

RHINOSPORIDIOSIS: AN EPIDEMIOLOGICAL STUDY

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INTRODUCTION: Rhinosporidiosis is a sporadic disease in different parts of our country which affects both man and animals. It chiefly affects the mucous membrane of nose and less frequently in other organs like conjunctiva, larynx, genitalia etc. So far there is no known medical treatment though systemic therapy with dapson over a prolonged period is found to delay the recurrence. The only definitive management is surgical excision with high recurrence rates which leads to financial burden and psychological stress to the patients. **AIMS:** 1.To assess the proportion of rhinosporidiosis cases among the total nasal masses operated in our hospital. 2. To identify the demographic distribution of the cases in Malappuram district. 3. To evaluate the age and sex preponderance of these cases. 4. To compare this study with similar studies conducted in India as to stress on the endemic nature of this disease in our district. **MATERIALS AND METHODS:** This is an observational prospective study. 54 rhinosporidiosis cases operated in our hospital during July 1 2009 - Dec 31 2012 are included in this study. Cases from outside the state were excluded from this survey. **RESULTS:** Among the 504 nasal masses operated in our hospital in a period of 3.5 yrs, 54 cases (10.71%) were confirmed as rhinosporidiosis. The survey showed an age preponderance to the age group 21-35years and majority (88%) were males. Among the 6 taluks of this district the majority of cases were reported from taluks of Perinthalmanna (31%), Ernad (22%) and Tirur (20 %). The study revealed the endemic nature of this disease in Malappuram district and the careful history revealed frequent pond baths by all the patients. **CONCLUSION:** This survey evaluates the epidemiological aspects and revealed the endemic nature of this disease in Malappuram district and points towards the need for health education regarding the preventive measures as the treatment options at hand are inadequate at present.

KEYWORDS: Rhinosporidiosis, epidemiology, nasal masses, Malappuram district.

INTRODUCTION: Rhinosporidiosis is a chronic granulomatous disease commonly affecting the mucous membranes of nose, nasopharynx and eye. The causative agent has been attributed to rhinosporidium seeberi. Majority of cases were reported from southern India and Srilanka.^[1] The disease has been isolated not only from humans but also from other animals such as cattle's, horses etc. Mode of spread is still debatable, the more acceptable being from dust and water especially stagnant sources like wells, pond, tanks etc in endemic areas. Epistaxis is often the only symptom in early stages. Nasal rhinosporidiosis presents as pedunculated, 'strawberry' like mass confirmed by histopathological examination. Treatment includes no known medical management and the only option of surgical excision presents with high recurrence rates. Epidemiological surveys in collaboration with medical, veterinary and microbiology experts will help in understanding more about the disease process and researching the role of coexisting conditions like immunosuppression,

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mucosal injuries in its etiopathogenesis will help to reduce the high prevalence of this disease in our state.

AIMS:

1. To assess the proportion of rhinosporidiosis cases among the total nasal masses operated in our hospital.
2. To identify the demographic distribution of the cases in Malappuram district.
3. To evaluate the age and sex preponderance of these cases.
4. To compare this study with similar studies conducted in India as to stress on the endemic nature of this disease in our district.

MATERIALS AND METHODS: Ours is a prospective study conducted at a tertiary teaching hospital. All the 54 patients who presented with nasal mass and confirmed as rhinosporidiosis by histopathological examination during the period July 2009 to December 2012 are included in this study. Recurrent cases were also included in this study. Patients availing from outside the state were excluded.

An ethical clearance for present study was obtained from the hospital ethical committee.

RESULTS: During the 3.5 years of study rhinosporidiosis accounted for (10.7%) of all nasal masses operated in our institution. Incidence of this disease was found to be of 15 cases per year. Among the 54 cases majority had nasopharyngeal extension and 1 patient had conjunctival lesion. 56.3% cases were recurrent cases operated outside our institution. All the cases were confirmed histopathologically patients presented with symptoms of nasal obstruction, nasal discharge and epistaxis.

Age of the patients included in this study ranged from 14 to 63 years. The disease presented commonly in 21-30 age group (44.4%) followed by 31-50 age group (25.9%) as shown in figure 2. There were 39 males and 15 females forming a male: female ratio of 2.6:1 ratio as shown in table 1. Males showed sex preponderance (72.2%) as shown in figure 2.

Among the 54 cases patients were from Malappuram, Wayanad and Palakkad district. Of these 44 cases were reported from Malappuram district which accounts for 81.5 % of study group. Among the 6 taluks in this district, Perinthalmanna taluk had a higher number (31.8 %) with Ernad (22.7 %) and Tirur (20.5%) trailing just behind as shown in table no: 3.

	(0 -10) yrs	(11 -20) yrs	(21 -30) yrs	(31-50) yrs	Above 50 yrs	total
MALES		10	15	10	4	39
FEMALES		2	9	4		15

TABLE-1: Sex and age distribution

FIGURE 1

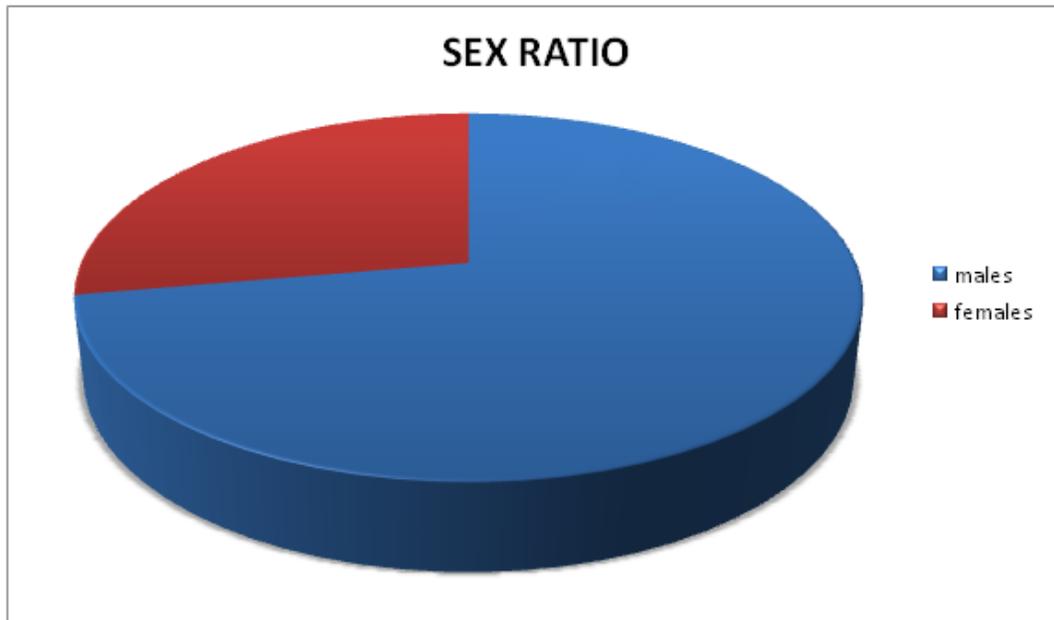


FIGURE 1

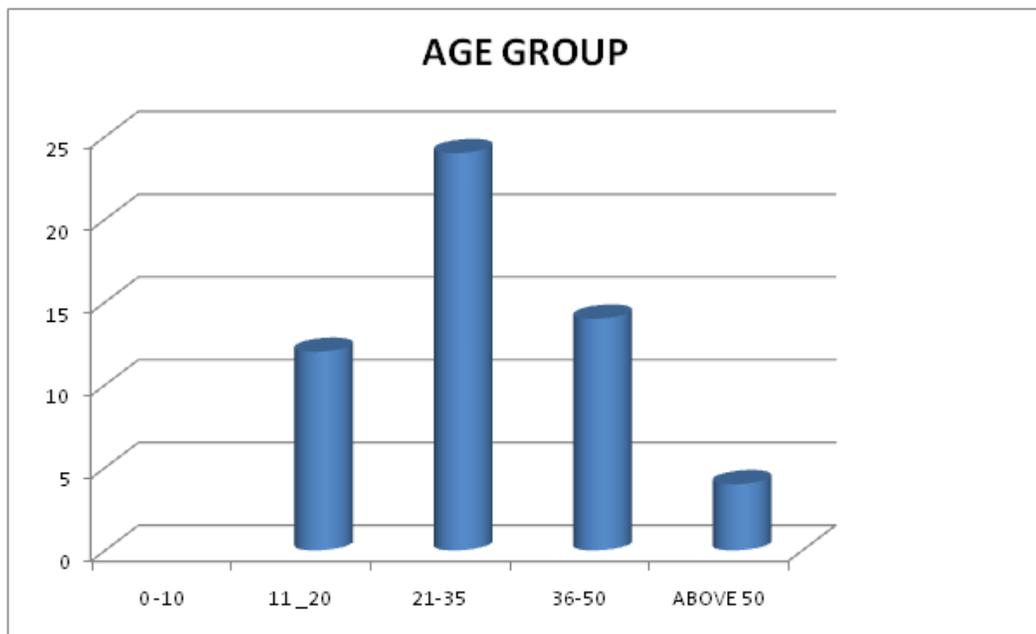


FIGURE 2

DISTRICT	NO:OF CASES
MALAPPURAM	44
PALAKKAD	8
WAYANAD	2

TABLE-2: District distribution

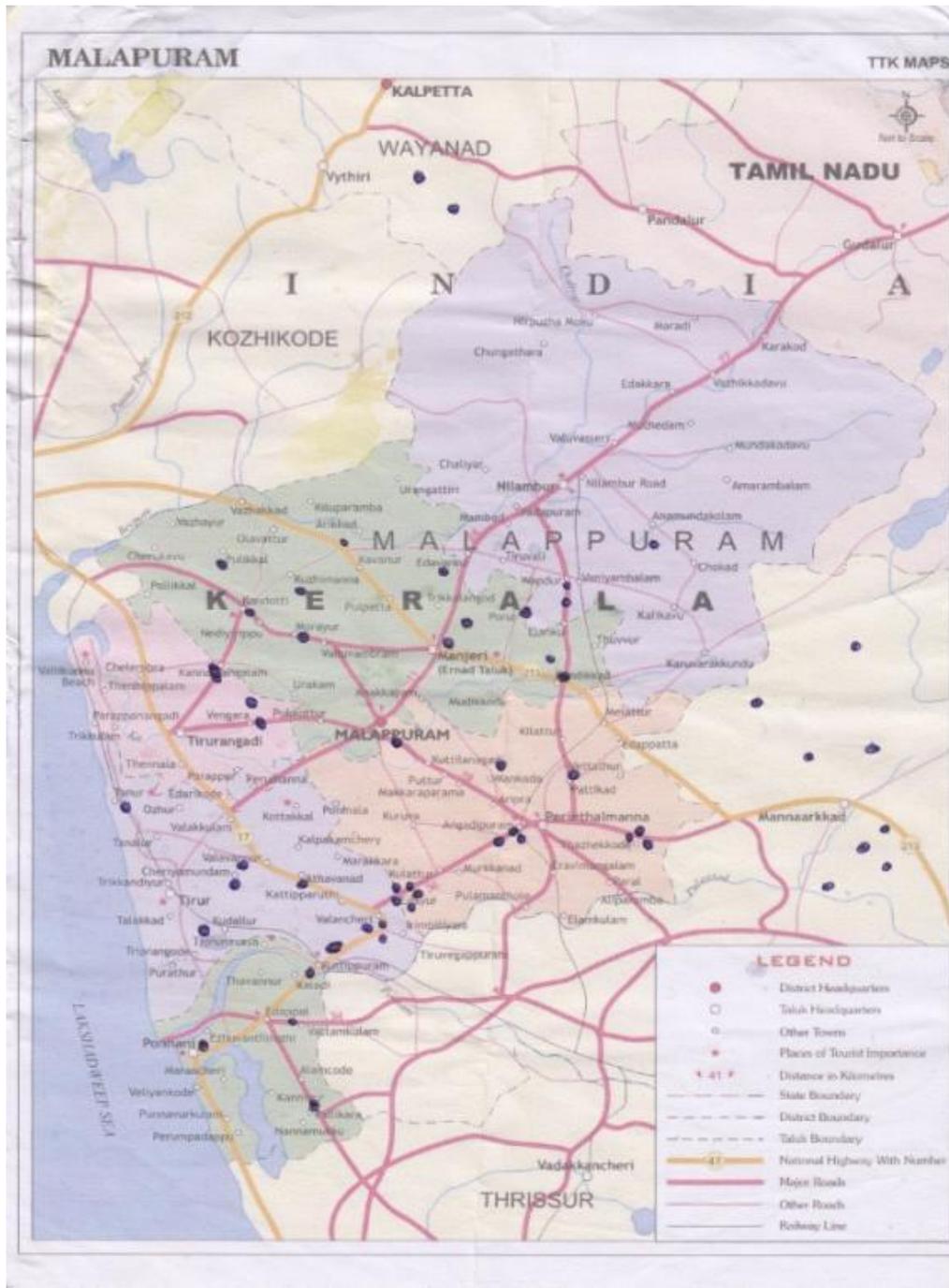


FIGURE 3: MALAPPURAM DISTRICT MAP – CASE DISTRIBUTION

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TALUK	NO: OF CASES
Perinthalmanna	14
Tirur	9
Ernad	10
Nilambur	4
Tirurangadi	3
Ponnani	4

TABLE- 3: Malappuram district- taluk wise distribution

Definitive history of repeated bathing in ponds was seen in 52 of 54 patients. Detailed probing in to the history showed that the same pond was being used for bathing cattles and other animals. Majority of patients in this group presented in late stages either with nasal obstruction or with mass in the nose protruding up to the vestibule or into the nasopharynx. The earliest symptoms like epistaxis were present in many patients which were but ignored by them. Recurrent cases also had the same presentation pattern and some of the patients had up to 12 episodes of recurrence.

DISCUSSION: The first case of rhinosporidiosis affecting the nose of an Italian agricultural worker was reported by Malbran in 1892. The properties of the etiological agent of this disease are still under research. The agent was earlier named as coccidium seeberi, rhinosporidium kinalyi, rhinosporidium equi and at last confirmed as rhinosporidium seeberi.

The earliest symptom of this disease is often epistaxis which was neglected by many of the patients. When the reason for this neglect was investigated, it threw light into a misconception which prevailed among these patients that nasal bleeding is a normal phenomena that pubertal and adult males suffered from. Cases had other symptoms like viscid nasal discharge, nasal obstruction and nasal mass. As the course of the disease is slow the nasal mass may be present for years before the patient seeks medical advice. Anterior rhinoscopy revealed granular white studded reddish pedunculated lesion which was friable and bled on touch. Common sites of attachment were nasal septum and vestibule. Radiological investigations like CT scan were done only for extensive cases to identify the extent and attachment of the lesion. Doubtful cases of clinical diagnosis were confirmed by biopsy before proceeding with surgical excision.

Rhinosporidiosis has been reported from all countries in the world but frequently from Asia. Most of these cases are from India and Srilanka. Global distribution of this disease in different continents published in 1949 is illustrated in table 4. In our country certain parts like Allepey, Kottayam, Trivandrum districts of Kerala; Tanjavur, Madurai, Kanyakumari of Tamilnadu are endemic to rhinosporidiosis.

Continent	Cases
Africa	12
America	50
Europe	3
Asia	377
India	233
Total	422

TABLE-4: Global distribution.^[3]

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This study has been conducted to identify prevalence of rhinosporidiosis in Malappuram district. Results of this study affirm that rhinosporidiosis is of endemic nature in Malappuram district. Comparative analysis of the prevalence of this disease in Malappuram with similar studies conducted in other parts of India acknowledges the high prevalence rates in this district. Among the six taluks Perinthalmanna can be considered as high incidence area as it contributed to 31% of the total 54 cases.

Other studies [4], [5], [6], [7], [8].

Author	Total cases	Duration of study	Average no. of Cases per year.
Kutty et al(Kozhikode)(1963)	52	10yrs	5.2
David SS(Tirunelveli)(1969)	100	2	50
Dube & Veliath(Mangalore)(1964)	27	7	3.6
Das et al(West bengal)(1964)	57	12	4.7
Makannavar et al(Karnataka)(1998)	34	11.5	2.9
Our study (Malappuram)(2012)	54	3.5	15.4

TABLE-5

Some studies have reported male predominance of 4:1 to 9:1 in incidence (Chitravel et al.).^[9]Whereas few other studies have reported female predominance (Kumaresan etal).^[10]This study shows a significant male predominance with a M:F ratio of 2.6:1 .The fact that females have less chance of animal contact, less frequent pond baths may attribute to lesser female prevalence. Some authors thought that effect of estrogen in females provides protection from the disease. ^[11] About half of the study group was recurrent cases. The high recurrence rates of this disease has brought financial burden and mental stress to patients by repeated visits to the hospital. The middle age group (21-30years) found to more susceptible to infection similar to study by Satyanarayana. C (1960) ^[12]

The mode of transmission of this disease could be droplet infection that is by close contact with infected humans and animals, contaminated sources like air, soil and water.^[13] The spores of seeberi which are dormant in the source becomes active on implantation over live tissues. The fact that nose is the commonest site of infection strengthens the theory of droplet transmission. Involvement of adjacent sites in the same individual is explained by auto-inoculation.

The sources of cases as area wise were mapped out which helped as to identify specific taluks with higher incidence of the disease. Health talks regarding symptomatology, disease course and preventive measures were given in these taluks. The people of Malappuram districts have a common habit of frequent pond bath due to the scarcity of water in many regions. Majority of the patients (96%) in the study group gave a history of numerous pond bath in the past and hence such contaminated water bodies could be the source of infection. In view of this observation a further study to identify spores in the water samples from these areas has been planned. Hence avoiding water bodies with spores will help to reduce the high incidence of this disease in our district.

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