

Case report`

Human Rhinosporidiosis of the Nasal Cavity: a Case Report

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ABSTRACT

Background: Rhinosporidiosis is a rare chronic granulomatous disease caused by *Rhinosporidium seeberi*. It is endemic in some parts of Asia and commonly involves the mucous membrane of the nose presenting with nasal obstruction, a nasal mass, and epistaxis. The main treatment for rhinosporidiosis remains surgical excision, although it may recur after excision. Rhinosporidiosis is a condition that clinicians should keep in mind when managing patients with nasal masses even in non-endemic areas. **Case presentation:** A 52-year-old housewife presented with a 9-month history of left progressive nasal obstruction and progressive enlarging left nasal growth associated with recurrent nasal bleeding and nasal discharge. She had a history of rearing animals and bathing in ponds as well as engaging in farming activities. Examination revealed a fleshy polypoid mass attached to the nasal septum by pedicle and filling the whole of the left nasal cavity covered with a mucopurulent nasal discharge with associated contact bleeding. She had endoscopic resection under local anaesthesia with cauterization of the base of the mass with a silver nitrate pencil. A histopathological diagnosis of rhinosporidiosis was made. **Conclusion:** Rhinosporidiosis is rare in our environment, its presentation mimics that of nasal tumours. Therefore, it should be part of the differential diagnosis; both clinicians and pathologists should have it at the back of their minds when managing patients with nasal masses even in non-endemic areas.

Keywords: Nasal mass, Nasal obstruction, Rhinosporidiosis, *Rhinosporidium seeberi*

Introduction

Rhinosporidiosis is a rare chronic granulomatous infection caused by *Rhinosporidium seeberi*. It most commonly involves the mucous membrane of the nose but may involve other parts of the body such as the nasopharynx, conjunctiva, palate, urethra, or genitalia^{1,2}. Rarely, it can be seen in the brain, ear, trachea, skin, and subcutaneous tissues³. The disease is endemic in parts of Asia such as India, Sri Lanka, and Bangladesh, but sporadic cases have been reported in Argentina, Brazil, Italy, Iran, Tanzania, Nigeria, and Uganda.^{4,5} The organism is believed to spread through direct contact of its spores present in dust, soil, and stagnant water with traumatized epithelium ('transepithelial infection') most commonly that of the nasal cavity.^{5,6} The causative organism is widely believed to be a fungus and hence it can be visualized with fungal stains such as Gomori Methenamine Silver (GMS), Periodic Acid-Schiff (PAS), as well as Haematoxylin and Eosin (H&E) staining.⁷

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Most of the cases present with nasal obstruction, a nasal mass, and epistaxis; other symptoms include anosmia, postnasal drip, oral bleeding, itching, and sneezing.^{5,7,8} Clinically, they appear as polypoid, soft tissue masses in the nose which may be pedunculated or sessile.⁹ The treatment of choice is surgical excision with electrocoagulation of the base of the lesion to reduce the risk of recurrence.^{3,4}

Case report

A 52-year-old housewife presented with a 9-month history of left progressive nasal obstruction and progressively enlarging left nasal growth. The patient also complained of recurrent nasal bleeding and nasal discharge. She reported a history of several teeth extractions. No history of significant constitutional symptoms. No history of similar symptoms in the past and no family history of similar illness. She had a history of rearing animals and bathing in ponds as well as engaging in farming. Nasal endoscopy using a 0° telescope revealed a fleshy polypoid mass attached to the nasal septum by pedicle and filling the whole of the left nasal cavity covered with a mucopurulent nasal discharge with accompanied contact bleeding. The turbinates, right nasal cavity, palate, and nasopharynx were clinically normal. No local or regional lymph node enlargement. Other examinations were unremarkable. She had endoscopically assisted resection under local anaesthesia with cauterization of the base of the mass with a silver nitrate pencil. Histopathological examination revealed a soft tissue mass covered by respiratory epithelium consisting of numerous globular cysts of varying sizes, some containing fungal spores surrounded by inflammatory infiltrates within a stroma of connective tissue (fig. 1). The postoperative period was unremarkable and there was no evidence of recurrence after 4 months of follow up.

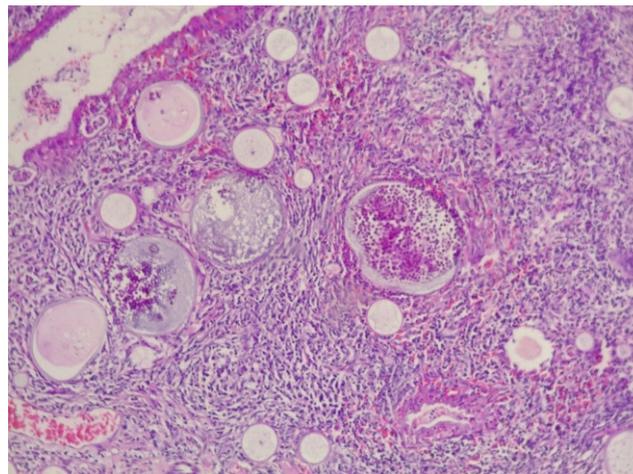


Figure 1: Photomicrograph of rhinosporidiosis showing a soft tissue mass covered by respiratory-type epithelium consisting of numerous globular cysts of varying sizes, some containing fungal spores surrounded by inflammatory infiltrates within a connective tissue stroma (H&E x 40)

Discussion

Rhinosporidiosis is an infective disease caused by *Rhinosporidium seeberi* which was first reported by Malbran, described as a protozoan by Seeberi, and later as phygomycetes by Ashworth in 1923.¹⁰ It is endemic in the Indian subcontinent, however, there are sporadic reports from the United States of America, Italy, Brazil, Argentina, Iran, and Africa.^{4,5,6,11} The mode of transmission of the disease is not clearly understood, but it is believed that direct contact with spores present in dust, soil, or prolonged exposure to stagnant water may put the individual at risk of contracting the disease.^{5,6,11} The disease is seen most commonly in males.^{7,12} The age group most commonly affected was 21 – 50 years of age and all the females involved were housewives with histories of exposure to agricultural work of various kinds.¹³ This agrees with the index case who is a female housewife at 52 years of age who may have contracted the disease from prolonged contact with animals, stagnant water during animal grazing as well as engaging in farming activities. Arsecularatne similarly reported that persons from rural areas who engaged in agriculture as well as took baths in ponds where animals were bathed were mostly at risk of developing rhinosporidiosis.⁴ The index case presented with nasal obstruction, a nasal mass, epistaxis, and nasal discharge which was similarly reported by other studies.^{13,14} However, Suneer reported epistaxis as the commonest presenting symptom followed by nasal obstruction, anosmia, and oral bleeding.⁸ However,

Guru and Pradhan reported that their patients presented with epistaxis, followed by nasal discharge, nasal obstruction, sneezing, and anosmia.¹² Most cases of rhinosporidiosis involved the nasal cavity, but extra-nasal involvement has also been reported.¹² The commonest site of primary attachment in the nose was the nasal septum, inferior turbinate, and inferior meatus in that order.¹³ The primary site of attachment in the index case was also the nasal septum. In contrast, Guru and Pradhan found the most common site of attachment to be the lateral wall of the nose, followed by the septum and floor, and least commonly the roof of the nose.¹² The mainstay of treatment for rhinosporidiosis is complete excision of the mass followed by cauterization of the base. It is hypothesized that such cauterization is to avoid recurrence from spillage of endospores to the adjacent tissue.^{3,4,5,6} The index case had endoscopically assisted excision and cauterization of the base using silver nitrate.

Conclusion

Rhinosporidiosis is a clinical entity that is rarely seen in our environment. Its clinical presentation mimics that of nasal tumours. Therefore, clinicians and pathologists should have it at the back of their minds as a possible differential diagnosis when managing patients with nasal masses.

References

1. Raveenthiran V. Metastatic rhinosporidioma in a child. *J Pediatr Surg.* 2006;41(4):853-5
2. Daniel Aliyu, SadikkuMallami Sahab. Nasal Rhinosporidiosis in a Nigerian Child: A Rare Clinical Entity . *International Journal of Otolaryngology and Head & Neck Surgery* 2014, 3, 51-53
3. Echejoh GO, Manasseh AN, Tanko MN, **Ogala-Echejoh SE**, Silas OA, Nimkur TL, Mandong BM. *J Natl Med Assoc.* 2008 Jun;100(6):713-5.
4. Arseculatne SN, sumathipala S, Erriyagama NB. Patterns of rhinosporidiosis in Srilanka comparison with international data. *South east Asian J trop need publichealth* 2010; 41(1): 175-191
5. Uledi S, Ayubu, "Human Nasal Rhinosporidiosis: A Case Report from Malawi," *Pan Afr Med J* 2011;9:27. doi: 10.4314/pamj.v9i1.71203

6. Arseculeratne SN. Recent advances in rhinosporidiosis and Rhinosporidiumseeberi, *Indian J Med Microbiol*, 2002;20(3):119-31.
7. Ranbir KP, Amit K, Dheeraj K. Incidence of Rhinosporidiosis in Jharkhand, *IOSR-JDMS*, 2017;6(1):16-18
8. Suneer R, Sivasankari L. Clinical profile of rhinosporidiosis in a tertiary care center of an endemic area. *Int J Otorhinolaryngol Head Neck Surg* 2018;4:659-62
9. Morelli L, Polce M, Pisioli F, Del Nonno F, Covello R, Brena A et al. Human nasal rhinosporidiosis: an Italian case report, *Diagnostic Pathology* 2006;1:25 doi:10.1186/1746-1596-1-25.
10. Mandal PK, Pandey A, Mukhopadhyay S, Roy S. Disseminated cutaneous Rhinosporidiosis, a Tumor like lesion with Therapeutic challenge, a case report. *Iranan J Pathol.* 2014;9(4): 277-280.
11. Nayak s, Acharjya B, Devi B, Sahoo A, Singh N. "Disseminated Cutaneous Rhinosporidiosis," *Indian Journal of Dermatology, Venereology and Leprology* 2007; 73(3): 185-187. <http://dx.doi.org/10.4103/0378-6323.32744>
13. Guru RK, Pradhan DK. Rhinosporidiosis with special reference to extra nasal presentation. *J Evolution Med Dent Sci.* 2014;22(3):6189–99.
14. Karthikeyan P, Vijayasundaram S, Davis Thomas Pulimoottil. A Retrospective Epidemiological Study of Rhinosporidiosis in a Rural Tertiary Care Centre in Pondicherry. *Journal of Clinical and Diagnostic Research.* 2016;10(5):4-8.
15. Bandyopadhyay SN, Jana U, Bandyopadhyay G, Majhi TK, Sen S, Das S, et al. Rhinosporidiosis: various presentations and different sites. *Bengal J Otolaryngol Head Neck Surg* 2015;23(2):48-56.