

Rhinosporidiosis our experience

Abstract:

This article discusses the personal experience of author in the management of rhinosporidiosis. Living in an endemic area of disease the author had the privilege of managing about 200 cases of rhinosporidiosis during 2005 to 2010. Commonest area of involvement happened to be nasal cavity. Inside the nasal cavity rhinosporidiosis was commonly seen arising from inferior meatus. All these patients gave history of bathing in ponds which could account for the common etiopathogenic factor. All the cases were managed by surgical resection followed by 9 months course of T Dapsone to minimize risk of recurrence. Despite these measures the author had a recurrence rate of about 19%. Imaging really provided a road map as majority of these lesions were removed endoscopically.

Introduction:

Rhinosporidiosis has been defined ⁽¹⁾ as a chronic granulomatous disease characterised by production of polyps and other manifestations of hyperplasia of nasal mucosa. The etiological agent is *Rhinosporidium seeberi*.

Rhinosporidium seeberi: was initially believed to be a sporozoan, but it is now considered to be a fungus and has been provisionally placed under the family Olipidiaceae, order chritridiales of phycomyetes by Ashworth. More recent classification puts it under DRIP'S clade ⁽²⁾. Even after extensive studies there is no consensus on where *Rhinosporidium* must be placed in the Taxonomic classification. It has not been possible to demonstrate fungal proteins in *Rhinosporidium* even after performing sensitive tests like Polymerase chain reactions.

History: It has been known for over 100 years since it was first discovered in Argentina. ⁽⁴⁾

- . 1892 - Malbran observed the organism in nasal polyp ⁽³⁾
- 1900 - Seeber described the organism ⁽³⁾
- 1903 - O'Kineley described its histology
- 1905 - Minchin & Fantham studied O'Kineley's tissue and named the organism as *Rhinosporidium Kinealyi*
- 1913 - ZSchokke reported similar organism in horses and named it *Rhinosporidium equi*
- 1923 - Ashworth described its life cycle ⁽⁴⁾
- 1924 - Forsyth described skin lesion
- 1924 - Thirumorthy reported the first female patient ⁽⁴⁾
- 1936 - Cefferi established the identity of *R. Seeberi* and *R. Equi*
- 1953 - Demellow described the mode of its transmission

Incidence and Geographical distribution:

Of all the reported cases 95 % were from India and Srilanka ⁽⁴⁾. An all India survey conducted in 1957 revealed that this disease is unknown in states of Jammu & Kashmir, Himachal pradesh, Punjab, Haryana, and North Eastern states of India. In the state of TamilNadu 4 endemic areas have been identified in the survey, (Madurai, Ramnad, Rajapalayam, and Sivaganga). The common denominator in these areas is the habit of people taking bath in common ponds.

Aim of the study:

1. To identify the disease load in endemic area (Kanyakumari district Tamilnadu)
2. Sex ratio
3. Common areas of involvement
4. Role of bathing in common pond (Etiopathogenesis)
5. Role of imaging in the diagnosis
6. Optimal management modality
7. Role of T Dapsone in preventing recurrence

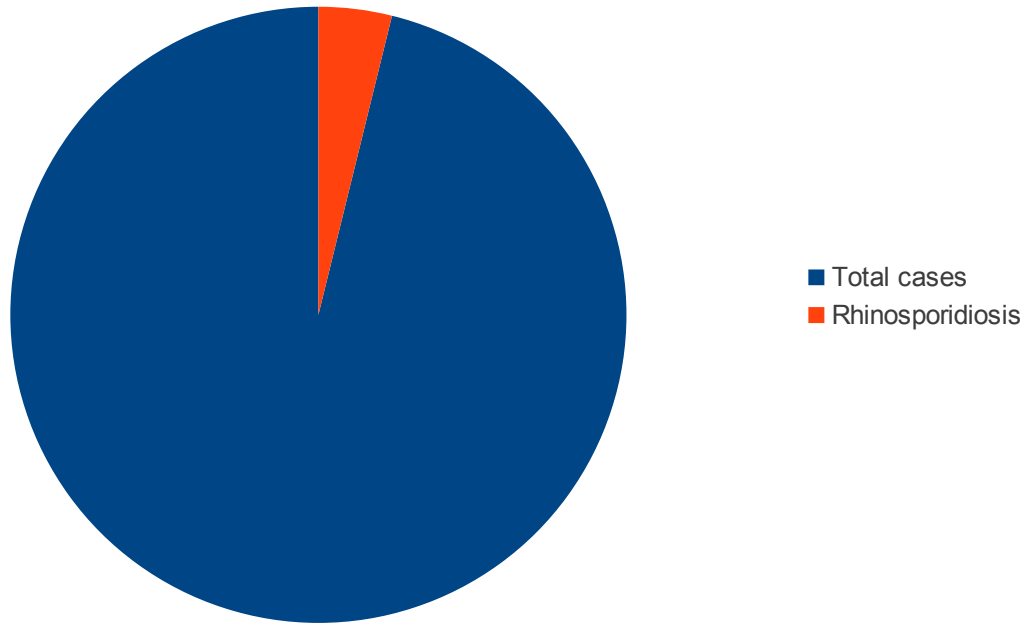
Inclusion criteria:

All patients with rhinosporidiosis were included in this study.

Results:

Disease load:

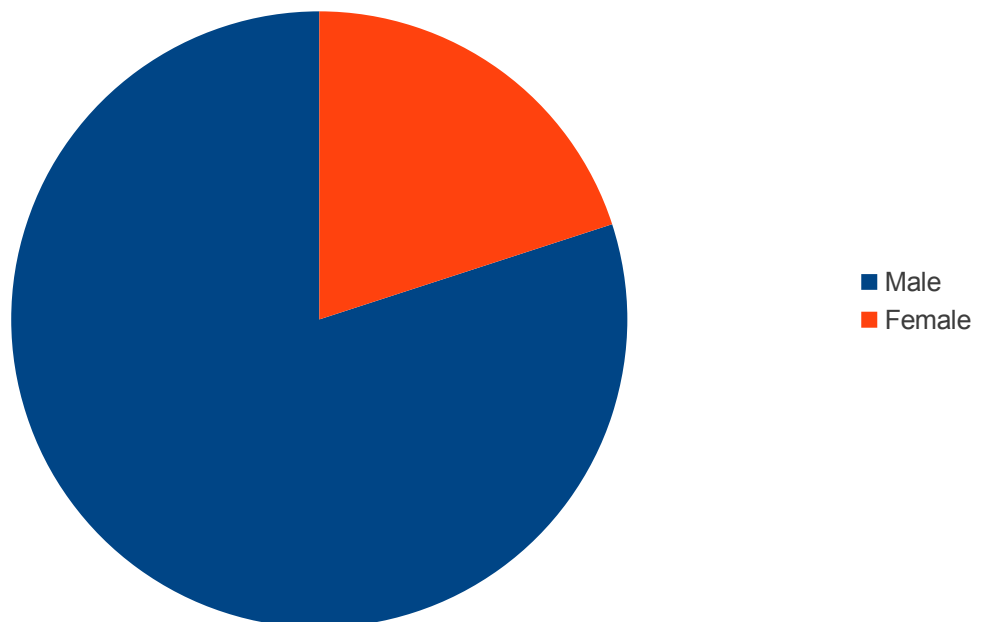
Rhinosporidiosis constituted about 4% of all cases. ⁽⁶⁾



Sex ratio:

Male: Female ratio : 10:4 ⁽⁷⁾

Study reveals that rhinosporidiosis is more common in males. This could be attributed to bathing in common ponds being common in males. Males engaged in agriculture tend to bathe in near by ponds after their work. These very ponds are shared by cattle also.



Common areas of involvement:

1. Nose – 80%
2. Nasopharynx – 15%
3. Oropharynx – 3%
4. Lacrimal sac / Nasolacrimal duct – 2%

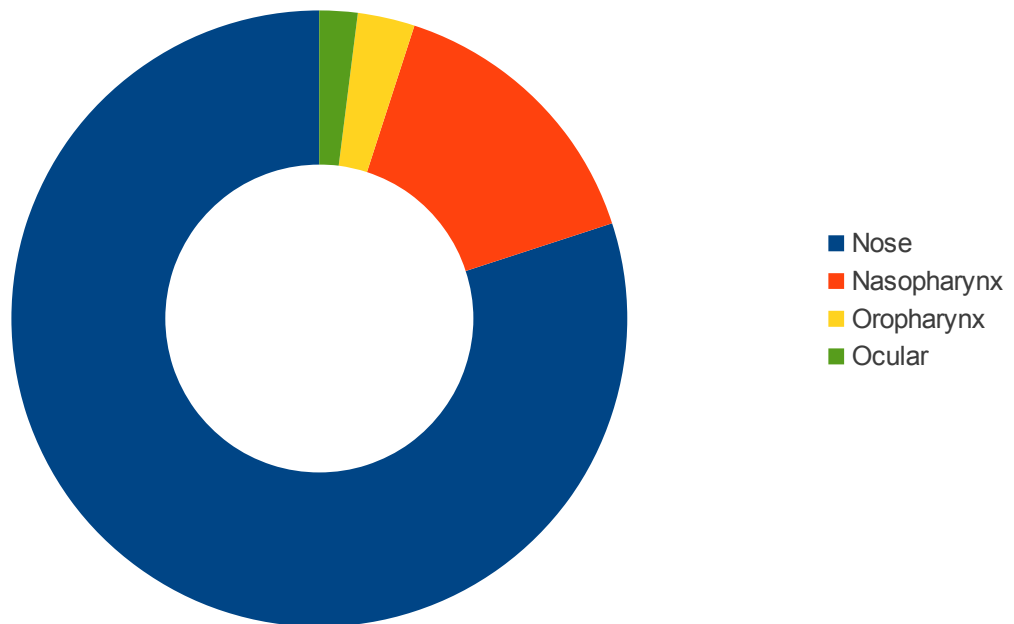




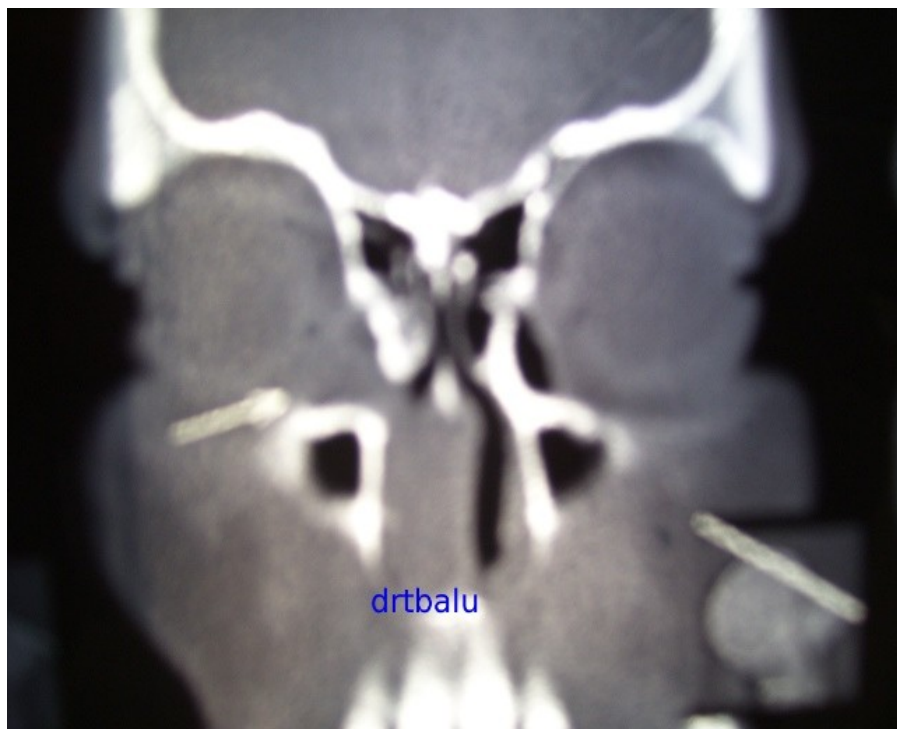
Image showing nasal rhinosporidiosis



Image showing huge oropharyngeal rhinosporidiosis



Image showing nasopharyngeal rhinosporidiosis

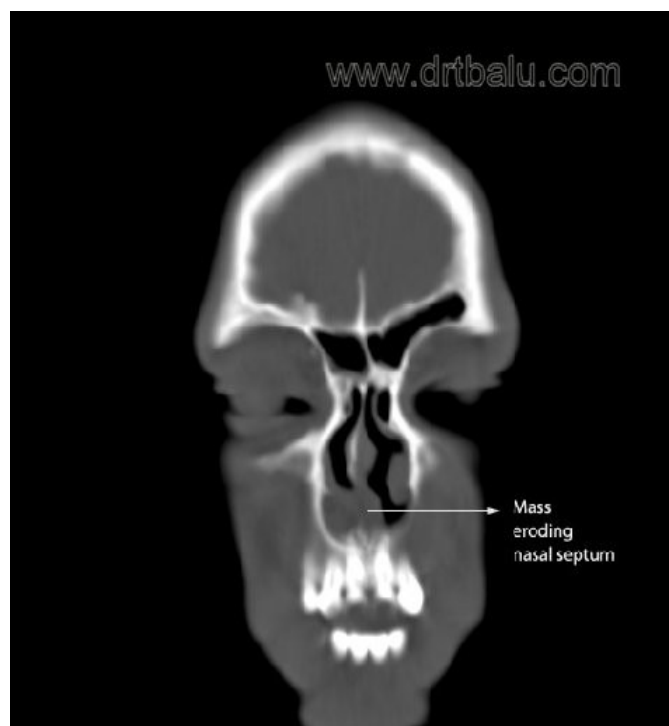


Coronal CT nose and sinuses showing lacrimal sac and nasolacrimal duct rhinosporidiosis

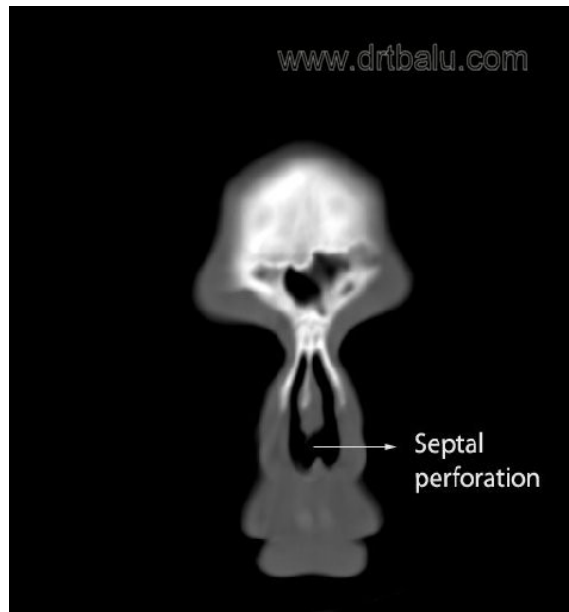
All 200 patients involved in this study gave history of bathing in ponds. Pond irrigation is the commonest irrigation modality in this endemic district. ⁽⁸⁾

Role of imaging in the diagnosis and management of rhinosporidiosis:

Imaging modality like CT scan of nose and paranasal sinuses reveal the exact site of attachment and extent of involvement. Evaluating anterior cuts are vital because during early stages of nasal rhinosporidiosis the lesion may be confined to the inferior meatus which could very easily be missed if only the posterior cuts are studied.



Rhinosporidial mass occupying the right inferior meatus



CT Nose and PNS showing septal perforation caused by rhinosporidiosis

Clinical features:

Commonly encountered clinical features include:

Epistaxis – Most common

Mass in the nasal cavity

Nasal block

Epiphora

One case manifested with septal perforation. Biopsy did not reveal any malignant transformation.

Eventhough nasal septum is resistant to erosion, it was seen to be eroded in one patient.



Endoscopic picture showing septal perforation in a patient with rhinosporidiosis

Management modality:

All these patients underwent surgical removal of the mass. 98% of these patients underwent endoscopic removal of the mass with cauterization of the base. Inferior turbinate resection was performed in 46 cases in order to facilitate complete removal of mass from inferior meatus. Pervia naturalis removal was performed in 4 patients who had extensive nasopharyngeal / oropharyngeal extension.

Post operative Dapsone therapy:

Dapsone⁽⁸⁾ was used in all these patients as post op prophylaxis to prevent recurrence.

38 patients showed evidence of recurrence within the first two years after surgical extirpation of the mass.

Discussion:

This study clearly demonstrates that bathing in ponds could be a common etiological factor in all these patients. Male preponderance of this disease could be accounted for if the fact that lesser number of females prefer to bathe in common ponds due to factors like privacy.

Features of rhinosporidiosis:

The cardinal features of rhinosporidiosis are 1. chronicity, 2. recurrence and 3. dissemination.

The reasons for chronicity are

1. Antigen sequestration - The chitinous wall and thick cellulose inner wall surrounding the endospores is impervious to the exit of endosporal antigens from inside, and is also impermeable to immune destruction. However this sequestered antigen may be released after phagocytosis.
2. Antigenic variation - Rhinosporidial spores express varying antigens thereby confusing the whole immune system of the body.
3. Immune suppression - ? possible release of immuno suppressor agents
4. Immune distraction - Studies of immune cell infiltration pattern have shown that immune cell infiltration has occurred in areas where there are no spores, suggesting that these infiltrates reached the area in response to free antigen released by the spores. This serves as a distraction.
5. Immune deviation
6. Binding of host immunoglobins

Conclusion:

The following probable conclusions were evolved from this study:

1. Rhinosporidiosis is endemic in Kanyakumari district Tamilnadu India
2. Common site of involvement was nasal cavity and nasopharynx
3. One case manifested with septal perforation ? Cause needs to be evaluated.
4. Dapsone therapy postoperatively was not successful in reducing recurrence rate in these patients
5. Imaging played a vital role in providing road map to the surgeon because majority of lesions were removed endoscopically