

A Clinico Microbiological Study of Dacryocystitis in Adults

*Dr.T. Leelavathamma, **Dr.T.Penchalaiah***Dr.C.S.Sandhya,

****Dr.M.A. Subhahani.

*Assistant Professor, Department of Ophthalmology, SV Medical College, Tirupati

**Assistant Professor, Department of Ophthalmology, SV Medical College, Tirupati

***Professor and HOD, Department of Ophthalmology, SV Medical College, Tirupati

****Resident, Department of Ophthalmology, SV Medical College, Tirupati

Corresponding Author, Dr. T. Penchalaiah,

Abstract

Background: Dacryocystitis is one of the most common diseases of the eye. It is an important cause of ocular morbidity in the children and adults and is a major risk factor for post operative endophthalmitis. Hence it requires special attention to initiate appropriate treatment at the earliest. **AIM:** The present study was conducted to identify the demographic profile of the patients with dacryocystitis and common microbial organisms causing the disease.

Material And Methods

A Total of 100 patients complaining of watering and having NLD block on syringing were selected. Demographic factors such as age, sex and occupation were recorded. Samples were collected by applying pressure over the lacrimal sac area and allowing the purulent material to reflux through the lacrimal punctum or by irrigating the lacrimal drainage system with sterile saline and collecting the reflowing material. Samples were sent for microbiological investigation.

Results: One hundred patients were included in the study. Among these 86% were culture positive and remaining 14% were culture negative. Commonest gram +ve organism was coagulase negative staphylococcus, staphylococcus aureus, Gram negative was pseudomonas aeruginosa. **CONCLUSION:** It is important to know about microbiological organisms responsible for chronic dacryocystitis as it is one of the important predisposing factors for post operative endophthalmitis, especially due to the large volume of cataract surgeries performed nowadays.

Keywords: Chronic dacryocystitis, Epiphora, endophthalmitis.

Date of Submission: 25-12-2017

Date of acceptance: 12-01-2018

I. Introduction

Epiphora is common symptom embarrassing the patient both socially and functionally. Chronic dacryocystitis is most common cause of epiphora. It is an inflammation of the lacrimal sac and NLD. It may be congenital or acquired. Acquired assumes two forms Acute and chronic. Patients attending ophthalmic OPD and diagnosed as having ch. dacryocystitis were subjected to further investigations. The purpose of this study is to analysis the disease both clinically and microbiologically and to identify the microorganisms responsible for the disease in this region.

Aims And Objectives

To study the distribution of dacryocystitis with respect to age, sex and chronicity of symptoms.

1. To identify and isolate the causative organisms from clinically diagnosed cases of dacryocystitis

II. Material And Methods

This is an observational study on dacryocystitis, carried out in the Department of ophthalmology S.V. medical college Tirupathi.

A total of 100 clinically diagnosed cases of dacryocystitis attending OPD and those who were hospitalized for management were selected for study and informed consent was taken

INCLUSION CRITERIA: 1.Clinically diagnosed cases of acute and chronic dacryocystitis 2.Age group > 20 years, 3. Patients willing to participate in the study.

EXCLUSION CRITERIA : 1.Patients who have received either topical or systemic antibiotics in past one month. 2. Patient with congenital dacryocystitis

Complete clinical examination included - evaluation of the nature of the discharge, presence of fullness in the lacrimal sac area and lacrimal sac patency.

Collection of the samples was performed by applying pressure over the lacrimal sac area and allowing the purulent material to reflux through the lacrimal punctum or by irrigating the lacrimal drainage system with sterile saline.

Collected swabs were sent immediately to microbiology department for KOH mounting, Gram staining and for culture.

The specimens were cultured immediately in the following manner. The swabs were rolled over blood agar plates. Examination of blood agar plates was done after 24 – 48 hrs of incubation. Observation was made for number and types of colonies formed. Gram staining was performed to identify whether the organisms were gram +ve or gram –ve.

III. Results

In the present study 100 clinically diagnosed patients of dacryocystitis of all ages and both sexes were studied during one year period.

Table No.1 – Distribution of Dacryocystitis cases according to age.

s.no	AGE GROUP IN YEARS	TOTAL NUMBER OF CASES
1.	21-30	5
2	31-40	13
3	41–50	23
4	51-60	40
5	61, AND ABOVE	19
TOTAL		100

Highest no. of cases were seen in the age group of 51 – 60 years.

Table No.2 – Distribution of Dacryocystitis cases according to sex .

S.NO.	Sex	No. of cases		Total
		Acute	Chronic	
1.	MALE	6	20	26
2.	FEMALE	19	55	74
3.	TOTAL	25	75	100

Out of 100 cases 74% were females, 26% were males.

Table No.3 - According to laterality.

S.NO.	SEX	Unilateral		Bilateral	Total	X ²	P values	SIGNIFI CANCE
		RE	LE					
1.	MALES	13	12	1	26	1.19	p>0.552	*N.S
2.	FEMALES	28	42	4	74			
3.	TOTAL	41	54	5	100			

Left eye was affected in 54% and right eye in 41% and both eyes in 5% of cases.

Table No.4 – According to sex and chronicity of disease.

S.NO.	CLINICAL TYPE	No.of Cases		Total	X ²	P values	SIGNIFI ACANCE
		Male	Female				
1.	ACUTE	6	19	25	0.0693	p>0.792	*N.S
2.	CHRONIC	20	55	75			
	TOTAL	26	74	100			

Chronic dacryocystitis was most common clinical entity encountered in the present study comprising of 75% cases ,25% of the cases had acute dacryocystitis.

Table NO.5 – According to sex and presenting complaint

S.NO.	CLINICAL TYPE	No. of Cases		Total	X ²	P values	SIGNIFI CANCE
		Male	Female				
1.	EPIPHORA ONLY	10	25	35	0.427	p>0.808	*N.S
2.	EPIPHORA & MUCOPURULENT DISCHARGE	9	31	40			
3.	SWELLING, REDNESS	7	18	25			
	TOTAL	26	74	100			

In the present study 35% of cases showed only epiphora, 40% of the cases showed epiphora with muco purulent discharge.25% of the cases showed epiphora with swelling in the medial canthus region. Females were more commonly affected than males.

Table No.6 - spectrum of bacteria isolated.

S.NO.	ORGANISM	No. of cases		Total	%
		Acute	Chronic		
1.	STAPH.AUREUS	4	30	34	39.42
2.	PSEUDOMONAS	4	17	21	24.17
3.	COAGULASE NEGATIVE STAPHYLOCOCCUS	4	9	13	15.12
4.	PNEUMOCOCCUS	3	10	13	15.12
5.	STREPTOCOCCUS	1	2	3	3.44
6.	KLEBSIELLA	1	2	3	3.44
	TOTAL	17	70	87	100

66 cases (80%) are culture positive 15 cases are culture negative

According to occupation

Table 7: Distribution of dacryocystitis cases according to occupation

OCCUPATION	NO.OF CASES	PERCENTAGE(%)
HOUSEWIVES	25	25
COOLIES	18	18
AGRICULTURAL LABOURERS	49	49
OTHERS	8	8
TOTAL	100	100

In the present study majority of the dacryo cystitis patients affected were agricultural workers 49% ,housewives 25%,coolies 18% and others were 8% in our present study.

IV. Discussion

In the present study,100 clinically diagnosed cases of dacryocystitis attending Ophthalmology Department, SVRR Govt General Hospital,Tirupati were studied. The pattern of relative incidence of various factors compared with other studies was discussed.

Age incidence

Table 8 : Age wise prevalence of dacryocystitis in our study compared with other studies

Age wise incidence	Present study	shyalaja	Prakash R et al	Khevna P et al	Buyan et al
41-50		30%			23.33%
51-60	40%		35%	43%	
61 & above					

In our study majority were in the age group of 51- 60 yrs (40%). This correlates with Prakash R et al and Khevna et al study where the prevalence was more in 51-60 years age group.

Sex incidence

Table 9: Table shows sex ratio compared to other studies

SEX	PRESENT STUDY	SHAH CP et al	PRAKASH et al	SHYALAJA et al	BHARATHI et al	KHEVNA PATEL
Female	74%	64%	70%	66%	79.6%	52%
Male	26%	36%	30%	34%	20.45	48%

The present study showed that the infection was common in females (74%) than males (26%). This very closely correlated with Prakash et al and Bharathi et al study. But in Khevna et al study the M : F ratio was almost equal [52% males and 48% females]

Laterality

Table 10: Laterality in dacryocystitis in our study compared to other studies

EYE	PRESENT STUDY	PRAKASH et al	SHYALAJA et al	BROOK et al	SARITHAYERIMUNI	KHEVNA patel
RIGHT	41%	40%	44%	32%	28%	44%
LEFT	54%	50%	50%	40%	48%	56%
BOTH	5%	10%	6%	-	-	-

In the present study involvement of eye was mainly unilateral (95%), bilateral in 5% of cases. Left eye was more commonly involved than right eye and correlated with Prakash et al, Shyalaja et al and Khevna Patel studies.

Clinical type of dacryocystitis

Table 11: Below table shows comparison of clinical types with other studies

DACRYOCYSTITIS	PRESENT STUDY	SHAH CP et al	PRAKASH et al	HARTIKAININ	BHARATHI
ACUTE	25%	45%	36%	21%	29.9%
CHRONIC	75%	55%	63.75%	71.25%	70.1%

Chronic dacryocystitis (75%) was the most frequent clinical type in the present study. This correlated with Hari kainin and Bharathi et al study.

Clinical presentation

Table 12: Prevalence of symptoms in dacryocystitis compared to other studies

COMPLAINTS	PRESENT STUDY	PRAKASH et al	SARITHA et al	SHAH CP et al	SHYALAJA et al	MACHIN SJ
EPIPHORA	35%	50%	50%	70.3%	32%	52%
EPIPHORA,MUCOUS/MUCOPURULENT DISCHARGE	40%	40%	40%	21.6%	68%	26.4%
EPIPHORA,SWELLING	25%	10%	10%	-	-	4.8%

Most frequent clinical presentation was epiphora only in 35%, epiphora with mucous discharge 40%, epiphora with swelling in 25% of the cases. The reason for different presentation may be related to microbial pathogenesis of dacryocystitis.

CULTURE POSITIVITY

Table 13: cases of dacryo cystitis showed culture positivity in the present study compared to other studies

CULTURE	PRESENT STUDY	KHEVNA et al	SALA HUDDIN	BHARATHI	SARITHA	BHAVNA
POSITIVE	76%	83%	73.3%	80.3%	84%	72.9%
NEGATIVE	24%	17%	6.6%	19.7%	16%	27.1%

76% were culture positive, 24% were culture negative compared to other studies

Various organisms

Table 14: showing distribution of various organisms in dacryocystitis compared to other studies

ORGANISM	PRESENT STUDY	SAINJU et al	PRAKASH	SHYALAJA	BHUYAN	SALAHUDDIN
S.AUREUS	39%	34.1%	24.76%	44%	28.33%	53.4%
PSEUDOMONAS	24.1%	7.6%	14.28%	8%	-	13.4%
CONS	15.12%	-	-	28.2%	-	-
PNEUMOCOCCUS	15.12%	-	-	20%	23.33%	3.3%

In our study, Out of 87 isolates, all were showing aerobic bacteria only, no other isolate was showing either anaerobic bacteria or fungi. Gram positive were 63 (72.46%) and Gram negative were 24 (27.4%) This correlated with the study conducted by Sainju et al and Shyalaja et al. The more number of gram positive isolates might be due to more no. of chronic dacryocystitis cases included in the study.

V. Conclusion

In conclusion a total of 100 clinically diagnosed cases of both Acute and Chronic dacryocystitis were subjected to microbiological examination to identify the organisms. 86% were culture positive. This highlights the importance of this clinical condition and significance of micro biological investigation of all cases of EPIPHORA and NLD OBSTRUCTION, before planning for any intra ocular procedures.

Abbreviations

- OPD – Out patient department
- S.AUREUS- staphylococcus aureus
- CONS- coagulase negative staphylo cocci
- M - male
- F - female

S.NO – serial number
NLD – naso lacrimal duct
RE – right eye
LE – left eye

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Dr.T. Leelavathamma "A Clinico Microbiological Study of Dacryocystitis in Adults." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 17, no. 1, 2018, pp. 11-15.