



To Study the Role of Conservative Management and to Evaluate Effectiveness of Syringing and Probing in Children with Congenital Nasolacrimal Duct Obstruction in a Tertiary Care Institution of Kashmir

Asif Amin Vakil^{1*} and Ejaz Akbar Wani¹

¹Department of Ophthalmology, Government Medical College, Srinagar, India.

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/OR/2016/26236

Editor(s):

(1) Li Wang, Department of Ophthalmology, Cullen Eye Institute, Baylor College of Medicine, USA.

Reviewers:

(1) Seydi Okumus, Gaziantep University, Turkey.

(2) Italo Giuffre, Catholic University of Roma, Italy.

(3) C. O. Adeoti, Ladoke Akintola University of Technology, Ogbomoso, Nigeria.

Complete Peer review History: <http://sciencedomain.org/review-history/14957>

Original Research Article

Received 6th April 2016
Accepted 26th May 2016
Published 8th June 2016

ABSTRACT

The study aimed to find the role of conservative management and to evaluate effectiveness of syringing and probing in children with congenital nasolacrimal duct obstruction in a tertiary care institution of Kashmir. The prospective study was carried on 150 cases of congenital nasolacrimal duct obstruction to rationalize its treatment by observing the response to Crigglar's massage in infants and by syringing and probing in children above 1 year of age. It was observed that the success rate of conservative management in infants is 78.16%. The success rates of syringing and probing is observed to decrease with increasing age of patient with highest success rate was in the age group of 13-18 months. Crigglar's massage is highly successful during first year of life therefore the infants presenting with congenital NLDO should be managed conservatively and observed. In children presenting after 1 year of age Probing is highly successful procedure when done early after 1 year of life.

*Corresponding author: E-mail: drasifaminvakil@yahoo.com;

Keywords: Age; congenital nasolacrimal duct obstruction; probing; NLD massage.

1. INTRODUCTION

Congenital nasolacrimal duct obstruction (CNLDO) is the most common cause of epiphora in infants occurring in about 20% of infants [1]. It is usually due to failure of canalization of nasolacrimal duct at the lower end. Canalization of nasolacrimal duct usually takes place at the end of 6 months of intrauterine life. It may be delayed for several weeks or months after birth [2].

Many other developmental abnormalities affecting the lacrimal system can cause epiphora more common among these are absence or stenosis of puncta, absence or stenosis of canaliculi, atresia of nasolacrimal duct. Infants with NLDO present with epiphora and recurrent purulent discharge. Many reports have confirmed high frequency of spontaneous resolution of symptoms during first year of life. Epiphora due to congenital nasolacrimal duct obstruction is commonly seen in day to day practice in valley. The study was conducted to evaluate the effectiveness of conservative management and to evaluate the efficiency of syringing and probing.

2. MATERIALS AND METHODS

2.1 Subjects

A prospective study was conducted from January 2014 to February 2016 in Department of Ophthalmology Government Medical College Srinagar. Patients presenting with symptoms of epiphora and discharge were enrolled based on the following inclusion and exclusion criteria:

2.1.1 Inclusion criteria

- 1) Confirmed diagnosis of CNLDO.
- 2) No Prior intervention done.
- 3) Absence of other nasolacrimal malformations or disorders.
- 4) Age younger than 4 years.
- 5) Consent for participation.

2.1.2 Exclusion criterion

- 1) Patients with secondary causes for epiphora.
- 2) Patients more than 4 years of age.

Patients less than 1 year of age were put on conservative management by demonstrating massaging of sac area using Criggler's technique. Patients presenting above 1 year of age and in cases where conservative management failed, probing was done. Both upper and lower puncta were dilated with punctum dilator. Syringing with normal saline through lower punctum was done to confirm the nasolacrimal duct obstruction.

Probing was done using Bowman's probe 00 00 to size 1. Bowman's probe was inserted into the upper canaliculus and passed till the hard feel of the medial wall of lacrimal fossa was felt. At this point the probe was turned and passed into the nasolacrimal duct and gently advanced till resistance was felt. Attempt was made to break the resistance by applying firm pressure till the 'giving way' of resistance was felt. The patency of nasolacrimal duct system was checked by syringing through upper punctum and the fluid drained from nasopharynx by a pediatric size suction catheter. The probing was considered successful if at 3 months follow up the patient was free of symptoms. Sometimes antibiotic eye drops to be instilled four times a day were prescribed for obvious infective conjunctivitis.

3. RESULTS

The prospective study was carried on 190 eyes of 150 cases in cases of congenital nasolacrimal duct obstruction to study the mode of clinical presentation and evaluate the success rate of conservative treatment and probing in different age groups.

Out of 150 cases, 64 (42.67%) were male and 110 cases (73.33%) were unilateral. The mean age of the patients was 14.20 months, ranging from one month to 44 months.

The patients were divided into six age groups including;

Group 1 \leq 6 months old, 13 eyes (6.85%), Group 2 from 7-12 months, 74 eyes (38.95%), Group 3 from 13 -18 months, 47 eyes (24.75%), Group 4 from 19-24 months 31 eyes (16.32%), Group 5 from 25 -36 months 21 eyes (11%), Group 6 from 37- 48 months 4 eyes 2.11%.

The success rate of conservative treatment was high in infants. The cure rate was 76.92% in the

age group of ≤ 6 months and 78.37% in the age group of 6-12 months.

The success rate of initial probing was 85.10% when undertaken in the age group of 13-18 months. The success rate in the age groups of 19-24 months, 25-36 months, 37-48 months were successively 77.42%, 61.90% and 50.00% respectively.

The success rate of repeat probing done 12 weeks after first probing in cases of failure was 71.43%, 57.14%, 37.50 and zero% in age groups of 13-18 months, 19-24 months, 25-36 months and 37-48 months respectively.

Table 1. Patient characteristics

Age in months	Unilateral		Bilateral	
≤6	5	4.54%	4	10%
7-12	42	38.18%	16	40%
13-18	25	22.73%	11	27.50%
19-24	19	17.27%	6	15.00%
25-36	15	13.65%	3	7.50%
37-48	4	3.63%	0	0%
Total	110	100%	40	100%
Membranous obstruction	93	84.55%	36	90%
Firm obstruction	17	15.45%	4	10%

Table 2. Clinical features at presentation

Epiphora	Epiphora with regurgitation	Epiphora with discharge and regurgitation	Lacrimal abscess
72	7	108	3

4. DISCUSSION

One hundred and fifty patients with congenital nasolacrimal duct obstruction were studied to demonstrate Management of Congenital Nasolacrimal Duct Obstruction at different ages and the success rate of probing in different age groups. The relief in symptoms for 3 months was considered as the successful procedure.

The success rate of conservative treatment in infants was 78.16%. The success rate of first Syringing and probing was 76.69% and second Syringing and probing was 50.00%. The success rates of syringing and probing is observed to decrease with increasing age of patient with highest success rate in the age group of 13-18 months. Baker also reported a high success rate in children younger than 18 months at the time of procedure. He probed 860 eyes with NLDO and only 6% of treated eyes required a second probing as against 14% in our study [3].

V R MANI reported high success rate of syringing and probing around one year of age and concluded that with increasing age failure rate increases which is inference of our study as well [4]. Kashkouli et al. [5] in a prospective interventional study of success rate of initial probing in children under 5 years concluded 92% cure rate in first year, 85% in second year, 65% in third year, 63.5% in fourth and fifth year of age which is consistent with present study. Katowitz and Welch studied 427 patients with congenital NLDO involving 572 eyes. After failure of conservative treatment patients underwent probing. Based on their observation they suggested that probing should be performed prior to 13 month [6]. Manor et al. [7] reported the same results, success of NLDO was negatively correlated with aging. Sturrock et al. [8], Gupta [9], Singh Bhinder G, et al. [10], Okumus S, et al. [11] all drew inferences similar to the present study based on their observation of probing done at different ages in children.

However, Zewan J [12], Mehashweri [13], MacEven [14] have concluded from their studies that age does not influence the chance of having a successful probing. In the present study, 78.16% of CNLDO resolved with the conservative management before first year of life. The percentages of conservative management in other studies were 94.7% [15], 93.3% [16], 82.9% [17].

Table 3. Treatment outcome

Age in months	No of eyes	Conservative treatment	Successful (at 13 months)	S&P	Successful	Repeat S&P (after 12 wks)	Successful
≤6	13	13	10(76.92%)	-	-	-	-
7-12	74	74	58(78.38%)	-	-	-	-
13-18	47	-	-	47	40(85.10%)	7	5(71.43%)
19-24	31	-	-	31	24(77.42%)	7	4(57.14%)
25-36	21	-	-	21	13(61.90%)	8	3(37.50)
37-48	04	-	-	04	2 (50.00%)	2	0

5. CONCLUSION

Therefore, future studies with larger sample sizes are paramount to find out the statistical significance between age and successful probing in children. It is further recommended to adopt wait and watch policy for infants on conservative treatment. In our study, late presentation of infants is probably due to social perception that epiphora in new borns is a normal phenomenon, so awareness needs to be created in the general population.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Mac Ewen CJ, Young JD. Epiphora during first year of life. *Eye*. 1991;5:596-600.
2. Kapadia MK, Freitag SK, Woog JJ. Evaluation and management of congenital nasolacrimal duct obstruction. *Otolaryngol Clin North Am*. 2006;39:959-977.
3. Baker JD. Treatment of congenital nasolacrimal system obstruction. *J Pediatr Ophthalmol Strabismus*. 1985;22:34-36.
4. Mani VR. Success rate of syringing and probing in the management of congenital nasolacrimal duct obstruction. *Proceeding of AIOC*; 2002.
5. Kashkouli MB, Beigi B, et al. Late and very late initial probing for congenital nasolacrimal duct obstruction cause of failure. *Br J Ophthalmology*. 2003;1151:1-6.
6. Katowitz JA, Welch MG. Timing of initial probing and irrigation in congenital nasolacrimal duct obstruction. *Ophthalmology*. 1987;94:698-705.
7. Mannor GE, Rose GE, Frimpong-Anash K, Ezra E. Factors affecting the success of nasolacrimal duct probing for congenital nasolacrimal duct obstruction. *Am J Ophthalmol*. 1999;127:616-617.
8. Sturrock SM, Mac Ewen CJ, Young JDH. Long term result after probing for congenital nasolacrimal duct obstruction. *Br J Ophthalmol*. 1994;78:892-94.
9. Gupta VP. Pediatric epiphora. *Eye Care*. 2002;5-11.
10. Singh Bhinder G, Singh Bhinder H. Repeated probing result in the treatment of congenital nasolacrimal duct obstruction. *Eur J Ophthalmol*. 2004;14(3):185-92.
11. Okumuş S, Erbağcı İ, GÜNGÖR K, Bekir NA. Our clinical experience and results for patients with congenital nasolacrimal canal obstruction according to the age groups. *Türkiye Klinikleri J Ophthalmol*. 2009;18(4):223-9.
12. Zewan J. Treatment of congenital nasolacrimal duct obstruction before and after the age of 1 year. *Ophthalmic Surg Lasers*. 1997;28:932-936.
13. Maheshwari R. Results of probing for congenital nasolacrimal duct obstruction in children older than 13 months of age. *IJO*. 2005;53:49-51.
14. Mac Ewen CJ. Congenital nasolacrimal duct obstruction. *Comprehensive Ophthalmology Update*. 2006;7(2):79-87.
15. Nelson LR, Calhoun JH, Menduke H. Medical management of congenital nasolacrimal duct obstruction. *Ophthalmology*. 1985;92:1187-90.
16. Nucci P, Capoferri C, Alfarano R, et al. Conservative management of congenital nasolacrimal duct obstruction. *J Pediatr Ophthalmol Strabismus*. 1985;26:68-70.
17. Hirohiko kakizaki, Yasuhiro Takahashi, Shinsuke kinoshita. The rate of symptomatic improvement in congenital nasolacrimal duct obstruction during first year of life. *Clinical Ophthalmology*. 2008;2(2):291-294.

© 2016 Vakil and Wani; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://sciencedomain.org/review-history/14957>