

## Rhinosporidiosis Presenting as a Facial Swelling: A Case Report

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### Abstract:

Rhinosporidiosis caused by *Rhinosporidium seeberi* is a fungal infection, which affects chiefly the mucus membranes of the nose, oropharynx, and nasopharynx, as well as the larynx, skin, eyes, and genital mucosa. Soil and water act as a reservoir for the organism. Here, we present a case of Rhinosporidiosis, which clinically manifested as a facial swelling indicating that fungal infections should also be considered as one of the differential diagnoses whenever facial swellings are encountered.

**Key Words:** Endospores, rhinosporidiosis, sporangia

### Introduction

Rhinosporidiosis is a disease caused by the fungus *Rhinosporidium seeberi*, affects human beings and domestic animals predominantly in India and Sri Lanka. The infection occurs when the endospores of the fungus entering the body through nasal mucosa and related structures from the stagnant water and dust particles. Rhinosporidiosis commonly manifests as a polypoid mass in the anterior part of the nasal cavity. In the oral cavity, lip, palate, and uvula are the commonly involved sites.<sup>1</sup> Microscopically, the infected tissue shows sporangia with endospores surrounded by mixed inflammatory cells.<sup>1</sup>

### Case Report

A 65-year-old male patient, farmer by profession presented to the outpatient department of SRM Dental College and Hospital with a chief complaint of swelling with pain in the right side of the face for the past 1 month. History revealed the swelling started as a small one and gradually reached the

present size and accompanied by pain from the beginning. The patients' physical status was fair and both his medical history and habit history were non-contributory.

On extra oral examination, facial asymmetry was noted. A well-defined unilateral swelling seen on the left side of the face, extending superiorly from the level of ala-tragal line to a region 1 cm above the lower border of the mandible inferiorly, anteriorly it extended 0.5 cm behind the angle of the mouth to a region 2 cm in front of the tragus posteriorly. The skin over the swelling appeared normal, surface of the swelling was smooth, and there was no evidence of sinus opening or discharge over the swelling. The swelling measured approximately 5 cm × 4 cm in size (Figures 1 and 2).



**Figure 1:** Front view of the face showing diffuse swelling on the right side.



**Figure 2:** Right lateral view of the face showing margins of the swelling.

On palpation, the swelling was tender, soft in consistency, compressible, and not fixed to the underlying structures. No palpable regional lymph nodes. Intra-oral examination was non-contributory excepting for the poor oral hygiene status of the patient. With the presenting complaints and clinical examination, the differential diagnosis included a buccal space infection and salivary gland tumor.

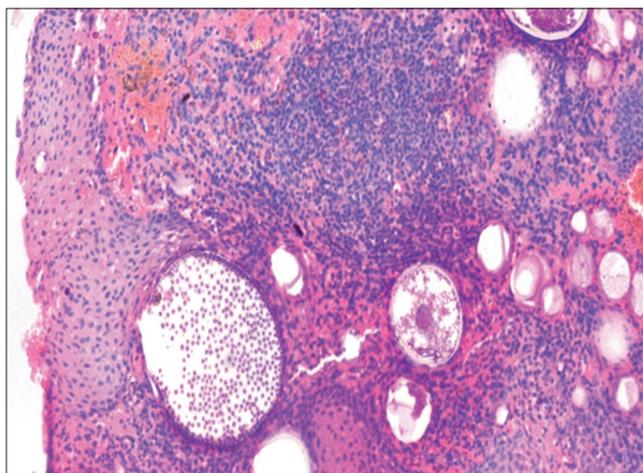
Aspiration was done, and the aspirate showed red blood cells and mixed inflammatory cells. An incisional wedge biopsy was performed through intra oral buccal approach (Figure 3) and specimen submitted for histopathological examination. Histopathologic examination showed numerous mature sporangia surrounded by chitinous wall containing numerous mature and immature endospores. The sporangia were surrounded by acute and chronic inflammatory cells (Figure 4). The histopathology was suggestive of Rhinosporidiosis.

### Discussion

First case of Rhinosporidiosis was reported by Malbron of Buenas Aires in 1892.<sup>1</sup> Seeber in 1990 first described in detail



**Figure 3:** Cystic bag like appearance of the lesion during biopsy.



**Figure 4:** H and E stained section showing sporangia with endospores ( $\times 10$ ).

about the microorganism causing Rhinosporidiosis. The life cycle of the microorganism causing Rhinosporidiosis was given by Ashworth in 1923.<sup>1,2</sup>

Morphology of the microorganism resembles that of a fungus and protozoa. Most of the microbiologists consider Rhinosporidium as fungus because of its periodic acid-Schiff positivity and taking up silver stains.<sup>1-3</sup>

Ahluwalia *et al.* (1997) expressed that Rhinosporidium could be a prokaryotic cyanobacterium- *microcystis aeruginosa* based on its isolation from the specimens of the patients and the pond water sample where they bathed.<sup>3</sup> He also said in 1999 that these organisms can be cultured in tissue cultures because of its difficulty to culture in artificial media.<sup>1,4</sup> Herr *et al.* (1999) said that *R. seeberi* is related to a group of fish parasite on the basis of molecular studies on ribosomal DNA.<sup>1,2,5</sup> Apart from India and Sri Lanka (endemics), Rhinosporidiosis also is reported in South America, US England, Egypt, and South Africa.<sup>1,2</sup>

Water and soil act as a reservoir for the organism. The chances of getting Rhinosporidiosis infection is more in the people working with sand, agricultural farms, and people bathing in stagnant water.

The endospores present in the dust or water enters the nasal cavity. The endospores penetrate the nasal mucosa, reach the submucosa, and mature into the sporangium. The sporangia burst and release endospores into surrounding tissues, presenting as a soft, polypoid growth—mostly sessile in the anterior nasal cavity, may also involve the nearby bone. Lymphadenopathy is rare due to various mechanisms of immune evasion by Rhinosporidium.<sup>1,2</sup>

Males are commonly affected when compared to females (4:1 ratio). Rhinosporidiosis can occur at any age but frequently encountered between 20 and 35 years. Rhinosporidiosis predominantly affects the mucus membranes of nose and nasopharynx. It also involves lips, palate, uvula, maxillary antrum, conjunctiva, lacrimal sac, epiglottis, larynx, trachea, bronchus, ear, scalp, skin, penis, vulva, and vagina.

Literature also shows Rhinosporidiosis involving parotid duct manifests itself as a facial swelling. Skin lesions appear as small verrucae or warts, genital lesions resemble condylomas. Oronasopharyngeal lesions appear as soft, red (vascular) polypoid growth.<sup>6-8</sup>

Diagnosis can be made by histopathology. Microscopically, the organisms appear as sporangia containing large numbers of round or ovoid endospores, each measure approximately 5-7  $\mu$  in diameter. The surrounding connective tissue shows vascular granulation tissue and mixed inflammatory cells.

Complete excision with wide surgical margins to reduce recurrence is the treatment of choice.<sup>1,8</sup> to reduce recurrence antifungal agents such as griseofulvin and amphotericin B are tried without much success. Treatment with the drug dapsone appears to be promising.<sup>1,9</sup>

### Conclusion

Though Rhinosporidiosis is common in the nasal cavity and related structures, it is evidenced from this case report that in case of any facial swellings, Rhinosporidiosis also should be included in the differential diagnosis.

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