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# CRIGLER MASSAGE IN CONGENITAL NASOLACRIMAL DUCT OBSTRUCTION

1. SHEHLA DARESHANI
2. TARIQ SALEEM
3. M. MUNEER QURAISHY

1. *Assistant Professor*
Dow University of Health Sciences & Civil Hospital, Karachi.
2. *Assistant Professor*
Dow University of Health Sciences & Civil Hospital, Karachi.
3. *Professor of Ophthalmology*
Dow University of Health Sciences & Civil Hospital, Karachi.

*For Correspondence:*
**DR. SHEHLA DARESHANI**
19/1-B, Gizri Avenue Phase IV,
DHA, Karachi,
Phone No: 0333-3376357
E-mail: drsdareshani@hotmail.com

**ABSTRACT :**

**Objective:** Effectiveness of Crigler massage in congenital nasolacrimal duct obstruction.
**Study design:** Prospective study
**Methodology:** This Prospective study was done at Department of ophthalmology unit 1 Dow University Of Health Sciences Civil Hospital Karachi from June 2007 to may 2011. 200 patients with history of watering from eye since birth were randomly selected from outpatient department (OPD) after excluding other causes of watering such as corneal disease, congenital glaucoma, infection and nasal pathology. Patient's mother or attendant were taught Crigler massage and were instructed to do it thrice a day for 2-3 months, after washing their hands. Topical antibiotics were given where required and the child was followed for a period of 6 months on monthly basis.
**Results:** 185(92.5%) out of 200 patients had resolution of their obstruction. Probing was done in 15(7.5%) patients who did not respond to massage up-to the age of one year and a second probing was done in 5(2.5%) patients who did not respond to the first probing.
**Conclusion:** Congenital nasolacrimal duct obstruction can easily be resolved by Crigler massage with a high success rate of 92-96%.

**Key Words:** Crigler massage, Nasolacrimal duct and Probing.

## INTRODUCTION:

Congenital obstruction of the nasolacrimal duct is most common abnormality of the lacrimal drainage system in children. It is found in 6% of newborn.[1] There may be a family history.[2] In first few weeks of life the affected infants are noticed by parents to have excessive mucus or muco-purulent discharge at the medial canthus specially in the morning and after a nap. The eye always looks wet, the conjunctiva remains white and uninflamed. There is an overflow of tears on the cheek during cold and windy weathers. In the evaluation of such cases corneal disease, congenital glaucoma and infection must be ruled out. Conservative management consists of spontaneous resolution with lid hygiene, topical antibiotics and massage also called Crigler massage.
Crigler massage was first described by Crigler in 1923 and is advocated for relief of congenital nasolacrimal duct obstruction by dislodging the epithelial debris.[3,4,5] This gives relief in 95-98% of cases.[6] Several studies have documented the high rate of spontaneous resolution with conservative management.

## MATERIAL AND METHODS

This prospective study of 200 patients was carried out at Department of Ophthalmology unit 1 Dow University of Health Sciences, Civil Hospital Karachi over a period of 4 years. Inclusion criteria was patients who were suffering from congenital nasolacrimal duct obstruction under one year of age. Exclusion criteria patients who were suffering

from other causes of watering such as corneal disease, congenital glaucoma, ocular infection and age above one year. Office evaluation included inspection of lid margins, patency of punctum, regurgitation test and anterior segment examination using hand held slit lamp.

## CRIGLER MASSAGE TECHNIQUE

It involves placing a finger over lacrimal sac and common canaliculus to block the exit of fluid towards the eye, while firmly stroking downwards to increase hydrostatic pressure within the lacrimal sac. The induced pressure may rupture the membranous obstruction of the nasolacrimal duct. Its effectiveness has shown to increase the rate of non surgical resolution.[4]

Attendant were advised to perform this maneuver 10 strokes three times/day for at least 6 weeks and sometimes 3 months. The child was followed for a period of 6 months.

## RESULT

In this study 200 patient were selected from OPD with epiphora due to congenital NLD obstruction, after excluding other causes of watering. Age ranging from 07 days to 01 year. Male were 75(37.5%) out of 200 and female were 125(62.5%). Most of the patients presented with complain of watering of the eye 3-7 days after birth which would not resolve even after topical antibiotics. 55(27.5%) patients had already done the massage technique for 2 months but either the technique was not proper or compliance was poor. 112 (56%) out of 200 patients presented in the first 3 months. 85( 42.5%) of these patients were relieved of epiphora after the first massage done for 6 weeks. In the remaining 27(13.5%) patients technique for massage and the number of strokes was rechecked and corrected if required. In this age group effectiveness of massage was 100% and none of the patients required probing. Second age group was from 4-8 months and consists of 65( 32.5%) patients. 40(20%) of these patients were relieved after the first massage and 25 (12.5%) required massage for another 6 weeks . 4 (2%) patients did not respond upto 3 months of massage, in these patients probing was done under General Anaesthesia (G.A). Only 1(0.5%) patient required 2nd probing after 6 weeks. All 4 patients responded to probing.

In the 3rd age group from 9-12 months 23(11.5%) patients were included. 11(5.5%) patients were relieved of symptoms in the first 6 weeks of massage. 12(6%) patients required a second massage. 11(5.5%) patients out of these did not respond to 3 months of continuous massage. In these patients probing was done under G.A. 5(2.5%) patients required a 2nd probing. 3(1.5%) patients did not respond to the 2nd probing due to chronic infection. In these patients Dacryocystorhinostomy (DCR) was done at 4 years of age under G.A.

Over all 185(92.5%) out of 200 patients had resolution of their obstruction with Crigler massage. Probing was done in 15(7.5%) patients who did not respond to massage upto the age of one year and a second probing was done in 5(2.5%) patients who did not respond to the first probing.DCR was done in 3 patients.

## DISCUSSION:.

Congenital nasolacrimal duct obstruction represents a delay in maturation of the lacrimal system where it enters the nose resulting in a persistent membranous obstruction at the valve of Hasner. This is usually unilateral but may be bilateral and if so, commonly asymmetrical. Management of the condition is simple consist of spontaneous resolution with regular lid hygiene and occasional topical antibiotics or massage.[4] Causes of failure of massage are usually due to improper method and nasal pathology. Sooner the massage is started better is the result.

In our study there was a female preponderance 62.5% female as compared to males 37.5%.

A retrospective study conducted by Al Faky et al in 2012 at Department of Ophthalmology, College of Medicine, king Saud University, Riyadh Saudi Arabia have shown 46% males and 54% females in their study.[7]

In this study 112(56%) out of 200 patients presented in the first 3 months of birth. A study done in Korea by Yong Sun Kim et al at Dong – At University Hospital in 1991 reported early presentation of patients within one month after birth.[8]

In our study 50 patients had already done their massage incorrectly at the time of presentation. After proper technique 47(94%) patients were completely cured. Shivpuri noted success rate of proper technique was 91% as compared to 21% with improper technique. Kushner in 1982 showed that massage at the point of rupturing the membranous obstruction was more effective than simple massage or no massage at all. Kushner also demonstated clearance of obstruction in 31% of 59 eyes with proper massage as compared to 9% of 59 eye with simple massage.[3]

Murthy advises cutting of the nails and washing hands before starting massage and use index or little finger for the massage.[9] Our study also showed younger the patient better are the massage results. In the first 3 months age group resolution occurred in

**TABLE -1**
**GROUPING ACCORDING TO AGE**

| Age Group | Age in Months | Male | Female |
|---|---|---|---|
| Group 1 | 0—3 | 35 | 60 |
| Group 2 | 4—8 | 20 | 40 |
| Group 3 | 9—12 | 20 | 25 |

**TABLE-2**
**GROUPING ACCORDING TO NO OF MASSAGES REQUIRED**

| Age Group | No. Of Patients | First Massage | 2nd Massage |
|---|---|---|---|
| Group 1 | 112 | 85 | 27 |
| Group 2 | 65 | 40 | 25 |
| Group 3 | 23 | 11 | 15 |

**TABLE # 3**
**GROUPING ON BASIS OF SURGICAL INTERVENTION**

| Age Group | 1st Probing | 2nd Probing | DCR REQUIRED |
|---|---|---|---|
| Group 1 | 0 | 0 | 0 |
| Group 2 | 4 | 1 | 0 |
| Group 3 | 11 | 5 | 3 |

100% of cases .In 4-8 months age group 93.8% cases resolved and 52.2% cure rate was seen in 9-12 months age group.

Ciffci F et al had given a high success result of 91.8% of conservative management upto 0-6 months of age as compared to 60% result from 7-12 months. [10]

Yaghoubi G.H.H et al gave a result of 100% in age group under 8 months and 75% in age group 8-12 months with Crigler massage.[11]

Chaim Stolovitch et al did a study in department of Ophthalmology at Tel Aviv Sourasky Medical Centre Tel Aviv University in 2002 and concluded that success rate was higher when procedure was conducted in patients within 2 months of age.[12]

In our study only 4 patients out of 65 required probing in 4-8 months age group and only 1 required second probing. All of these patients were cured after probing. In the age group 9-12 months 11 patients required probing 6 were cured and 5 required second probing. 3 out of these who did not respond to second probing were eventually operated for DCR after 5 years of age. Reason for failure of probing was chronic infection and nasal pathology.

Qasim Hammory et al did a prospective study at Prince Rashid Hospital, Irbid, Jordan in2005, 80 patients were included out of which 8 were lost to follow up. With conservative treatment 66(82.5%) patient out of 72 resolved spontaneously within one year. Only 6 patients required probing, 5(83.3%) patients were relieved but one of them did not respond and was intubated.[13]

Probing is also successful in older age group and can be performed up to the age of 5 years, but the success rate decreases with increasing age. [14]

The largest prospective study of congenital nasolacrimal duct obstruction was performed by McEwen and young in 1991.[15] This study includes a cohort of 4792 infants, 20% showed evidence of defective lacrimal drainage at some time during their first year of life. More than 96% had resolved spontaneously by age of 1 year. In this study antibiotics were used only in a few cases that developed superimposed conjunctivitis and dacryocystitis. No surgical intervention was done before 1 year.

Price in 1947 reported a cure rate of 94.6% in 203 infant by age 1 year using Crigler massage.[16]

Several studies have shown excellent results of spontaneous resolution with conservative management. [4,6] Our study has shown 92.5% of success rate.

## CONCLUSION:

Congenital nasolacrimal duct obstruction can be easily overcome with Crigler Massage if properly performed and has a high success rate of 92.5%

## REFERENCES:

1. Swartz N.6 and cohen M.S Tearing and Lacrimal system in ophthalmology secrets,p 226-230 edited by Vandar J.F and Gault J.A
2. Duke Elder S...Anomalies of lacrimal apparatus in system of ophthalmology Vol-III part-2 p-911-940.
3. Kushner BJ. Congenital nasolacrimal system obstruction Arch Ophthalmol 1982: 100, 597-600.
4. Harley peadiatric ophthalmology 5th edition p-364- ch-18
5. Noda S, Hayasaka S, Setagawa T. Congenital nasolacrimal duct obstruction in Japanese infants ; its incidence and treatment with massage. J. Pediatric Ophthalmol 1991:28;20-2
6. Harley peadiatric ophthalmology 5th edition –p-91, ch-5.
7. Al- Faky YH, Al –Sobaie N, Mousa A, Al-Odan H,Al –Huthail R,Osman E, Al-Mosallam AR: Evaluation of Treatment Modalities and Prognostic factors in children with congenital nasolacrimal duct obstruction: J AAPOS 2012 Feb : 16(1): 53-7
8. Young Sun Kim et al: Congenital Nasolacrimal Duct obstruction: Irrigation or Probing? : Korean J Ophthalmology Vol. 14;90-96,2000.
9. Ramesh Murthy- congenital nasolacrimal duct obstruction, kerala journal of ophthalmology vol.XIX No. 2, June 2007, p-191-195.
10. Ciffci F, Akman A, Sonmez M, Unal M, Gunqor A, Yaylali V: Systematic combined treatment approach to nasolacrimal duct obstruction in different age groups:Eur J Ophthalmol 2000 Oct-Dec: 10(4): 324-9
11. Yaghoubi GH .H et al :Assessment of conventional Crigler massage in recovery of congenital nasolacrimal duct obstruction:Medical J of Hormozqan University Fall 2008,12(3):197-200
12. Chaim Stolovitch et al: Hydrostatic Pressure as an office procedure for congenital nasolacrimal duct obstruction; J of AAPOS Vol 10 , Issue 3, Pages269-272 ,June 2006
13. Qasim Hammory et al: Congenital Nasolacrimal duct obstruction at PrinceRashidHospital,Irbid, Jordan;Sudanese Journal of Public Health: October 2008, Vol 3(4)s
14. Turk Arch Ped 2010;45:359-65
15. Mac Ewen CJ, Young JDH, epiphora during the first year of life. Eye 1991;5: 596-600
16. Price HW. Dacryostenosis. J Pediatric 1947, 30; 302-305