ISSN: 2581 – 3633
PubMed - National Library of Medicine - ID: 101745081

International Journal of Medical Science and Advanced Clinical Research (IJMACR)

Available Online at:www.ijmacr.com

Volume – 8, Issue – 2, March - 2025, Page No. : 167 – 170

Neglected Old Nasal Foreign Body V/S Atrophic Rhinitis: A Diagnostic Dilemma

[1]Dr. Belure Gowda P R, Assistant Professor, Department of Otorhinolaryngology, Hassan Institute of Medical Sciences, Krishnarajapura, Hassan, Karnataka.

[2]Dr. Manasa M R, Post Graduate, Resident, Department of Otorhinolaryngology, Hassan Institute of Medical Sciences, Krishnarajapura, Hassan, Karnataka.

[3]Dr. Vinay Kumar M V, Associate Professor, Department of Otorhinolaryngology, Hassan Institute of Medical Sciences, Krishnarajapura, Hassan, Karnataka.

[4]Dr. Divya C T, Senior specialist, Department of Otorhinolaryngology, Hassan Institute of Medical Sciences, Krishnarajapura, Hassan, Karnataka.

Corresponding Author: Dr. Belure Gowda P R, Assistant Professor, Department of Otorhinolaryngology, Hassan Institute of Medical Sciences, Krishnarajapura, Hassan, Karnataka.

How to citation this article: Dr. Belure Gowda P R, Dr. Manasa M R, Dr. Vinay Kumar M V, Dr. Divya C T, "Neglected Old Nasal Foreign Body V/S Atrophic Rhinitis: A Diagnostic Dilemma", IJMACR- March - 2025, Volume – 8, Issue - 2, P. No. 167 – 170.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Background: Atrophic rhinitis is a chronic nasal condition marked by progressive atrophy of the nasal mucosa and bone, leading to a roomy nasal cavity with thick, dry crusts. Common symptoms include foul odor (ozena), crusting, nasal obstruction, epistaxis, anosmia or cacosmia, and secondary infections, sometimes with maggot infestation. It is more prevalent in tropical regions and primarily affects young to middle-aged females.

Methodology: A 1.5 year old female child presented with foul smelling nasal discharge from bilateral nasal cavity with on and off episodes of nasal bleed since 8 months. Detailed history taken, examination of ear nose and throat was done followed by which routine investigations and culture sensitivity was sent. Diagnostic nasal endoscopy showed no foreign body but bilateral roomy nasal cavity with greenish dry crusts adherent to the nasal cavity. Left side showed extensive crusting covering the middle turbinate. CT Nose & PNS showed F/S/O rhinosinusitis. After all the necessary investigations the child was taken up for DNE with biopsy under General Anesthesia.

Results : The intra operative findings were found to be in consistent with features of atrophic rhinitis, the HPE reports confirmed the same by showing metaplasia of

stratified squamous epithelium that ruled out the possibility of old nasal foreign body.

Conclusions: Though the initial findings were towards the nasal forging body this case turned out to be a case of atrophic rhinitis in the youngest child reported till date.

Keywords: Atrophic Rhinitis, Child, Ozena, Foreign Body Nose, Rhinosinusitis

Introduction

Atrophic rhinitis is a chronic condition affecting the nasal passages, characterized by the development of thick, dry crusts within an abnormally wide nasal cavity. This occurs due to progressive atrophy of both the nasal mucosa and the underlying bone. Common symptoms include foul-smelling nasal discharge (foetor), ozaena, crusting leading to nasal blockage, nosebleeds (epistaxis), loss or distortion of smell (anosmia or cacosmia), and secondary infections, which may sometimes involve maggot infestation. The prevalence of atrophic rhinitis differs across regions but is notably higher in tropical countries.

It most commonly affects young and middle-aged adults, with a higher incidence in females and a racial predisposition among Asians, Hispanics, and African-Americans.[1]

Although various treatment methods are described in the literature, conservative management remains the primary approach. This includes nasal irrigation and douching, the use of nose drops (such as glucose-glycerine or liquid paraffin), antibiotics, antimicrobials, vasodilators, and nasal prostheses.

Surgical interventions focus on reducing the size of the nasal cavities, encouraging the regeneration of healthy mucosa, improving mucosal lubrication, and enhancing blood supply to the nasal tissues.

Case Report

A 1.5year old female child presented with foul smelling nasal discharge from bilateral nasal cavity with on and off episodes of nasal bleed since 8 months.

On anterior rhinoscopy, bilateral nasal cavities had greenish, thick, crusted discharge with ill defined inferior turbinates.

Nasal swab was sent for culture and sensitivity and the specimen isolated was ACINOBACTER BAHUMANNII. CT Nose & PNS showed F/S/O rhinosinusitis.

The child was taken up for DNE with biopsy under General Anesthesia.

Diagnostic nasal endoscopy showed no foreign body but bilateral roomy nasal cavity with greenish dry crusts adherent to the nasal cavity.

Left side showed extensive crusting covering the middle turbinate (Fig 1), whereas right nasal cavity had minimal greenish crusting (Fig 2).

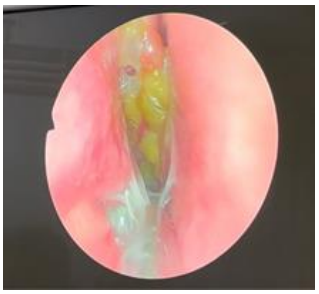

Figure 1: Nasal endoscopy showed greenish crusts in left nasal cavity.

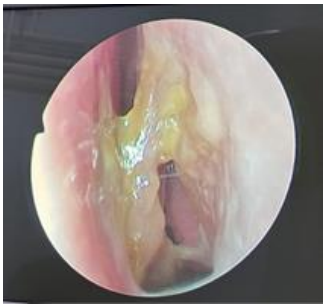

Figure 2: Nasal endoscopy showed greenish crusts in right nasal cavity.

Histopathology: Showed metaplasia ofstratified squamo us epithelium, with features suggestive of atrophic rhinitis. Fig 3, Fig 4

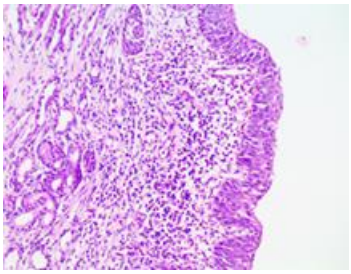

Figure 3: shows squamous metaplasia

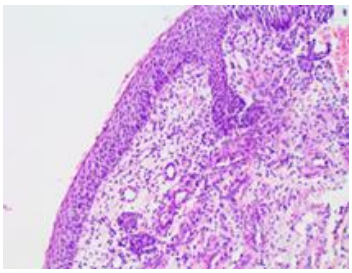

Figure 4: shows squamous metaplasia

Discussion

The diagnosis of primary atrophic rhinosinusitis is typically based on clinical suspicion in patients who present with chronic, purulent, foul-smelling nasal discharge, nasal obstruction, and crusting in the nasal cavities that do not improve with medical treatment. This suspicion is confirmed by culturing a nasal mucosa biopsy or by isolating Klebsiella ozenae from the collected swabs. Numerous microbiological studies on atrophic rhinosinusitis highlight the significant role of Klebsiella ozena. Ozaena is not essential for diagnosis, and other bacteria, as well as saprophytic fungal colonization, may contribute to the persistence of symptoms. [2]

In this case, maxillary sinus hypoplasia and enlargement of the nasal cavities observed during physical examination and confirmed by CT, suggest a predisposition to this condition and indicate a congenital etiology. The therapeutic approach is largely empirical, with no randomized studies available to confirm the effectiveness or compare the various treatments used. [2]

While there is no universally recommended specific therapy, hypertonic, or isotonic solutions, irrigation with saline, which act as solvents, are found to be a safe treatment option. Saline irrigation helps to clean the nasal crusts. [2]

There are various solutions available for nasal application. The bicarbonate solution is an ideal formulation, containing sodium bicarbonate, which aids in dissolving crusts, and sodium diborate, which serves as an antiseptic, antibacterial, and assists in breaking down the crusts. The isotonic sodium chloride solution helps maintain the isotonic nature of the mixture. [3]

Glycerin and glucose nasal drops prevent saprophytic infections: glucose, through fermentation, produces lactic acid, lowering the pH and inhibiting bacterial growth, while glycerin lubricates the mucosa and promotes increased vascularization. [3] Washing solutions that contain antibiotics, as well as those used in nebulized form, are recommended for cases of acute infection. They seem to deliver a high concentration of the antibiotic directly to the nasal cavity. [4]

Oral antibiotics, typically quinolones or rifampin, are sometimes used in cases of acute and systemic infection; however, there is no evidence supporting this practice. [4]

In the case described, the choice of antibiotic was guided by susceptibility testing, a lower risk of side effects, and the preference for a safer topical route. Intranasal gentamicin was found to be safe, demonstrating good tolerance and minimal absorption through the nasal mucosa. Due to the need for prolonged therapy, amoxicillin-clavulanic acid was selected based on its susceptibility profile and lower incidence of side effects.

At present, and following one year of monitoring with saline irrigations alone and six months of prophylactic treatment with trimethoprim-sulfamethoxazole there is no evidence of disease recurrence or new infectious complications.

Surgery is considered only in cases of treatment failure and severe symptoms, and is not routinely recommended at present [2]. Several surgical techniques are available to achieve partial or complete closure of the nostrils, utilizing either autogenous or synthetic implants. The first autologous material used was fat, although its tendency to be resorbed is a significant limitation.

More recently, techniques involving sublabial placement of parietal bone or rib cartilage have been described.[5] There is no documented experience with these techniques in children, and the impact on craniofacial development remains uncertain, particularly considering the crucial role of nasal breathing in this process.

Conclusion

Though the initial findings were towards a nasal foreign body this case turned out to be a case of atrophic rhinitis in the youngest child reported till date. thus presenting a case of this rare disease and highlight antibiotic prophylaxis as a potential option for long-term disease control.

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