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CROSS SECTIONAL STUDY OF SUCCESS RATE OF EXTERNAL DACRYOCYSTORHINOSTOMY SURGERY WITH AND WITHOUT INTUBATION STENT USAGE IN A TERTIARY CARE HOSPITAL

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ABSTRACT Dacryocystorhinostomy is widely considered as the standard treatment due to chronic nasolacrimal duct obstruction (NLDO). These procedures include standard external Dacryocystorhinostomy (DCR), non-laser endonasal endoscopic DCR (EN-DCR), and endonasal endoscopic laser DCR (LA-DCR)1. However external DCR is considered as the gold standard surgical method in the treatment of NLDO. Our study describes a comparative study of success rates of external DCR surgery, wherein 30 patients each were included for with and without silicone tube intubation usage respectively. The results showed a higher success rate (90%) in outcome of external DCR surgery using silicone tube intubation as compared to that without its usage (80%). Therefore, this study was aimed to shed further light on EX-DCR surgery using intubation stents. The study also helps in shedding light on better post-operative management and obtaining higher success rates in case of EX-DCR surgery.

KEYWORDS : Dacryocystorhinostomy, Silicone stent, nasolacrimal duct

INTRODUCTION: -

Excessive lacrimation due to obstruction of the nasolacrimal duct apparatus is termed as epiphora. This obstruction occurs primarily at two levels: -

(i) Proximal- where the common canaliculus enters the lacrimal sac and

(ii) Distal- where the nasolacrimal duct (NLD) enters the inferior meatus (dacryocystorhinostenosis).

Dacryocystorhinostomy is widely considered as the standard treatment due to chronic nasolacrimal duct obstruction. It is cheap, the learning curve is short, the success rate is high and doesn't require high technology instruments[2]. The main indications for external DCR are clinically significant epiphora in the presence of nasolacrimal duct obstruction, chronic conjunctivitis in the presence of nasolacrimal duct obstruction, dacryocystitis, and dacryoliths in lacrimal sac causing periodic episodes of nasolacrimal duct obstruction. Other causes of nasolacrimal duct obstruction include lacrimal sac tumours, nasal and facial fractures involving the nasolacrimal canal. The earliest surgery that would be called or resembled as a modern external DCR was attempted by Woolhouse in England in the 18th century.

Many surgeons prefer the use of stents to maintain lacrimal patency in the immediate post-operative period till epithelialization of the new tract has occurred. Reports in literature regarding the use of stents in external DCR have been conflicting. Stents made of Polyethylene can also be used. The use of stents is indicated especially in revision cases or complicated cases where an otherwise narrow or traumatised passage might be expected to occlude during healing. In most cases, the healing is complete within 2 months and therefore many advocate keeping stent for 5-6 months after which it can be removed.

MATERIALS AND METHODS:

The data on Patients undergone EX-DCR surgery with and without silicone intubation stent usage (30 Each) at the Department of Ophthalmology between 2017-2019 was recruited. Patients of all age groups, belonging to either gender were included. However, patients previously operated for DCR and those with canalicular block were excluded. Pre-operative Status, perioperative data and post-operative findings at the end of 6 weeks were analyzed with ophthalmic clinical examination and lacrimal sac syringing. Post-operative assessment with lacrimal sac syringing was carried out 6 weeks post operatively. Patients having constant epiphora were termed as failure of EX-DCR.

RESULTS:

In this study of 60 Patients, the data obtained was analysed and is as follows: -

AGE AND GENDER DISTRIBUTION

Table 1

Age range (in years)	No. of patients	Percentage
0-10	1	1.66
11-20	1	1.66
21-30	2	3.33
31-40	4	6.66
41-50	8	13.33
51-60	20	33.33
61-70	20	33.33
71-80	3	5.00
81-90	1	1.66

Table 2

Gender	NO. of patients
Male	33
Female	27

Success Of EX- DCR Surgery In Patients With Intubation Stent Usage

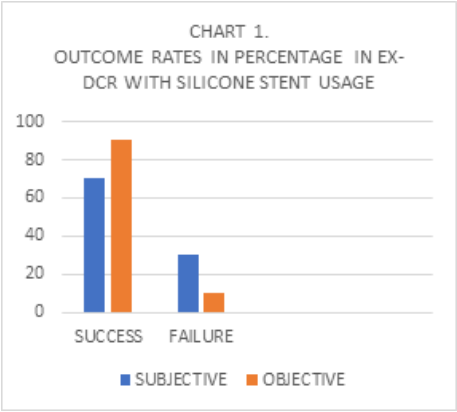
Out of the 30 patients in which the usage of silicone intubation stent was done, 27 patients were found to have patent lacrimal sac, while 3 patients showed partial blockage of lacrimal sac during their 6-week post-operative visit.

9 patients out of the 30 gave complaints of epiphora, while the rest 21 were asymptomatic.

Thus, the symptomatic success was achieved in 21 patients (70% success rate), while objective success was achieved in 27 patients (90% success rate).

Table 3 and CHART 1(post op Ex-DCR with silicone intubation stent)

Patients with	Sac patent	Sac blocked
Epiphora	7 (23.33%)	2 (6. 66%)
No Epiphora	20 (66.66 %)	1 (3.33%)



Success Of EX- DCR Surgery In Patients Without Intubation Stent Usage

Out of the 30 patients WITHOUT usage of silicone intubation stent, 24 patients were found to have patent lacrimal sac, while 6 patients showed partial blockage of lacrimal sac during their 6-week post-operative visit. 12 patients out of the 30 gave complaints of epiphora, while the rest 18 were asymptomatic. Thus, the symptomatic success was achieved in 18 patients (60% success rate), while objective success was achieved in 24 patients (80% success rate).

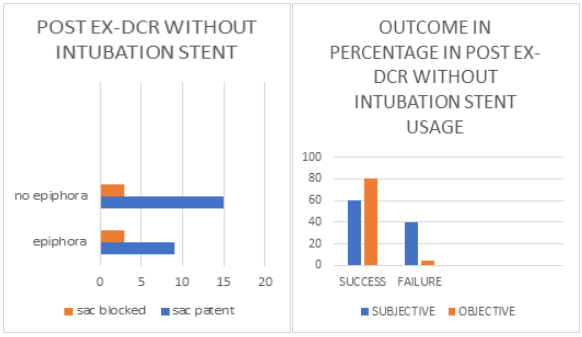


CHART 2. (post op Ex-DCR without silicone intubation stent)

Prevalence of Success of EX-DCR surgery was Calculated by using formula:-

$$\frac{\text{Successful surgery patients}}{\text{Total patients undergone surgery}}$$

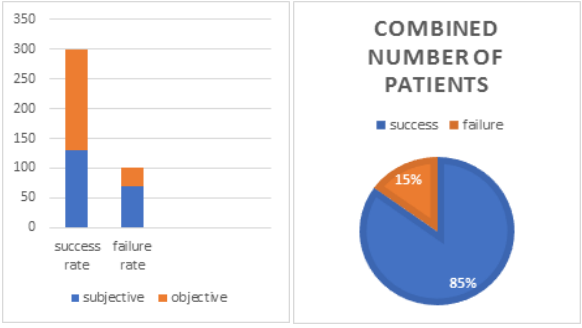


CHART 3. Combined statistical data of subjective and objective outcomes in all patients

DISCUSSION:-

In 2011, a previous meta-analysis[3] regarding DCR with and without a silicone tube for the treatment of nasolacrimal duct obstruction reported equal success rates between DCR with and without intubation. Rather and Singh[4] also conducted a large, randomized controlled trial and demonstrated that silicone intubation in DCR prevented the closure of the ostium, thereby enhancing the success rate of DCR.

In our study, 60 patients having undergone Ex-DCR surgery were included, 30 each for with and without the silicone intubation stent usage. The mean age of the included patients was 54.89 years, thereby stating that there was no predilection to a particular age group. Various studies have indicated that females suffer more from dacryocystitis as compared to males[5]. Our study showed somewhat similar trends with 33 patients being female and 27 being male. In the present study, 36 (60%) patients were operated for the right eye, while the remaining 24 (40%) had been operated for left eye. There were no bilaterally operated cases observed. Thus, it can be assumed that unilateral obstruction due to chronic dacryocystitis is much commoner as compared to bilaterally. The study showed a success rate of 90% in patients with silicone stent intubation as compared to 80% success rate in those without silicone intubation. Thus, the statistics are in accordance with previous mentioned studies that usage of silicone intubation stents does have a positive impact on increasing the success rate of EX-DCR surgeries by aiding in the patency of the lacrimal sac. Odds ratio (prevalence odds ratio) calculated was greater than 1, indicating that success rate is better with the usage of silicone intubation stent. However, this result may be attributable to the fact that small sample size was taken into consideration as the study being a cross sectional study in a tertiary care hospital, and also the fact that only point prevalence could be calculated as the study was cross sectional in nature. The subjective success rate also was found to be more in patients with silicone intubation stent (70%) as compared to (60%) in those without the stent. However, the possibility may be explored by doing larger population-based studies across the country. The opinion that the silicone tube itself may stimulate tissue granulation was controversial. *Unlu et al*.[6] suggested that silicone intubation as a foreign inorganic material may predispose the patient to granulation formation with subsequent rhinostomy closure. The ostial size reduction has been reported by *Longari et al*. in higher percentage in the stent group, mainly due to peristomal granuloma, scar tissue formation, and turbinoseptal synechia[7].

CONCLUSION:

Of the 9 patients who had failed sac syringing test, 2 also showed positive regurgitation on pressure over lacrimal sac area. Both belonging to patients not having silicone stents. Such failed DCR surgeries were sent to otolaryngologist for further evaluation. This might strengthen the fact that silicone stent helps in epithelial track formation and thereby maintaining lacrimal sac patency.

Thus, it is reasonable to conclude that the usage of silicone stents in Ex-DCR is definitely a viable alternative in treating chronic dacryocystitis.

REFERENCES:

1. Caldwell GW. Two new operations for obstruction of the nasal duct, with preservation of the canaliculi and an incidental description of a new lacrimal probe. N Y Med J 1893; 57:581-582.
2. Li D, Ding J. Whether external Dacryocystorhinostomy will be abandoned. Zhongua Yan Ke Za Zhi. 2014;50(8):566-8.
3. Feng YF, Cai JQ, Zhang JY, Han XH. A meta-analysis of primary dacryocystorhinostomy with and without silicone intubation. Can. J. Ophthalmol. 2011; 46:521–527. doi: 10.1016/j.jcjo.2011.09.008.
4. Rather S, Singh T. External dacryocystorhinostomy with & without silicon tube intubation in chronic dacryocystitis with nasolacrimal duct block. JK Sci. 2013; 15:24–27.
5. Berryhill, Bruce H, Dorenbusch, A.A. and NC Charlotte- Twenty years' experience with intranasal transseptal dacryocystorhinostomy, April 1982; Vol 92 379-381
6. Unlu HH, Toprak B, Aslan A, Guler C. Comparison of surgical outcomes in primary endoscopic dacryocystorhinostomy with and without silicone intubation. Ann. Otol. Rhinol. Laryngol. 2002; 111:704–709. doi: 10.1177/000348940211100809.
7. Longari F, et al. Endoscopic dacryocystorhinostomy with and without silicone intubation: 4 years retrospective study. Eur. Arch. Otorhinolaryngol. 2016; 273:2079–2084. doi: 10.1007/s00405-015-3876-2.