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ORIGINAL ARTICLE

RHINOSPORIDIOSIS WITH SPECIAL REFERENCE TO EXTRA NASAL PRESENTATION

Ranjan Kumar Guru[1], Deepak Kumar Pradhan[2]

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ABSTRACT: OBJECTIVE: The purpose of this study is to determine the prevalence of rhinosporidiosis in various groups of people & to know the various possibilities of extra nasal presentation as well as manifestations, so that the disease can be diagnosed early & proper treatment can be given at an early date. **STUDY DESIGN:** Prospective study. **SETTINGS:** Tertiary referral center [VSS Medical College, Burla.] **MATERIAL & METHODS:** For the observation on various presentations of rhinosporidiosis, the patients coming with mass in nose, complaining of nasal obstruction or recurrent epistaxis, & in mass in the other site of the body suspected to suffer from rhinosporidiosis were studied, treated & followed up in the department of ENT, VSS Medical College Hospital, Burla, Sambalpur. All such cases from September 2010 to August 2012 were taken into account. Their detailed history taken & their treatment is followed up. The results obtained are presented. **RESULTS:** Nose was the most common [MC] site of rhinosporidiosis. In the extranasal presentation nasopharynx is the MC site. Other sites are eye, skin & larynx. Common age group of involvement is 21–30 years. Males are affected more. The disease is prevalent among rural population. Nasal obstruction & epistaxis are the MC presenting symptom in nasal rhinosporidiosis. In nasopharyngeal cases foreign body sensation, stuffiness in ear & speech defect are the presenting symptoms. Ocular cases mostly presented with mass in conjunctiva or foreign body sensation in eye with bloody discharge. **CONCLUSION:** Atypical presentation of rhinosporidiosis in head and neck region is rare. Very often, this atypical presentation causes dilemma in diagnosis and creates confusion. Diagnosis of rhinosporidiosis should be kept in mind in all granulomatous lesions involving the mucous membranes in the endemic area.

KEYWORDS: Rhinosporidiosis, Nasopharyngeal rhinosporidiosis, ocular rhinosporidiosis, Extranasal rhinosporidiosis.

INTRODUCTION: Rhinosporidium seeberi is a member of the phycomycetes class of fungi. Invasion by this fungus is universal, but it is endemic in India and Sri Lanka. The first known case of rhinosporidiosis was identified in 1892 by Malbran of Buenos Aires.[1] Rhinosporidiosis is a chronic, granulomatous disease process caused by fungus-like organism known as Rhinosporidium seeberi. It is yet an unclassified fungus.[2]

Rhinosporidiosis is characterised by reddish polypoidal mass which are hyperplastic and friable and sometimes it may be sessile. The disease mostly affects nasal cavity mainly involving anterior part of nasal septum, vestibule and also nasopharynx, but extranasal involvement; particularly in the lower aerodigestive tract including the tracheobronchial tree is rare.

R. seeberi has an affinity for the mucous membrane of the nose and nasopharynx. It thrives in hot tropical climates of the endemic zones i.e. South India and Sri Lanka.[3] Excluding nasal cavity the other sites of involvement are lips, palate, uvula, conjunctiva, skin, larynx, trachea, penis, vagina and

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even the bone.[4,5] The diagnosis is usually delayed and difficult when extranasal sites are involved. Personal and occupational histories are helpful in achieving diagnosis. Histopathological examination is necessary to confirm the diagnosis.

MATERIALS & METHODS: For the observation on various presentation of rhinosporidiosis, the patients coming with mass in nose, complaining of nasal obstruction or recurrent epistaxis, & in mass in the other site of the body suspected to suffer from rhinosporidiosis were studied, treated & followed up in the department of ENT, VSS Medical College Hospital, Burla, Sambalpur.

Patients were selected from the period of two years (Sept 2010–Aug 2012). During this period 242 patients were diagnosed having Rhinosporidiosis involving different sites of head and neck region. After detailed history taking & initial clinical examination, the patients were subjected to routine laboratory investigations for operative fitness and CT Scan of the relevant area of involvement in cases of atypical extranasal presentation. The mass removed after surgery was sent for histopathological study for confirmation of diagnosis in all cases. From the above study the facts about rhinosporidiosis & its extra nasal manifestations were concluded.

OBSERVATION & DISCUSSION: The total number of cases of rhinosporidiosis during the period of two years (Sept 2010–Aug 2012) is 242. Out of these 242, 161 cases are pure nasal & 81 cases are extra nasal rhinosporidiosis. Hence the nasal to extra nasal ratio is approximately 2:1. These cases attended with almost equal frequency through the year. But on seasonal break up winter shows slightly higher preponderance.

Out of the 242 cases 168 were male & 74 were female. This shows higher preponderance in male. Grover et al (1975)[6] & Arsecularatne et al (2012)[7] has also showed the higher male preponderance in their study.

All most all cases were Hindus except one who was a muslim male. This probably reflects the population distribution of the local area. The following table {Table -1} shows the age distribution of the patients.

Age in years	No. of patients	Percentage
0 – 10	10	4.13%
11 – 20	81	33.40%
21 – 30	91	37.60%
31 – 40	23	9.50%
41 – 50	30	12.39%
>50	7	2.89%

Table 1: Age distribution

On study the maximum number of cases were found in the age group of 21 – 30. This is comparable to the study by Kutty et al (1963)[8] who has showed maximum number of cases in age group 21 – 30.

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The study shows that maximum prevalence is seen among rural population. The following table {Table -2} shows the prevalence in rural & urban area. Table – 3 shows the prevalence in various occupation.

Residential status	No. of patients	Percentage
Rural	185	76.44%
Urban	21	8.67%
Semi urban	36	14.87%

Table 2: Residential Status

Occupation	No. of patients	Percentage
Agriculture & labourers	140	57.85%
Business / service	2	0.80%
Students	80	33.05%
Factory workers	11	4.50%
House wives	9	3.71%

Table 3: Occupation

Maximum prevalence is seen among rural population. This is comparable to the study by Arsecularatne (2012)[7] who has showed in his study that maximum number of cases are found in rural areas. In our study maximum cases are seen in agricultural workers. Arsecularatne (2012)[7] in his study has found maximum cases in persons engaged in agricultural work & taking bath from a nearby pond where animals used to be bathed.

Study of bathing habits of patients reveal that the condition is more common among those bathing in stagnant water like ponds, canals & tanks. Table – 4 shows the bathing habits. In the present study most of the patients are from rural area & used to take bath in ponds, canals & tanks where domestic animals are used to be bathed. Arsecularatne (2012)[7] in his study showed that people taking bath in lakes or reservoirs suffer more from rhinosporidiosis of upper respiratory tract [88%]& eye[67%] as compared to people taking bath in well, where it is 4% & 5% each.

Bathing habits	No. of patients	Percentage
Canals, ponds & tanks	192	79.33%
Well & borewell	26	10.74%
Tap water	24	9.91%

Table 4: Bathing habits

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Study of socioeconomic status shows that low socioeconomic group who depend mainly on agriculture suffer maximum [82.6%]. Least seen in high socioeconomic status [4.95%]. Table -5 shows the socioeconomic status of the patients. Jain (1967)[9] had similar observation in his study.

This may be due to the fact that persons of low socioeconomic status are unhygienic in their living habits.

Socioeconomic status	No. of patients	Percentage
High	12	4.95%
Medium	30	12.30%
Low	200	82.60%

Table 5: Socioeconomic status

On examination of blood group of the study group it is seen that maximum number of people suffering from rhinosporidiosis are of 'O +ve' blood group & least are of 'AB +ve' blood group. These findings are comparable to the study by Arsecularatne et al (2012)[7] who shows highest incidence of cases in blood group 'O +ve' [45%] & least in 'AB +ve'[7%]. Table -6 shows the prevalence in various blood groups in our study.

Blood Group	No. of patients	Percentage
O+	103	42.00%
A+	58	24.00%
B+	60	25.00%
AB+	21	9.00%

Table 6: Blood Group

The present study shows that out of 242 cases presenting in the department of ENT 161 cases were nasal & 81 cases were extra nasal. Out of 81 extra nasal cases, 48 cases were of nasopharyngeal & 30 cases were ocular rhinosporidiosis. Cutaneous rhinosporidiosis referred from department of Skin & V.D. For evaluation include 2 cases while 1 case was of laryngeal rhinosporidiosis presented as hoarseness of voice.

Arsecularatne et al (2012).[7] in his work stated that in India nasal cases are more as compared to Srilanka. In his study of extranasal cases he has noted nasopharyngeal to be 65% followed by ocular [32%]. Skin & joint involvement was found to be a rare entity. Table -7 shows the sites of attachment in various cases.

Sites	No. of patients	Percentage
Nasal	161	66.53%
Extranasal	81	33.47%
EXTRA NASAL		
Extra nasal	**No. of patients**	**Percentage**
Nasopharyngeal	48	59.25%
Ocular	30	37.03%

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Skin	2	2.46%
Laryngeal	1	1.23%

Table: 7: Sites

Subcutaneous rhinosporidiosis mass in different parts of the body

Conjunctival Rhinosporidiosis

Oropharyngeal & nasopharyngeal rhinosporidiosis

Rhinosporidiosis in posterior third of left vocal cord

Among the nasal cases most of the cases [41.72%] were found to have attachment in the lateral wall of nose & least cases [4.6%] had attachment to roof of nose. The recurrent cases show multiple attachments. Table -8 shows the site of attachment of nasal cases in our study. Out of the extranasal nasopharyngeal cases maximum [41.66%] cases were found to have attachment in the lateral wall of nose followed by floor of nose [20.83%]. Table -9 shows the sites of attachment of extranasal [nasopharyngeal] cases. These findings are comparable to the study by Arsecularatne et al (2012).[7]

Sites	No. of patients	Percentage
Lateral wall	63	41.72%
Septum	23	15.23%
Floor	25	16.55%

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Roof	7	4.60%
Vestibule	18	11.92%
Multiple attachments	25	16.55%

Table 8: Site of attachment of nasal cases

Sites	No. of patients	Percentage
NOSE		
Lateral wall of nose	20	41.66%
Floor of nose	10	20.83%
NASOPHARYNX		
Roof of nasopharynx	6	12.50%
Lateral wall of nasopharynx	8	16.66%
Posterior end of inferior turbinate	2	4.16%
Soft palate	2	4.16%

Table 9: site of attachment of extranasal cases [Nasopharyngeal]

Nasal Rhinosporidiosis

Oropharyngeal Rhinosporidiosis

Out of 30 ocular cases that presented to ENT department after being referred from department of opthalmology, 13 cases presented as mass in palpebral conjunctiva [43.3%], while 7 cases each were seen in lacrimal sac & lid margin.

3 cases of nasolacrimal duct rhinosporidiosis were seen, which presented with blood tinged nasal as well as ocular discharge. Table -10 presents ocular cases along with nasal involvement. In his study Arsecularatne et al. (2012)[7] had showed that oculosporidiosis is next common site for rhinosporidial lesion after nasopharynx, with an incidence of 15%.

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Conjuctival Rhnosporidiosis

Lacrimal sac rhinosporidiosis with nasal involvement

Sites	No. of patients	Percentage
Conjunctiva	13	43.30%
Lacrimal sac	7	23.30%
Lid margin	7	23.30%
Nasolacrimal duct	3	10.00%

Table 10: Ocular cases along with nasal involvement [Referred from department of Ophthalmology]

In our study maximum patients of nasal rhinosporidiosis [97.93%] presented with epistaxis followed by nasal discharge, nasal obstruction, sneezimg & anosmia. These findings are comparable to the study by Das (1974).[10] Table -11 shows the symptoms of nasal rhinosporidiosis.

Symptoms	No. of patients	Percentage
Epistaxis	237	97.93%
Nasal discharge	232	95.86%
Nasal obstruction	222	91.73%
Sneezing	58	24.00%
Anosmia	28	11.57%

Table 11: Symptoms of nasal rhinosporidiosis

In persons suffering from ocular rhinosporidiosis along with nasal involvement, nasolacrimal duct involvement presented with blood tinged nasal as well as ocular discharge. Conjunctival involvement presented with reddening of eye with foreign body sensation & some-times mass in the palpebral conjunctiva. Foreign body sensation & pain in the eye was usual complain of patients involving upper eye lids. Maximum cases of lacrimal sac rhinosporidiosis presented as mucocele of

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the sac. Some cases of lacrimal sac rhinosporidiosis presented as blood tinged discharge on pressure over punctum. Table -12 shows sign of ocular rhinosporidiosis involving lacrimal sac.

Lacrimal sac	No. of patients	Percentage
Mucocele	6	20.00%
Blood stained discharge on pressure over punctum	3	10.00%
Blood stained discharge on punctum irrigation	3	10.00%
Fluctuant swelling	2	6.67%

Table 12: Sign of ocular rhinosporidiosis involving lacrimal sac

All cases of nasal & nasopharyngeal rhinosporidiosis were treated by surgical excision with cauterization of the base widely with diathermy followed by 100 mg dapsone per day for 1 year. Use of nasal endoscopes in surgical treatment is of great help in complete removal of disease under vision.

Lacrimal rhinosporidiosis were treated by dacryocystectomy with debridement of mucous membrane of nasolacrimal duct. For lid & conjunctival rhinosporidiosis wide excision was done. The present trend is a nasal endoscopic dacryocystorhinostomy & 50 mg of dapsone per day. Renuka A. Bradoo et al (2004).[11]

Laryngeal rhinosporidiosis with mass attached to vocal cord was managed by direct laryngoscopy excision along with cauterization with diathermy in our institution. Now the new modality of treatment is laser exicision with CO2 or KTP laser.

Cutaneous Rhinosporidiosis

Anterior Urethral Rhinosporidiosis

Rhinospore over skin at calcaneum area was managed in orthopedic department with the collaboration of ENT surgeons. Wide excision of mass involving bone was done & mass sent for histopathological study.

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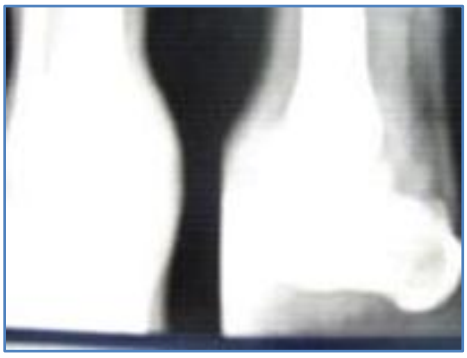
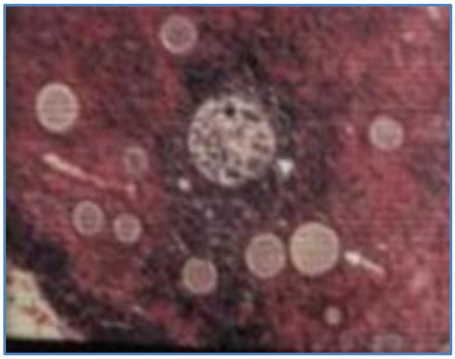
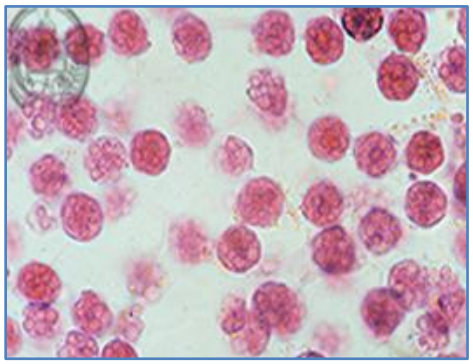
Calcaneal involvement by rhinosporidiosis



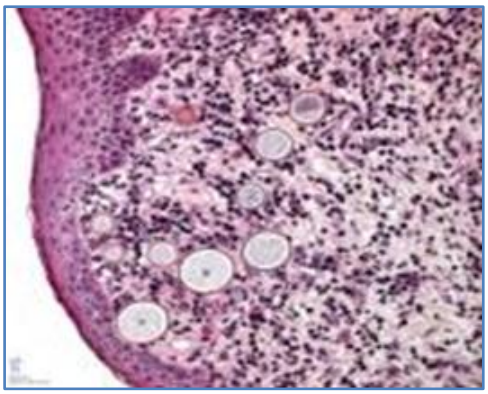
Lytic Lesion of Talus & Calcaneus



Histopathology showing different stages of rhinosporidiosis



Multiple Sporangium with Endospores



Histology of Conjuctival Rhinosporidiosis

All the cases of rhinosporidiosis were diagnosed only after histopathological examination. Out of 81 cases of extranasal rhinosporidiosis 10 cases showed acute reaction associated with polymorphonuclear & eosinophilic exudates, 62 cases showed granulomatous reaction, 9 cases showed foreign body granulomatous reaction with plasma cell & lymphocyte infiltration. Epithelial hyperplasia was seen in most of the cases.

CONCLUSION: Rhinosporidiosis is popular for its high recurrence rate if not treated properly. Nose is the most common [MC] site of rhinosporidiosis. In the extranasal presentation nasopharynx is the MC site. Other sites are eye, skin & larynx. Common age group of involvement is 21-30 years. Males are affected more. The disease is prevalent among rural population of low socioeconomic status, who are involved in agricultural work & bathing in stagnant water.

The disease is more prevalent in persons having 'O+ve' blood group. Epistaxis & nasal obstruction are the MC presenting symptom in nasal rhinosporidiosis. MC site of attachment in nasal & nasopharyngeal cases is lateral wall of nose. Eye is the next MC site of involvement after nose & nasopharynx. MC site of involvement in eye is conjunctiva. Ocular cases mostly presented with mass in conjunctiva or foreign body sensation in eye with bloody discharge. Health awareness among common people is of utmost importance for prevention, early diagnosis, treatment & decreasing recurrence rate after operation of this notorious entity called RHINOSPORIDIOSIS.

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AUTHORS:

1. Ranjan Kumar Guru
2. Deepak Kumar Pradhan

PARTICULARS OF CONTRIBUTORS:

1. Senior Resident, Department of ENT, VSS Medical College, Burla.
2. Post Graduate Student, Department of ENT, VSS Medical College, Burla.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Ranjan Kumar Guru,
Senior Resident, ENT,
Quarter No – 3R/33, Doctor's Colony,
VSS Medical College, Burla-768017,
Sambalpur, Odisha.
Email: dr.rkguru@gmail.com

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