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PEDIATRIC NASAL RHINOSPORIDIOSIS: RARE BUT CRITICAL DIAGNOSIS

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ABSTRACT: Nasal obstruction is a significant clinical complaint during adolescence and can lead to various early and late sino-nasal complications. Rhinosporidiosis, an endemic disease of Southern India, is an important differential diagnosis for nasal obstruction. Its causal organism is Rhinosporidium seeberi, a parasitic organism previously thought to be a fungus. The condition primarily involves the mucosa of the nose, nasal septum, middle nasal turbinate, and nasal floor. Surgical excision of the lesion is the preferred treatment. This article describes three cases of pediatric nasal rhinosporidiosis in Northern India diagnosed at Rama Medical College, Hapur, Uttar Pradesh, where the incidence is relatively low, leading to potential misdiagnosis during clinical examination.

KEYWORDS: Rhinosporidiosis, Nasal, Granulomatosis, Pediatric

INTRODUCTION:

In the pediatric age group, nasal obstruction is a common issue, caused by various benign and malignant conditions. [1,2] Due to nonspecific symptoms in this age group, diagnosis may be delayed, leading to increased morbidity and mortality. [3] Nasal masses have numerous differential diagnoses, making prompt pathological diagnosis crucial due to the potential for lymphoproliferative disorders, neoplastic nature, and granulomatous processes. [4]

Rhinosporidiosis, though often disregarded, is an essential differential diagnosis for nasal granulomatosis, especially in regions where it is prevalent, such as South America, India, and Africa. [5] Rhinosporidium seeberi, the organism causing this disease, primarily affects children, teenagers, and young adults.

The disease spreads via transepithelial penetration and water contamination, affecting the nasal mucosa, septum, inferior nasal concha, and nasal floor, manifesting as polyps or vascularized tumors. [6,7]

This article illustrates three adolescent cases with rhinosporidiosis reported in Northern India, where its incidence is relatively low, thereby increasing the likelihood of missed clinical diagnosis. The final diagnoses were made after histopathological examinations.

CASE STUDIES:

1. Rhinosporidiosis in a Fourteen-Year-Old Boy

A fourteen-year-old boy presented to the ENT outpatient department, Rama Medical College, Hapur, Uttar Pradesh with chief complaints of nasal obstruction for the last six months, without any history of nasal bleeding.

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On anterior rhinoscopy, a nasal mass was observed in the right nasal cavity, attached anteriorly to the floor of the nasal cavity. The mass was whitish-red, smooth, non-tender, and did not bleed on touch. A differential diagnosis of a polypoidal mass was considered clinically.

The mass was excised and sent for histopathological examination. Grossly, the mass measured 2.5 cm x 2.0 cm x 0.5 cm. The cut section was solid with a greyish-white color. Histopathological examination on hematoxylin and eosin-stained sections showed multiple fragments of respiratory epithelium with focal ulcerations and extensive squamous metaplasia. The sub epithelium and underlying stroma revealed multiple large, thick-walled sporangia filled with endospores, accompanied by mixed inflammatory infiltrates in the adjacent area with few nasal mucus glands embedded in the fibro collagenous stroma. Special stain Periodic acid-Schiff (PAS) highlighted the endospores within the sporangia. A final histopathological diagnosis of nasal rhinosporidiosis was reported. The patient was kept on regular monthly follow-up and showed no evidence of recurrence of the mass to date.

2. Rhinosporidiosis in a Twelve-Year-Old Girl

A twelve-year-old girl presented with a six-month history of progressive nasal obstruction and occasional epistaxis. Anterior rhinoscopy revealed a polypoidal mass in the left nasal cavity, attached to the lateral wall. The mass was reddish, smooth, non-tender, and bled slightly on touch. A provisional diagnosis of an inflammatory polyp was made.

The mass was surgically excised and measured 3.0 cm x 2.5 cm x 1.0 cm. The cut section showed a solid greyish-white appearance. Histopathological analysis showed respiratory epithelium with ulcerations and squamous metaplasia. The subepithelial stroma contained numerous large sporangia filled with endospores, surrounded by mixed inflammatory cells. PAS stain confirmed the presence of endospores. A diagnosis of nasal rhinosporidiosis was made. The patient was followed up for one year with no recurrence noted.

3. Rhinosporidiosis in a Ten-Year-Old Boy

A ten-year-old boy presented with chronic nasal obstruction and mucoid discharge for eight months. Clinical examination showed a mass in the right nasal cavity, attached to the nasal septum. The mass was pale, smooth, and non-tender. No bleeding was observed.

The excised mass measured 2.0 cm x 1.5 cm x 0.5 cm and was greyish-white on cut section. Histopathological examination revealed respiratory epithelium with extensive squamous metaplasia and underlying stroma containing large sporangia filled with endospores. The presence of endospores was confirmed with PAS staining. A final diagnosis of nasal rhinosporidiosis was made. The patient has been on regular follow-up for six months without any signs of recurrence.

DISCUSSION:

Rhinosporidium seeberi, the causative agent of rhinosporidiosis, was formerly thought to be a fungus but is now recognized as a parasite belonging to the group Mesomycetozoea. It forms steadily growing chronic granulomatous lesions, often displaying benign polypoid lesions, primarily affecting the nasal, nasopharyngeal, and/or ophthalmic regions. [8] With 90% of cases recorded in India and Sri Lanka and an estimated 1.4% pediatric incidence, tropical and subtropical areas have the highest incidence and endemicity. [9]

Children, teenagers, and young adults are the most frequently affected population, with a male preponderance. Nasal involvement is observed in 70% of the cases, most frequently in the

septal mucosa, inferior nasal concha, and nasal floor. Other locations, including the conjunctival mucosa, lacrimal sac, lungs, liver, external genitalia, and anal region, have also been documented.

In most anatomical sites, lesions resemble polypoid, pedunculated, or vascular masses with irregular surfaces. Prominent clinical features in cases of nasal/sinonasal involvement include nasal bleeding, congestion, and mucopurulent rhinorrhea. Rhinosporidium seeberi appears as huge, spherical structures in microscopy that range in size from 50 to 100 μm and resemble yellowish tiny spots. [10] They have an eosinophilic wall enclosing smaller spherical structures containing amorphous eosinophilic material. The mucicarmine, periodic acid-Schiff, and Grocott-Gomori's methenamine silver stains are used to improve the microscopic characteristics of this organism. [11]

Although Rhinosporidium seeberi's sporangia and endospores are bigger than spherules, they share a similar shape with Coccidioides. [12] The best course of treatment for rhinosporidiosis is surgical removal, which also aids in the disease's histological diagnosis. Literature also discusses medical therapy, such as dapsone, but none of these yields results as good as surgery.

Despite generally favorable prognosis for rhinosporidiosis, timely diagnosis, active therapy, and long-term patient follow-up are necessary to detect relapses and prevent recurrences. [13] Physicians should be alert to this uncommon entity, which, despite having a low incidence in non-endemic regions in the pediatric age group, may present as a differential diagnosis with nasal mass, thus relying on histopathological diagnosis and proper surgical management.

CONCLUSION:

Rhinosporidiosis is an overlooked clinical diagnosis in non-endemic regions, particularly in pediatric cases presenting with nasal obstruction. Its rarity in these areas can lead to misdiagnosis and delayed treatment. These cases highlight the importance of considering rhinosporidiosis as a differential diagnosis for nasal masses, especially in pediatric patients, and underscore the role of histopathological examination in achieving an accurate diagnosis. Prompt surgical intervention remains the most effective treatment, emphasizing the need for awareness among clinicians to improve patient outcomes in non-endemic regions.

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