

To Determine the Efficiency of Probing in Partial Nasolacrimal Duct Obstruction (NLD) in Adults

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ABSTRACT

OBJECTIVE: To determine the efficiency of probing in partial nasolacrimal duct obstruction (NLD) in adults.

STUDY DESIGN: Prospective study.

PLACE AND DURATION OF STUDY: Department of Ophthalmology unit 1, Dow University of Health Sciences, Civil Hospital Karachi from January 2006 to July 2011.

METHODOLOGY: This study includes 340 patients complaining of watering of the eye for more than 6 months duration from partial NLD obstruction. Eye examination was done to exclude other causes of watering. ENT opinion was taken to exclude nasal pathology. Risk and benefits of probing were explained to all patients and their written consent was taken. Probing was done in operation theatre under aseptic conditions in local anaesthesia. Probe was left in place for 02 minutes to allow dilatation of nasolacrimal duct. Post probing, patients were given topical antibiotics for 1 week and were followed for a period of 06 months.

RESULTS: Out of 340 patients only 35(10.3%) patients became asymptomatic, rest of the patient came back with epiphora within 02 months.

CONCLUSION: Probing of NLD in adults for partial obstruction gives symptomatic relief only in a few cases and majority of patients need surgical intervention.

KEY WORDS : Nasolacrimal duct, Epiphora, Probing, Dacryocystorhinostomy.

INTRODUCTION

Primary acquired nasolacrimal duct obstruction PANDO is the term used to describe the most common clinical syndrome of acquired nasolacrimal duct obstruction in adults. Patient presents with symptoms of chronic epiphora conjunctivitis and low grade infection or acute dacryocystitis. This syndrome is usually common in the elderly caucasian female population¹. The Lacrimal drainage system consists of the puncta, canaliculi, lacrimal sac and the nasolacrimal duct. Partial or complete obstruction at any level will result in epiphora. Tearing may also result from lacrimal pump failure which occurs secondary to lower lid laxity or weakness of orbicularis muscle.

Bony obstruction encountered during probing can be partial or complete. A partial obstruction is diagnosed if there is relative resistance to passage of fluid on irrigation². Complete obstruction is not an indication for probing and should be managed with Dacryocystorhinostomy(DCR). For partial obstruction or a tight bony canal is managed either with a graduated stepwise probing or with a surgical intervention. Failed probing can be managed by silicone intubation, balloon dacryoplasty or DCR³.

Therapeutic probing of nasolacrimal duct in infants is a useful and largely successful procedure, its efficacy in adults is not well established. Probing in adults is performed using a fine lacrimal probe. Various gauges

are available, it is recommended that only the fine one should be used. Those larger than 2/0 may damage the punctum, fine probes are particularly useful for localizing obstructions in canaliculi and delineating fistulous tracts³.

MATERIAL AND METHODS

This prospective study was done at Department of Ophthalmology unit 1 Dow University Of Health Sciences, Civil Hospital Karachi from January 2006 to July 2011. A total of 340 patients were enrolled with complaints of watering due to partial NLD obstruction since 06 months to 2 years duration. Any secondary cause of epiphora, previous periorbital or lacrimal surgery, history of trauma with facial fracture, orbital radiation, history of congenital obstruction of NLD, upper canalicular obstruction and lacrimal pump failure were excluded. Opinion from ENT consultant was taken in all patients to exclude any nasal pathology. Slit lamp examination, regurgitation test, Jones 1 and dye disappearance test were done in all patients. Patients with conjunctivitis were treated first with topical antibiotics. Risks and benefits of probing were explained to all patients and their written consent was taken. Patients were divided in four age groups to confirm that younger patients give a relatively better response to probing and majority of patients present after 50 years of age. After topical anaesthesia using 0.5% propara-

caine (Alcaine) punctum was dilated with nettleship dilator. Fine probe was selected and introduced through the lower canaliculi first vertical and than horizontal stretching the eyelids laterally feeling for the "hard stop" then probe was gently moved vertically down the nasolacrimal duct. The correct position of the probe was judged by its alignment with the Trochlear. Probe was left in place for 2 minute to allow dilatation of NLD, syringing was done after probing to check the patency of NLD. All patients were probed by 2 consultants. After probing patients were treated with topical antibiotics for one week. Complications during probing were bleeding that was managed with cold compresses and bed rest for 2 hours and acute swelling and inflammation was treated with topical and systemic antibiotics. Follow up was done on monthly basis for 6 months. Successful probing was when the patient is free of symptoms upto 6 months.

RESULTS

A total of 340 patients were selected. There was a female preponderance 223 compared to 117 male, age ranged from 18-70 years. All patients were divided in four age groups. Group 1 patients age ranged from 18-30 years. In Group 2 age of patients ranged from 31-40 years. In Group 3 age ranged from 41-50 years. In Group 4 age ranged from 51-70 years. Patients distribution according to number of patients in different age groups are given in Table 2. In our study patients mostly presented with unilateral epiphora. Only 9 out of 340 patients presented with bilateral epiphora. Most of the patients presented with left side involvement 255 as compared to right sided involvement 79 Patients.

Out of 340 patients, 35(10.3%) were cured of their symptoms and remaining 305(89.7%) patients came back with symptoms of epiphora within a period of 02 months. 13(3.82%) out of 40 patients were successful in 1st group and 8(2.35%) out of 60 patients in 2nd group . A lower success rate was seen in 3rd group 5 (1.47%) out of 95 patients and in 4th group 9(2.64%) out of 145 patients were successful. Complications encountered were bleeding in 30 patients managed with cold compresses and bed rest for 2 hours. Another complication was acute inflammation in 11 patients which was managed with topical and systemic antibiotics. An overall success rate of 10.3% was achieved. This shows that probing in adults is only for diagnostic purposes and is not a cure for partial NLD obstruction. It can be tried as initial treatment for epiphora.

It was observed that failed probing occurred in patients who presented late more than 1 year duration. Successful probing was seen in patients who presented earlier less than 1 year duration and patients

who were younger in age. Therefore causes of failure were stricture formation, late presentation and elderly patients.

TABLE I: PROBE SIZES

Probe size	Diameter in millimeter
0000	0.70
000	0.80
00	0.90
0	1.0
1	1.10
2	1.20
3	1.30
4	1.40

TABLE II: MALE AND FEMALE RATIO IN DIFFERENT AGE GROUPS (n=145)

Age Groups	Male	Female	Total
Group 1 Age: 18-30	11	29	40
Group 2 Age: 31-40	18	42	60
Group 3 Age: 41-50	35	60	95
Group 4 Age: 51-70	53	92	145

TABLE III: GROUPS ACCORDING TO DURATION OF SYMPTOMS (n = 145)

Groups	Duration of symptoms			Total No. of Patients
	Less than 6 months	6-12 months	1-2 years	
Groups 1	15	14	11	40
Groups 2	22	26	12	50
Groups 3	35	42	18	95
Groups 4	57	48	40	145

TABLE IV: SUCCESSFUL PROBING ACCORDING TO AGE GROUPS

Group	Age	No. Of Patients	Successful Probing	P-Values*
Group 1	18-30	40	13 (3.82%)	0.038
Group 2	31-40	60	8 (2.35%)	0.133
Group 3	41-50	95	5 (1.47%)	0.053
Group 4	51-70	145	9(2.64%)	0.062
Total		340	35(10.3%)	

* Chi Square test

DISCUSSION

This study was designed to assess the efficacy of probing in partial NLD obstruction in adults. Aim of study is to assess whether patient with partial NLD obstruction when treated with less invasive procedure as probing can be saved from invasive procedures as silicone intubation and DCR. According to our study a female preponderance was noted 223 as compared to 117 males. A study done by Kuldeep et al in the Ear Nose Department of Fr. Muller Medical College Hospital Mangalore on External Dacryocystorhinostomy versus Endoscopic Dacryocystirhinostomy included 40 cases of chronic dacryocystitis only 8(20%) patients were males as compared to 32(80%) females⁴. In a study by Sporkelsen et al in 1996, females were 80% and males were (20%)⁵. The predilection for females can be explained by the narrower lumen of the bony nasolacrimal canal or possibly endocrine factors⁴.

In our study 10.3% patients were relieved of symptoms. A retrospective study done in Valencia Spain in 1998 by Guinot -Saera and P Koay on Efficacy of Probing as Treatment of Epiphora in Adults with blocked Nasolacrimal Duct, showed 35% result of no watering after probing⁶. Another study by Hakim et al mentioned that adults are not completely relieved of symptoms after NLD probing⁷. The range of symptom free period was 11-25 months⁶.

It was also noted in this study that majority of patients were in their 4th and 5th decade, as noted by Kuldeep et al and Cokker in their studies^{4,8}.

In our study age range was between 18- 70 years. Similarly HB Whittlet et al mentioned in their study that the age of their patients ranged from 14-80 years⁹.

In this study most of the patients were suffering from unilateral epiphora. This correlates well with findings of Ghose et al¹⁰.

In our study there was a higher incidence of disease on the left side as compared to right side similar findings were given by Brook I et al¹¹.

Lindberg and associates examined the histopathology of the entire membranous nasolacrimal duct in these patients. These studies reveal inflammation vascular congestion and edema of the nasolacrimal duct in early phase and ultimately fibrosis with complete occlusion of nasolacrimal duct lumen in late phase. Lindberg studies reveal that there is functional occlusion of nasolacrimal duct in patients with symptoms of less than 01 year duration. A potential space exists which may be reversible and these patients may be candidates for medical therapy, probing and nasolacrimal duct intubation. Patients with chronic symptoms greater than 2-3 years develops fibrosis with poor results of probing and intubation¹². Similarly in our study 211 patient presented later than six months to

one year.

Probing has the merit of low morbidity rate, ease of use and low cost. However its major drawback is the higher failure rate and rate of recurrence¹³. Probing and lacrimal intubation are not adequate treatment for adult with partial acquired nasolacrimal duct obstruction because whole duct is obstructed by a fibrous tissue⁷.

This study assessed that probing can be used only as a diagnostic tool in adults to determine the severity of obstruction in the nasolacrimal duct, younger the age and lesser the duration of symptoms greater are chances of success.

CONCLUSION

Probing of nasolacrimal duct in adults is mainly a diagnostic tool and therapeutic only in a small percentage of cases, failed probing should be operated for DCR.

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