33 (82.5%), followed by purulent discharge 5 (12.5%).and clear fluid was seen among 2 (5%).

TABLE 10: CAUSES OF FAILURE IN ENDO DCR WITH STENT

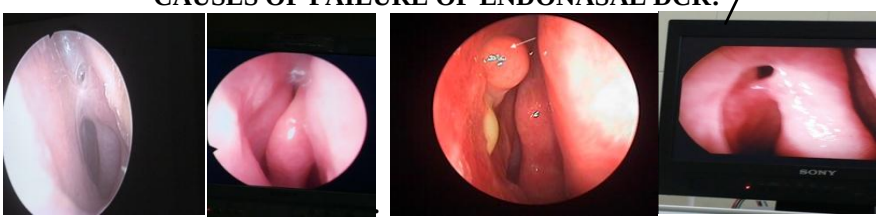
Causes of failure	No. of cases
Failure in identifying lacrimal sac	0
Inadequate sac opening	0
Insufficient osteotomy and bony spicules	0
Contracture at rhinostomy site	0
Granulation tissue	1
Synechiae	0

Out of 20 cases of post endoscopic endonasal DCR with stent only 1 (5%) case was a failure which was due to granulation tissue formation around the stent.

TABLE 11 : Causes of failure In Controls Without Stent

Causes of failure	No. of Controls
Failure in identifying lacrimal sac	1
Inadequate sac opening	1
Insufficient osteotomy and bony spicules	0
Contracture at rhinostomy site	0
Granulation tissue	2
Synechiae	1

CAUSES OF FAILURE OF ENDONASAL DCR:



Synechiae **contracture** **granulation tissue** **Dns with synechiae**

ASSOCIATED NASAL SURGERY: TABLE NO 12 : Intranasal Pathology Correction

Nasal Surgery	No. of Cases (N=40)	Percentage
SEPTOPASTY	7	17.5%
FESS	5	12.5%
NONE	28	70%
TOTAL	40	100%

Out of 40 patients 12 patients had associated intranasal pathology corrected. Out of 12 patients 7(17.5%) patients had septoplasty and 5 (12.5%) patients had FESS surgery done simultaneously along with endoscopic DCR.

TABLE 13: RESULTS AFTER 6 MONTHS

	Objective analysis		Subjective analysis	
	PATENT	NON PATENT	RELIEVED	NOT RELIEVED
Endo DCR with stent	95%	5%	95%	5%
Endo DCR without stent	75%	25%	75%	25%

V. Discussion

Watering of eye (epiphora) is a troublesome symptom for both patients and doctors. Even though various causes produce epiphora, dacryocystitis is the commonest pathological cause for epiphora[1]. Chronic dacryocystitis is treated with dacryocystorhinostomy.

Chronic dacryocystitis though a common problem of lacrimal drainage system[3], treated much efficiently in recent years with advances in investigative and operational technique pertaining to solve the problems associated with it, yet we face failure in some cases of endonasal DCR.

The purpose of the study was to compare between endo DCR with stent and endo DCR without stent, and revise the surgery to improve the drainage of lacrimal apparatus. In our study 40 cases of chronic dacrocystitits were taken randomly and evaluated for the cause of failure of endoscopic DCR and to evaluate the long term comparative success rate of Endonasal DCR with and without silicon stent placements at GOVT ENT HOSPITAL, Hyderabad, between August 2015 to October 2017.

AGE DISTRIBUTION:

In the present study, most of the patients were in the age group 31-40 yrs (72.5%). The youngest was 23 years old and the oldest was 62 years old. There was a declining trend towards both extremes of age. This may be due to the fact that the amount of lacrimal secretion is less in extremes of age[6]

SEX DISTRIBUTION:

In our study female constituted 34 (87.5%) male constituted 6(12.5%) male:female was found to be 1: 5.6.

LATERALITY:

In the present study most of the cases present with the disease affected on the left side (27%) compared to right side (13%). It is observed that nasolacrimal duct and lacrimal sac formed a greater angle on right side than left side[32]. It increases the chances of stasis and obstruction of nasolacrimal duct and sac on left side.

OCCUPATION:

In our series of study majority of the patients belonged to poor and low middle class families who lack in their cleanliness and scrupulousness in maintaining their eyes clean. CDC is less common among people of urban areas with middle class to rich class, who take maximum hygienic measures to maintain their eyes clean.

PRESENTING COMPLAINTS:

In our study of 40 cases, 20 (50%) cases belongs to epiphora, 6 (15%) cases epiphora with swelling. 7 (17.5%) cases epiphora with discharge, 7 (17.5%) cases with epiphora and swelling had been noted.

SAC SYRINGING:

In our case study of 40 patients, the highest number of patients with mucopurulent discharge were 33 (82.5%), followed by clear fluid were 2 (5%) and purulent were 5(12.5%).

CAUSE OF FAILURE:

In this study of 40 cases the cause of failure in Group A was only in 1 case was due to granulation tissue formation around the stent. The cause of failure in Group B was due to failure in locating lacrimal sac was in 1 case, inadequate sac opening in 1 case, granulation tissue formation was in 2, synechiae was in 1 case.

False localization of the lacrimal sac, granulation tissue formation, retained bony spicules, inadequate removal of the medial wall of the sac and the synechiae between the lateral wall and the middle turbinate are the most common causes of failure.

RESULT AFTER 6 MONTHS:

TABLE 14 : RESULTS AFTER 6 MONTHS

	Objective analysis		Subjective analysis	
	PATENT	**NON PATENT**	**RELIEVED**	**NOT RELIEVED**
Endo DCR with stent	95%	5%	95%	5%
Endo DCR without stent	75%	25%	75%	25%

Overall success rate after 6 months in group A (endo DCR with stenting) and group B (endo DCR without stenting) is 95% and 75% respectively.

VI. Conclusions And Summary

Endoscopic Endonasal DCR with stent is a safe and minimally invasive procedure as it is a direct approach to the sac and no other structure is to be dissected.

1. Endoscopic Endonasal DCR with stent has the potential to reduce patient morbidity through greater utilization of local anaesthesia, shorter hospitalization period.
2. .Endoscopic DCR with stent is a low complication technique that yields good esthetical-functional results.
3. Endoscopic DCR requires formal training and steep learning curve.
4. Endoscopic Endonasal DCR with stent is an effective treatment for patients who have failed primary endoscopic DCR.
5. The use of endoscopic instrumentation provides excellent visualization for identification and treatment of the common causes of failure of the primary procedure.
6. Most common causes of failure of endonasal DCR with stent are granulation tissue formation, synechiae formation, failure to identify the lacrimal sac.
7. Under endoscopic guidance nasal anatomy is understood directly, managed accordingly, sac is approached directly under vision and so at the time of surgery result is known.
8. Regular follow-up is necessary in the post operative period.

References

[1]. Metson R. Endoscopic surgery for lacrimal obstruction. Otolaryngology Head-Neck Surgery 1991;104:473-79.
[2]. Duke Elders S. Disease of lacrimal passages; system of ophthalmology. Vol. XIII part-II, Mosby Publication, 1974, 675-724pp.
[3]. Sihota R, Tandon R. Parsons' Diseases of the Eye. 20th Ed. New Delhi: Butterworth Heinemann Elsevier India; 2007. p.446-447.
[4]. Thawley SE. The otolaryngologist-ophthalmologist relationship: an historic perspective. Otolaryngology Clinics of North America. 2006;39(5):845-53.
[5]. Caldwell G. Two new operations for obstruction of the nasal duct, with preservation of the canaliculi, and with an incidental description of a new lachrymal probe. Am J Ophthalmology. 1893;10:189-93.
[6]. Singh M, Jain V, Gupta SC, Singh SP. Intranasal endoscopic dacryocystorhinostomy in cases of dacryocystitis. Indian Journal of Otolaryngology and Head and Neck Surgery 2004 Jul;56(3):117-82.
[7]. Jacob basil H. Symptomatic Epiphora. Br J of ophthamology 1959;43:415-34.

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