



Research Article

A Retrospective Study of Rhinosporidiosis in Tertiary Care Hospital of Jharkhand, Dhanbad

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Abstract

Introduction: Rhinosporidiosis, a granulomatous infective disease caused by *Rhinosporidium seeberi* usually affects the nasal cavity & nasopharynx. Disease presents as a slow growing mass which is friable, soft & polypoidal with a surface containing multiple yellowish pin head-sized spots representing underlying mature sporangia.

Materials & Methods: A retrospective study for a period of two years from January, 2017 to December, 2019 was conducted which included the cases diagnosed as rhinosporidiosis by retrieving the reports on nasal mass in pathology department of Patliputra Medical College, Dhanbad, Jharkhand. Biopsy samples were processed under standard Hematoxylin & Eosin stain & diagnosis was made by demonstration of multiple sporangia containing numerous endospores.

Results: In a total number of 41 cases studied there were more male (65.85 %) with maximum involvement of age group of 10-20 years (46.34 %) in both sexes. Agricultural workers (41.46 %) & those living in rural areas (68.29 %) associated with bathing in ponds (60.97 %) showed more disease.

Conclusion: Education of high risk persons to improve their hygiene levels & strict discouragement to outdoor bathing can prevent the disease.

Keywords: Rhinosporidiosis, *Rhinosporidium seeberi*, nasalmass, Hematoxylin & Eosin stain.

Introduction

Rhinosporidiosis is a benign granulomatous disease caused by infection with *Rhinosporidium seeberi*. This usually affects the nasal cavity & nasopharynx of upper respiratory tract but conjunctiva, larynx, skin & other sites may also be involved. Rarely disseminated disease can occur

with involvement of limbs, trunk & viscera. Transepithelial infection through traumatized epithelium is regarded as the mode of infection from natural aquatic habitat of the organism.

Characteristically, the disease presents as a slow growing mass in nasal passage leading to nasal obstruction. Distinctive gross appearance of the

mass is friable, soft, polypoidal & red in colour which may be pedunculated or sessile. Surface shows multiple yellowish pin head-sized spots which represent underlying mature sporangia. However the definitive diagnosis is based on histopathological examination of biopsied tissues. Disease has been recorded from many countries of the world but hot tropical climate especially Sri Lanka & South India are the endemic region. Apart from humans, the disease also affects several species of farm, domestic & wild animals.

Aims & Objectives

To analyse & assess the cases of rhinosporidiosis in tertiary care hospital of Jharkhand, Dhanbad.

Materials & Methods

This was a retrospective study in the pathology department of Patliputra Medical College, Dhanbad, Jharkhand for a period of two years from January, 2017 to December, 2018. During study period all the cases diagnosed as rhinosporidiosis by histopathology were included by retrieving the reports on nasal mass. A detailed history of the cases was taken & then clinical examination was performed.

Tissues masses removed after surgery were collected in the histopathology section of pathology department. The received samples were processed under standard Hematoxylin & Eosin stain. Definitive diagnosis of rhinosporidiosis was established by demonstrating multiple, large, spherical/oval, thick walled sporangia in various

stages of maturation containing numerous endospores in a background of fibrovascular stroma infiltrated with chronic inflammatory cells. Splendore-Hoeppli reaction characterized by well developed eosinophilic infiltrations & associated with many fungi, bacteria & parasites was absent in rhinosporidiosis.

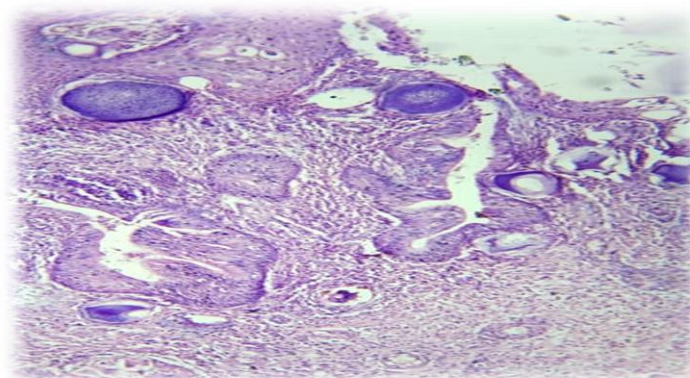


Figure 1. Histopathology of nasal mass showing rhinosporidiosis (H & E staining)

Inclusion & Exclusion Criteria

Histologically diagnosed cases of rhinosporidiosis involving all age groups in both sexes with exclusion of patients not able to provide tissue samples.

Results

A total number of 41 cases of histopathologically proved rhinosporidiosis were included in present study. 27 cases (65.85 %) were male while 14 cases (34.14 %) were female (Table 1). The male female ratio was found to be 1.92:1.

Table 1: Distribution of cases according to age & sex

Sex	Age in years						Total
	<10 yrs	10-20 yrs	21-30 yrs	31-40 yrs	41-50 yrs	>50yrs	
Male	02(04.87%)	13(31.70%)	06(14.63%)	04(09.75%)	02(04.87%)	00	27(65.85%)
Female	01(02.43%)	06(14.63%)	04(09.75%)	02(04.87%)	01(02.43%)	00	14(34.14%)
Total	03(07.31%)	19(46.34%)	10(24.29%)	06(14.63%)	03(07.31%)	00	41

Age of the cases were arranged into decades. Most cases were found in 10-20 years (19/46.34 %) of age group followed by 21-30 years (10/24.29 %). Least number of cases were present in less than 10 years (03/07.31 %) & 31-40 years (06/14.63 %) of

age group while no cases were seen in more than 50 years of age group (Table 1).

Nasal mass & nasal obstruction (16/39.02 % & 13/31.70 % respectively) were the most common presenting features followed by epistaxis & nasal

discharge which were 07/17.07 % cases & 05/12.19 % cases respectively (Table 2).

Table 2: Presenting features of cases

Presenting features	No. of cases
Nasal mass	16(39.02%)
Nasal obstruction	13(31.70%)
Epistaxis	07(17.07%)
Nasal discharge	05(12.19%)
Total	41

Majority of the cases were agricultural workers & students (17/41.46 % & 12/29.26 % respectively) followed by housewives & daily wage labourers (07/17.07 % & 05/12.19 % respectively) (Table 3) who lived in rural areas (28/68.29 %) & semi-urban areas(09/21.95 %)(Table 4).

Table 3: Occupation of cases

Occupation	No. of cases
Agricultural worker	17(41.46%)
Student	12(29.26%)
Housewife	07(17.07 %)
Dailywagelabourer	05(12.19 %)
Total	41

Table 4: Residential status of cases

Residential status	No.of cases
Rural	28(68.29%)
Urban	04(09.75%)
Semi-urban	09(21.95%)
Total	41

History of bathing in ponds & rivers were found in 25/60.97% cases & 09/21.95% cases respectively while bathing in tap-water & wells were 03/07.31% cases & 04/09.75% cases respectively (Table 5).

Table 5: Bathing history of cases

Bathing history	No.of cases
Pond	25(60.97%)
River	09(21.95%)
Tap water	03(07.31%)
Well	04(09.75%)
Total	41

Discussion

Rhinospordiosis was identified by Malbran in 1892 but Seeberfirst published the report in 1900 of a 19 year-old Argentinian patient suffering from nasal polyp with nasal obstruction.

Traditionally regarded as a fungus the organism is now considered a protistan belonging to the class Mesomycetozoea supported by analysis of organism 18S ribosomal RNA from infected tissues.

Present study showed that males (27/65.85 %) had a higher prevalence of rhinosporidiosis in comparison to females (14/34.14 %) which was similar to study by Saha et al & Grover who also showed a male preponderance in their respective studies.

The age group most commonly affected was 10-20 years (19/46.34 %) followed by 21-30 years (10/24.29 %). Makannavar et al, Mahmud et al & Satyanarayana also showed the similar results in their respective studies.

Most of cases in our study were presented with complaints of nasal mass (16/39.02 %) followed by nasal obstruction (13/31.70 %). Epistaxis (07/17.07 %) & nasal discharge (05/12.19 %) were lesser complaints. Bandyopadhyia et al found similar results but Guru et al showed epistaxis in most cases followed by nasal discharge & nasal obstruction.

Nasal involvement was found in all cases in our study. Guru et al in their study noted large number of cases of nasal involvement followed by nasopharyngeal, ocular, dermal & laryngeal involvement. Arseculerante et al also found similar findings.

In present study persons living in rural areas (28/68.29 %) & agricultural workers(17/41.46 %) with habitat of bathing in ponds(25/60.97 %) were great sufferers of the disease which was similar to study by Arsecularatne.

Conclusion

Rhinospordium seeberi can't be grown successfully in artificial culture media, so diagnosis of disease depends on histopathology of biopsied tissues. Disease is typically associated with young & adult males having agricultural occupations & students living in rural areas with habit of ponds & river bathing. Education of persons to improve their sanitation & hygiene

levels & strict discouragement to outdoor bathing can prevent the rhinosporidiosis.

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