

Nasal Rhinosporidiosis

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Rhinosporidiosis is a rare chronic granulomatous infection caused by *Rhinosporidium seeberi*. It affects mainly the mucosa of the nose, nasopharynx, palate, conjunctiva and the urethra. A seven-year-old girl presented with intranasal polypoid growth with recurrent nose bleeding for one year. Excision biopsy was done, and the tissue was subjected to routine histological processing and stained with hematoxylin and eosin stains with additional mucicarmine special stain. Variable-sized sporangia containing magenta-colored spores and capsule were observed. We hereby present a rare infective disease diagnosed nine years after the first reported case in our center.

Key words: infection ■ nose ■ polyps ■ Nigeria

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INTRODUCTION

Rhinosporidiosis is a rare chronic granulomatous infection caused by *Rhinosporidium seeberi*. It affects mainly the mucosa of the nose, nasopharynx, palate, conjunctiva and the urethra.¹ Disseminated case with skin nodules has been reported in India.¹ The organism has never been isolated in vitro, and its taxonomic position is unclear.² The disease is endemic in India and Sri Lanka but has been reported from the United States, South America, Iran and Nigeria.²⁻⁵ The first and only reported case in this center was in 1998 by Nwanna and coworkers.⁶

Most cases present as nasal obstruction and epistaxis due to the friable polypoid mass in the nasal cavity. We hereby report a seven-year-old girl with polypoid nasal rhinosporidiosis.

CASE PRESENTATION

A seven-year-old female pupil presented in October 2007 to the ear, nose and throat (ENT) clinic of Plateau

State Specialist Hospital, Jos, Nigeria, with a history of nasal obstruction and a growth in the right nasal cavity of one year's duration. The history was that of a slow-growing mass in the right nasal cavity with increasing nasal blockage and occasional nose bleed. There was history of visiting ponds and streams in the village but no family history of similar disease. On examination, she was not ill looking, nor pale or dyspneic. A polypoid friable mass 3 cm in diameter was observed arising from the mucosa on the lateral side of the right nasal cavity. There was no positive axillary and supraclavicular lymphadenopathy. A working diagnosis of nasal polyp to rule out hemangioma was made. Excision biopsy was done and the specimen sent to the histopathology laboratory for histological diagnosis. There were no other lesions in the contralateral nostril, pharynx or eye.

GROSS AND MICROSCOPIC FINDINGS

The masses were irregular fragments when seen at the cut-up room in the histopathology laboratory. The fragments were grayish white with whitish spots aggregating 3 x 2.5 cm and weighing 7 g. Histology showed ulcerated stratified squamous epithelium overlying an edematous stroma in which were seen several sporangia in different stages of maturation. There was mixed inflammatory cells infiltration of the stroma comprising lymphocytes, plasma cells, neutrophils and macrophages with vague granuloma formation. Some nests of benign squamous cells were also observed in the stroma [Figure 1, hematoxylin and eosin (H&E) stains]. Figure 2 shows a special stain (mucicarmine) showing magenta-colored spores and sporangial capsule.

DISCUSSION

Rhinosporidiosis has been known for more than a hundred years since its first description in Argentina.⁷ It is a rare infective chronic granulomatous disease caused by *Rhinosporidium seeberi*, which affects mainly the mucosa of the nasal cavity, pharynx and conjunctiva. Involvement of other parts of the body, such as the lips, palate, uvula, larynx, trachea, bronchus, maxillary antrum, epiglottis, ear, scalp, penis, vulvo-vagina, rectum and the skin, has been reported.¹

Rhinosporidium seeberi is difficult to culture in vitro, and this had hindered the accurate knowledge of the life-cycle, therefore affecting the precise taxonomy of this organism. Most microbiologists initially considered it a fungus just because of its property to be stained by fungal stains such as Gomori methenamine silver (GMS) and periodic acid Schiff (PAS).⁸ Some authors recently postulated that the etiological agent of the disease was not a fungus but a prokaryotic cyanobacterium called *Microcystis aeruginosa*. This hypothesis was based on the finding of this bacterium in rivers and ponds where patients with rhinosporidiosis used to bathe, and supported by laser-scanning confocal, light, electron microscopy and molecular finding.⁹ However, the most accepted responsible agent today is an aquatic protistan parasite belonging to a novel group of fish parasites (Mesomycetozoa), located phylogenetically between the fungal and animal divergence.¹⁰

Special stains are employed in the diagnosis of rhinosporidiosis in order to differentiate it from coccidioidomycosis (caused by *Coccidioides immitis*), which does not stain with mucicarmine. The sporangium of *Rhinosporidium seeberi* is larger (50–1,000 μm) than that of

Coccidioides immitis (20–80 μm).⁸ The most common form of presentation of rhinosporidiosis is nasal or pharyngeal growth (polyp).

We have presented a case of rhinosporidiosis presenting as a nasal polyp in a seven-year-old girl. The history does not show that it is a recurrence, and there is no history of similar disease in any other members of the family. The first reported case in this center was in a 17-year-old in 1998 by Nwanna et al.⁶ Since then, there has not been any other case. The first ever reported case in Nigeria was in a 16-year-old boy in Ibadan, southwestern Nigeria, in 1996.⁵ This particular Ibadan case was said to be a recurrent nasal rhinosporidiosis excised a year earlier in Zaria, northern Nigeria.

For now, the main treatment option is surgical excision of the growth. This however, is associated with recurrence, especially if not completely excised or if autoinoculation had occurred in a satellite site before excision. The use of antimicrobials has not been effective, though some have experienced little success with dapsone.¹¹

Figure 1. H&E stain of nasal polyp showing two mature sporangia (center and extreme lower left), and several immature ones with a single centrally placed spore, 20X objective

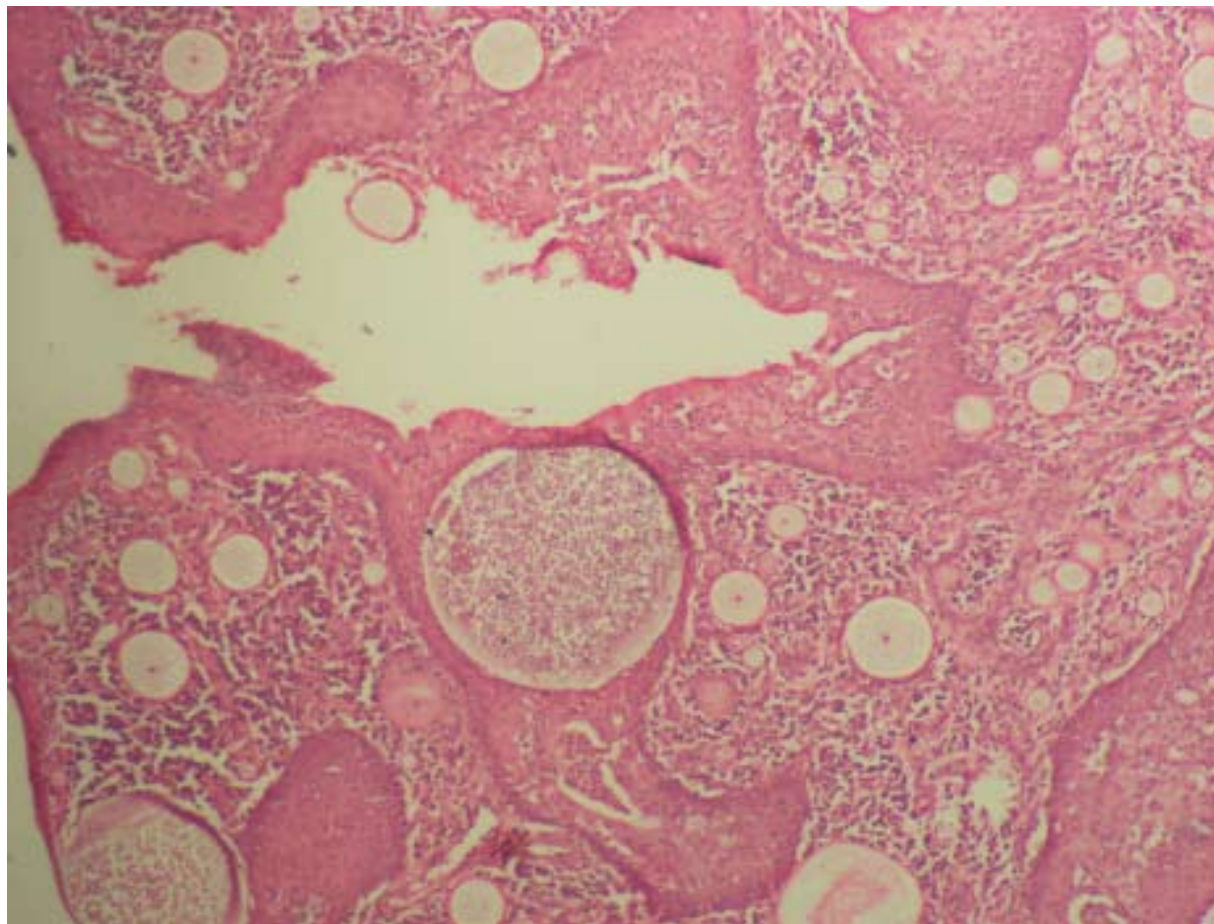
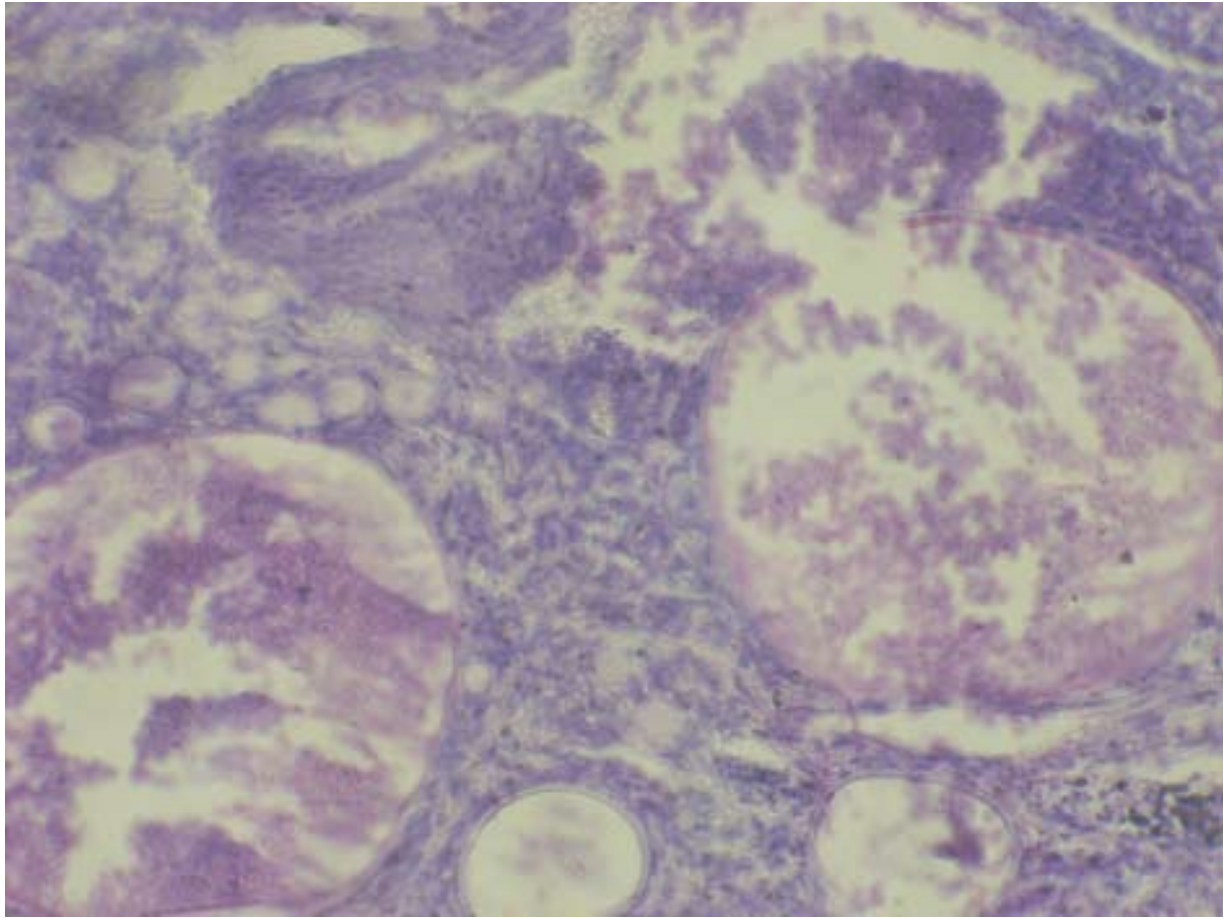


Figure 2. Nasal rhinosporidiosis. This mucicarmine stained slide shows two large sporangia containing magenta-colored spores and capsule (lower left and middle right), 40X objective.



CONCLUSION

Rhinosporidiosis is infrequent in our environment. However, with several sporadic cases reported in our region, follow-up of index cases and epidemiological surveillance to ascertain prevalence and source of infection in our region is necessary.

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