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Ocular Rhinosporidiosis in a Nigerian Child: A Case Report and Literature Review from Niger Delta of Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author EPU designed the study and wrote the protocol. Authors EPU and RIA wrote the first draft of the manuscript. Authors EPU, RIA and IRO managed the literature searches. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Aim: The aim of this report is to raise the awareness of the existence of this rare ocular affliction in our locality and to highlight the importance of routine histopathological diagnosis of ocular mass lesions.
Case Presentation: An 11 year old male school child presented to our centre with a 9 months history of a fleshy growth which bleeds spontaneously, on the inner aspect of the right upper eyelid. Other parts of both eyes including the left eye lid were normal A provisional diagnosis of squamous cell papilloma of the conjunctiva was made and the patient underwent an excisional biopsy of the lesion. Microscopic sections of the mass showed hyperplastic polypoid lesion with numerous globular cysts within the subepithelia conjunctiva with a surrounding of heavy inflammatory reaction composed of lymphocytes, plasma cells and neutrophils. A histopathological diagnosis of conjunctival rhinosporidiosis was made.
Discussion: Rhinosporidiosis is a chronic localized granulomatous infection caused by an aquatic

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protistan parasite called Rhinosporidum seeberi. Ocular rhinosporidiosis is worldwide in distribution but to our knowledge, no case has been reported from Nigeria. Ocular rhinosporidiosis is presumably acquired through contact of the causative organism to traumatized epithelium usually in an aquatic habitat. It is said to be more common in those who dive or swim in stagnant water and those engaged in riverside sand dredging may be the mode of infection in this case.
It presents as a vascular friable polypoid growth as in this case. Although a few cases of nasal rhinosporidiosis have been reported from different parts of Nigeria, documented cases of ocular rhinosporidiosis from our centres are lacking. We herein report the first case of ocular rhinosporidiosis in Nigeria, from Bayelsa State, Niger Delta which presented as a fleshy mass in the palpebral conjunctiva in an 11year old boy.
Conclusion: Most conjunctiva mass lesions may mimic rhinosporidosis. A histopathogical diagnosis is therefore imperative.

Keywords: Ocular; rhinosporidiosis; nasal; conjunctiva; Nigeria.

1. INTRODUCTION

Rhinosporidiosis is a chronic granulomatous and localized infection commonly affecting mucous membranes of the nose and nasopharynx, presenting as vascular friable polypoid masses. The conjunctiva, lips, palate, larynx, trechae, ear, bone, rectum, external genitalia and cutaneous tissues are affected occasionally. [1-5] Ocular rhinosporidiosis occurs in 15% of all cases of rhinosporidiosis. [6,7] The aetiologic agent of rhinosporidiosis in Rhinosporidium seeberi [8]. This organism had a controversial taxonomy but has recently been demonstrated to be an aquatic protistan parasitic microbe based on molecular biological techniques and thus classified in a new clade, the mesomycelotea with other ten similar organisms [6-9]. The disease is worldwide in geographic distribution though it is known to be endemic in India, Sri Lanka and Bangladesh [6,10-12]. Both man and animals are affected [1,6,10,11,13-14]. The disease shows no racial predilection though there is gender difference with males being predominantly affected [6,10,15]. Rhinosporidium is transmitted by direct contact with spores through dust or air (eye infection mainly) infected clothing (cutaneous infection, mainly) and after swimming in stagnant water (nasal infection). The infection spreads through lymphatic and haematogeous routes to distant sites [6,8] and formation of metastatic masses have been reported [16].

Rhinosporidiosis is rare in Nigeria though sporadic cases of nasal infections have been reported from different parts of the country including South-East (Nnewi), North-Central (Jos), South-West (Ibadan) South-South (Port Harcourt), North-West (Sokoto) and North-East (Maiduguri) [3,16-21]

Ocular rhinosporidiosis can affect the eye primarily or as the aftermath of a metastatic spread from a primary site elsewhere in the body. Trauma has been recorded as a predisposing factor to ocular rhinosporidiosis [22]. It commonly affects the conjunctiva and other ocular sites are rarely affected. Sclera involvement can result in thinning and staphyloma formation [23]. Involvement of some of these rare sites can lead to sight threatening complications. It has been reported to cause choroidal effusion, uveitis and exudative retinal detachment [24]. Complications similar to that in the affected eye in rhinosporidiosis have been observed in the contralateral non rhinosporidiosis affected eye but the possibility of a direct extension could not be established [23]. An immunological reaction has been suggested as a cause of this phenomena, though not proven [23].

Reports on ocular rhinosporidiosis is very rare in Nigeria. We herein report a case of conjunctival rhinosporidiosis occurring in an 11year old Nigerian child from a local community in Bayelsa State.

2. CASE PRESENTATION

An 11 year old male school child presented to our centre with a 9 months history of a fleshy growth which bleeds spontaneously on the inner aspect of the right upper eyelid. No significant change in size of mass was noted since onset except following an instance when his mother applied native medication on the lesion. No history of similar lesion in any other parts of his body. The child is second out of five children. No history of similar lesion in other siblings and other children in the neigbourhood. There is a positive

history of occasional swimming in a nearby community river.

Clinical examination showed a pinkish fleshy growth in the palpebral conjunctiva of the right upper eyelid. The visual acuity as measured by an opthamic nurse using the Snellen acuity chart at a distance of 6m were normal in both eyes (6/9, 6/5) and the sclera, cornea, anterior and posterior segements of both eyes were essentially normal. There was no lymphadenopathy detected. A B scan ultrasonography requested were normal in both eyes. Examination of the anterior nares and oral cavity did not reveal any nasal lesion.

A provisional diagnosis of squamous cell papilloma of the conjunctiva was made and the patient was booked for an excisional biopsy. The tissue mass was excised and sent for histopathological evaluation. Gross examination of the specimen showed 4 small fragments of brown soft tissues altogether measuring 1 x 0.8 x 0.1cm.

Microscopically, sections showed hyperplastic polypoid lesions with numerous globular cysts within the subepithelia conjunctiva. There were surrounding areas of heavy inflammatory reaction composed of lymphocytes, plasma cells and neutrophils (Fig. 1). Each of the cysts was a thick walled sporangium containing numerous spores. Some of the matured sporangia were ruptured releasing endospores (Fig. 2).

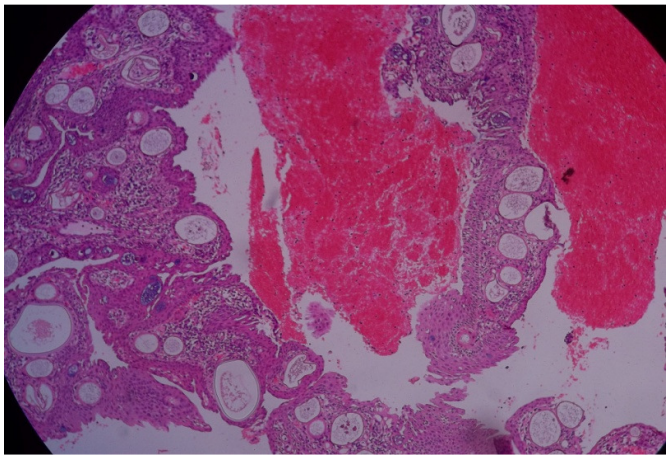

Fig. 1. shows numerous sporangia present in the subepithelia conjunctiva which is infiltrated by chronic inflammatory cells. (H & E x 100)

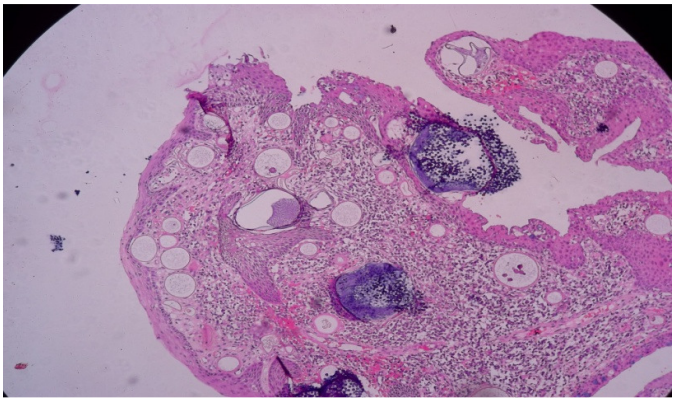

Fig. 2. Histologic section of conjunctiva tissue showing rupture of a mature sporangium with release of endospores. Other sporangia at various stages of maturity are seen within the subepithelial tissue. (H & E x 100)

A diagnosis of rhinosporidiosis of the conjunctiva was made. As at last review of the patient 9 months after surgical excision there was no reoccurrence or evidence of rhinosporidiosis in the eye or any other part of the body.

3. DISCUSSION

Ocular rhinosporidiosis is worldwide in distribution but noted to be hyperendemic in India and Sri Lanka [6,10]. In Africa, it has been noted to occur sporadically in some countries notably Uganda, Mozambique, Ethiopia and Zaire [25-28].

To our knowledge, no case of ocular rhinosporidiosis has been reported from Nigeria. This case report from the Niger Delta of Nigeria, thus represents the first documented in Nigeria.

Ocular rhinosporidiosis is presumably acquired through contact of the causative organism to traumatized epithelium usually in an aquatic habitat [22]. It is said to be more common in those who dive or swim in stagnant water and those engaged in riverside sand dredging [29]. Our patient reported some visit to a nearby community river for swimming. This may be the mode of infection in this case report. In this patient the infection affected the upper palpebral conjunctiva. Conjunctiva is the commonest site of ocular rhinosporidiosis and majority of cases occur in the superior palpebral conjunctiva as is in this case [8,27,28]. Rarely it has been reported in the bulbar conjunctiva, lacrima sac and eyelid [30].

Rhinosporidiosis commonly occurs in the age range of 10-40years old [26,31]. However, cases outside this age range have been reported [23,28]. Our patient falls within the predominant age group. The disease is said to exhibit a male predilection [6,10,15]. However, some authors have observed that the disease has no sex predilection [26,28]. With only one case yet reported in our environment, we cannot ascertain the gender relationship among patients with ocular rhinosporidiosis. Further observations are required to ascertain this relationship, however our findings tally with that of most observers. Males are said to be more affected because of their greater involvement in outdoor activities [30].

Majority of cases of ocular rhinosporidiosis are treated by surgical excision. A few cases have been successfully treated using oral dapsone 100mg/day [23,32,33].

Recurrence may follow surgical excision of rhinosporidal growth [23,28,30] but not inevitably. In our patient, there was no recurrence of the growth 9 months after follow up. Complete surgical excision and preventing spilling of spores to the surrounding tissues have been observed to minimize recurrence [28,30]. However,it has been observed that a locally acquired immune deficiency state presumably caused by a paporavirus infection can increase risk of recurrence [34].

Ocular rhinosporidiosis is more commonly unilateral although bilateral cases have been reported [35].

Morphologically, rhinosporoidal ocular lesions appears as papillomatous fleshy or granulomatous growths [28,30,36,37].

Rarely it may present clinically as a recurrent chalazia or a chronic follicular conjunctivitis [38,39].

4. CONCLUSION

This case report therefore emphasizes the need for histopathological diagnosis of ocular mass lesion in order to ensure proper diagnosis and treatment.

CONSENT

We sought for and obtained the written consent of the patient to publish this article anonymously.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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