



A CLINICAL STUDY TO KNOW THE EPIDEMIOLOGICAL FACTORS OF RHINOSPORIDIOSIS IN TERTIARY CARE CENTRE AT CIMS HOSPITAL BILASPUR, CHHATTISGARH

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ABSTRACT

Background: Rhinosporidiosis is a chronic granulomatous disease caused by *Rhinosporidium seeberi* which was once believed to be a sporozoan now it is included in phycomyces. Clinically, the disease presented as slow growing mass in nasal passage leads to nasal obstruction. Rhinosporidiosis has been reported from different parts of India such as south India, western India, and Central India. **Objective:** To study the epidemiological factors of rhinosporidiosis in tertiary care centre at CIMS Hospital Bilaspur, Chhattisgarh. **Methods:** This clinical study is conducted in the department of ENT, Chhattisgarh institute of medical sciences, CIMS Bilaspur (C.G.) from 01/01/2016 to 31/08/2021. Sample size consists of 90 patients of both sexes and all age groups selected from ENT OPD. The frequency, predisposing factors, common symptoms and response to treatment was observed and recorded. **Results:** 90 patients were registered diagnosis of Rhinosporidiosis. 40 out of 90 patients (44.4%) belonged to <18 year age group, 8.8% were in >45 year age group whereas 46.6% belonged to 18-45 yr age group. 59 out of 90 (65.5%) patients were male whereas female patients were 31(34.4%), Nasal mass, Nasal Discharge and Epistaxis was present in all patients. All patients had history of pond water bath as the predisposing factor. 67 out of 90(74.4%) were belonged to rural residence, 80 out of 90 (88.8%) patients had nasal cavity involvement, Right side was involved in 48 patients whereas left side was seen affected in 30 patients and bilateral involvement was seen in 2 patients. **Conclusion:** We concluded in our study that young middle-aged males belonged to low socioeconomic class were predominantly affected by rhinosporidiosis, nasal cavity was found to be most commonly site involved with chief clinical features of Nasal mass, Nasal Discharge and Epistaxis. All patients had history of pond water bath as the predisposing factor.

KEYWORDS : Rhinosporidiosis, Epidemiology, Nasal mass, Epitaxis, Response.

INTRODUCTION

Rhinosporidiosis is a chronic granulomatous disease caused by *Rhinosporidium seeberi* which was once believed to be a sporozoan and now it is included in phycomyces. The microbe has been considered a fungus by most microbiologists, although its taxonomy has been debated. Through phylogenetic analysis of *Rhinosporidium seeberi* 18S rRNA gene, this group of pathogens was originally identified as in the DRIP clade (acronym derived from *Dermocystidium*, rosette agent, *Ichthyophonus* and *Psorospermium*).^[1] It affects both human and animals. Rhinosporidiosis is most commonly seen in nasal cavity followed by eye, lacrimal sac rarely in skin, larynx, palate, trachea, bronchus, inner end of Eustachian tube and maxillary antrum.^[2] Transepithelial infection through traumatized epithelium is regarded as mode of infection from natural aquatic habitus of the organism.^[3] Clinically, the disease presented as slow growing mass in nasal passage leads to nasal obstruction. Symptoms of disease depend upon site of infection most commonly rhinitis, blood stained discharge, anosmia, voice change, difficulty in deglutination, breathing difficulty, lacrimation, disturb sleep, snoring. Grossly appears as exophytic, branching, and granular red colour mass which may be pedunculated and sessile surface which shows multiple yellow pin headed spots which represent sporangia which resemble as mulberry or strawberry. Histological examination shows polypoidal masses thick walled sac of sporangia. The sporangia contain numerous spores, which released by rupture of sac escape into nasal secretion. Spores and sporangia are seen on conventional section stained by haematoxylin and eosins are highlighted by periodic acid stain and methenamine silver stain. The definitive diagnosis is based on histopathological examination of biopsied tissue. Medical line of management in Rhinosporidiosis is not effective. The disease does not respond to antibiotic and chemotherapy however dapsone is found to be effective against Rhinosporidiosis. The mainstay of treatment is surgery, wide excision of mass followed by base cauterisation. The newer modalities of treatment include laser, Harmonic scalpel and coblation. The reoccurrence of diseases is seen patient with extensive growth and site difficult to assess surgically. Main source of infection stagnant water. Spores are inhaled while taking bath in contaminated pond and river. The highest incidence has been reported from India and Sri-Lanka. Rhinosporidiosis has been reported from different parts of India such as south India, western India, and Central India Madhya Pradesh, Chhattisgarh, Orissa, Madras, Rajasthan and Calcutta.^[4]

METHODOLOGY

Method: This clinical study is conducted in the department of ENT, Chhattisgarh institute of medical sciences, CIMS Bilaspur (C.G.) from 01/01/2016 to 31/08/2021. Sample size consists of 90 patients of both sexes and all age groups selected from ENT OPD. The frequency, predisposing factors, common symptoms, sites of involvement and response to treatment was observed and analyzed.

RESULTS

This clinical study is conducted in the department of ENT, Chhattisgarh institute of medical sciences, CIMS Bilaspur (C.G.) from 01/01/2016 to 31/08/2021. This study is conducted in department of ENT, CIMS hospital, Bilaspur Chhattisgarh. The results are as follows:

Age

40 out of 90 patients (44.4%) belonged to <18-year age group, 8.8% were in >45-year age group whereas 46.6% belonged to 18-45 yr age group. This data shows that middle aged and young patients were predominantly affected by rhinosporidiosis than old patients.

Table 1 Age Wise Distribution Of Patients

Age Range(yr)	< 18	18-45	> 45
N = 90	40(44.4%)	42(46.6%)	8(8.8%)

Gender

59 out of 90 (65.5%) patients were male whereas female patients were 31(34.4%); no patient of transgender community was reported. This data revealed that the rhinosporidiosis affected the male patients predominantly than female.

Table 2 Gender Wise Distribution Of Patients

Gender	Male	Female	Transgender
N = 90	59(65.5%)	31(34.4%)	0

Socio-economic status

55 out of 90(61.1%) patients of lower socioeconomic status were registered, on the other hand 32.2% patients were of middle class SES and only 6.6% were of upper class SES. This data clearly stated that the patients of lower socioeconomic strata were affected more by Rhinosporidiosis than other SES group.

Table 3 Socio-economic Status Wise Distribution Of Patients

SES	Lower Class	Middle Class	Upper Class	Total
Percentage	55(61.1%)	29(32.2%)	6(6.6%)	90

Clinical Presentation Of Disease

Nasal mass, Nasal Discharge and Epistaxis was present in all patients, change in voice and breathing difficulty was found in 3(3.3%) patients each whereas dysphasia was complained by 2 patients. Data shows that Nasal mass, Nasal Discharge and Epistaxis were the most common clinical presentations in rhinosporidiosis patients of our centre.

Table 4 Clinical Presentation Wise Distribution

C/F N=90	Nasal Mass	Epistaxis	Nasal Discharge	Change in Voice	Dysp- hagia	Breathing Difficulty
	90(100%)	90(100%)	90(100%)	3(3.3%)	2(2.2%)	3(3.3%)

Predisposing Factors

All patients had history of pond water bath as the predisposing factor. 67 out of 90(74.4%) were belonged to rural residence whereas and 50(55.5%) patients were of farmers by occupation. Data clearly shows that pond water bath is the chief predisposing factor for Rhinosporidiosis in our group of patients.

Table 5 Predisposing Factors

Predisposing Factors	Pond water bath	Rural Residence	Occupation in farming
N=90	90(100%)	67(74.4%)	50(55.5%)

Site Wise Distribution

80 out of 90 (88.8%) patients had nasal cavity involvement. Right side was involve in 48 patients whereas left side seen affected in 30 patients and bilateral involvement was seen in 2 patients. Nasopharynx, nasal septum, lacrimal sac was involve in 2 patients each. Oropharynx was involved in 4 patients. Data shows that nasal cavity is the predominant affected site of rhinosporidiosis in our group of patients.

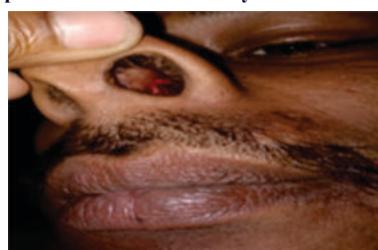
Table 6 Site Wise Distribution

Site N=90	Nasal Cavity		Naso- pharynx	Lacrimal Sac	Oropharynx	Nasal Septum
	Rt 48	Lt30 B/L 2				
	80(88.8 %)		2(2.2%)	2(2.2%)	4(4.4 %)	2(2.2%)

DISCUSSION

Rhinosporidiosis has been reported from about 70 countries with diverse geographical features.^[5] Infrequently, isolated cases are reported in other parts of the world, mainly due to migration.^[6] The route of transmission of Rhinosporidium remains unclear even though the presumed mode of infection from the natural aquatic habitat of Rhinosporidium seeberi is through the traumatized epithelium ('transepithelial infection'), most commonly in nasal sites. Various modes of spread have been documented by several workers including; (i) auto-inoculation through spillage of endospores from polyps after trauma or surgery, (ii) haematogenous dissemination to distant sites, (iii) lymphatic routes, and (iv) sexual.^[7] In addition, Indian social, cultural habits and the custom of bathing in open ponds expose individuals to several innocuous water-borne organisms. The epidemiology of rhinosporidiosis still remains unclear and the phylogenetic relationship of its life cycle creates difficulties in understanding the actual incidence of infection and the populations of patients at risk. Many investigations are therefore needed to understand whether rhinosporidiosis is acquired in particular communities or if unrecognized factors exist that may explain the emerging epidemiology of this infection. Spontaneous regression of rhinosporidial growths has been noted in animals and in humans but is rare. Therefore, medical and/or surgical intervention is necessary. Wide local surgical excision with electro-coagulation of the base of the lesions is the treatment of choice to reduce the risk of recurrence, though this may be associated with significant morbidity due to hemorrhage and nasal septal perforation. So, limited surgical excision and adjuvant medical therapies, including antifungals such as griseofulvin and amphotericin B, trimethoprim-sulphadiazine, and sodium stibogluconate have been tried with varied success.^[8] Laser and endoscopic excision promises to be the mainstream treatment of nasal/nasopharyngeal rhinosporidiosis in the future.^[5] All our patients had complete excision with wide surgical margins and cautery of the base of the lesion. In 5 year period study we observed and analyzed a total of 90 cases of Rhinosporidiosis in which 100% cases had nasal involvement. Gupta et al (1971) recorded 75 cases of Rhinosporidiosis every year.^[9] In our study, we showed that maximum number of patients belonged to 18-45 yr age group i.e. 46.6%; similar high incidences in middle aged patients were observed by many studies.

44.4% belonged to <18 year age group, Allen and Dave et al showed this value to be 31.6% in similar age group patients.^[10] We found in our study that male patients were predominantly affected than females 2:1; such male preponderance was also observed by other authors like Purandare and Deoras et al.^[11] In our study majority of the patients 67 out of 90(74.4%) were from rural area and gave history of taking bath in ponds in which domestic animals were also bathed. Results are similar to the study by Karunarathne et al.^[12]

1. Rhinosporidiosis Right Canthus A. Pre Treatment**B. Post Treatment****2. Rhinosporidiosis Left Nasal Cavity****3. Rhinosporidiosis Right Nasal Cavity****CONCLUSION**

We concluded in our study that young middle-aged males belonged to low Socioeconomic class were predominantly affected by rhinosporidiosis, nasal cavity was found to be most commonly site involved with chief clinical features of Nasal mass, Nasal Discharge and Epistaxis. All patients had history of pond water bath as the predisposing factor.

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