Rhinosporidiosis of the tarsal conjunctiva

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Rhinosporidiosis is a rare infection caused by *Rhinosporidium seeberi*, an organism classified in its own class, mesomycetozoea. It commonly affects mucus membranes namely the nasal mucosa, pharynx and the conjunctiva. We present the case of an 8-year-old female who presented with a flat, red, vascular, fleshy, pedunculated mass arising from the tarsal conjunctiva of the right upper eyelid. The mass was completely excised. On histopathological examination, multiple sporangia were seen in various stages of degeneration, consistent with rhinosporidiosis. The diagnosis of rhinosporidiosis is based solely on its microscopic features, and the treatment is surgical excision. This condition is endemic in the temperate regions of the Indian subcontinent, but it has been known to occur even in the colder regions of North America and Eastern Europe. Although a rare clinical entity, the possibility of rhinosporidiosis must be borne in mind when evaluating any polypoidal conjunctival mass.

Key words: Conjunctiva, conjunctivosporidiosis, rhinosporidiosis, tarsus, tumor

Rhinosporidiosis is a chronic granulomatous disease caused by *Rhinosporidium seeberi*,[1] an endosporulating microorganism, which has recently been placed in a taxonomical group, mesomycetozoea, which is a heterogeneous group of microorganisms which are at the boundary between animals and fungi.[2] The disease is endemic in India and Sri Lanka.[3] Its most common presentation is like a soft polypoidal pedunculated mass. While the nose and nasopharynx are the most common sites, other sites of infection include the conjunctiva, maxillary sinuses, penis, urethra.[4] In addition to the conjunctiva, ocular rhinosporidiosis can affect the eyelids, limbus, caruncle, canthi, lacrimal sac and nasolacrimal duct.[1,5] Rarely scleral ectasia, staphyloma formation, and the scleral melt have also been reported.[6,7] In this communication, we report an unusual location of the focus of rhinosporidiosis: The tarsal conjunctiva in a child and also highlight the typical microscopic findings seen.

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Case Report

An 8-year-old female presented to our clinic with a history of foreign body sensation, irritation and occasional epiphora in the right eye of 8 months duration. Visual acuity in both eyes was 20/20 N6. On examination, the lids, bulbar conjunctiva, cornea, and sclera were normal. Ocular motility was normal, as were intraocular pressures and dilated fundus examination. On eversion of the right upper eyelid, a flat, red, vascular, fleshy pedunculated mass was seen arising from the tarsal conjunctiva. Large feeder vessels were seen at the base of the mass, which had multiple small, pale yellow nodules on the surface [Fig. 1a and b]. The patient had no prior history of any ophthalmic surgery or ocular trauma. A clinical diagnosis of a pyogenic granuloma was made, and the mass was completely excised with application of electro-cautery to the base of the lesion.

Histopathological examination of the mass showed squamous mucosa with subjacent moderate lymphocyte and plasma cell infiltration. Epithelial hyperplasia was noted, and multiple

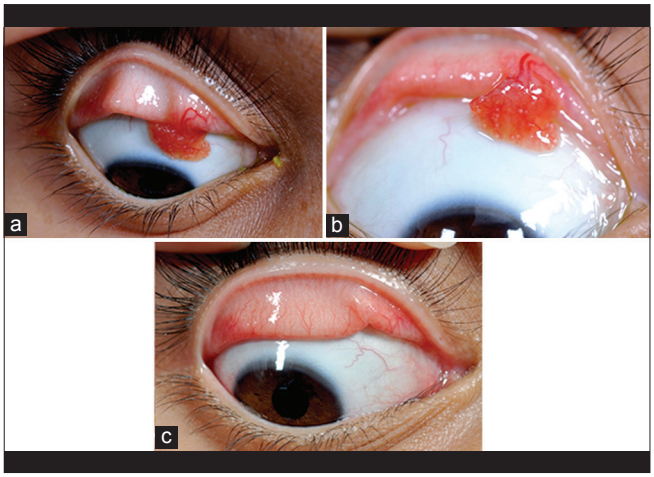

Figure 1: Clinical photograph of the right eye: The red vascular, fleshy pedunculated mass is seen arising from the tarsal conjunctiva (a). On higher magnification, feeder vessels at the base can be easily identified. The coarse pale yellow nodules on the surface of the mass represent the mature sporangia (b). Postoperatively, at 6 months no residual lesion was noted (c)

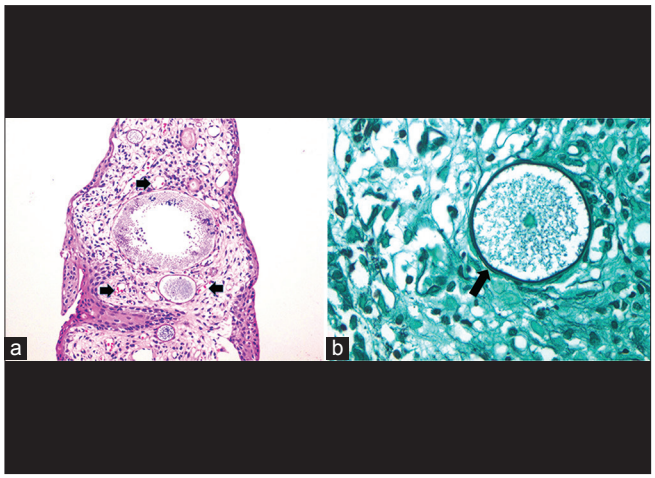

Figure 2: Epithelial hyperplasia of the conjunctiva is noted here. Multiple round sporangia were seen in various stages of degeneration. The degenerating sporangia were surrounded by inflammatory cells admixed with a few dilated blood vessels (black arrows) (H and E, ×10) (a). Stage I or the early trophic stage in the life cycle of rhinosporidosis: A large single centrally situated nucleus is surrounded by a finely granular cytoplasm. The three surrounding layers can be distinctly identified (black arrow): The outer chitinous layer, the middle cellulose-like layer and the thin mucoid layer. (Gomori's Methanamine silver stain, 40×) (b)

sporangia were seen in various stages of degeneration including the early trophic stage, which is characterized by a large single centrally situated nucleus surrounded by a finely granular cytoplasm.[1] The degenerating sporangia were surrounded by degenerating cells admixed with a few dilated blood vessels. The picture was consistent with rhinosporidiosis [Fig. 2a and b]. Postoperatively, topical Tobramycin 0.3% eye drop was prescribed for 1-week. At 6 monthly follow-up, there was no recurrence, and the conjunctiva had healed well with no residual lesion [Fig. 1c]. A rhinology consultation was also sought to rule out additional lesions, which was normal.

Discussion

The typical conjunctival lesion in oculosporidiosis is a red, fleshy, pedunculated, polypoid mass arising from the palpebral conjunctiva with multiple pale yellow dots representing the mature sporangia on the surface. It has been hypothesized that when the infection arises from the bulbar conjunctiva, there is no space for the oculosporidium to grow out as a polypoid mass as the lids over the conjunctiva exert a flattening force.[3] Therefore, the lesions in the bulbar conjunctiva are usually sessile and flatter in appearance. Oculosporidiosis presenting as a conjunctival mass is extremely rare. Suh *et al*. reported a case where rhinosporidiosis presented as chronic follicular conjunctivitis in a 15 years old contact lens wearer.[8]

The mass was seen arising from the tarsal conjunctiva, but owing to the lack of space to grow outward, it assumed a flat configuration [Fig. 1b].

The presumed mode of human infection is due to contact of traumatized epithelium with contaminated water. Highest incidence of cases is reported among river-sand workers in India and in Sri Lanka; this is particularly relevant to such a mode of infection, through abrasions caused by sand particles with the pathogen in the putative habitat such as ground water.[9] Another mode of infection is inhalation of field dust contaminated by the spore bearing feces of infected animals.[1]

Clinically, on examination of the mass, the presence of yellowish pin head-sized spots on the surface, which represent underlying mature sporangia, may help in pointing toward a possible diagnosis of rhinosporidiosis. The definitive diagnosis of rhinosporidiosis, however, is by histopathological examination of biopsied or resected tissues, with the identification of the pathogen in its diverse stages, rather than the stromal and cellular responses of the host. Final diagnosis is achieved by demonstration of thick-walled sporangia containing numerous endospores in a background of fibrovascular stroma.[4]

Although cases of spontaneous regression have been recorded, they are rare, and the most effective mode of treatment remains surgical. Rhinosporidial lesions may recur years after primary excision. Total excision of the mass preferably by electro-cautery is recommended to reduce the chance of recurrence. Postoperatively, oral Dapsone is recommended by some authors as a measure to prevent recurrence.[3]

Differential diagnosis in such cases must include conjunctival papilloma, hemangioma, arteriovenous malformation and pyogenic granuloma. Close examination will reveal the small pale yellow spherules typical of rhinosporidiosis.[1] Although endemic in tropical regions, rhinosporidiosis requires a high degree of clinical suspicion to clinically diagnose it. While the Indian subcontinent accounts for the majority of the cases in literature; sporadic cases from Europe and North America also have been reported. Therefore, regardless of the geographic location, rhinospiridiosis must be considered as a differential when encountered with a polypoidal conjunctival mass.[1]

References

1. Reidy JJ, Sudesh S, Klafter AB, Olivia C. Infection of the conjunctiva by *Rhinosporidium seeberi*. Surv Ophthalmol 1997;41:409-13.
2. Mendoza L, Taylor JW, Ajello L. The class mesomycetozoea: A heterogeneous group of microorganisms at the animal-fungal boundary. Annu Rev Microbiol 2002;56:315-44.
3. John SS, Mohandas SG. Conjunctival oculosporidiosis with scleral thinning and staphyloma formation. Indian J Ophthalmol 2005;53:272-4.
4. Sinha A, Phukan JP, Bandyopadhyay G, Sengupta S, Bose K, Mondal RK, *et al*. Clinicopathological study of rhinosporidiosis with special reference to cytodiagnosis. J Cytol 2012;29:246-9.
5. Mithal C, Agarwal P, Mithal N. Ocular and adnexal rhinosporidiosis: The clinical profile and treatment outcomes in a tertiary eye care centre. Nepal J Ophthalmol 2012;4:45-8.
6. Jacob P, Rose JS, Hoshing A, Chacko G. Tectonic corneal graft for conjunctival rhinosporidiosis with scleral melt. Indian J Ophthalmol 2011;59:251-3.
7. Castelino AM, Rao SK, Biswas J, Gopal L, Madhavan HN, Kumar SK. Conjunctival rhinosporidiosis associated with scleral melting and staphyloma formation: Diagnosis and management. Cornea 2000;19:30-3.
8. Suh LH, Barron J, Dubovy SR, Gaunt ML, Ledee DR, Miller D, *et al*. Ocular rhinosporidiosis presenting as chronic follicular conjunctivitis in a contact lens wearer. Arch Ophthalmol 2009;127:1076-7.
9. Arseculeratne SN. Recent advances in rhinosporidiosis and *Rhinosporidium seeberi*. Indian J Med Microbiol 2002;20:119-31.

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