Original Article

Fate of Dacryocystitis in the Community of Punjab

Dacryocystitis in the Community

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ABSTRACT

Objective: To study the Fate of Dacryocystitis in the Community of Punjab.
Study Design: Retrospective study
Place and Duration of Study: This study was conducted at the Idris Teaching Hospital Sialkot during March 2019 to March 2020.
Materials and Methods: In this Retrospective study 100 patients with infection of lacrimal sac, Dacryocystitis, were recruited. Convenience sampling in sterile condition from lacrimal sac was used in this study.
After registration of demographic data, sampling was performed by sterile swab from the pus out of the lacrimal sac. The exact time of sampling were recorded. Various media was used for bacterial cultivation. These media were blood agar, EMB, chocolate agar, and thioglycolate broth.
Blood agar and EMB media were incubated in 37°c for 24 h and chocolate agar medium was incubated in specific CO_2 concentration. Thioglycolate broth medium was used for anaerobic bacteria that may cause infection in 37°c incubator for 72 h. Biochemical tests were performed to identify bacteria in the case of colonies formation on the media. Various antibiotics such as amikacin, chloramphenicol, cefazolin, co-trimoxazole, vancomycin, doxycycline, tetracycline, erythromycin, and Gentamicin were used for studying the bacteria antibiotic resistance.
SPSS version 15 was used for statistical analysis. Kolmogorov-Smirnov test for quantitative variables and chi-square test was used to evaluate the qualitative variables. Written informed consent was taken before taking history, examination and sample taking of the patient. The permission of Ethical Committee was taken before collecting the data and gets publishing in Medical Journal.
Results: In this study, the mean age of participants was 49.36 ± 12.18 years which min and max ages were 19 and 66 respectively. Number of male and female patients was (72 (72%) female patients and 28 (28%) male patients). Sampling was performed in 53.3% of patients from right eye and 47.7%from left eye.
Studying the type of obtained smear from pus of patients eyes in sterile condition was shown 46.7%, 6.7%, 16.7%, and 30% of smears were negative (normal), gram positive coccus, gram negative bacillus, and gram positive coccus with gram negative bacillus, respectively. The frequency of bacterial species was studied.
Conclusion: In, the results obtained in this study show that gram-positive bacteria are the majority of bacteria causing Dacryocystitis, which is confirming previous studies. Although there are some results from other studies in contrast to our results regarding the prevalence of bacteria. It can be concluded that the type of bacterial infection can be linked to environmental conditions. On the other hand, this study showed that the best antibiotic for treatment of Dacryocystitis is Chloramphenicol. It should be noted that due to the variety of bacteria which can cause this disease, identification of bacterial contamination can be a great help in the treatment process.
Key Words: Dacryocystitis, Male, Female and Prevalent

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INTRODUCTION

Inflammation of the lacrimal sac due to blockage of lacrimal structures and the nose duct which has primary or secondary etiologies. Idiopathic inflammatory obstruction is the primary cause. Injury, contamination, hotness, abnormal growth of tissue, and automatic blockage are secondary one[1].
Relating to the bedside of a patient of this disease is pain, swelling, redness over the upper portion of the nasolacrimal duct at medial can thus, watering, cover with a hard outer layer, fever, finger pressure over the upper portion of the nasolacrimal duct may eject pus through the opening of a tear duct. It is notable that, in chronic cases, tearing may be the only symptom. About sixty percent of initial attacks of inflammation of the

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lacrimal sac will recur. Individuals with a poorly functioning immune system (immunocompromised) may develop orbital cellulites, which may lead to optic neuritis, Proptosis, motility abnormalities, or blindness[2,3].

Blocking the flow of watering due to blockage cause collection of debris in lacrimal sac which can be a suitable place for the growth of microscopic organism [4]. Congenital Dacryocystitis can be seen in 2-6% of infants due to absence of nasolacrimal canal. Also it can be foreign in old ages which are lasting a long time or recurring[5].

Chronic inflammation of the lacrimal sac is usually because of complete or partial obstruction in a single location of upper portion of the nasolacrimal duct or lacrimal structures and the nose. contamination of lacrimal sac mostly occurs in two separate age groups, baby and young's more than forty years old. Chronic Dacryocystitis is more common in women. Studies show seventy-eighty three percent of foreign inflammation of the lacrimal sac is occurred in female and this is while there is no difference in sex for familial one. hotness of the lacrimal sac related to branch of science that deals with microorganisms works have shown different of bacteria in chronic hotness of the lacrimal sac which Streptococcus pneumonia and Staphylococcus spp. are the most common of them. Also fungal infection by Candida albicans and Asperigillus spp have been reported in rare cases. Fungi are usually separated in five percent of foreign inflammation of the lacrimal sac sick persons and in fifteen percent of hereditory. Studies on fungal infection of chronic Dacryocystitis do not show any specific results [6].

It is important to note that, the number of fungal hotness of lacrimal system has increased rather than the past. One thing that can explain this phenomenon is that the numbers of patients suffer from immune system weakness and HIV has been increased. Immune response to the fungal infection is related to innate immune system (Neutrophil and monocytes) which is weak in this type of diseases. In addition, the use of broad-spectrum antibiotics increased fungal infection and changed microbial flora [7,8,9].

MATERIALS AND METHODS

In these cross-sectional study 90 patients with infection of lacrimal sac, dacryocystitis, from March 2019 to March 2020, in Idris Teaching Hospital Sialkot, were recruited. Convenience sampling in sterile condition from lacrimal sac was used in this study.

After registration of demographic data, sampling was performed by sterile swab from the pus out of the lacrimal sac. The exact time of sampling were recorded. Various media was used for bacterial cultivation. These media were blood agar, EMB, chocolate agar, and thioglycolate broth.

Blood agar and EMB media were incubated in 37°c for 24 h and chocolate agar medium was incubated in specific CO_2 concentration. Thioglycolate broth medium was used for anaerobic bacteria that may cause infection in 37°c incubator for 72 h. Biochemical tests were performed to identify bacteria in the case of colonies formation on the media. Various antibiotics such as amikacin, chloramphenicol, cefazolin, co-trimoxazole, vancomycin, doxycycline, tetracycline, erythromycin, and gentamycin were used for studying the bacteria antibiotic resistance.

SPSS version 15 was used for statistical analysis. Kolmogorov-Smirnov test for quantitative variables and chi-square test was used to evaluate the qualitative variables. Written informed consent was taken before taking history and examination of the patient. The permission of Ethical Committee was taken before collecting the data and get publishing in Medical Journal.

Inclusion Criteria: Having diabetes or immunodeficiency in addition to Dacryocystitis and using no antibiotic 2 weeks before sampling were this study's inclusion criteria.

Exclusion Criteria: Patients without Dacryocystitis were excluded from the study.

RESULTS

In this study, the mean age of participants was 49.36 ± 12.18 years which min and max ages were 19 and 66 respectively. Number of male and female patients was (72 female patients and 28 male patients). Sampling was performed in 53.3% of patients from right eye.

Table No.1: Bacterial species frequency

Bacterial Species	No of Female Patients	No of Male Patients	Frequency in Female (%)	Frequency in Male (%)	Frequency in all patients (%)
Staphylococcus	30	7	30%	7%	37%
E. coli	11	3	11%	3%	14%
Enterobacteria- ceae	13	4	13%	4%	17%
Streptococcus	1	1	1%	1%	2%
Pseudomonas	22	13	22%	13%	35%
Total	72	28	72%	28%	100%

Studying the type of obtained smear from pus of patients eyes in sterile condition was shown 46.7%, 6.7%, 16.7%, and 30% of smears were negative (normal), gram positive coccus, gram negative bacillus, and gram positive coccus with gram negative bacillus, respectively. The frequency of bacterial species was studied. The frequency of Staphylococcus was maximum 30 (30%) in female & 7 (7%) in male & was minimum Streptococcus 1 (1%) in female & 1 (1%) in male as shown in table #1.

The frequency of resistance in case of Amikacin was maximum 35 (35%) & Sensitivity Frequency was maximum 53 (53%) & resistance Frequency was minimum in case of Chloramphenicol & Sensitivity Frequency was 67 (67%) in case of Chloramphenicol as shown in table #2.

The incidence of Dacryocystitis was maximum 72 (72%) in case of female & in case of male it was 28 (28%) as shown in table # 3.

The incidence Dacryocystitis was maximum 27 (27%) in age group 31-40 years & was minimum 11 (11%) in age group 51-60 years as shown in table # 4.

Table No.2: Bacterial antibiotic resistance results

Antibiotic	Resistance Frequency		Relative Resistance Frequency		Sensitivity Frequency		Experimental error frequency	
	No.	%age	No.	%age	No.	%age	No.	%age
Amikacin	35	35%	-	-	53	53%	-	-
Chloramphenicol	8	8%	11	11%	67	67%	-	-
Cefazolin	37	37%	9	9%	38	38%	3	3%
Co-trimoxazole	73	73%	5	5%	9	9%	-	-
Vancomycin	31	31%	9	9%	43	43%	3	3%
Doxycycline	41	41%	35	35%	11	11%	-	-
Tetracycline	62	62%	21	21%	5	5%	-	-
Erythromycin	39	39%	11	11%	37	37%	-	-
Gentamicin	13	13%	11	11%	59	59%	2	2%

Table No.3: Gender Distribution

Sr. No.	Gender	Percentage
1	Male	28 (28%)
3	Female	72 (72%)
Total		100 (100%)

Table No.4: Age Distribution

Sr. No.	Age (Year)	Percentage
1	19-30	25 (25%)
2	31-40	27 (27%)
3	41-50	23 (23%)
4	51-60	11 (11%)
5	60-66	14 (14%)

DISCUSSION

Inflammation of the lacrimal sac, secondary to blockage of the nose and lacrimal duct at the joining of lacrimal sac. It causes pain, redness, and swelling over the inner aspect of the lower eyelid and excessive watering of the eye. When nose and lacrimal duct blockage is secondary to a familial blockage it is referred to as benign, bluish-gray mass in the inferomedial canthus.[10] The depends of therapy are by mouth antibiotics, warm press, and relief of the nose and lacrimal duct blockage by surgical procedure to restore the flow of tears into the nose from the lacrimal sac. Considering to the main etiology of this disease which is a bacterial infection, bacterial detection and their antibiotic opposition have special importance for therapy and preventive therapy of surgical procedure to restore the flow of tears into the nose from the lacrimal sac[11].

Our results show the mean age of sick persons were forty-nine point three six ± twelve point eighteen and there were not any special differences between sick person sex and the affected eye side. Smear results showed negative results (normal) in 46% of samples which means smear results are not useful for diagnosis, but bacterial cultivation results were positive for all patients.

Bharathi MJ, et al. (2007) seen that the most common bacteria in chronic inflammation of the lacrimal sac are Staphylococcus inflammation of epiderm (forty-two point two percent), Staphylococcus aureus (ten point eight percent), and Streptococcus pneumonia (Ten percent) which are all gram-positive bacteria[12]. This result repeated in our study too. Our results showed staphylococcus species and gram-positive have the mostly in sick persons eye pus. The results of Chaudhry et al in 2005 showed same bacterial frequency too. They stated that gram-positive bacteria especially staphylococcus species had the most frequency in their patients[13].

DM Mills et al planned a work on sixteen eye center in USA. Their research contained 89 participants. Their results showed gram-positive bacteria especially Staphylococcus were mostly on pus of chronic and acute inflammation of the lacrimal sac eyes rather than gram-negative. They showed that the methicillin-resistant Staphylococcus aureus was more frequent in acute dacryocystitis [1].

Like our results, in a work that was done in 1992 by Huber-Spitzy et al in Australia, it was shown that staphylococcus species have the mostly between bacteria obtained from patient's lacrimal sac and between gram-positive bacteria. They also observed a significant amount of gram-negative bacteria in which E.coli was the mostly bacterium among them[10]. While, Chaudhry et al, reported Haemophilus influenza as a most common gram-negative bacterium obtained from their patients in Saudi Arabia[13,14].

CONCLUSION

In, the results obtained in this study show that gram-positive bacteria are the majority of bacteria causing dacryocystitis, which is confirming previous studies. Although there are some results from other studies in contrast to our results regarding the prevalence of bacteria. It can be concluded that the type of bacterial infection can be linked to environmental conditions. On the other hand, this study showed that the best antibiotic for treatment of dacryocystitis is Chloramphenicol. It should be noted that due to the variety of bacteria which can cause this disease, identification of bacterial contamination can be a great help in the treatment process.

Author's Contribution:

Concept & Design of Study:	Tanveer Ahmad
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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