

# A Study of the Clinical and Epidemiological Profile of Patients with Congenital Dacryocystitis

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## ABSTRACT

**Introduction:** The most common functional abnormality of the infant's lacrimal apparatus is the congenital blockage of the nasolacrimal duct. Non-canalisation of the duct, presence of epithelial debris, mucous plug and bony occlusion are some of the possible causes of blockage. This was a prospective study to identify the etiological agents, predisposing factors and clinical profile of patients with congenital dacryocystitis.

**Material and Methods:** A prospective observational hospital based study was conducted on 72 eyes of 61 children presenting with congenital dacryocystitis, in the age group 0-4 years, attending the ophthalmology outpatient department in a tertiary care teaching hospital.

**Results:** Congenital dacryocystitis was common in age group of 0-3 months (31.15%). The incidence of disease in age group 4-6 months was 24.59% and 7-12 months was 13.11%. 55.74% of males were affected. 83.61% of patients had unilateral congenital dacryocystitis. 80.33% of the children had a normal delivery. 66.66% of cases presented with epiphora and discharge. 31.95% of cases presented with epiphora only. Epiphora with mucopurulent discharge was the most common presentation. Regurgitation test was positive in 88.89% of cases. The nature of regurgitate was mucopurulent in 42.19% of cases.

**Conclusion:** Congenital dacryocystitis usually presents at an early age with epiphora and mucopurulent discharge. Early diagnosis helps in management.

**Keywords:** Congenital, Nasolacrimal Duct, Dacryocystitis, Epiphora, Regurgitate

## INTRODUCTION

Inflammation of the lacrimal sac is known as dacryocystitis.<sup>1</sup> It commonly affects infants and young females. Congenital dacryocystitis is mostly chronic. Congenital dacryocystitis is due to incomplete canalization of lacrimal system, most often the valve of Hasner.<sup>1</sup> The most common functional abnormality of the infant's lacrimal apparatus is the congenital blockage of the nasolacrimal duct. Non-canalisation of the duct, presence of epithelial debris, mucous plug and bony occlusion are some of the possible causes of blockage. Congenital nasolacrimal duct obstruction is a common disorder, with a reported incidence of symptoms in infants ranging from 1.2% to 25%.<sup>2</sup>

In 1912, Schaeffer emphasised that irregularities in the nasolacrimal duct and diverticula are common congenital aberrations.<sup>3</sup> These diverticula must be very important clinically since they are so located that they readily retain infectious material within their confines. Indeed, their occurrence may be an important factor in the chronicity

of pathologic conditions of the nasolacrimal duct. He documented anomalous side by side union of the nasolacrimal duct with the lacrimal sac and that a probe will have difficulty following an appropriate channel in this situation. He also said that a nasolacrimal duct may enter the nasal cavity in various locations. The incidence of congenital naso-lacrimal duct obstruction ranges from 1.75% to 5% (Cassady).<sup>4</sup> Busse and colleagues provided images of these particular anatomic variations at the nasal end of the nasolacrimal duct.<sup>5</sup> This was a prospective study to identify the etiological agents, predisposing factors and clinical profile of patients with congenital dacryocystitis.

## MATERIALS AND METHODS

The present study was conducted on 72 eyes of 61 children presenting with Congenital dacryocystitis, in the age group 0-4 years visiting the outpatient department (OPD) of Regional Institute of Ophthalmology (RIO), Rajendra Institute of Medical Sciences (RIMS), Ranchi. Proper approval was taken from Institutional Ethics Committee. The duration of study was from August 2016 to July 2018. A detailed clinical history of the child was taken. Clinical examination including both general and local examinations of the affected eye was conducted. The Study was conducted under the aegis of declaration of Helsinki and proper consent from the guardian was taken before starting the study. Inclusion criteria were new born with congenital dacryocystitis and children aged 0-4 years with history suggestive of nasolacrimal duct obstruction. Children more than 4 years of age or with bony abnormalities was excluded from the study.

## STATISTICAL ANALYSIS

All the information was collected in a predesigned and pre-tested proforma. The collected data was entered in the Statistical Package for the Social Sciences (SPSS) version 20.0. Categorical and numerical variables were analysed as

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**How to cite this article:** Shahbaz Husain, Rajiv Kumar Gupta, Deepak Lakra. A study of the clinical and epidemiological profile of patients with congenital dacryocystitis. International Journal of Contemporary Medical Research 2020;7(7):G7-G9.

**DOI:** <http://dx.doi.org/10.21276/ijcmr.2020.7.7.31>



frequency and percentages.

## RESULTS

72 eyes in 61 patients with congenital dacryocystitis were subjected to this study and were reviewed with respect to age distribution, sex incidence, laterality, birth history and clinical manifestations.

31.15% of patients presented to the hospital during the first 3 months of life, followed by 24.59% in 4-6 months age group and 13.11% in 7-12 months age group (table-1).

In this study, 34 out of the 61 patients were males. The remaining 27 patients were female. There was no major sex difference (table-2).

The table-3 showed that 83.61% of patients had unilateral congenital dacryocystitis.

The mode of delivery of the child was normal in 80.33% of the patients. Forceps delivery occurred in 4.92% patients and 14.75% of patients had caesarean section (table-4).

The table-5 showed that 80.56% of cases had onset of clinical symptoms by the end of first month of life.

31.95% of cases had epiphora alone. 43.05% of the cases had muco-purulent discharge, 23.61% of cases had purulent discharge. Narrow interpalpebral fissure was seen in 1 case

Age	No. of patients	Percentage
0-3 Months	19	31.15
4-6 Months	15	24.59
7-12 Months	08	13.11
1-2 Years	09	14.75
2-3 Years	06	9.84
3-4 Years	04	6.56

**Table-1: Age distribution**

Sex	No. of patients	Percentage
Male	34	55.74
Female	27	44.26

**Table-2: Sex incidence**

Laterality	No. of patients	Percentage
Bilateral	10	16.39
Unilateral Right	35	57.38
Unilateral Left	16	26.23

**Table-3: Laterality**

Mode of delivery	No. of patients	Percentage
Normal delivery	49	80.33
Forceps delivery	03	4.92
Caesarean section	09	14.75

**Table-4: Obstetrical history**

Age at onset	No. of cases	Percentage
0-1 Month	58	80.56
1-2 Months	07	9.72
2-4 Months	05	6.94
4-6 Years	02	2.78

**Table-5: Age at onset of clinical symptoms**

Clinical manifestation	No. of cases	Percentage
Epiphora only	23	31.95
Epiphora with discharge Muco-purulent	31	43.05
Epiphora with discharge Purulent	17	22.61
Narrow interpalpebral fissure	01	1.39

**Table-6: Clinical manifestations**

Nature of Regurgitate	No. of cases	Percentage
Serous	17	26.56
Mucopurulent	27	42.19
Purulent	20	31.25

**Table-7: Characteristic of Regurgitation Fluid**

(table-6).

Regurgitation test was positive in 64 cases and negative in 8 cases. The nature of regurgitate was serous in 26.56% of cases. It was mucopurulent in 42.119% of cases and purulent in 31.25% of cases (table-7).

## DISCUSSION

Congenital dacryocystitis was common in age group of 0-3 months (31.15%). The incidence of disease in age group 4-6 months was 24.59% and 7-12 months was 13.11%. In the age group 1-2 years the disease incidence was 11.5% followed by 9.84% and 6.56% in the age group 2-3 years and 3-4 years respectively. The study showed that 80.56% of cases had onset of clinical symptoms by the end of first month of age.

Cassady found that onset of symptoms occurred before 10th day of life in 85% of patients.<sup>6</sup> Guerry D et al in their study found that 83% of their patients developed symptoms during first three weeks of life.<sup>7</sup> Nucci et al (1989) found that all the patients in his study had epiphora and recurrent mucopurulent discharge since the first month of life.<sup>8</sup>

In the present study 55.74% of males were affected and 44.26% of females were affected. It showed slightly higher incidence of congenital dacryocystitis amongst the males. Nardlow and Vennerholm reported an incidence of 51% in males and 49% in females.<sup>9</sup> Sachiko Noda et al found the incidence amongst boys as 52.38% and amongst girls as 47.62%.<sup>10</sup>

In the present study of 61 patients, 57.38% had right sided affection, 26.23% had left sided affection and 16.39% of patient had bilateral affection. 83.61% of patients had unilateral congenital dacryocystitis. Robb observed bilateral involvement in 15.4% of patients.<sup>11</sup> Bareja U et al studied 87 patients and found unilateral eye involvement (69%) more frequent than bilateral (31%).<sup>12</sup>

Obstetrical history was taken to ascertain any specific birth trauma. None of the children in the study had any history of birth trauma. 80.33% of the children had a normal delivery, 4.92% were subjected to forceps delivery and 14.75% were delivered by caesarean section. Trquair suggested the role of heredity in this condition.<sup>13</sup> Cassady studied 100 cases of dacryocystitis and said that heredity or a familial influence

could not have a bearing on this malady. Neither the parents nor their relatives had a history of dacryocystitis. There were no two children of the same or of related families in the series.

In this study 66.66% of cases presented with epiphora and discharge and 31.95% of cases presented with epiphora only. Epiphora with mucopurulent discharge was present in 43.05% of cases. Nucci et al observed in his study that epiphora and recurrent mucopurulent discharge was the chief complaints.<sup>8</sup> The regurgitation test was positive in 88.89% of cases and was negative in 11.11% of cases in the present study. The nature of regurgitate was mucopurulent in 42.19% of cases, purulent in 31.25% of cases and serous in 26.56% of cases. Cassady found that regurgitation of fluid from the sac occurred in most of the cases even when discharge was absent.<sup>6</sup> Koke observed in his study that regurgitation test was positive in almost all the cases.<sup>14</sup> Ffooks found that regurgitation test was frequently positive in cases with congenital dacryocystitis.<sup>15</sup>

## CONCLUSION

Congenital dacryocystitis usually presents at an early age with epiphora and many a times with mucopurulent discharge. Nasolacrimal duct obstructions being the initiating event in establishing infection. The age at which the child presents to the tertiary setup is an important consideration. Early diagnosis helps in appropriate management of the case.

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**Source of Support:** Nil; **Conflict of Interest:** None

**Submitted:** 28-05-2020; **Accepted:** 16-06-2020; **Published:** 15-07-2020