



MICROBIOLOGICAL ASSAY OF CASES OF CHRONIC DACRYOCYSTITIS ASSOCIATED WITH RHINOSPORIDIOSIS OF LACRIMAL SAC

Microbiology

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ABSTRACT

Aim: to identify the organisms associated in cases of chronic dacryocystitis caused by rhinosporidiosis of lacrimal sac

Design: Prospective study.

Methods: A prospective analysis of 32 lacrimal sac contents of patients with chronic dacryocystitis, with confirmed diagnosis of lacrimal sac rhinosporidiosis by histopathology after dacryocystectomy conducted during the period from April 2017 to March 2018. Material was obtained directly from the lacrimal sac while making performing external dacryocystectomy for chronic dacryocystitis with clinical suspicion of rhinosporidiosis. Samples were also collected from ipsilateral conjunctiva and inferior meatus of nose. The specimens were smeared and cultured in the dept of microbiology and results analyzed

Results: All the patients were in age group of 25-50. Gram positive bacteria i.e., Coagulase negative staphylococci and *Staphylococcus aureus* were the most common isolates (83.33% and 16.67% respectively).

Conclusion: Majority of the chronic dacryocystitis cases caused by lacrimal sac rhinosporidiosis were associated with Coagulase negative Staphylococci and *Staphylococcus aureus*.

KEYWORDS

Chronic dacryocystitis, lacrimal sac rhinosporidiosis, Coagulase negative *Staphylococcus*, *Staphylococcus aureus*

INTRODUCTION

Rhinosporidiosis is a chronic granulomatous disease affecting the mucous membrane primarily. It is caused by *Rhinosporidium seeberi*. [1] Previously thought to be a fungus, it is now believed to be a rare aquatic protistan parasite. Rhinosporidiosis is endemic in South India, Sri Lanka, South America and Africa. The most common route of transmission is exposure to the pathogen while bathing in stagnant water pools. It usually presents as a pinkish mass in nose, nasopharynx, oropharynx, conjunctiva, rectum and external genitalia with symptoms depending on the site. Isolated lacrimal sac involvement is very rare but interestingly quite common in western odisha. The mainstay of treatment is surgical excision. We conducted a study to identify the associated microbes in lacrimal sac rhinosporidiosis responsible for purulent discharge.

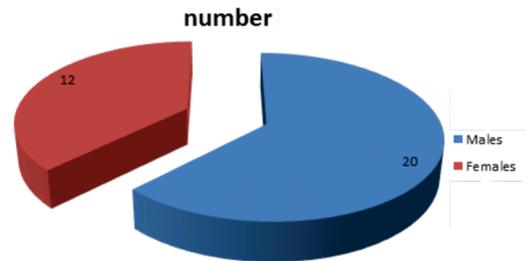
MATERIAL AND METHODS

A total of 32 samples were collected from cases of chronic dacryocystitis suspected clinically to be due to lacrimal sac rhinosporidiosis which were later confirmed by histopathology were included; who attended the ophthalmology outpatient department of a tertiary health care centre in western odisha during the period April 2017 to March 2018.

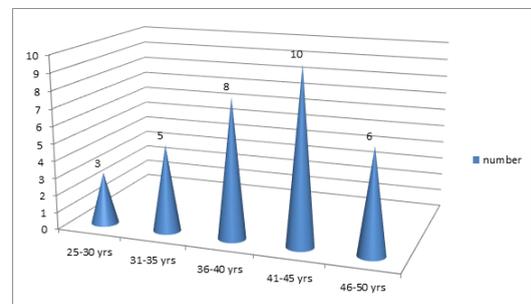
The study was carried out in accordance with the ethical guidelines of the Declaration of Helsinki and institutional ethical committee approval was obtained before the commencement of the study. An informed consent was obtained from all the patients. Clinically suspected cases of were operated for Ext-DCY after relevant investigations. Samples were collected directly from lacrimal sac during the surgery. Preoperative nasal swab and conjunctival swab from the same side were also collected. The materials were collected with sterile cotton swabs and sent for culture to the microbiology laboratory. The specimens received at the laboratory were inoculated immediately on MacConkey agar, chocolate agar and thioglycollate broth. Organisms grown were identified using standard biochemical reactions

RESULTS

Total of 32 adult patients were included in the study; (20 males and 12 females)



Age wise distribution of cases



The bacterial pathogens grown from lacrimal sac, nasal and conjunctiva

SPECIMENS	TOTAL	GROWTH	%ge of Growth
Lacrimal	32	18	56.25
Conjunctival	32	11	34.37
Nasal	32	20	62.50

In twelve nasal and five conjunctival specimens organism identical to the lacrimal sac specimen was recovered.

A total of 18 isolates were recovered from 32 lacrimal sac specimens. The Gram positive bacteria (15/18; 83.33%) outnumbered the Gram negative bacteria. Coagulase Negative Staphylococci (CONS) were the predominant isolates (12/18; 66.67%) followed by *Staphylococcus aureus* (3/18; 16.67%) and two isolates each of *Escherichia coli* and one isolate of *Moraxella catarrhalis*.

DISCUSSION

Soft, painless and fluctuating swelling with complete or incomplete blockage of nasolacrimal duct and epistaxis have been described as cardinal clinical features [2] for the diagnosis of rhinosporidiosis of lacrimal sac

Rhinosporidiosis is presumably a waterborne disease, caused by *Rhinosporidium seeberi*. Though it occurs universally, 88% of cases are reported from India and Sri Lanka. [3] It is an aquatic protistan parasite in taxonomic classification of recent studies. It is currently included in a new class the Mesomycetozoa. [4] It usually involves the nasal mucosa and rarely the conjunctiva, lacrimal sac, tonsils, and skin. Primary ocular rhinosporidiosis occurs in 10% of cases. [5] The pathway of transmission of rhinosporidiosis remains unclear. As the most affected sites are nose and eye, it has been suggested that infection occur while bathing in common pond i.e. water borne. It is true for our case also as there is history of taking bath in small pond

Epiphora is unusual in nasolacrimal rhinosporidiosis because the spread of infection is pericanalicular and perisaccular. [6]

It is essential to administer Dapsone postoperatively to tackle the local subepithelial and subcutaneous spread and to prevent recurrence [7]. The role of Dapsone in reducing the rate of postoperative recurrence is attributed to an arrest of maturation of the spores and an accentuated granulomatous response with fibrosis after Dapsone therapy [8].

It is a kind of pioneer study in western odisha to assay the microbiological association of lacrimal sac rhinosporidiosis where we found a predominant co-infection with gram positive cocci and thereby necessitating the need to initiate antibiotics directed against these microbes to better control the disease process.

CONCLUSION

Majority of the chronic dacryocystitis cases caused by lacrimal sac rhinosporidiosis were associated with Coagulase negative Staphylococci and *Staphylococcus aureus*.

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