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A Study of Bacteriological Status of Lacrimal Regurgitate In Chronic Dacryocystitis

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Original Research Article

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Abstract: Dacryocystitis is a chronic inflammation of lacrimal sac which is very common and unpleasant disease. It occurs due to infection in the nasolacrimal duct. A prospective study was conducted in the Department of Ophthalmology, G.S. Medical College and Hospital, Pilakhua. 100 consecutive cases of lacrimal regurgitate were studied. It is conducted by the way of collection of samples with all aseptic precautions. Microbiological processing and preparation of smear with the help of grams staining was done. The commonest age at which the dacryocystitis was found between 30 and 60 years of age group, female preponderance was found and that to in lower socioeconomic groups.
Keywords: Dacryocystitis, lacrimal regurgitate.

INTRODUCTION

Dacryocystitis is the inflammation of the lacrimal sac which is very common and unpleasant disease. Main symptom is epiphora of chronic dacryocystitis. It occurs mainly due to obstruction of the nasolacrimal duct. Other causes may be stenosis of punctum, fibrosis of the puncta and other inflammation of the nasolacrimal passage. Pathogenesis resides in the stasis of the nasolacrimal regurgitate within the passage as the passage is block. Geographical variation is seen in the pathogenesis of dacryocystitis. Most common pathologic organisms is coagulase negative, staphylococci, staphylococcus aureus. The former organism is the most common cause of infection of the nasolacrimal duct.

MATERIALS AND METHODS

A prospective study was conducted in the Department of Ophthalmology, G.S. Medical College and Hospital, Pilakhua, District Hapur (U.P.). The period of study was October 2016 to October 2017 covering 100 consecutive cases of lacrimal regurgitate in chronic dacryocystitis. Samples were collected from all the cases under complete aseptic precaution and were subject to culture.

Criteria applied for the diagnosis of dacryocystitis:

- Watering/discharge of the eye for long period.
- Presence of blockage of the lacrimal passage (diagnosed by regurgitation test and syringing).

On day 1, the lacrimal regurgitate was collected for bacterial examination and special was taken not to use to any chemotherapeutic agent during collection.

Exclusion criteria

Patients with previous DCR surgery, antibiotic therapy, acute dacryocystitis and patients with age under 15 were excluded. Examination for any fistula present in the patient or scaring at the sac area.

Technique of collection of lacrimal regurgitate from lacrimal sac for bacteriology

Sample of lacrimal regurgitate was taken with the help of sterile swab under all aseptic precaution and directly inocculated in the glucose growth. Other culture was nutrient agar media, blood agar media and sugar media.

Microbiological processing

Specimen of regurgitative material inocculated in glucose broth[1] were inocculated on blood agar, nutrient agar with the help of inocculation loop and were incubated at 37^{o}C for 24 hours. If no growth occurs then sample were observed for 48 hours.

After incubation the plates were observed growth, if no growth was observed the sample was tagged as sterile.

RESULTS

100 cases of chronic daycrocystitis were studied in the Department of Ophthalmology, G.S. Medical College and Hospital, Pilakhua, District Hapur (U.P.) from October 2016 to October 2017.

Table-1: Distribution of patients according to age

Age group (yrs)	No. of cases	Percentage
10-20	05	05%
21-30	17	17%
31-40	17	17%
41-50	12	12%
51-60	25	25%
61-70	18	18%
> 70	06	06%
Total	100	100%

Maximum numbers of patients (64%) were observed in age group 30-60 and lowest number of cases (5%) was found in second decade (table 1).

The table shows females were found to approximately 4 times as commonly affected as compared to male (table 2).

Table-2: Distribution of cases according to gender

Age group (yrs)	Male		Female	
	No. of cases	Percentage	No. of cases	Percentage
10-20	02	02%	03	03%
21-30	04	04%	13	13%
31-40	04	04%	13	13%
41-50	-	-	12	12%
51-60	05	05%	20	20%
61-70	02	02%	16	16%
> 70	02	02%	04	04%
Total	03	03	03	03

Table-3: Social status in chronic dacryocystitis

Total no. of cases		I-Upper		II-Middle Upper		III-Middle Lower		IV-Lower Upper		V-Lower Lower	
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
100	100%	-	-	06	06%	09	09%	10	10%	75	75%

Maximum number of dacryocystitis belongs to lower lower class (75%) and none of the cases belongs to upper class (table 3).

The commonest factors found in 65% cases were measles and sinus infection (table 4).

Table-4: Etiological factors in chronic dacrycystitis

Etiological factors	No. of cases	Percentage
Chronic simple conjunctivitis	04	04%
Nasal and sinus infection	65	65%
Heat and dust	35	35%
Chickenpox	28	28%
General infection e.g. measles, mumps, influenza	-	-
TB	02	02%
Syphilis	-	-
Laprosy	-	-
Foreign body	-	-
Trauma	-	-
Heredity	02	02%

Table-5: Nasal examination in chronic dacryocystitis

Features	No. of cases	Percentage
Deviated nasal septum	49	49%
Hypertrophied inferior turbinate bone	41	41%
Rhinitis	10	10%

Table-6 : Incidence of symptoms in chronic dacryocystitis

Symptoms	No. of cases	Percentage
Watering	100	100%
Discharge (Purulent/Mucopurulent)	45	45%
Redness of eye	04	04%
Swelling of lacrimal sac region	22	22%
Discharge through fistula	07	07%

Table shows that watering was found in 100% of cases and discharge (purulent/ mucopurulent) was found in 45% cases(table 6).

Commonest organism isolated was staphylococcus epidermidis [3, 5] which was found in 40.26% cases followed by staphylococcus aureus 28.23% and streptococcus pneumonia in 23.58%.

Table-7: Bacteriological examination of lacrimal regurgitate

Organism	No. of cases	Percentage
Staphylococcus epidermidis	28	38.88%
Staphylococcus aureus	13	18.55%
Streptococcus pneumonia	12	16.66%
Staphylococcus viridans	3	4.16%
E. coli	3	4.16%
H. influenzae	2	2.76%
Staphylococcus pyogenes	1	1.38%
Staphylococcus aureus mixed with streptococcus pneumonia	4	5.55%
Staphylococcus aureus mixed with E. coli	2	2.76%
Staphylococcus aureus mixed with H. influenzae	1	1.38%
Streptococcus pneumonia, H. influenzae mixed with streptococcus pyogenes	1	1.38%
Staphylococcus epidermidis mixed with streptococcus pyogenes	1	1.38%
E. coli mixed with streptococcus viridans	1	1.38%
Total	72	100%

DISCUSSION

The inflammation of the lacrimal sac is known as chronic dacryocystitis and it is known for ages. In the middle of first century, Vesalius and Fallopius recognized nasolacrimal passage system accurately. The etiology of chronic dacryocystitis is not yet fully known and understood.

Normally lacrimal sac and the nasolacrimal duct comprises of one single system for drainage of the nasolacrimal regurgitate. It is lined by delicate mucosa which is prone to external infections. The lower end of this tube i.e. the nasal duct is specially vulnerable and likely to upset the whole nasolacrimal system.

Age incidence

Commonest age at which chronic dacrycystitis [2,4] was found between 30-60 years of age (64%).

Sex incidence

The adult female preponderance [4,5] has been well established. This study suggests the female dominance i.e. 78.1%.

Socioeconomic status

Study clearly shows the lower lower seriocomic strata are usually affected with chronic dacryocystitis (75%).

Clinical features

Conjunctival congestion (angular conjunctivitis)[2,3] were found in 34% of cases followed by swelling lacrimal region (22%).

Corneal ulcer

In present study, 4 cases (4%) in chronic dacryocystitis had corneal ulcer which did not heal for 2 months, but healed after dacryocystectomy.

Bacteriological examination

The commonest organism[2] isolated by staphylococcus epidermidis found in 40.26% cases followed by staphylococcus aureus (28.23%) and streptococcus pneumonia (23.85%) cases. Mixed infection found in 10 cases (13.82%).

CONCLUSION

In the present, it was concluded that most common bacterial isolate prevailing in the patient of chronic dacryocystitis was found to be staphylococcus epidermidis (gram positive, coagulase negative).

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