

CASE REPORT

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One of the causes of adenoid hypertrophy in preschool children, allergic rhinitis**Bilge Kurnaz Kaplan¹, Fatih Kaplan²**¹*Yesilyurt State Hospital, Department of Otorhinolaryngology, Malatya, Turkey*²*Inonu University, Faculty of Medicine, Department of Pediatrics, Malatya, Turkey*

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**Abstract**

Adenoid hypertrophy is one of the most common causes of upper airway obstruction in childhood. Chronic inflammation around the adenoid tissue is thought to play an important role in adenoid hypertrophy. Allergic rhinitis is among these chronic inflammatory processes. Twenty-five-month-old male patient presented to otorhinolaryngology clinic with complaints of nasal obstruction, snoring, sleeping with mouth open at night and occasional shortness of breath while sleeping. His examination did not show any pathology other than pallor in the nasal mucosa. Adenoid vegetation/nasopharynx ratio was found to be 80% in the examination made by using fiberoptic nasopharyngolaryngoscope. Tonsillar grade was 1-2 hypertrophic in oropharyngeal examination. In the skin prick test, the patient was found to have grass pollen and tree pollen sensitivity. Nasal steroid and antihistaminic therapies were started. After treatment, the patient's adenoid vegetation/nasopharynx ratio and complaints were found to decrease significantly.

Keywords: Adenoid hypertrophy, allergic rhinitis, preschool children**Introduction**

Adenoid tissue, which is a part of Waldeyer's ring, is an important lymphoid structure localized in the posterior upper wall of the nasopharynx [1]. Shortly after birth, bacteria colonization and immune response against bacteria start. Adenoid tissue causes upper respiratory tract obstruction both mechanically with mass effect and also due to bacterial colonization it contains [2]. It grows gradually in the first postnatal years and reaches its maximum size at 6-7 years of age. In this period, it generally causes different degrees of airway obstruction [3].

Adenoid hypertrophy is one of the most common causes of upper airway obstruction in children [4]. Although adenoid hypertrophy has various reasons and its aetiology is not fully clear, chronic inflammation around the adenoid tissue is thought to play an important role. Allergic rhinitis is one of these chronic inflammatory processes [5]. Adenoid tissue is exposed to various allergens through the respiratory tract and these allergens enlarge the adenoid tissue by causing Ig E mediated inflammation in the adenoid tissue [6].

Allergic rhinitis is an inflammatory disease in which symptoms such as runny nose, nasal obstruction, nasal itching and sneezing occur as a result of Ig E-mediated hypersensitivity reaction of the nasal mucosa after allergen exposure [1]. It generally occurs after the age of two. Two or more pollen exposure is required for sensitization in childhood allergic rhinitis [7].

There are studies in literature on the association between childhood allergic rhinitis and adenoid hypertrophy [8, 9]. It is difficult to make a diagnosis of allergic rhinitis and adenoid hypertrophy in preschool children. In addition to anamnesis and physical examination, evaluation of the upper airway tract with fiberoptic endoscopy and allergen prick tests are used in diagnosis [10].

This case report presents a 25-month-old male case who was followed with a diagnosis of adenoid hypertrophy in otorhinolaryngology clinic and who was consulted to the pediatric allergy clinic with a pre-diagnosis of allergic rhinitis.

Case

Twenty-five-month-old male patient presented to otorhinolaryngology clinic with complaints of nasal obstruction, snoring, sleeping with mouth open at night and occasional shortness of breath while sleeping which had been gradually increasing in the last 6 months. The patient's anamnesis showed that there were no

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features in his medical history. His family medical history included asthma in the mother and allergic rhinitis in the father. In the otoscopic examination, bilateral tympanic membranes were intact and natural. In anterior rhinoscopy, there was no pathology other than pallor in the nasal mucosa. Adenoid vegetation/nasopharynx ratio was found to be 80% in the examination made by using fiberoptic nasopharyngolaryngoscope. Tonsillar grade was 1-2 hypertrophic in oropharyngeal examination. The patient was consulted to pediatric allergy clinic due to presence of atopy history in the family and examination findings. In the skin prick test made to the patient in the allergy clinic test, grass pollen was measured as 3 mm and tree pollen was measured as 4 mm. The patient was started nasal steroid and antihistaminic therapy thinking that adenoid hypertrophy has developed due to allergic rhinitis. After six-week treatment, the patient was called for control. After treatment, the patient's adenoid vegetation/nasopharynx ratio had regressed to 50%. The patient's complaints had regressed significantly. The patient was followed up jointly by otorhinolaryngology and pediatric allergy clinics.

Discussion

Adenoid hypertrophy is one of the most common causes of upper airway obstruction in children [4]. Although adenoid hypertrophy has various causes and its aetiology is not fully understood, chronic inflammation around the adenoid tissue is thought to be important in this regard. Allergic rhinitis is one of these inflammatory processes [5]. Allergic rhinitis is an inflammatory disease in which symptoms such as runny nose, nasal obstruction, nasal itching and sneezing occur as a result of Ig E-mediated hypersensitivity reaction of the nasal mucosa after allergen exposure [1]. There are studies in literature which report increased adenoid hypertrophy in children with allergic rhinitis [8-10].

Allergic rhinitis is usually diagnosed at the earliest between 6-7 years in childhood. Our patient was also 2 years old. Since allergic rhinitis is rarely seen in preschool children, it is difficult to diagnose in this period [11]. Our patient had complaints of nasal obstruction, snoring, sleeping with mouth open at night and occasional shortness of breath while sleeping. He had been diagnosed with allergic rhinitis in pediatric allergy clinic while he was being followed with adenoid hypertrophy diagnosis. Therefore, allergic rhinitis should be kept in mind as a differential diagnosis in preschool children with such symptoms.

Upper respiratory tract allergic inflammation can lead to increase in adenoid tissue volume by causing lymphoid hyperplasia. Studies conducted have reported that the presence of local allergic inflammation and exposure to allergen in adenoid tissue may cause hypertrophy in children with allergic rhinitis [9, 10, 12]. In our patient, adenoid vegetation/nasopharynx ratio was found to be 80% and tonsillar grade was 1-2 hypertrophic.

In literature, the frequency of atopic sensitization in children has been reported to vary between 18% and 70% [10, 12]. This shows that children with adenoid hypertrophy should be evaluated in terms of allergic sensitization. Our patient was consulted to pediatric allergy clinic with a pre-diagnosis of allergic rhinitis. As a result of the prick test conducted on our patient, grass pollen and tree pollen sensitivity was found.

Previously conducted studies have reported that in pediatric patients

with adenoid hypertrophy, intranasal steroid and antihistaminic treatment causes shrinkage in adenoid tissue and patients' complaints such as nasal obstruction decrease significantly [13, 14]. We started intranasal steroid and antihistaminic treatment in our patient. As a result of these treatments, a significant decrease was found in our patient's adenoid vegetation/nasopharynx ratio and complaints.

Conclusion

As a conclusion, it should be kept in mind that allergic rhinitis is also among the causes of adenoid hypertrophy in preschool children. For this reason, the presence of allergic rhinitis should be researched in children with adenoid hypertrophy. Patients should at least be referred to pediatric allergy clinics for allergen skin test. These patients should be followed up and treated jointly by otorhinolaryngology and pediatric allergy clinics.

Conflict of interests

The authors declare that they have no competing interests.

Financial Disclosure

All authors declare no financial support.

Informed Consent

Written consent was obtained from the patient and his parents.

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