

Allergy-induced Adenoid Hypertrophy in Adult: A Case Report

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Abstract

Adenoid hypertrophy is relatively uncommon in adults. The adenoid hypertrophies physiologically in children up to 9 years and then begins to atrophy between 7 to 9 years until 16 years. Symptoms of allergic rhinosinusitis in adults may mask that of adenoid obstructive symptoms when the two coexist. We report a case of a 20-year-old female with adenoid hypertrophy with an unusual nasal symptom overlapping with features of allergic rhinosinusitis. This study highlights the clinical presentation and radiological evaluation of the patient with a review of pertinent literature. We concluded that adenoid hypertrophy in adults could be an accompanying feature of allergy. A high index of suspicion and a thorough nasopharyngeal examination are critical to prompt diagnosis.

Keywords: Adenoid hypertrophy, adult, chronic rhinosinusitis, allergy, obstructive symptom

Introduction

The adenoids or pharyngeal tonsils form a part of Waldeyer's ring of lymphoid tissue at the portal of entry of the upper respiratory tract.¹ In early childhood, it is the first site for immunological contact with inhaled allergens.² Adenoids are located in the posterosuperior wall of the nasopharynx; they hypertrophy physiologically in children up to the age of 9 years, then begin to undergo atrophy until the age of 16 years. The adenoids consist of unencapsulated lymphoid tissue organised in germinal centres.^{3,4} Adenoid hypertrophy indicates non-physiological

enlargement of the nasopharyngeal tonsils. It is the most prevalent cause of nasal obstruction in childhood.⁵ Common, typical symptoms of adenoid hypertrophy include mouth breathing, noisy breathing, hyponasal speech, snoring, obstructive sleep apnoea and rhinorrhoea.^{4,6} Although adenoid hypertrophy is uncommon in adults, many cases of enlarged adenoid in adults could have been misdiagnosed and wrongly treated as indirect posterior rhinoscopy is rarely adequate for examination of the nasopharynx.⁷ Adenoid hypertrophy is often underestimated in adults with nasal obstruction. The presence of purulent nasal discharge should inform the physician to do a nasal endoscopy for proper diagnosis.⁸

Case Report

The patient is a 20-year-old female who presented at the ENT clinic with a one-week history of nasal obstruction, which was alternating between either nasal cavity. There was an associated history of nasal discharge, post-nasal drip, hyposmia, frontal headache, allergy (itchy and watery eyes, excessive sneezing and itchy throat) and facial pain. There was no history of cigarette smoking and no history suggestive of immunosuppression. The main findings on physical examination were engorged inferior turbinates and grade 1 tonsils. No generalised lymphadenopathy. All relevant investigations were within the normal range. X-ray of paranasal sinuses revealed engorged inferior turbinates, mucosal thickening and haziness of the maxillary sinuses. A clinical diagnosis of chronic allergic rhinosinusitis was made. The patient was managed conservatively with antibiotics, antihistamines, steroid nasal spray and steam inhalation.

There was a significant improvement in symptoms, lasting about ten months. Particularly, symptoms later became worse following the cessation of medications. Nasal obstruction became more frequent and sometimes associated with snoring. A computed tomography scan was requested to rule out other differential diagnoses,

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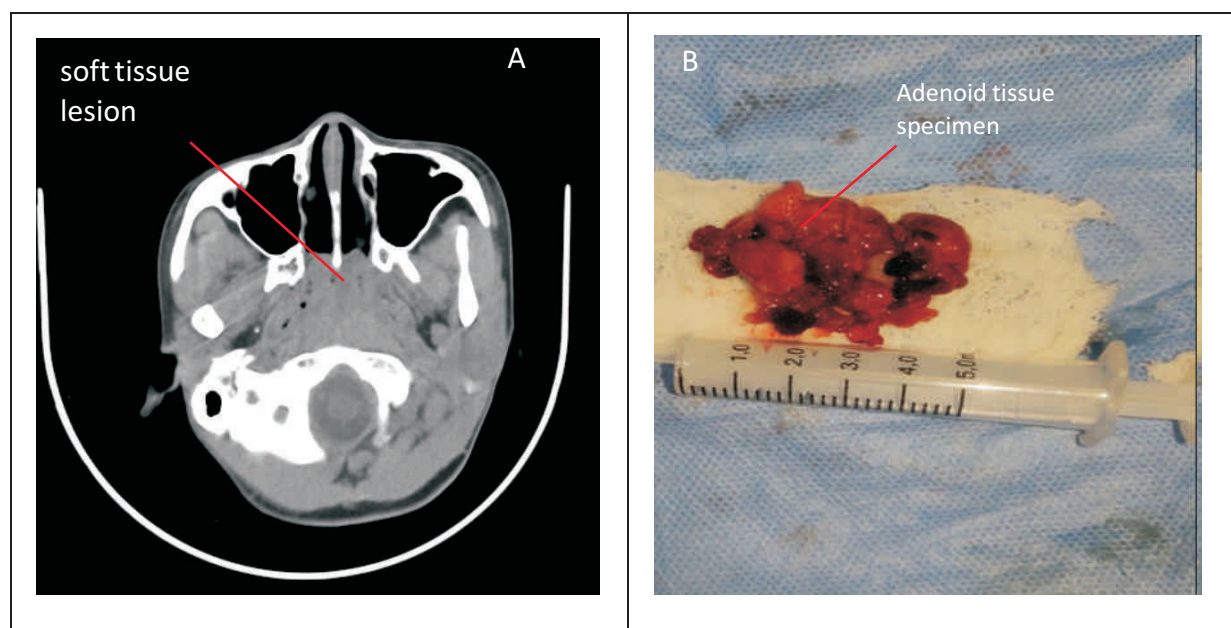


Fig. 1 – A, Axial CT scan showing soft tissue lesion in the nasopharynx obstructing the choanae; B, shows adenoid tissue specimen from a 20-year-old female adult.

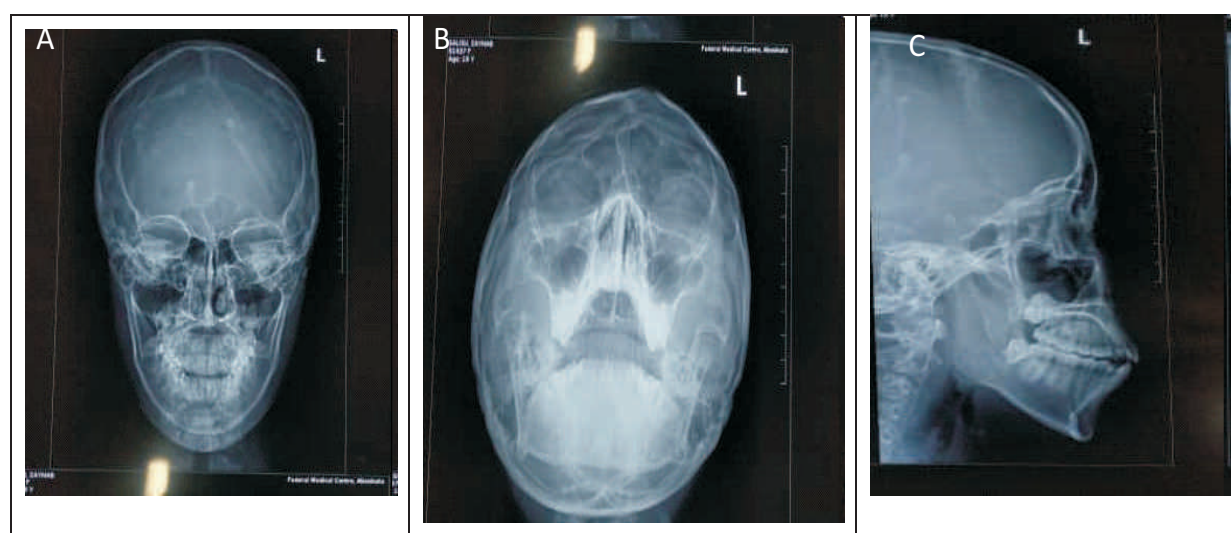


Fig. 2 X-Ray Paranasal Sinuses – A, occipito-frontal view showing normal aeration of the frontal sinuses; B, occipito-mental view showing mucosal thickening of the maxillary sinuses and well pneumatized sphenoid sinuses; C, lateral view showing normal aeration of the frontal sinuses.

such as angiofibroma; the result revealed an isodense lesion (of soft tissue consistency) in the nasopharynx. Approximated adenopharyngeal ratio was one. The patient subsequently had an examination of the Nasopharynx under anaesthesia, revealing prominent adenoid vegetations completely filling the entire nasopharyngeal airway. Adenoidectomy was done at the same sitting, and histology of the specimen showed lymphoid tissue covered with stratified squamous epithelium with marked hyperplasia of the lymphoid follicles, which, in keeping with reactive follicular hyperplasia, no evidence of

malignancy. The obstructive nasal symptoms resolved by the second week of postoperative follow-up.

Discussion

The adenoids may cause nasal obstruction, snoring, mouth breathing, and nasal discharge.² The index case presented with features of allergic rhinosinusitis in addition to nasal/adenoidal obstructive symptoms. Persistence of symptoms after conservative treatment. Although adenoid hypertrophy is uncommon in adults, it may present with other symptoms, as in this case, mimicking

allergic rhinosinusitis.

Adenoid hypertrophy in adults is often attributed to chronic inflammatory cell changes, and various mechanisms have been attributed to its occurrence.⁷ Studies have shown that infection or allergy can cause a rapid regrowth of a previously regressed adenoid tissue in adults.^{7,9} Similarly, immunosuppressive states such as organ transplant or HIV/AIDS have also been associated with adenoid hypertrophy in this age group¹⁴. These were ruled out in the index case.

Allergic rhinitis is often associated with numerous multi-morbid disorders.¹⁶ Generally, adenoid hypertrophy is rare in adults and may indicate underlying malignancy or infection.¹⁶ The diagnosis is often made from history, clinical examination, flexible nasal endoscopy and radiography. (Figures 1 and 2). Endoscopy was not done in the index case because the CT scan done earlier to confirm the extent of the suspected neoplastic lesion in the nasopharynx had revealed an isodense soft tissue lesion, which was in keeping with adenoid hypertrophy. In addition, a definitive diagnosis is made by histology. In the index case, histology of the nasopharyngeal tissue sample obtained during surgery confirmed adenoid hypertrophy.

Children with allergic rhinitis appear to have a greater susceptibility to adenoid hypertrophy than non-allergic children, with IgE-mediated inflammation of the nasal mucosa likely playing a role in both conditions.¹⁵ Allergic rhinitis arises from inhalation of allergens, resulting in the production of immunoglobulins (Ig)E antibodies binding to mast cells' IgE receptors in the nasal mucosa and to basophils in the blood.¹⁷ Consequently, mast cells release chemical mediators and cytokines that lead to nasal mucosa inflammation.¹⁷ Chronic allergic inflammation of the upper airway causes lymphoid hypertrophy with accompanying adenoidal hypertrophy.¹⁸ Studies have reported an increased incidence of allergic rhinitis in patients with adenoid hypertrophy.^{7,9} Ahmad et al. reported a significant association between adult adenoid hypertrophy and allergy.¹⁰ Allergy may be responsible for the adenoid hypertrophy in the index case. Frenkiel et al. reported adenoid hypertrophy in 12 adults being investigated for nasopharyngeal mass.⁹ In another study, Finkelstein et al. in 1997 described smoking-induced nasopharyngeal lymphoid hyperplasia as a disease entity causing OME in

eight patients; Five other adult patients were found to have adenoid hypertrophy.¹¹ No otological symptoms in our patient. Obstructive adenoid hypertrophy is usually seen in childhood and adolescence. Still, it has also been reported in 30% of heavy smokers.¹² No history of smoking in the index case, leaving allergy as the most likely cause of adenoid hypertrophy.

Benign nasopharyngeal lesions in adults include brachial cleft cysts, Thornwaldt cysts and mucus retention cysts.¹⁹ Adenoid hypertrophy in adults can simulate nasopharyngeal tumours. Nasopharyngeal carcinoma has bimodal peak age groups.^{20,21} However, the histology of this case revealed no malignancy even though the patient's age is within the first peak of incidence. Fewer reports have been published on adult adenoid hypertrophy, possibly due to its underdiagnosis as a result of incomplete nasopharyngeal examination. However, it has also been overshadowed by accompanying rhinopharyngological disorders.^{7,9} The issue of underdiagnosis is likely to improve due to the current practice of awake nasendoscopy as a clinic procedure. However, the presentation with other symptoms of rhinopharyngological disorders may lead to misdiagnosis, as in our case. Meticulous nasopharyngeal examination and maintaining a high index of suspicion are vital to early diagnosis and prompt management of adenoid hypertrophy in adults.¹³

Conclusion

Although relatively uncommon in adults, adenoid hypertrophy may present with other symptoms of other rhinopharyngological disorders, such as allergic rhinosinusitis, as in this case report. Hence, a thorough nasopharyngeal examination, preferably nasoendoscopy, be it rigid (Hopkins rod telescope) or flexible with a high index of suspicion, is critical to avoiding misdiagnosis in this group of patients.

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