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A RETROSPECTIVE STUDY ON THE BATHING HABIT OF THE RURAL PATIENTS AROUND BARDHAMAN HAVING RHINOSPORIDIOSIS

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ABSTRACT

Introduction

Rhinosporidiosis & its etiological agent Rhinosporidium seeberi has been recognised for over a century. Unresolved enigmas in rhinosporidiosis encompass the mode of infection & certain features of histology. The aim of present retrospective study is to study the bathing habit of the immunocompetent rural patients round Bardhaman having Rhinosporidiosis.

Material & Methods

The current hospital based retrospective research was conducted at Department of Pathology of a tertiary care centre, Bardhaman during the study period of January 2008 to December 2012 among 30 histopathologically diagnosed cases of rhinosporidiosis. Bathing habits & other information of patients was collected & results were analyzed using SPSS version 25.0.

Results

Most cases were found to fall within the 31-40 years age group (26.7%). 56.3% were male & 46.6% were females. Almost all patients were found to be of low SES (73.3%). Most of the cases used pond water 21 (70%) for bathing followed by rivers 4 (13.3%), deep tubewell 3 (10%) & piped water 2 (6.7%). The most common symptoms found in patients were nasal block 4 (13.3%), nasal mass 15 (50%), eyelid mass 2 (6.7%). The involvement site were sino-nasal area 20 (66.7%), nasopharyngeal 6 (20%), ocular area 3 (10%) & aural area 1 (3.3%).

Conclusion

The socioeconomic level, outdoor bathing, & cultural practices in rural areas are the primary factors contributing to new cases. A prompt governmental initiative to cleanse public water bodies & enhance public health education via healthcare professionals & non-governmental organisations is essential to reduce the occurrence of rhinosporidiosis.

Keywords: Bathing Habits, Ponds, Rhinosporidiosis, River, Rural.

INTRODUCTION

Rhinosporidiosis is a perplexing disease recognised in medicine since 1900, when Guillermo Seeber first described it in "Buenos Aires, Argentina". He suggested that the infectious aetiology of this disease was a fungus, which Ashworth subsequently isolated in 1923, detailing the organism's life cycle & establishing the nomenclature Rhinosporidium seeberi.[1] Rhinosporidiosis is a chronic granulomatous illness characterised by reddish, hyperplastic, friable polypoidal masses that may be either pedunculated or sessile. Rhinosporidium seeberi exhibits a predilection for the mucosal membranes of the nasal cavity & nasopharynx, predominantly impacting the anterior nasal septum & vestibule. Extranasal involvement is uncommon, especially with the lower aerodigestive tract, including the tracheobronchial tree. Numerous additional sites have been documented in the literature, including the lips, conjunctiva, palate, uvula, larynx, trachea, penis, vagina, & bone.[2,3]

Hot tropical conditions are identified as the most conducive environment for this organism, which is hyperendemic to Sri Lanka & Southern India. This disease has been documented in around 70 countries.[4] 'Transepithelial infection,' referring to infection through damaged epithelium, has been suggested as a likely method of infection from the organism's native watery habitat. The diagnosis is uncomplicated when the disease affects the nasal cavity or nasopharynx due to the characteristic physical features of the lesions; however, it becomes more challenging & is frequently postponed when extranasal locations are implicated. The definitive diagnosis of rhinosporidiosis is by histopathology, with the identification of the pathogen in its diverse stages. The characteristic histopathological finding is multiple sporangia in various stages of maturity, enclosed in a thin chitinous wall.A comprehensive history of bathing practices & occupational exposure to stagnant water aids in establishing the clinical diagnosis, while histological analysis of the excised mass corroborates it.[5-8]

Surgery is the main mode of treatment. Total exicison & cauterization of the base of the lesions is recommended. Recurrence may arise from the dissemination of endospores into the adjacent mucosa during surgical procedures. The sole pharmacological agent exhibiting anti-rhinosporidial properties is dapsone, which is applicable solely as an adjunct to surgical intervention.[9,10] Rhinosporidiosis is very common in Bardhaman & its surrounding areas. There is no published data in this region on this issue till date. So a retrospective study was done over the period of last four years to evaluate various demographic, clinical & pathological features of rhinosporidiosis. This proposed study will be clinically relevant as there is dearth of references in this part of country.

MATERIAL & METHODS

The current hospital based retrospective research was conducted at "Department of Pathology of a tertiary care centre, Bardhaman" during the study period of January 2008 to December 2012. Through convenient sampling a total of 30 histopathologically diagnosed cases of rhinosporidiosis were taken for the study on the basis of inclusion & exclusion criteria.

Inclusion Criteria

All the histopathologically proven cases of rhinosporidiosis among immunocompetent rural patients found during the study period & were treated at this tertiary care centre were included in the study.

Exclusion Criteria

Patients whose complete data was not founded in the hospital record were excluded from the study. Seropositive for.

Hepatitis B, C & HIV, diagnosed with active Tuberculosis. History of intake of steroids or any other immunosuppresive.

With an emphasis on bathing behaviors, a thorough clinical, social, & environmental history was acquired. Each patient underwent a thorough evaluation that included a hemogram, X-ray, blood type, & viral markers (HIV, hepatitis C, & hepatitis B). All patients had mass/polyp excision with base electrocauterization after preanesthetic assessment. All tissues were sent to the pathology department for histological analysis in 10% formalin. For microscopic examination, 5 µm thick

sections were stained with hematoxylin & eosin. According to the Prasad categorization, patients were categorized based on their socioeconomic position (family monthly income). [11]
The results were gathered & documented in a computerised format & subjected to statistical analysis. Statistical analysis was conducted utilising SPSS version 25.0 (SPSS Inc., Chicago, IL, USA) software. The chi-square test & t-test were utilised. P-values of 0.05 or lower were deemed statistically significant.

RESULTS

Of these 30 cases, most cases were found to fall within the 31-40 years age group (26.7%). 56.3% were male & 46.6% were females. The male to female ratio was found to be 1.4:1. The patients in this study were mainly housewives, farmers or students, with a few daily wage labourers & factory workers. Almost all patients were found to be of lower class socioeconomic status (73.3%) as compared to 23.3% of patients who were of middle class, lower middle class & upper middle class socioeconomic status & 3.4% were of upper class socioeconomic status as shown in table 1.

Demographic Data		**N%**
Age (years)	0-10	1 (3.3)
	11-20	2 (6.7)
	21-30	5 (16.7)
	31-40	8 (26.7)
	41-50	5 (16.7)
	51-60	4 (13.3)
	61-70	3 (10)
	Above 70	2 (6.7)
Gender	Male	16 (53.3)
	Female	14 (46.6)
Occupation	Farmer	9 (30)
	Labourer	2 (6.7)
	Student	7 (23.3)
	Housewife	9 (30)
	Worker	3 (10)
Socioeconomic status (Prasad classification)	Lower class	22 (73.3)
	Lower middle class	4 (13.3)
	Middle class	3 (10)
	Upper middle class	1 (3.4)
	Upper class	1 (3.4)

Table 1: Demographic data of cases

Most of the cases exclusively used pond water 21 (70%) for bathing followed by rivers 4 (13.3%), deep tubewell 3 (10%) & piped water predominantly which is more than 50% of the bathing days, 2 (6.7%) as shown in table 2, figure 1.

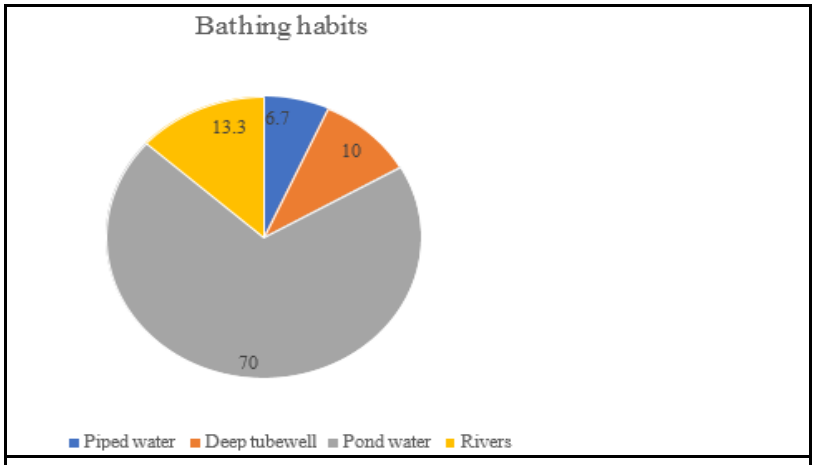

Figure 1: Distribution of cases on the basis of bathing habits

Bathing Habits	**N (%)**
Piped water	2 (6.7)
Deep tubewell	3 (10)
Pond water	21 (70)
Rivers	4 (13.3)

Table 2: Distribution of cases on the basis of bathing habits

Out of all the 30 patients the symptoms found in patients were bleed on touch 3 (10%), bleeding 2 (6.7%), nasal block 4 (13.3%), nasal mass 15 (50%), eyelid mass 2 (6.67%), conjunctival mass 1 (3.3%) & nasal pain 3 (10%) as shown in table 3, figure 2.

Symptoms	**N (%)**
Bleed on touch	3 (10)
Bleeding	2 (6.7)
Nasal block	4 (13.3)
Nasal mass	15 (50)
Eyelid mass	2 (6.7)
Conjunctival mass	1 (3.3)
Nasal pain	3 (10)

Table 3: Distribution of cases on the basis of symptoms

Figure 2: Clinical image of the rhinosporidiosis case

20 (66.7%) involved sino-nasal area, 6 (20%) involved nasopharyngeal, 3 (10%) involved ocular area & 1 (3.3%) involved aural area as shown in table 4.

Site of Attachment	No. (%)
Sino – nasal	20 (66.7)
Nasopharyngeal	6 (20)
Ocular	3 (10)
Aural	1 (3.3)

Table 4: Distribution of cases on the basis of site of attachment

DISCUSSION

Once thought to be a fungal disease that was native to some parts of the world, rhinosporidiosis is now classified as a protist within the Mesomycetozoea, & its main reservoir is stagnant filthy water in both artificial & natural water bodies.[12]

This study identified that the most affected demographic was individuals aged 21 to 50 years, with the 31 to 40 years age group exhibiting the highest susceptibility. Research conducted by Kutty et al. & Guru RK & Pradhan DK identified the highest incidence of cases within the age bracket of 21 to 30 years.[13,14] Consequently, it can be inferred that young & middle-aged persons are the most frequently impacted.

The study demonstrated an increased prevalence of rhinosporidiosis in males. This discovery corroborates the results of other researchers, like Arsecularatne et al. & Grover et al., who similarly reported a greater male predominance in their investigations.[9,15] The decreased occurrence in females may be attributed to their reduced likelihood of animal contact & infrequent pond bathing. Certain scientists have suggested that estrogen's influence in females may offer some protection against the sickness.[16]

In present study most common source of bathing was pond water, followed by river, tubewell & piped water. In a study conducted by Gupta RK et al the most common source of bathing was ponds (59.3%), rivers (31.25%), tap water (9.3%) & reservoirs (6.2%).[17] Similarly in a study conducted by Sabu AN it was found that in case series of 15 patients all bath in open water bodies.[18] The male participants in this study were identified as farmers, daily wage labourers, & manufacturing workers, with farmers constituting the most adversely affected category. The women identified as housewives in this study all reported a history of exposure to diverse forms of agricultural labour. Furthermore, the soil & sand near the water bodies such as river & pond is contaminated with the organism & its spores lies remain dormant which becomes active in contact with living tissue. This study revealed a relationship between rhinosporidiosis & rural residency, aquatic bathing practices, & poor socioeconomic level. Arsecularatne similarly discovered in his study that individuals from rural regions involved in agricultural activities & who bathed in ponds frequented by animals were at heightened risk of having rhinosporidiosis.[9] He also discovered that individuals bathing in lakes or reservoirs had a higher incidence of rhinosporidiosis affecting the upper respiratory tract & eyes compared to those bathing in wells. Arsecularatne, Guru, Pradhan, Jain, & Sahal identified a link between poor socioeconomic position & the incidence of rhinosporidiosis in their investigations.[9,13,19] The likely cause of this may be the inferior hygiene standards among individuals of low socioeconomic class.

The most common symptoms seen in or study were nasal mass, nasal block & eyelid mass. In a study done by Karthikeyan P et al & Mathew S et al the common symptoms were nasal obstruction, followed by epistaxis & nasal mass.[17,20]

However, in a study conducted by Guru RK, epistaxis was the predominant symptom.[12] The most common site involved in our cases was sino-nasal. According to Guru & Pradhan's research, cases involving nasal involvement were more common than those involving extra-nasal involvement. [14] Nasopharyngeal, ophthalmic, cutaneous, & laryngeal involvement were noted in that order among those with extra nasal involvement. The lateral wall of the nose was shown to be the most often attached region among those with nasal involvement, followed by the septum & floor. The roof of the nose showed the least amount of attachment. In their study, Arsecularatne et al. found similar outcomes.[9]

This study emphasises the impact of public health education on vulnerable behaviours in the transmission of rhinosporidiosis, contributing to a reduction in the incidence of this illness in the formerly endemic communities in the Bardhaman region.

CONCLUSION

Rhinosporidiosis is an infectious disease with a significant frequency in tropical regions. It is closely linked to rural areas where open public bathing is prevalent. The Bardhaman district is a hotspot due to the significant amount of contaminated ponds & water bodies. An immediate government-supported public health awareness initiative is essential in this region to address rhinosporidiosis.

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