ORIGINAL RESEARCH PAPER
Volume-9 | Issue-5 | May-2020 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

SYRINGING & PROBING AS INITIAL SYMPTOMATIC TREATMENT OF EPIPHORA IN ADULTS WITH PRIMARY ACQUIRED NASO LACRIMAL DUCT OBSTRUCTION

Ophthalmology

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ABSTRACT

Epiphora due to primary acquired nasolacrimal duct obstruction describes an entity caused by inflammation without any precipitating cause. Our aim was to assess the efficacy of syringing & probing as the initial symptomatic treatment of epiphora in adults with primary acquired NLDOs. Among 108 eyes from 90 patients, results were calculated after a mean follow up of 7.4 months. 57.4% of the eyes had an outcome of no watering, 15.7% mild watering, 0.9% moderate watering, 25.9% severe watering. The patients satisfaction in terms of symptomatic improvement in epiphora was 73.18%, which is significant. There was a significant difference(Chi-square = 59.772 ,P < 0.001) in the symptom-free period between the no watering and severe watering groups. Syringing &Probing for treating epiphora in adults is highly recommended as an initial treatment for symptomatic relief in primary acquired NLDOs because of its relatively good efficacy, simplicity of procedure and high patient satisfaction without compromising subsequent surgical treatment .

KEYWORDS

Nasolacrimal duct obstruction, epiphora, syringing & probing

Introduction:
Epiphora due to primary acquired nasolacrimal duct obstruction describes an entity of nasolacrimal duct obstruction caused by inflammation or fibrosis without any precipitating cause[1]. It accounts for the majority of NLDOs found in adults. The clinical spectrum of epiphora ranges from the occasionally bothersome trickle to the chronically irritating overflow. The secondary causes of nasolacrimal duct obstruction may be idiopathic, congenital, infectious, cicatricial, involutional, neoplastic, traumatic or iatrogenic. In primary acquired NLDO's, it is postulated that inflammatory debris accumulated due to ineffective drainage results in possible occlusive fibrosis of the nasolacrimal system (NLS) causing obstruction and subsequent epiphora[2-3].In this study the efficacy of syringing & probing as an initial symptomatic treatment for epiphora in adults with primary acquired nasolacrimal duct obstruction was investigated.

Materials and Methods:
Patients aged 18 or older, of either sex, with chief complaint of epiphora was investigated over a period of 2 years in the Dept. of Ophthalmology, SMS Medical College, Jaipur. All patients had symptomatic epiphora and blockage of the lacrimal system confirmed on initial diagnostic syringing. Patients were excluded if they had congenital epiphora, stenosis or obstruction of the canaliculi, acute dacryocystitis, lacrimal sac mucocele, tumour of the lacrimal sac, foreign body, intranasal disease, abnormal punctal apposition, eyelid deformities, and history of previous local trauma or surgical intervention.

From the 126 eyes which met the study criteria, 7 eyes with an unknown outcome were excluded, 11 patients did not keep minimum required follow up were also excluded. This study is based on the remaining 108eyes (64 right NLS and 44 left NLS) from 90 patients; 70 patients had unilateral and 19 patients had bilateral NLDO. The patients were assessed for detailed history, slit lamp examination of eyelids, lacrimal puncta position, and the absence of discharge or pus formations.

The risks and benefits of the procedure were explained and informed consent was obtained from each patient. The efficacy of syringing &probing was investigated on all patients who met the study criteria and whose blockage of the lacrimal system confirmed on initial diagnostic syringing . The procedure was carried out under topical anesthesia with 0.5% proparacaine and 4% xylocaine. Following punctal dilation, probing was done through the upper canaliculus with a Bowman probe (No.1) which was advanced in the lacrimal sac and was pushed towards the nasal cavity with a gentle pressure. After the probing, irrigation with saline solution was done to test the patency of the lacrimal passages. After the procedure, ciprofloxacin 0.3% eye drops QID and nasal decongestant drops BID were prescribed for one weeks

All syringing & probings were performed by the same surgeon. Patients were followed up at 1 week then 1,3,6,12 months.

The result of post-syringing&probing epiphora was graded into four groups: Grade0 (no epiphora, patent lacrimal system on syringing & probing), grade1 (decreased epiphora, patent lacrimal system), grade2 (relatively decreased epiphora , nasolacrimal duct found not patent on probing), grade3 (epiphora resisting as before probing, nasolacrimal duct not patent on probing).

Procedure was arbitrarily judged to be a success if there was no watering for at least 6 months following the procedure or if lacrimal patency was confirmed with lacrimal probing & syringing i.e grade0 and 1 were considered successful and grade 2 and 3 considered unsuccessful.

Patient satisfaction with the procedure was also determined. If the epiphora was present, patients were asked if this was tolerable or not. Special attention was paid to the length of time free of symptoms (symptom-free period).

Syringing &probing were repeated on the 3rd month follow up if the patient showed patency of NLD at first probing with symptomatic improvement but developed recurrence on subsequent follow up. Patient's follow-up time and complications of probing, if any, were recorded.

Ethics: Permission taken from institutional ethical committee.

Statistics: Statistical analysis was done using SPSS software version 23.

Results: Out of the 108 eyes from 90 patients, which met the study criteria, there were 56 female, 34 male and the mean age was 45.06+-11.08 (range 20- 71). NLDO was seen on the right side in 64 cases, on the left side in 44 cases, and bilaterally in 19 cases. There were no significant age and sex ratio differences between patients of the different outcome groups (that is, no watering, mild, moderate, and severe watering). 72.2% of the nasolacrimal ducts in this study group were patent following the probing& syringing procedure. The mean follow up time of patients was 8.5 (range 6-12) months. Sixty two eyes (57.4%) had an outcome of no watering (grade0) and 17 (15.7%) were mild watering (require dabbing less than twice a day,grade1). The clinical success rate of the procedure was of 73.18% in terms of symptomatic relief from epiphora as either completely relieving or resulting in only mild watering. One case (0.9%) had an outcome of moderate watering (grade3) and 28 eyes (25.9%) still suffering of severe watering (epiphora requiring dabbing >10 times a day,grade4) after the procedure (Table & fig 1 &2). Of the 17 patients with mild watering (i.e group2), on follow up, all of them (100%) describe their symptoms as tolerable. In patients with moderate and severe watering,

100% and 25% describe their symptoms as tolerable, respectively (Table Fig.1 & 2). 80.55 % of the patients felt that their symptoms of watering had improved after procedure, reflecting patient satisfaction. Figure 2 show the mean symptom free period in the eyes after probing for each of the groups. There was significant difference (Chi-square = 59.772, P < 0.001 (S) in the symptom free period between the no watering and severe watering groups. No statistical significance was found between the others groups. The mean time to perform the procedure was 5 minutes. Out of the 85 procedures carried out ,temporary lid swelling and redness after probing and irrigation was seen in three cases, five patient complaints of mild pain and one had slight bleeding during the procedure. There were two cases of postoperative complications consisting of epistaxis, the complication rate for probing in this study was 1.9%(Table3). Twenty six of the 108 eyes (10.5%) subsequently required a dacryocystorhinostomy (DCR), all of these eyes were in the outcome group of severe watering.

Table 1– Outcome and Tolerability

Outcome	N (%)	Tolerable	Not tolerable
No watering	62 (57.4%)	-	-
Mild watering	17 (15.7%)	17 (100%)	0
Moderate watering	1 (0.9%)	1(100%)	0
Severe watering	28 (25.9%)	7 (25%)	21 (75%)
Total	108 (100%)	25	21

Chi-square = 17.037 with 3 degrees of freedom; P < 0.001 (S)

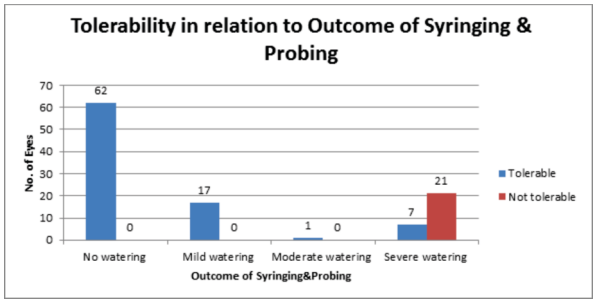

Fig 1

Table 2 : Outcome of Syringing &probing in relation to duration of epiphora

Duration of Epiphora	Outcome- watering after probing			Grand Total
	no	Mild/ moderate	severe	
< 6 months	43 (91.4%)	2 (%4.3)	2 (4.3%)	47
6–11 months	17 (40.5%)	14 (33.3%)	11 (26.2%)	42
≥12 months	2 (10.5%)	2 (10.5%)	15 (79%)	19
Grand Total	62	18	28	108

Chi-square = 59.772 with 4 degrees of freedom; P < 0.001 (S)

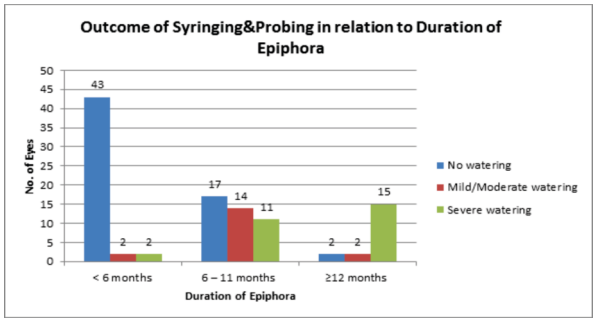

Fig 2

Table3 Complications after Syringing & probing

Complication	N	percentage
SLIGHT BLEED	1	0.9
EPISTAXIS	2	1.9
MILD REDNESS, SWELLING	3	2.8
NIL	97	89.8
PAIN	5	4.6
Total	108	100.0

Discussion:

Epiphora due to obstruction of the nasolacrimal system is the most common lacrimal drainage system pathology. It is more common in middle-aged and elderly females. 62.2% of the patients were females in our study group. Epiphora caused by nasolacrimal duct obstruction is surgically treatable. There are various treatment options available for NLDO obstruction. These include procedures like probing, dilation with balloon catheterization, metallic or plastic stents, silicone tube stenting (monocanalicular, bicanalicular), external and internal dacryocystorhinostomy[4].

The external DCR is the most successful mode of treatment for NLDO, still a 21% failure rate after the primary external DCR has been reported by several authors [5-7]. Also complications of DCR are high, including intraoperative problems such as haemorrhage, trauma, loss of nasal mucosa, CSF leak and postoperative problems such as haemorrhage, infections,acute dacryocystitis, tube complications (granuloma formation), and a skin scar.[8-10] Endoscopic DCR is another option for the treatment of NLDO. Its success rates greatly varies and may be complicated by nasal bleeding, nasal mucosal scarring, granuloma, osteotomy-nasal septal adhesion, and damage to the orbital contents.[11,12] Also it is expensive and necessitates experienced surgeons, and has failure rates of 18-20%[13-15].

Other treatment options include silicone tube intubation with success rates of 53 to 60%.[16-19] , but various complications have been reported with this method in 8-29% of the cases[20-26]. Kashkouli and associates[27] compared monocanalicular versus bicanalicular intubation for NLD stenosis in adults and found no difference in the success rates (61.5 vs. 59%, respectively). In addition, during catheter placement or removal, canalicular damage, localized inflammation, and edema may occur[28-30].

Balloon catheter dilatation with and without intubation is another method for NLD stenosis and yielded success rates between 53 and 68%.[30-33] Kashkouli and associates[34] compared endoscopically assisted balloon dacryocystoplasty and silicone intubation with silicone intubation alone in adults, and found no difference in the outcome between the two treatment methods (61 vs. 54%). Balloon dacryoplasty procedure is simple but failure and recurrences rates are high[30].

Syringing &probing is a simple outpatients procedure, easily performed in adults with epiphora. It is done under local anaesthesia with minimal trauma to surrounding tissues .[35,36] There are various published reports on this procedure in literature[37,38] . Probing and irrigation was shown to have limited success in approximately 50% of the adult patients with NLD stenosis.[4] Bell reported a 75% subjective success rate with a six months follow-up after probing as a treatment for epiphora[4].Guinotsaera and Koay[39] stated that NLDO and symptomatic epiphora patients had a symptomatic improvement of 82% with the first probing. Mirza et al[40] showed symptomatic improvement of 69.44% with the first probing and 77.78% with the second probing.

In our study group, 72.2% of the NLDs were found patent following the probing & syringing procedure. Sixty two eyes (57.4%) had an outcome of no watering (grade0) and 17 (15.7%) were mild watering (require dabbing less than twice a day,grade1). The clinical success rate of the procedure was 73.18% in terms of symptomatic improvement in epiphora i.e either completely relieving or resulting in only mild watering. 80.55 % of the patients felt that their symptoms of watering had improved after probing, reflecting patient satisfaction with the procedure.

Our study confirms that a considerable proportion of epiphora in primary acquired adult NLDO cases are treatable with this simple and cost effective method and decreases the requirement for DCR and other treatments which are more invasive and are associated with a greater risk of complications and often involve general anaesthesia.

Conclusion:

In conclusion, syringing & probing , as an initial procedure, is very promising for symptomatic treatment of epiphora in adults with primary acquired NLDO in which watering is the only symptom, especially in older patients and those who are poor candidates for surgery and does not compromise the patient for further nasolacrimal surgery.

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