Original Research Article

Clinicopathological Study of Rhinosporidiosis: A Study of 20 Cases in Government ENT Hospital, Hyderabad, Telangana - A Tertiary Care Center

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Abstract

Background: Rhinosporidiosis is a chronic granulomatous disease caused by Rhinosporidium seeberi which was once believed to be a sporozoan and then was included in phycomycetes, and now included under Mesomycetozoa. It is one of the common tropical diseases, most commonly affecting the mucosa of upper respiratory tract, chiefly the nose and nasopharynx. Other sites such as conjunctiva, lacrimal glands and subcutaneous tissue may also get infected. It presents as polypoidal mass.

Aim and objective: To study incidence, age and gender distribution and clinicopathological features of Rhinosporidiosis.

Materials and methods: A retrospective study of 20 cases was undertaken over a period of 5 years (July 2012 to June 2017) in the Department of Pathology, Government ENT Hospital, Hyderabad. The resected tissue specimens were subjected to routine processing, cutting; staining and histopathological features were studied with Hematoxylin and Eosin stain.

Results: Nasal cavity was most commonly involved site, excepting in one case, where sub-glottis was involved. Males were predominantly affected i.e. 17 (85%) cases, whereas 3 (15%) cases were reported in females. Age range was between 8-70 years. (Both of them were males).

Conclusion: Rhinosporidiosis most commonly presents as polypoidal mass in the nasal cavity and may also present at extra-nasal sites. Histopathology is the standard method for confirmation of diagnosis.

Key words

Rhinosporidiosis, Nasal cavity, Subglottis, Histopathology.

Introduction

Rhinosporidiosis is a chronic granulomatous infectious disease caused by *Rhinosporidium seeberi* a fungus like protozoan parasite of the class mesomycetozoea. It occurs commonly in pond bathers and is endemic in Sri Lanka and parts of Indian subcontinent especially in coastal South India, Chhattisgarh, and Odisha [1]. There are few sporadic cases which have been reported from United States, South America, Italy, Iran, and Turkey [2-4]. There is no racial predilection but it displays male gender predominance [5].They clinically present as polypoidal, pedunculated, reddish pink mulberry like soft tissue masses characterized by bleeding, commonly affecting the nose and nasopharynx. Extranasal sites of involvement are conjunctiva, lacrimal sac, lips, palate, uvula, maxillary antrum, epiglottis, larynx, trachea, bronchus, ear, scalp, vulva, penis, rectum and skin. Rarely, disseminated infections are also reported, involving limbs, trunks and viscera. Brain involvement may lead to fatal outcome [6].

Materials and methods

A retrospective study of 20 cases was undertaken over a period of 5 years (July 2012 to June 2017) in the Department of Pathology, Government ENT Hospital, Hyderabad. The resected specimens were subjected to routine processing, cutting; staining and histopathological features were studied with Hematoxylin and Eosin stain. The dimensions of specimens were ranging from 0.3cm to 2cm and they were grey-white to grey-brown coloured soft tissue bits. Clinical details were retrieved from medical records.

Results

In the present study males were predominantly affected i.e. 17 (85%) cases whereas females were 3 (15%) cases. Male to female ratio i.e. M: F = 5.66: 1. Median age of presentation was 31 years. Youngest patient was of 8 years old boy and oldest was of 70 years old male. The age and gender distribution of the patients is provided in the **Table - 1**.

Table – 1: Age and gender distribution of patients.

Age range (years)	Male	Female	Total
01-10	2	-	2
11-20	1	1	2
21-30	4	2	6
31-40	2	-	2
41-50	3	-	3
51-60	3	-	3
61-70	2	-	2
Total	17	3	20

The clinical findings of the patients are provided in the **Table - 2**. The most common presentation was nasal obstruction. They presented as polypoidal pinkish-red mass lesions in the nasal cavity.

Table – 2: Clinical symptoms in patients.

Symptoms	No. of cases
Nasal obstruction	12
Nasal mass	17
Epistaxis	8
Change in voice	1

The most common site of presentation as mass lesion was in the nasal cavity i.e. in 17 (85%) cases, except in 1(5%) case, where the mass was present in the subglottic region. The case in the subglottic region recurred thrice even after excision of mass. One case of nasal cavity mass

recurred twice. Distribution of cases according to their site of presentation is provided in the **Table - 3**.

Table – 3: Distribution of number of cases according to their site of presentation.

Site of presentation of mass	**No. of cases**
Nasal cavity	
Right	7
Left	6
Bilateral	3
Right lateral wall	1
Left inferior turbinate	1
Left anterior part of septum	1
Sub-glottis	1

The resected masses after routine processing and staining revealed histopathological features of rhinosporidiosis in all the cases. On microscopic examination (**Figures – 1 to 5**) they showed surface respiratory epithelium with underlying subepithelium showing loose fibrocollagenous edematous stroma infiltrated by dense collections of inflammatory cell infiltrate composed of lymphocytes and plasma cells intermingling with characteristic thick walled sporangia of varying sizes in different stages of maturation containing numerous endospores within. 2 cases revealed focal giant cell reaction.

In our study, most common age group affected was 2nd and 3rd decades of life with 6 cases (30%), showing male preponderance, constituting M: F ratio of 5.66:1 almost similar to other studies by Khade Archana L, et al. [7], Mahmud S, et al. [5].

Discussion

Rhinosporidiosis which was previously thought to be a fungus (as first described by Guillermo Seeber from Buenos Aires in 1900) [1, 8], is now considered as a protoctista parasite, which involves fish and other amphibians, a fungus like protozoa of the class mesomycetozoea as classified by Herr, et al. [1, 9], after thorough molecular biological analysis of the organism's ribosomal DNA. Moreover, unlike invasive mycoses, histologically rhinosporidiosis lacks Splendore-Hoeppli reaction [1, 10]. Most commonly seen in patients of lower socio-economic group with agricultural background and few cases in drivers. The exact mode of transmission, host and natural reservoirs are unknown and it is presumed to be transmitted by direct contact with spores through dust, infected clothing or fingers and bathing in stagnant water [11-13]. It implies predilection of organism for mucosal sites and gains access through traumatized epithelium [11, 12].

The most common presenting symptom of rhinosporidiosis are nasal mass, nasal obstruction, epistaxis and nasal discharge [14, 15]. In our study a single case in the subglottic region presented with a sensation of lump in the throat similar to the study by Bandyopadhyay S N, et al. [11]. This patient had history of surgery for sub-glottic mass four times in the last three years. One of the patients had history of surgeries for nasal rhinosporidiosis twice within one year. However recurrence and residual diseases are common in rhinosporidiosis for which wide local excision of the lesion with diathermy coagulation of the base to prevent spread through the submucosal lymphatics is the definitive treatment of choice [11]. In cases of sessile lesions, complete excision is difficult and thus recurrences are common.

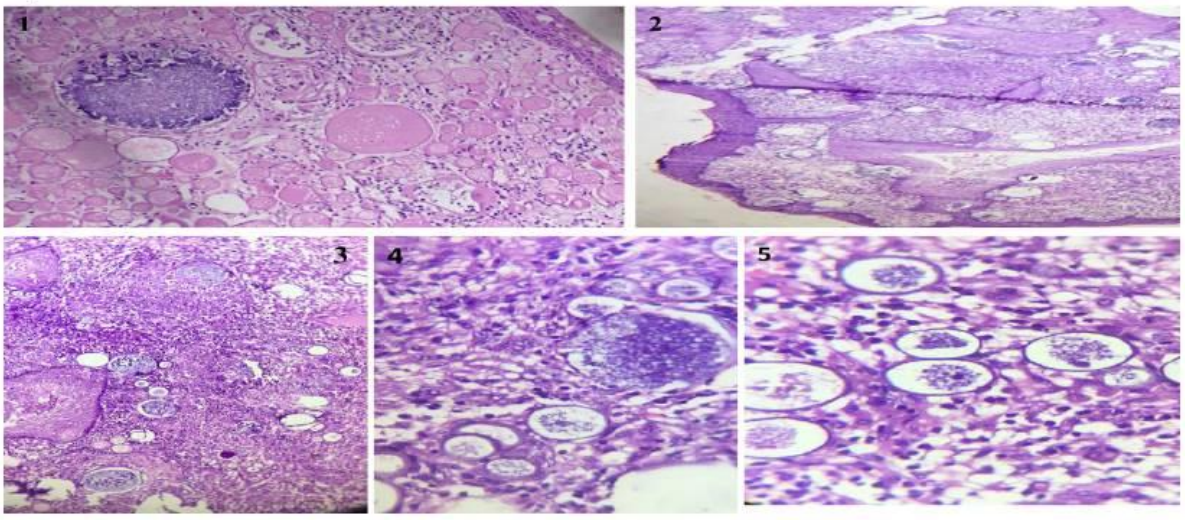
A definitive diagnosis of rhinosporidios is possible by histopathological (**Figures – 1 to 5**) identification of the organism in its various stages of maturation [16] with the help of haemotoxylin and eosin staining. Special histochemical stains such as PAS, Mucicaramine and Gomori methenamine silver stains also aids in diagnosing rhinosporidiosis.

Conclusion

Rhinosporidiosis is a chronic granulomatous infective disorder, mostly presenting as polypoid mass lesion in the nose, naso-pharynx and other sites. Mere presence of polypoid mass lesion

may not be diagnostic of rhinosporidiosis, as sino-nasal, antrochoanal, inflammatory lesions may also present as polypoidal masses. Histopathology is the standard method for confirmation of diagnosis of rhinosporidiosis.

Figures (1-5) : Showing surface respiratory epithelium with focal squamous metaplastic change. Stroma is edematous showing dense chronic inflammatory cell infiltrate composed of lymphocytes and plasma cells. Variable sized sporangi,a filled with endospores are seen. Mature sporangia are located nearer to the surface epithelum.



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