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AUTHORS: Zeliha KAPUSUZ GENCER, Mahmut ÖZKIRIS, Aylin OKUR, Levent SAYDAM

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The prevalence of adenoid hypertrophy in adults in a rural area of Turkey

Türkiye'nin kırsal bir bölgesinde erişkinlerde adenoid hipertrofi prevalansı

Zeliha Kapusuz, M.D.,¹ Mahmut Özkırış, M.D.,¹ Aylin Okur, M.D.,² Levent Saydam, M.D.¹

Departments of ¹Otolaryngology, ²Radiology, Medical Faculty of Bozok University, Yozgat, Turkey

Objectives: This study aims to investigate the prevalence of adenoid hypertrophy in adults in Yozgat city of Turkey.

Patients and Methods: Between May 2010 and March 2012, radiologic data including all paranasal sinus computed tomography (CT) findings for 525 patients (279 males, 246 females; mean age 34.7±1.4 years; range 18 to 71 years) who treated in Ear Nose and Throat Department of Bozok University Medical Faculty were retrospectively analyzed. All CT scans were grouped according to the presence of adenoid hypertrophy. Adenoid tissue was investigated based on axial, coronal and sagittal planes in all images. Adenoid tissue was classified according to the narrowing rate of the nasopharyngeal air column on sagittal plane; grade 1: <25%, grade 2: 25-50%, grade 3: >50%.

Results: The prevalence of adenoid hypertrophy was 26.28%. Of these patients, 77 patients (40 males, 37 females) were grade 1, 43 (24 males, 19 females) were grade 2, and 19 (8 males, 10 females) were grade 3. There was no statistically significant difference between the prevalence of adenoid hypertrophy and gender ($p>0.05$).

Conclusion: Although adenoidal tissue normally undergoes involution during late childhood period, it may persist into adult life and present as a cause of nasal obstruction as seen in our cases. In adults, it may be overlooked because of incomplete nasopharyngeal examination or due to overshadowing by accompanying rhinological disorders.

Key Words: Adenoid vegetation; adult; frequency.

Amaç: Bu çalışmada Türkiye'nin Yozgat kentinde erişkinlerde adenoid hipertrofi prevalansı araştırıldı.

Hastalar ve Yöntemler: Mayıs 2010 - Mart 2012 tarihleri arasında Bozok Üniversitesi Tıp Fakültesi Kulak Burun Boğaz Anabilim Dalı'nda tedavi edilen 525 hastanın (279 erkek, 246 kadın; ort yaş 34.7±1.4 yıl; dağılım 18-71 yıl) tüm paranasal sinus bilgisayarlı tomografi (BT) bulgularının radyoloji verileri incelendi. Tüm BT taramaları adenoid hipertrofi varlığına göre gruplandırıldı. Adenoid doku görüntüleri aksiyel, koronal ve sagittal plan temelinde incelendi. Adenoid dokusu, nazofarengeal hava alanını sagittal planda daraltma ölçüsüne göre; sınıf 1: <25%, sınıf 2: 25-50%, sınıf 3: >50% olarak sınıflandırıldı.

Bulgular: Adenoid hipertrofi prevalansı %26.28 olarak tespit edildi. Adenoid hipertrofi tespit edilen hastaların 77'si (40 erkek, 37 kadın) sınıf 1, 43'ü (24 erkek, 19 kadın) sınıf 2, 19'u (8 erkek, 10 kadın) sınıf 3 idi. Adenoid hipertrofi prevalansı ile cinsiyet arasında istatistiksel açıdan anlamlı farklılık yoktu ($p>0.05$).

Sonuç: Adenoid dokunun normalde geç çocukluk döneminde gerilediği gözlenirse de, bizim olgularımızda görüldüğü gibi erişkin dönemde persiste ederek burun tıkanıklığı ile bulgu verebilir. Adenoid hipertrofi erişkin hastalarda ilave diğer nazal patolojilerin gelişmesi veya eksik nazofarengeal muayene nedeniyle gözden kaçabilmektedir.

Anahtar Sözcükler: Adenoid hipertrofi; erişkin; sıklık.

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Correspondence / İletişim adresi: Mahmut Özkırış, M.D. Bozok Üniversitesi Tıp Fakültesi Kulak Burun Boğaz Anabilim Dalı, 66000 Yozgat, Turkey.

Tel: +90 505 - 743 52 38 Fax (Faks): +90 354 - 217 10 72 e-mail (e-posta): mozkiris@yahoo.com

The adenoids are a single, pyramid-shaped aggregation of lymphoid tissue with the apex pointed toward the nasal septum and the base at the level of the roof and posterior wall of the nasopharynx.^[1] Present at birth, this lymphoid structure undergoes hypertrophy until seven years of age, usually reaching maximal size around the age of four years; then begins to atrophy until it almost invariably disappears in adulthood. Finger palpation, transoral mirror adenoid examination, and baseline lateral soft-tissue radiographs of the nasopharynx commonly have been used to assess adenoid size.^[2]

With the recent widespread introduction of computed tomography (CT), radiologists and otolaryngologists are better able to identify anatomical abnormalities and pathological states within the structures of the nasal cavity and the surrounding paranasal sinuses.^[3,4]

Adenoidal hypertrophy, a common disorder in the pediatric population, presents with several signs and symptoms, ranging from nasal obstruction to obstructive sleep apnea syndrome. Adenoid enlargement is uncommon in adults and because examination of the nasopharynx by indirect posterior rhinoscopy is inadequate, many cases of enlarged adenoid in adults are misdiagnosed and accordingly mistreated.^[3]

There is no reliable data on the current frequency of adenoid hypertrophy in adults, even in developed countries. The present study is the first to investigate the frequency of adenoid hypertrophy among adults between 18 and 71 years of age in Turkey.

PATIENTS AND METHODS

Five-hundred twenty-five paranasal sinus CT scans of 525 adult patients (279 males, 246 females, mean age 34.7 ± 1.4 years; range 18 to 71 years) taken between May 2010 and March 2012 in Bozok University Medical Faculty Hospital were reviewed in this study. The study was approved by the ethics committee of Bozok University Medical Faculty (Ethical Committee Approval Number: 2012/49). Paranasal sinus CT imaging was performed on the patients because of their complaints. The most common complaints of patients were nasal obstruction, headache, post-nasal drainage, chronic sinusitis and snoring. Paranasal sinus CT in patients was examined and the presence of adenoid hypertrophy was retrospectively analyzed.

The CT scans of patients with congenital deformities, previous surgery, trauma or malignancy of the nose, paranasal sinuses or maxillofacial region were excluded. Patients with extensive or invasive fungal rhinosinusitis or dental pathologies were also excluded.

All patients were evaluated by multislice CT examinations (MSCT; Philips Medical System, Best, the Netherlands) in the supine position with head hyperextended. After lateral scenograms, examinations consisted of 1.25 mm-thickness images with bone and soft-tissue algorithms. Axial images were obtained for the paranasal sinuses and were constituted reformatted coronal and sagittal images. All cross sections were parallel to infraorbital line. Adenoid tissue was defined based on axial, coronal and sagittal planes images. Adenoid tissue was classified according to the narrowing rate of the nasopharyngeal air column on sagittal plane. Grade 1: <25%, grade 2: 25-50%, grade 3: >50%.

RESULTS

The overall frequency of adenoid hypertrophy was 26.28%. Of the patients with adenoid hypertrophy, 77 cases (40 males, 37 females) were grade 1, 43 (24 males, 19 females) were grade 2 and 19 (8 males, 10 females) were grade 3. There were no statistically significant differences between the frequency of adenoid hypertrophy and gender ($p > 0.05$). Most common symptoms were nasal obstruction (65%), chronic sinusitis (41%), snoring (36%), post-nasal drainage (28%), headache (22%), sleep apnea (12%) and hearing loss (3%).

DISCUSSION

Sinonasal disease is a serious health problem commonly observed in society. Although sinusitis is a clinical diagnosis, imaging studies are used to assess the extent of the disease and demonstrate sinonasal anatomy. Countless 19th and 20th century anatomists, radiologists, and surgeons have further contributed to advancing the knowledge of sinus anatomy. The introduction of CT and the wider use of it in the last 20 years have further contributed to the physician's ability to appreciate nuances of paranasal sinus anatomy and accurate disease correlation. Computed tomography has become a useful diagnostic modality in the evaluation of the paranasal sinuses and an integral part of nasal anatomy.^[4]

Adenoid hypertrophy, physiological in children between the age of six to ten years, atrophies

at the age of 16 years.^[5] Age related changes assessed by CT and magnetic resonance imaging also demonstrated a significant decrease in the size of adenoids with aging. Although adenoid tissue undergoes regression toward the adolescent period, adenoid hypertrophy is also seen in the normal adult population.^[6]

The symptoms caused by enlarged adenoids are mostly due to where this lymphoid tissue is located. Owing to the strategic location of the adenoids, hypertrophy of adenoids may lead to severe discomfort for the affected person. The severity of symptoms may vary with the degree of obstruction. As the adenoids are located in the airway, an inflammation of the adenoids obstructs air passage and causes symptoms like snoring, blocked nose, nasal speech and the habit of keeping the mouth open. In severe cases, the adenoids may cause obstructive sleep apnea, which untreated may lead to high blood pressure and cardiac problems. Infection of the adenoids in adults may spread to the ears and cause middle ear infections, which may affect hearing too.^[3,7] In our patients most common symptoms were nasal obstruction (65%), chronic sinusitis (41%), snoring (%36), post-nasal drainage (28%) and headache (22%).

In a survey of 15000 adults (aged >16 years), the adenoids were present in 2.5%.^[8] Various pathophysiologic mechanisms have been proposed to explain the presence of lymphoid hyperplasia in the adult nasopharynx, including the persistence of childhood adenoids due to chronic inflammation or re-proliferation of regressed adenoidal tissue in response to irritants or infections.^[2,5] Finkelstein et al.^[9] reported the presence of obstructive adenoids in 30% of heavy smokers.

Hamdan et al.^[1] investigated the prevalence of adenoid hypertrophy in adults presenting with nasal obstruction. Fifty-five patients above the age of 17 years who presented with nasal obstruction were enrolled in the study. Forty-nine patients with no history of nasal obstruction were matched according to age and gender as controls. They found the overall prevalence of adenoid hypertrophy in adults with nasal obstruction approached 63.6% in patients with nasal obstruction and 55.1% in the control group. Yildirim et al.^[8] compared the etiology and pathological characteristics of adult and childhood adenoid hypertrophy. Adult adenoid hypertrophy was associated with nasal septal

deviation in 25.0% of patients. Histopathological features of adenoidal lymphoid tissue were dissimilar in the two groups: numerous lymph follicles with prominent germinal centers were the chief finding in childhood adenoids, whereas adult adenoids showed chronic inflammatory cell infiltration and secondary changes.

In our study the frequency of adenoid hypertrophy overall cases were 26.28%. The frequency of adenoid hypertrophy between genders were not statistically significant ($p>0.05$).

Adenoid hypertrophy is an uncommon condition in adults. The presence of adenoid hypertrophy especially in patients with snoring and nasal congestion must be investigated.

Declaration of conflicting interests

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