*Case Report*

# Cytopathological Diagnosis of Rhinosporidiosis of Eyelid - A Case Report

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*Rhinosporidium seeberi, is the causative organism causing rhinosporidiosis. Various techniques confirm that a cyanobacterium is the causative organism which cause Rhinosporidiosis in human. Conjunctival rhinosporidiosis is a rare infectious disease that typically appears in young males in rural regions showing male predominance. Here a male of 20 years hailing from Bandar, Narayangonj attended the outpatient dept. of National Institute of Ophthalmology, Dhaka with the complain of swelling of left lower eyelid for the last 3 years. On local examination the swelling was found firm in consistency. On investigation his Hb% was 10.2gm%, TC of WBC was-7000/cmm of blood and differential count was within normal limit. He is non diabetic and his bleeding time and clotting time was within normal limit. The patient was sent for cytopathology. On Fine neddle aspiration whitish material came out through the neddle from the swelling. Smear from aspirated material on Pap's staining reveal sporangia containing spores in the background of amorphous eosinophilic material. No malignant cell was seen. Cytopathological diagnosis was suggestive of Rhinosporidiosis of left lower eyelid. The patient underwent surgical treatment. Resected tissue from left lower eyelid swelling was sent for histopathology. The diagnosis was confirmed by histopathology to be a case of Rhinosporidiosis of left lower eyelid on 10-05-2013.*

***Key words:*** *Rhinosporidium seeberi, Rhinosporidiosis, Cytology, Histopathology*

## Introduction

Rhinosporidium seeberi, is the causative organism causing rhinosporidiosis.[1-5] This disease is most commonly affects nose and nasopharynx, however other sites including conjunctiva, skin, maxillary sinuses, penis, urethra are reported. It usually presents as a soft polypoidal pedunculated or sessile mass. The disease is caued by an endosporulating microorganism of uncertain taxonomic classification. It is a microscopic round body in polypoidal masses that is believed to be the sporangium of a fungus Rhinosporidium seeberi, However culture the fungus on various media have been unsuccessful.[2,4] Various techniques including confocal microscopy, light and electron microscopy confirm that a cyanobacterium is the causative organism which cause Rhinosporidiosis in human.[2]

## Case Report

A male of 20 years hailing from Bandar, Narayangonj attended the outpatient dept. of nNIO with the complain of swelling of left lower eyelid for the last 3 years. On local examination the swelling was found firm in consistency. On investigation his Hb%10.2gm%, TC of WBC-7000/cmm of blood and differential count was within normal limit. He is nondiabetic and his bleeding time and clotting time was within normal limit.

The patient was sent for cytopathology. On aspiration whitish material came out through the neddle. Smear from aspirated material on Pap's staining reveal sporangia containing spores in the background of amorphous eosinophilic material. No malignant cell was seen.Cytopathological diagnosis

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was suggestive of Rhinosporidiosis of left lower eyelid. The patient underwent surgical treatment.Resected tissue from left lower eyelid swelling was sent for histopathology. On gross examination of resected tissue show a grey brown irregular piece of tissue measuring 2.5x2x0.5cm. The cut surface show a cystic area. Two blocks were embedded. Histopathological examination of the sections from the submitted tissue reveal polypoid piece of tissue composed of a core of fibrovascular tissue lined by hyperplastic mucosa. The submucosa and stromal tissue containing several large sporangia. No malignant cell is seen. The diagnosis was confirmed by histopathology to be a case of Rhinosporidiosis of left lower eyelid on 10-05-2013.

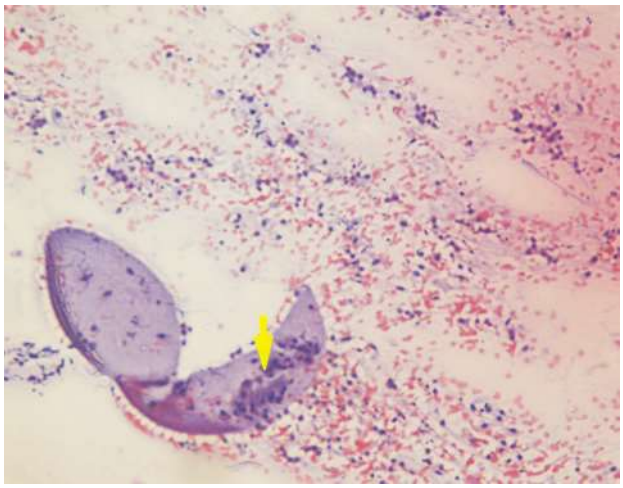

**Fig 1. FNA smear of left lower eyelid lesion showing endospores of Rhinosporidium seeberi, (Pap's x400)**

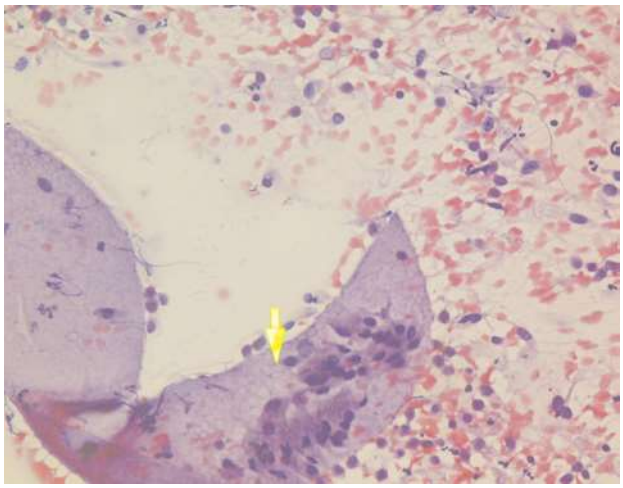

**Fig 2. FNA smear of left lower eyelid lesion showing endospores of Rhinosporidium seeberi, (Pap's x400)**

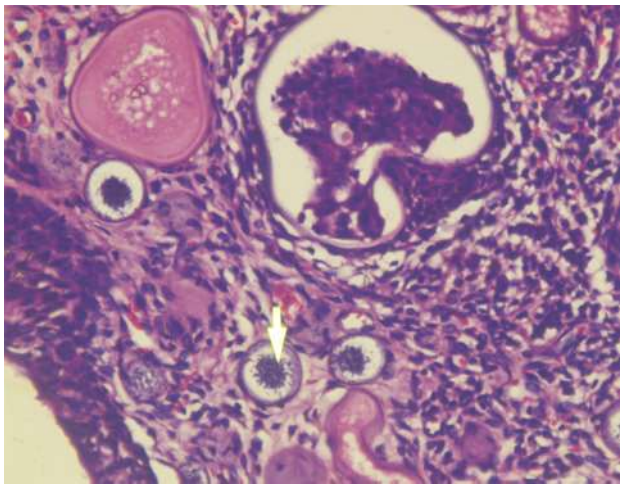

**Fig 3. Photomicrograph of left lower eyelid lesion showing endospores of Rhinosporidium seeberi, (H&E, x400)**

## Discussion

Rhinosporidium seeberi, is the causative organism causing rhinosporidiosis. Histologically, all stages of the organism's life cycle could be found in the excised tissue, from small trophocytes to large sporangia-containing sporoblasts. In general, the inflammation was of chronic non granulomatous type.[3] However, regarding its tissue reaction, different opinion exists that it is granulomatous reaction comprising mixed cell granuloma, pseudocystic abscesses, fibrosis around the causative organism.4 The cell walls of trophocytes and sporangia exhibit the presence of cellulose. The spore wall is encapsulated with granular fibrillary substances consisting of acid mucopolysaccharides.[4] The ultrastructure of a trophocyte shows it to be comprised of sporoblasts containing oval or round membrane-bound nuclei with nucleoli, mitochondria, endoplasmic reticulum, chromatin granules, vacuoles, lipid bodies, and spherules.[4]

This disease is most commonly affects nose and nasopharynx,[5] however other sites including conjunctiva, skin, maxillary sinuses, penis, urethra are reported. Ocular lesions, particularly of the conjunctiva and lacrimal sac, account for 15% cases. Rare sites of involvement are lips, palate, uvula, maxillary antrum, epiglottis, larynx, trachea, bronchus, ear, scalp, vulva, penis, rectum and skin. Rarely, disseminated infections are also reported, involving limbs, trunks and viscera. Brain involvement may lead to fatality.[5] It usually presents as a soft polypoidal pedunculated or

sessile mass.[5] Conjunctival rhinosporidiosis is a rare infectious disease that typically appears in young males in rural regions showing male predominance.3,5,6 Clinical diagnosis is not always possible here.3 Routine investigations including CBC usually does not show any significant findings except a significan proportion showed blood group-O.5

Regarding cytodiagnosis of rhinosporidiosis, In a study Cytodiagnosis attempted in 17 cases out of 63 cases achieved 100% correlation with histology. Diagnosis was confirmed by demonstration of endospores and sporangia.7 Final diagnosis was achieved by histopathological demonstration of thick-walled sporangia containing numerous endospores in a background of fibrovascular stroma.7,8

**Conclusion**

Cytopathology of eyelid swelling could be a cost effective, rapid, safe method for early diagnosis of eyelid swellings.

**References**


1. Ghosh AK, De Sarkar A, Bhaduri G, Datta A, Das A, Bandyopadhyay A. Ocular rhinosporidiosis. J Indian Med Assoc. 2004 Dec;102(12):732,764.
2. Ahluwalia KB. Culture of the organism that causes rhinosporidiosis. J Laryngol Otol 1999 Jun;113(6):523-8.
3. Pe'er J, Gnessin H, Levinger S, Averbukh E, Levy Y, Polacheck I Conjunctival oculosporidiosis in east Africa caused by Rhinosporidium seeberi. Arch Pathol Lab Med. 1996 Sep;120(9):854-8.
4. Thianprasit M, Thagerngpol K. Rhinosporidiosis. Curr Top Med Mycol. 1989;3:64-85.
5. Anuradha Sinha, Jyoti P Phukan, Gautam Bandyopadhyay, Sanjay Sengupta, Kingshuk Bose, Rajib K Mondal, and Manoj K Choudhuri. Clinicopathological study of rhinosporidiosis with special reference to cytodiagnosis. J Cytol. 2012 Oct-Dec; 29(4): 246–249.
6. Arseculeratne SN. Recent advances in rhinosporidiosis and Rhinosporidium seeberi. Indian J Med Microbiol 2002;20:119–31.
7. Pathak D, Neelaiah S. Disseminated cutaneous rhinosporidiosis: diagnosis by fine needle aspiration cytology. Acta Cytol. 2006;50:111–2.
8. Polce M, Piscioli F, Del Nonno F, Covello R, Brenna A, et al. Human nasal rhinosporidiosis: An Italian case report. Diagn Pathol. 2006;1 :25.