



BILATERAL SINONASAL POLYP: A MANIFESTATION OF SAMTER'S TRIAD

Dr Komal Garg	Senior Resident , Dept. Of Otorhinolaryngology – Head And Neck Surgery Noida International Institute Of Medical Sciences (niims) Niu ,greater Noida, U.p.
Dr Avinash Kumar*	Associate Professor, Dept. Of Otorhinolaryngology – Head And Neck Surgery Noida International Institute Of Medical Sciences (niims) Niu ,greater Noida, U.p. *Corresponding Author
Dr Garima Sinha	Assistant Professor, Dept. Of Anaesthesia And Critical Care, Government Institute Of Medical Sciences (Gims) Greater Noida , U.p.

ABSTRACT Samter's Triad, an aspirin-exacerbated respiratory disease (AERD), is a disorder characterized by chronic rhinosinusitis (CRS) with nasal polyposis, asthma, and intolerance to medications that inhibit the cyclooxygenase-1 (COX-1) enzyme. We present a 45 years old female who presented us with nasal polyposis with known case of asthma on medication and aspirin sensitivity. Computed tomography shows soft tissue density in sinuses. Then, patient was taken for endoscopic sinus surgery along with septoplasty under general anaesthesia. This case highlights that typical case presentation of AERD.

KEYWORDS :

INTRODUCTION

Samter's Triad, an aspirin-exacerbated respiratory disease (AERD), is a disorder characterized by chronic rhinosinusitis with nasal polyposis, asthma, and intolerance to medications that inhibit the cyclooxygenase-1 (COX-1) enzyme [1]. The correlation of asthma, nasal polyps, and aspirin intolerance was first described by Widall et al.[2] in 1922. The patients with Samter's Triad exhibit a tendency toward more severe rhinosinusitis [1]. Clinicians routinely miss the diagnosis of AERD because of an insufficient index of suspicion. For example, when considering all the patients with a diagnosis of asthma, those with AERD comprise only 0.6–2.5% of this population.[7] However, AERD represents 14.9% of all the patients with severe asthma and 8.7% of the patients with chronic rhinosinusitis with nasal polyposis (CRS_{NP})[3].

Case Report

A 45 years old female presented to opd with complaints of bilateral nasal obstruction and nasal discharge from last 3 years. She is known case of allergy to aspirin which was diagnosed 3 years back when she has taken aspirin for pain and developed urticaria and itching. She was diagnosed with asthma 3 years back on medication. On endoscopic examination, greyish white polyp was present in bilateral cavity along with deviated nasal septum. Computed tomography of nose and paranasal sinuses was done which showed soft tissue density in bilateral maxillary sinuses, bilateral anterior and posterior ethmoid sinuses. Patient underwent septoplasty along with bilateral endoscopic sinus surgery. Polyp was removed from all the involved sinuses. Patient was followed up after 1 month, she improved without any complication.

DISCUSSION

AERD typically presents in adulthood and is clinically characterized by severe chronic rhinosinusitis, nasal polyposis, severe persistent asthma, and sensitivity to aspirin and other NSAIDs. Exposure to these agents results in a reaction that can include rhinitis, laryngospasm, and asthma exacerbations. Diagnosis is essential both to prevent potentially life-threatening reactions to these agents and also to define patients who may uniquely respond to AERD-specific therapies[4].

There are many other terms to describe this disease: aspirin-induced asthma, aspirin-sensitive asthma, aspirin hypersensitivity, and aspirin-exacerbated respiratory disease (AERD) including chronic rhinosinusitis (CRS) with as a fourth hallmark of this disease [5]. The pathogenesis of this syndrome, originally described by Szczeklik et al., is thought to be due to increased activity of the leukotriene synthetase enzyme as a consequence of abnormal arachidonic acid pathway activity induced by aspirin and other non steroidal anti-inflammatory drugs [6]. Both the upper and lower respiratory symptoms are typically difficult to treat, and many patients suffer from frequent asthma exacerbations and require multiple endoscopic sinus surgeries despite good medical treatment including local and oral

corticosteroids [7].

The diagnosis of AERD is made through clinical suspicion and appropriate testing. AERD is suspected if patients have historical upper or lower airway clinical symptoms after ingestion of Aspirin or NSAIDs, chronic nasal obstruction and watery rhinorrhea, or severe asthma attacks requiring hospitalization with no apparent trigger [8].

Definitive diagnosis is only achieved through Aspirin provocation testing. The goal of provocation testing is to generate a hypersensitivity reaction in a safe, controlled environment with increasing doses of Aspirin. These hypersensitivity reactions consist of a constellation of possible symptoms including nasal and ocular itching, sneezing, conjunctivitis, wheezing, coughing, chest tightness, and a drop in forced expiratory volume (FEV1). Additional non-classical symptoms such as laryngeal tightening, stridor, vomiting, urticaria, and angioedema are also possible [9]. Histopathological evaluation of sinonasal polyps and bronchial tissue reveal abundant eosinophil infiltration and degranulated mast cells within the upper and lower airways [10].

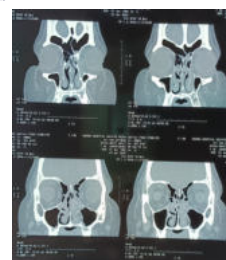
Due to the chronic nature of the disease with numerous and often fast relapses after therapy, treatment is often difficult for patients. The nasal polyps have a strong tendency to relapse shortly even after functional endoscopic sinus surgery [11].

Medical management with topical nasal, inhaled, and/or oral steroids with avoidance of acute aspirin and NSAID ingestion is the mainstay of treatment. However, multiple surgical interventions for treatment of the sinuses and removal of obstructing polyps are usually required. In severe cases, aspirin desensitization has been used with symptomatic improvement [12].

CONCLUSION

This case highlights presentation of AERD and role of endoscopic sinus surgery in its management. Clinician should suspect AERD in patients with nasal polyposis, asthma with hypersensitivity reactions to NSAIDs.

Images with legends



NCCT SCAN showing opacification of bilateral nasal cavity with blockage of bilateral osteomeatal complexes.



Diagnostic nasal endoscopy showing polyps in the left nasal cavity



Preoperative and postoperative picture after septoplasty and functional endoscopic sinus surgery.

REFERENCES

1. Stevens WW, Peters AT, Hirsch AG, et al. Clinical characteristics of patients with chronic rhinosinusitis with nasal polyps, asthma, and aspirin-exacerbated respiratory disease. *J Allergy Clin Immunol Pract* 2017;5:1061-1070.
2. Widal F, Abrami P, Lermoyez J. First complete description of the aspirin idiosyncrasy-asthma-nasal polyposis syndrome (plus urticaria): 1922 (with a note on aspirin desensitization). By F. Widal, P. Abrami, J. Lermoyez. *J Asthma*. 1987;24(5):297-300.
3. Rajan JP, Wineinger NE, Stevenson DD, and White AA. Prevalence of aspirin-exacerbated respiratory disease among asthmatic patients: A meta-analysis of the literature. *J Allergy Clin Immunol* 135:676-681.e1, 2015.
4. Kennedy JL, Stoner AN, Borish L. Aspirin-exacerbated respiratory disease: Prevalence, diagnosis, treatment, and considerations for the future. *Am J Rhinol Allergy*. 2016 Nov 1;30(6):407-413. doi: 10.2500/ajra.2016.30.4370. PMID: 28124651; PMCID: PMC5108840.
5. Stevenson DD, Sanchez-Borges M, Szczeklik A. Classification of allergic and pseudoallergic reactions to drugs that inhibit cyclooxygenase enzymes. *Ann Allergy Asthma Immunol*. 2001 Sep;87(3): 177-80.
6. Szczeklik A, Gryglewski RJ, Czerniawska-Mysik G. Relationship of inhibition of prostaglandin biosynthesis by analgesics to asthma attacks in aspirin-sensitive patients. *Br Med J* 1975;11:67-9.
7. Lyly A, Laidlaw TM and Lundberg M (2021) Pathomechanisms of AERD—Recent Advances. *Front. Allergy* 2:734733.
8. Szczeklik A, Nizankowska E. Clinical features and diagnosis of aspirin induced asthma. *Thorax* 2000;55 (Suppl. 2), S42-S44.
9. White, A.A.; Stevenson, D.D. Aspirin-exacerbated respiratory disease: Update on pathogenesis and desensitization. *Semin. Respir. Crit. Care Med*. 2012; 33, 588-594.
10. Bachert, A.M. Vignola, P. Gevaert, B. Leynaert, P. Van Cauwenberge, and J. Bousquet, "Allergic rhinitis, rhinosinusitis, and asthma: one airway disease," *Immunology and Allergy Clinics of North America*, vol. 24, no. 1, pp. 19-43, 2004.
11. Bertlich M, Ihler F, Bertlich I, Weiss BG, Gröger M, Haubner F. Management of chronic rhinosinusitis with nasal polyps in Samter triad by low dose ASA desensitization or dupilumab. *Medicine* 2021;100:40(e27471).
12. M. P. Berges-Gimeno, R. A. Simon, and D. D. Stevenson, "Long-term treatment with aspirin desensitization in asthmatic patients with aspirin-exacerbated respiratory disease," *Journal of Allergy and Clinical Immunology*, vol. 111, no. 1, pp. 180-186, 2003.