



CLINICO-MICROBIOLOGICAL PROFILE OF DACRYOCYSTITIS AT TERTIARY CARE CENTER OF UTTARAKHAND, NORTH INDIA

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ABSTRACT **Background:** Dacryocystitis is infection and inflammation of lacrimal sac. It is an important cause of ocular morbidity in India. This study is to see the demographic factors like age, sex, occupation and social status and to see the microbiological pattern in dacryocystitis. **Material and Method:** It is a cross sectional study, conducted at tertiary care centre of Kumaon region, Haldwani, Uttarakhand, North India from 1 January 2020 to 30 September 2021. Samples from the content of lacrimal sac are collected from these patients and sent to microbiology department for immediate processing. **Results:** A total of 81 eyes of 70 patients were studied. Incidence of Dacryocystitis was found more in females than in males, the mean age of presentation being 56.26 ± 12.30 years overall. Culture positive infection was obtained from 67 (82.7%) eyes and no growth was observed from 14 (17.2%) eyes. Most of the samples yielded Gram positive bacteria (67.9%) predominantly coagulase negative Staphylococcus. **Conclusion:** most common micro-organism isolated was Coagulase negative Staphylococcus followed Staphylococcus aureus & Streptococcus species among gram positive and Pseudomonas, Klebsiella and Citrobacter among gram negative organisms.

KEYWORDS : Dacryocystitis, coagulase negative Staphylococcus, Culture positive infection, Haldwani

Introduction

Dacryocystitis is infection and inflammation of lacrimal sac¹. The disease occurs as a isolated incident (acute) or as an ongoing form (chronic)². Distal obstruction of nasolacrimal duct converts the lacrimal sac into a stagnant pool, which easily becomes infected leading to dacryocystitis³ making it an important cause of ocular morbidity in India⁴. Whatever may be the cause, stasis provides a fertile media for the bacterial growth⁵. Patient with dacryocystitis may present with different symptoms, in acute cases, patient can present with swelling, redness and tenderness at lacrimal region and in chronic cases patient may remain asymptomatic or may have watering, discharge from the eye and swelling at lacrimal region⁶. Chronic Dacryocystitis is commonly encountered by an Ophthalmologist accounting for 87.1% of Epiphora (watering), which causes social embarrassment due to chronic watering from eyes. It commonly affects females over 40 years of age with peak incidence in 60-70 years.

Material and method

It is a cross sectional study of dacryocystitis patient attending eye OPD of department of Ophthalmology Dr Susheela Tiwari Memorial Govt. Hospital, Haldwani, Uttarakhand from 1 January 2020 to 30 September 2021. Ethical clearance was obtained from Institutional Ethics Committee, Government Medical College, Haldwani, Uttarakhand. The study was conducted on patients of all age groups, occupations and socio-economic status. Detailed clinical history and complete Ophthalmological examination was done. After clinical diagnosis of dacryocystitis was made, specimens were collected using sterile cotton swabs under strict aseptic condition. It was sent promptly to the microbiology laboratory for immediate processing. The collected samples were plated on 5% sheep blood agar, chocolate agar, mac-conkey agar and incubated at 37°C for 24-48 hours.

Any growth on the plates was identified with the help of colony characteristics, gram-staining and standard microbiological techniques.

Result

Table 1: Age distribution of the patients:

Age group	Total	Percentage
<20	4	5.7
20-29	3	4.3
30-39	5	7.1
40-49	8	11.4
50-59	30	42.9
60-69	15	21.4
70-79	5	7.1
Total	70	100

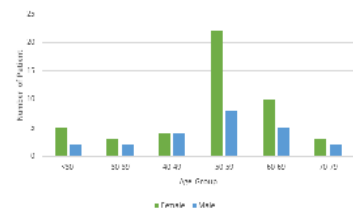


Fig 1: Age wise distribution in dacryocystitis

In our study most common age group affected is 50-59 years (50%) followed by the age group affected is 60-69 years (18.6%). In our study the youngest case was an 11 months year old male and the oldest case was a 79 years old male.

Table 2: Distribution of the patients according to gender

GENDER	Frequency (No.)	Percentage (%)
Female	47	67
Male	23	33
Total	70	100

This table shows that majority of the patients in this study were females (67%) and the rest of the patients were males (33%).

Table 3: Occupation of patients

Occupation	Frequency	Percentage (%)
Agriculture/farmer	15	21.4
Homemaker	27	38.5
Teacher	05	7.1
Other	7	10
Labour	10	14.2
Students	4	5.7
Children	2	2.8
total	70	100

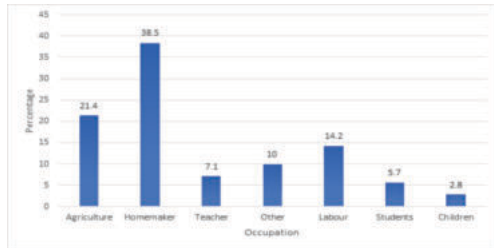


Fig : Showing occupation of patients

In this study majority of the patients are females and most of them are homemaker (38.5%) who are commonly affected. Farmers (21.4%) and labourers (14.2%) are next commonly affected followed by teachers (6.8%). The least affected are students (5.7%) whereas two patients were children below the age of 2 years (2.8%)

Table 4: Microbiological profile (culture positive and culture negative)

S. no.	Organism	No of cases	Total	Percentage
1	Coagulase negative staphylococcus	28	55	34.6
2	Methicillin resistant staphylococcus aureus	11		13.6
3	Methicillin sensitive staphylococcus aureus	7		8.6
4	Streptococcus	9		11.1
5	Pseudomonas	6	10	7.4
6	Klebsiella	4		4.9
7	Mixed growth	2	2	2.5
8	No growth	14	14	14
Total		81		100

Among 81 samples of 70 patients, most of the samples yielded Gram-positive bacteria (n= 55, 67.9%). Out of these Gram -positive culture coagulase negative Staphylococcus were seen in 28 samples (50.9%). Staphylococcus aureus were grown in 18 samples (32.7%) and Streptococcus was seen in 09(16.4%) sample. Pseudomonas and Klebsiella was seen in 6(7.4%) and 4(4.9%) samples, respectively. Out of 81 samples only 2 sample (2.5%) showed mixed growth of Methicillin sensitive Staphylococcus aureus and Citrobacter and 14(14%) samples showed no growth.

Discussion

According to this study dacryocystitis incidence is more common in females. Harkare V et al⁷ and Ahuja et al⁸, noted similar female predominance in their study. Majority of females are housewives.

The most common age group affected in this study was 50-59 years. Which correlated well with the result of the study conducted by Bharathi MJ et al⁹ and R. Prakash et al¹⁰

Coming to laterality, the right side(50%) is relatively more commonly affected than left side(34.2%) and involvement of both eyes was 15.7%. This correlates well with the studies done by Madhusudan et al¹¹ R.Sudha¹² and Khatoon J et al¹³

The rate of infection is more common among males who belong to the agricultural sector (22%) and daily wage labourers (10%) because of occupational exposure and poor socio-economic condition. Surendra P. Wadgaonkar et al (2016), found majority of the wage laborers

(35.71%) being affected followed by farmers (32.14%) in their study. Patel K et al (2014)¹⁴ observed the same result.

Watering with discharge (41.9%) was the main presenting feature followed by watering (40.7%) and watering with swelling in lacrimal sac area(37%). Kinikar v. et al¹⁵(2021) and Patel K et al¹⁴ found similar result in their study.

Microbiological study

In our study Coagulase negative *Staphylococcus epidermidis* (34.5%) was the most common Gram- positive cocci followed by *Staphylococcus aureus* (13.5%) and *Streptococcus pneumoniae* (11.1%). Gram negative organisms included *Pseudomonas aeruginosa* (7.4%) followed by *Klebsiella pneumoniae* (4.9%). Our study fairly correlate with Pradeep A.V. et al which also showed Coagulase Negative Staphylococci (CONS) were the predominant isolates (15/21; 71%) followed by *Staphylococcus aureus* (3/21; 14%). Similar result was reported by Bharathi MJ et al⁹.

In our study most frequently, isolated Gram-negative organism was *Pseudomonas aeruginosa* (7/18; 6.4%) followed by *Klebsiella* (6/18; 5.5%). Similar results were found in study conducted by Ahuja et al(2017)⁸

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