

## A STUDY OF CONGENITAL DACRYOCYSTITIS

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### ABSTRACT

#### BACKGROUND

Newborn children are usually a rare visitor in an Ophthalmology Outpatient Department. When they turn up, they have one problem or the other. Watering, redness and discharge are the usual symptoms.

The aim of the study is to know the condition, the nature of presentation, the options of the treatment of congenital dacryocystitis and the causes of failure in treatment and to compare with similar results of studies done elsewhere on this subject. These cases of study were those attending the outpatient departments of ophthalmology of medical colleges and from the personal diary. A newborn child coming to the clinic or hospital with persistent watering, discharge and swelling over the lacrimal sac area will rouse the suspicion of this condition.

#### MATERIALS AND METHODS

About 60 cases who were seen over the period of 10 years from 2005 to 2014 were studied. These cases attending the department and seeking treatment under my care were analysed on the basis of age, sex, the treatment taken and the period of delay before the eventual treatment. The cases presented in the outpatient department and patients from clinics over the period scattered over 10 years between 2005 to 2014.

#### RESULTS

This study of 63 cases consisted of, the youngest one, who was of less than a month old and the oldest one of 15-month-old, and a bunch of kids between these age groups, all had unilateral involvement. In this study, right eye was affected more than the left eye. There was a slight sex predominance, in that, more male children<sup>1</sup> were seen than the female children. Most of the cases who were brought earlier got cured by simple massaging alone after the initial firm massage. 70% and 7% of those needed simple syringing through the punctum to establish further continued passage. None of these failed in this study except three cases who needed massage after the probing to sustain the patency. The earlier, the child is brought for the treatment, the more success it ensues. The simplest treatment of massage cures in about two third of cases and only one third of cases and older children needed probing, which goes well as reported in the literature too.<sup>2</sup>

#### CONCLUSION

This study revealed that the condition is treatable condition, non-surgically, provided the newborn babies are brought early. The delay in the massaging, delays and spoils the chance of nonsurgical treatment and cure.

#### KEYWORDS

Epiphora, Mucopurulent Discharge, Lacrimal Sac, Massaging, Probing, Syringing.

**HOW TO CITE THIS ARTICLE:** Ranganathan KS. A study of congenital dacryocystitis. J. Evid. Based Med. Healthc. 2017; 4(64), 3826-3829. DOI: 10.18410/jebmh/2017/764

#### BACKGROUND

Newborn children are usually a rare visitor in an Ophthalmology Outpatient Department. When they turn up, they have one problem or the other. Watering, redness and discharge are the usual symptoms.

This study was conducted to review the condition in a rural setup about the incidence, course and treatment modalities of these cases, which were seen by the ophthalmic surgeon. The study was conducted and observed

over the period of 10 years. The cases were those attending the outpatient departments of ophthalmology of medical colleges and from the personal diary over the period scattered over 10 years between 2005 to 2014.

The cases attending the department were analysed on the basis of age, sex, the treatment taken and the period of delay before the eventual treatment. The cases were those presented in the outpatient department and the clinic over these period of time. Sixty three children came with the following complaints.

#### MATERIALS AND METHODS

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*Financial or Other, Competing Interest: None.*  
*Submission 08-07-2017, Peer Review 12-07-2017,*  
*Acceptance 06-08-2017, Published 08-08-2017.*  
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*DOI: 10.18410/jebmh/2017/764*



clinics over the period scattered over 10 years between 2005 and 2014.

**Inclusion Criteria-** Any newborn child who complains with persistent watering, discharge from one or both of the eyes.

**Exclusion Criteria-** Any child older than 18 months. Any debilitated child presenting features.



**Figure 1. Schematic Diagram Showing the Swelling and Site of Obstructions**

Epiphora, i.e. watering from one or both eyes. Most of them except one were unilateral. There wasn't any predilection for the eye involved.<sup>3</sup> Yet in this study, scattered over a long period, there were 40 male children and 23 female children. Mostly, these cases presented before first year of life; 60 cases before the first year. Out of the 60 cases, 35 were between sixth and ninth months. Twenty cases between first month to sixth month, 5 cases 3 weeks to first month. These 5 cases presented with watering and no mucoid or mucopurulent.

1. Mucoid or mucopurulent discharge.
2. Swelling over the area of lacrimal sac.



**Figure 2. Right Eye of an Infant Showing Swelling**

Eighteen cases had swelling over the lacrimal sac area and on gentle pressure over the swelling mucoid and mucopurulent discharge could be seen. Rest of the 40 cases had mucoid and mucopurulent discharges without swelling. Of the 63 cases, 30 cases were seen by paediatricians, since

these specialists are the mostly seen consultants for any child up to the first 5 years of life. Most of these cases were advised massage over the lacrimal sac area. Ophthalmologist was the first consultant for the 25 cases. Eight cases used eye drops getting them over the counter. The 3 cases that presented after the first year did seek the opinion of both paediatrician and ophthalmic surgeon.

**Diagnostic Signs-** A history of tearing, mucous discharge and epiphora of one or both eyes is typical. The periocular skin maybe chapped from continual exposure to tears. Regurgitation of purulent material into the eye can cause conjunctivitis and a history of recurrent "pink eye" in an infant or young child should alert the mother to seek medical attention early. The presence of redness in the eye and discharge from punctum signals the nasolacrimal obstruction. The signs and symptoms are usually worse with a concurrent upper respiratory infection. An associated preseptal cellulitis is a rare sign.

Incessant watering and unusual tear lake, mucoid or mucopurulent discharge will be seen with or without conjunctival reaction. A gentle pressure over the lacrimal sac will result in a reflux of mucoid or mucopurulent discharge from the punctum.

**Congenital Nasolacrimal Obstruction Dacryocystitis**  
Obstruction of the nasolacrimal duct is the common abnormality of the lacrimal system in childhood. It is found in about 20% of newborns, but only 1 to 6% of these children become symptomatic.<sup>2,4</sup> The obstruction is mainly due to membranous occlusion at the lower end of the duct near the valve of Hasner. Children with Down syndrome, craniostenosis, Goldenhar's syndrome, clefting syndromes or any other midfacial anomaly are at an increased risk for congenital nasolacrimal duct obstruction.

Second most common cause is the generalised stenosis of the nasolacrimal duct. Rarely, proximal level obstruction can also occur due to the maldevelopment of the punctum and canaliculus. Both, proximal outflow dysgenesis can occur concurrently with distal obstruction. At birth, the nasolacrimal duct and sac are filled with amniotic fluid. Other causes are the presence of epithelial debris, complete non-canalisation and a rare bony occlusion.

The excretory lacrimal system is seen in the embryos at the 5<sup>th</sup> week of development and by the 10<sup>th</sup> week formation of a lumen in the lacrimal cord is seen coinciding with cavitation of inferior meatal lamina. The canalisation of this cord resulting in communication with the inferior meatus is the last portion to become patent and this occurs in the period from 6<sup>th</sup> month of foetal life to beyond term.<sup>5</sup> Fortunately, nasolacrimal duct obstruction clears spontaneously with time; about 89 to 96% of such obstructed ducts open by first year of age.<sup>2</sup>

#### **Congenital Dacryocystitis**

It is an inflammation of the lacrimal sac occurring in newborn infants. It is also known as dacryocystitis neonatorum. Congenital dacryocystitis occurs when the membranous

partition does not break soon after the birth when the gravitational force together with the surging tears of newborn child fail to break open the membranous partition. These children, in spite of the normal nature of the incessant cry fail to break this barrier. Because of this stasis, the normal flora of the conjunctival sac like staphylococci, streptococci, pneumococci tend to grow and multiply producing the inflammation of the lacrimal sac. Congenital dacryocystitis usually present as a mild grade of chronic inflammation. Starting as epiphora usually developing after 7 days of birth of the child. Then, follows copious mucopurulent nature of discharge from one or both the eyes. When one presses over the lacrimal sac area, purulent discharge spurts from the lower punctum, thus conforming the positive regurgitation test. Swelling of the lacrimal sac too confirms the diagnosis.

The study revealed that out of 63 cases, 5 cases were brought for the first time to the ophthalmologist and that too within the first month. Out of the 58 cases, 35 cases were first seen by the paediatricians. Of which most of them had an antibiotic eye drop prescribed between the first month and at the end of first year. All except 20 of them were advised about massaging the lacrimal sac area. Out of these 38 cases, there was no demonstration given how to do the massage over the lacrimal sac area.

These cases were showing signs of mucopurulent discharge. Out of the 20 cases, the massaging technique was demonstrated to the parents/mother without an attempt done to forcibly break the membranous obstruction from the medical consultant. Three cases neither sought any medical help, nor used any eye drops, sold from the counter.

**Treatment Given**

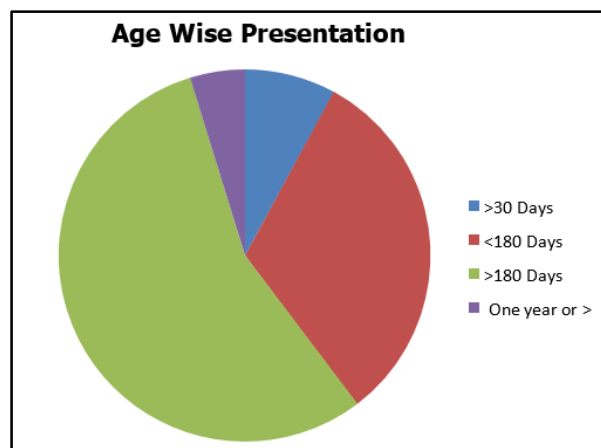
First, a detailed history was taken about the days of noting these discharge or watering, the swelling and noted down the treatment taken and about the advice or technique of the massage. After a close examination of both eyes was taken to rule out the other ophthalmic causes of unilateral/bilateral causes of watering. After ascertaining that the cases are of nasolacrimal obstruction, massaging was done forcibly after marking the point of applying the pressure. Of the 63 cases, 42 cases, there was a popping sound could be made out if one can carefully observed the procedure. The rest of the cases that is those cases who came to the ophthalmic surgeon with discharge and watering and swelling over the lacrimal sac, 18 cases plus those cases who had presented after one year of age. Three cases were not responding to the properly done pressure and properly done daily massage even after the period of three weeks.<sup>6</sup>

So, these 21 patients were posted for lacrimal sac syringing and probing the concerned nasolacrimal duct probing under general anaesthesia. Probing is time-proven treatment for congenital nasolacrimal obstruction. Results are excellent and if performed properly and early, a single probing is successful in upto 90% of cases.<sup>2,4,7,8</sup> Probing was done to these children of these age groups under topical anaesthesia. Out of these cases, 3 cases responded to

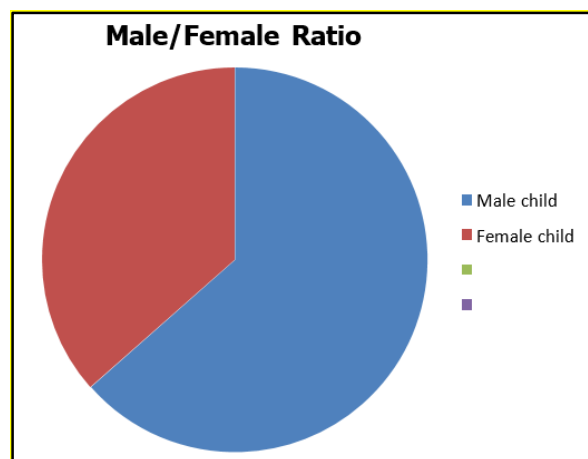
simple lacrimal sac syringing. All these procedures were performed using Bowman’s probe 00. During these procedures, there was no problem while entering to probe the proximal part of the nasolacrimal duct. The resistance was mostly at the lower end of the nasolacrimal duct. A grating sensation was met with as the descending lacrimal probe met the thickened part of the obstruction by gently increasing the force on the probe, one can break open the obstructed distal part.

Next step was to test the patency of the lower end by gentle syringing of the sac. Some surgeons prefer to wait to do probing till the child is of 6 months of age. Once the child is first seen after the first year, it is mandatory to do the probing without wait. In most cases, a single stage probing will cure the block forever. Rarely, does it need a second attempt. In such cases of failure, it is better to intubate with silicon tube after the first failure. The tube maybe kept for 6 months. If after repeated probing failure results, it may be due to the fibrosis. In these cases, it is better to do a Dacryocystorhinostomy (DCR) at or after the child is 4 years of age. Repeated upper respiratory tract infections, rare bleeds during the procedure may hasten the blocking of surgically-probed nasolacrimal duct; so while probing care must be taken not to injure the canaliculus or avoiding too much force while probing the distal end of the nasolacrimal duct.

**Statistical Results**



**Figure 1. Age Wise Presentation**



**Figure 2. Male/Female Ratio**

<30 days	<180 days	>180 days >360 days	One Year or More
5	20	35	3

**Table 1. Showing Pattern of Presentation of Cases after the Starting of Symptoms After the Birth of the Child**

Total Cases	Male	Female
63	40	23

**Table 2. Showing Sex Distribution of Cases**

Number of Cases	Massaging Alone	Syringing Alone	Probing	Post-Probe Massage	Failed Cases
40 males	27	2	11	3	Nil
23 females	12	1	10	Nil	Nil

**Table 5. Showing the Results at a Glance**

Watering Alone	Mucoid/Mucopurulent	Swelling With No Discharge
5	40	18

**Table 3. Showing Types of Discharge**

Eye	Male	Female
RE	31	16
LE	9	7

**Table 4. Pattern of Eye Affected**

**RESULTS AND CONCLUSION**

Sixty three cases of congenital dacryocystitis were analysed. The following things were noted.

- a. It is not an uncommon condition.
- b. It usually presents before the paediatric consultants than the ophthalmic surgeon.
- c. The initial treatment such as a firm massage with some pressure over the lacrimal sac area breaks the membrane easily and helps to allow the drainage of tears, usually unilateral.
- d. Repeated doctored firm massages over the lacrimal sac area help to cure the condition rather than to wait for 3 months to one year to get treated by probing.
- e. Probing, a time-proven treatment for congenital nasolacrimal obstruction is a simple procedure, but could be avoided by seeking ophthalmic advice earlier without resorting to using the eye drops sold over-the-counter.
- f. Delaying the treatment beyond first year often ends up with surgical treatment only.

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