The Professional Medical Journal
www.theprofesional.com

https://doi.org/10.29309/TPMJ/2021.28.07.6148

ORIGINAL PROF-0-6148

Post-operative outcomes of endoscopic dacrocystorhinostomy without intubation at holy family hospital, Pakistan.

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Article received on:
14/10/2020
Accepted for publication:
24/12/2020

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ABSTRACT... Objective: This study aims to present the outcomes of the patients who underwent endoscopic dacryocystorhinostomy (DCR) without intubation at a tertiary care hospital. **Study Design:** Observational Study. **Setting:** Holy Family Hospital, Rawalpindi, Pakistan. **Period:** October 2018 to November 2019. **Material & Methods:** Endoscopic dacryocystorhinostomy operation was performed in a total of 52 patients presenting with chronic epiphora. Silastic tubes were not used to maintain the patency. Patients were prescribed antibiotic eye drops, oral painkillers, decongestant eye drops, and regular nasal douches. **Results:** Fifty patients (96.2%) presented with successful post-operative outcomes on the 12th week for follow-up. Post-operative canal patency was evaluated by endoscopic examination and syringing. Patients were also evaluated for the presence of epiphora. **Conclusion:** Our results of 52 patients who underwent endoscopic DCR without stenting are as promising as those with stenting. Hence, the procedure without intubation is recommended.

Key words: Dacrocystitis, Dacryocystorhinostomy (DCR), Intubation, Nasolacrimal Duct, Pakistan.

Article Citation: Ayub N, Ashfaq AH, Akash H, Khan MS, Arshad M, Faisal MJ. Post-operative outcomes of endoscopic dacrocystorhinostomy without intubation at holy family hospital, Pakistan. Professional Med J 2021; 28(7):1008-1012. https://doi.org/10.29309/TPMJ/2021.28.07.6148

INTRODUCTION

The operative procedure of creating a lacrimal drainage pathway to enhance or facilitate the flow of the previously obstructed excreting system is termed as Dacrocystorhinostomy (DCR).[1] DCR may be performed by an endoscopic approach and an external approach, both of which have their implications, indications, and post-operative success rates.[2] The indications for the operation mainly include nasolacrimal duct obstruction (NLDO). NLDO may manifest in two forms, i.e primary acquired nasolacrimal duct obstruction (PANDO) and secondary acquired nasolacrimal duct obstruction (SANDO).[3] The causative reasons for NLDO include congenital (PANDO) and; idiopathic, traumatic, iatrogenic, lithiasis and infection (SANDO).[4]

Endoscopic DCR has gained popularity in recent years, though external DCR remains the gold standard and as the operative procedure of choice. However, success rates of both vary according to surgeon skills, demographics of the patients, and post-operative compliance, hence success rates ranging between 63% and 93% in various studies have been reported.[5,6]

Using endoscopic DCR technique in this study, we tried to re-evaluate results for solely endoscopic DCR.

Adding further, results of using silicon intubation along with endoscopic DCR have been inconclusive according to the results of two widely conducted meta-analysis.[7] Different school of thoughts have either endorsed or negated the use of silicon tubes, with some claiming that it hampers the fibrous closure in the postoperative period, while some claim that their use predisposes to infection, increased tissue granulation and adhesions.[8-11] Hence, the aim of this study was also to re-evaluate whether patency of the nasolacrimal passage is maintained without the use of tubes, hence evaluating it for a cost-

benefit analysis in a low socio-economic setup such as that of Pakistan.

MATERIAL & METHODS

This prospective, longitudinal, interventional case series was conducted over 13 months, from October 2018 to November 2019. The total number of patients enrolled for the endoscopic procedure was 52 during the given time frame. Before the initiation of the study, a permission grant was obtained from the Institutional Research Forum of Rawalpindi Medical University.

Patients who presented with the complaint of epiphora to the Department of Ear, Nose, and Throat were evaluated for their symptoms by an ophthalmologist and an ENT specialist initially. Cases with primary or secondary nasolacrimal duct obstruction were considered. Clinical examination and laboratory investigations were done to identify associated factors, diseases and to rule out any contraindications for surgical procedures. If the patient was found to be having an active infection, antibiotics (Amoxicillin with Clavulanic Acid) were prescribed along with close follow-up. Besides the complete examination of ear, nose, and throat, the patients had a complete examination of eyes by a specialist for ectropion, lid laxity, lacrimal puncta abnormalities, tumors, etc. Syringing and probing were the key diagnostic investigations for identifying a case of NLD obstruction. The exclusion criteria included children less than fifteen years, patients with canalicular or punctual obstruction, ectropion, lower lid laxity, lacrimal sac tumor, patients previously operated for NLD obstruction, or cases with co-morbidities deeming them as medically unfit for surgical procedures.

The procedure of Endoscopic DCR was performed under general anesthesia, with an injection of Lignocaine with Adrenaline in the lateral wall of the nose. 30 degrees Endoscope was used to visualize the nasal cavity. Initially, an incision was made in the lateral wall of the nose, the flap was raised, the bony crest was removed using Rongers, the lacrimal sac was exposed, a vertical incision was given, and was opened in its full length. Finally, the nasal mucosa was approximated with that of the lacrimal sac mucosa. Silastic tubes were not placed during the procedure.

Post-operative instructions to the patients included the usage of painkillers (Diclofenac Sodium), antibiotics (Amoxicillin with Clauvilinic acid), decongestant topical drops (Xylometazoline), regular nasal douches, proper hygiene maintenance, regular follow-up and preventive measures to ensure early healing. Patency of the ducts and presence of epiphora was checked by syringing and 0-degree endoscopic examination at 3rd, 4^{th,} and 6th month. Outcomes were classified as patent and non-patent. Follow-up compliance was ensured by regular reminders given to the cases through mobile calls, ensuring efficient and fast follow-up appointments, and effectively addressing the patient's complaints.

RESULTS

The total number of participants that were included in the study was 52 in number, with each participating patient having a pathology in a single eye, hence a total of 52 eyes were involved. The age distribution of the participants is given in Table-I.

Parameter	Age in Years
Mean	36.6
Standard Deviation	13.3
Maximum Value	70
Minimum Value	13

Table-I. Age distribution of the study participants.

Of the 52 participants, 18 (34.6%) were males while 34 (65.4%) were females. There was no predominance of involvement of a particular side, as 26 (50%) patients, each presented in each of the categories of right and left-sided eye. The patients presenting to the department had a history of infection, which varied in frequency, as shown in Table-II.

During the per-operative clinical examination of the discharge, 26 (50%) patients presented with mucopurulent discharge while 26 (50%) presented with purulent discharge. The type of

discharge varied with the number of infections the patient had, (P=<0.001), as shown in Table-III.

Eye Infection in Past 1 Year		
	Frequency	Percent
no infection	12	23.1%
<3	23	44.2%
3-6 episodes	17	32.7%

Table-II. Eye Infection in Past 1 year.

Discharge	Eye Infection In Past 1 Year		
	No Infection	<3	3-6 Episodes
Mucopurulent Discharge	12	13	1
Purulent Discharge	0	10	16

Table-III. Cross Tabulation between the type of discharge and history of infections.

The patients were also evaluated for post-operative progress in terms of the presence of epiphora and patency as shown in Figure I and Figure II respectively. The results show that 50 (96.2%) patients had a patent nasolacrimal system and negative epiphora from 12 weeks onwards, while only 2 (3.8%) had blocked nasolacrimal ducts and positive epiphora which remained as they were by the end of 24 weeks of follow-up showing no improvement.

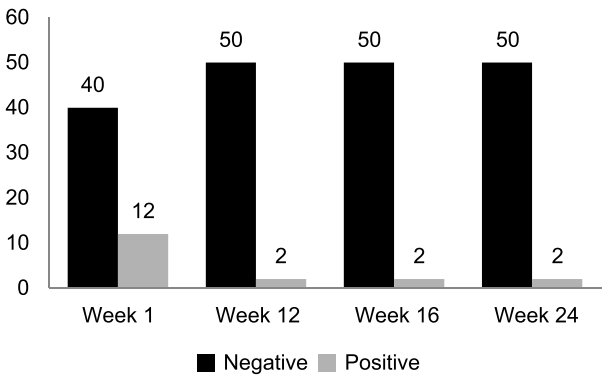

Figure-1. Presence of epiphora in the postoperative follow-up period.

DISCUSSION

Endoscopic DCR has now been regarded as the gold standard procedure in the treatment of NLD obstruction and has surpassed External DCR due to many of its advantages such as no scar marks, decreased bleeding, reduced operative time, preservation of medial canthal ligament, reduced post-operative healing time and shortened hospital stay.[12-15]

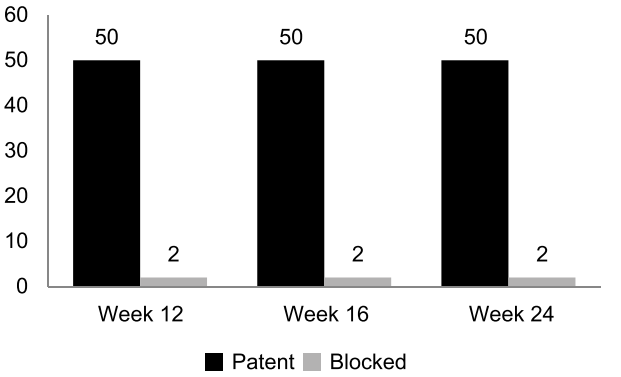

Figure-2. Patency of NLD in the postoperative follow-up period.

As a result, external DCR rules out as a non-preferable surgical procedure considering the wide advantages endoscopic DCR has comparatively.

However, the question of whether the usage of silicon tubes leads to long term benefit remains unrequited. According to a meta-analysis done by Kang MG et al, endoscopic DCR with intubation had an overall success rate of 92.9% while without intubation it was 91.2%[7], while the success rates of endoscopic DCR without intubation in our study were 96.2%, which are higher.

In Pakistan, a study followed the same surgical methodology as ours and reported success rates of 92%, which were relatively less than ours.[16] However, a cohort study conducted Gujranwala in 2013 reports a comparison of 80% success rate without intubation and 92.5% with intubation.[17] Similarly, research conducted at Khyber Institute of Ophthalmic Medical Sciences in 2005 reported 95% success rates without intubation and 97.5% success rates with intubation, however, results were statistically not significant.[18] The current study, Endoscopic DCR without intubation, yielded results of 96.5% which are close to the results achieved in the above studies where intubation was performed.

A study conducted in Turkey, however, yielded opposite results, with surgical success without intubation in 94.7% of candidates, but with

intubation 84.2%.[10] Similar results were reported by another study where procedures without intubation have greater post-operative success.[19] Hence, concluding to the notion that results vary across different studies. The question that remains unanswered is whether intubation is necessary or not?

CONCLUSION

With success rates reaching almost the same as those with intubation, our set-up would well sustain on conducting endoscopic DCR without intubation considering a variety of factors at hand. Firstly, intubation is relatively costly and puts a strain on finances. Adding further, the procedure gets technical, per-operative time increases, there is a chance of extrusion and displacement, patients complain of infection, irritation and uncomfortable sensation, and lastly, a strict follow-up is required. Considering all these factors, and the close proximity of our results to studies using intubation, we recommend Endoscopic DCR without intubation in an economically burdened setup.

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