

Incidence, risk factors and clinical presentation of adenoid hypertrophy in adult Saudi patients

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Background: Adenoids are nasopharyngeal lymphoid tissue aggregates that hypertrophy between the ages of 6–10 and then usually atrophy at the age of 16. Adenoid hypertrophy happens between the ages of 6 and 10 but is uncommon in adults where it is commonly misdiagnosed and mistreated. This study is aimed at documenting the incidence of adenoid hypertrophy in adult Saudi patients, along with its symptoms, causes and risk factors so as to allow safer estimates of the disease and facilitate diagnoses in future cases.

Methods: It was a prospective study involving 100 adult patients > 20 years ago, attending Otolaryngology clinic for the first time were taken and their medical history and nose, ear and neck examination findings recorded. Following this, an F.O. scope and CT scans were performed to assess the nasopharyngeal mass, its severity and nature, followed by surgery and removal and subsequent histopathological assessment.

Results: Nasopharyngeal mass was found in 24% cases, all of which were male. Snoring was the most common symptom followed by nasal discharge, nasal obstruction and post-nasal drip (70.6%). Immuno-compromising conditions and allergies were associated comorbidities.

Conclusions: Adenoid hypertrophy is not uncommon in Saudi adults. Symptoms seem to be consistent enough to allow for a good diagnosis if the physician is aware of them. Gender is a risk factor for the disease as are immuno-compromising conditions and allergies.

Keywords: Adenoid hypertrophy, Saudi, adults, risk factors, symptoms

INTRODUCTION

The Adenoids, nasopharyngeal tonsils, are part of the Waldeyer's Ring system of lymphatic tissues and is defined as a constellation of lymphatic tissue on the postero-superior wall of the nasopharynx. [1] Adenoids hypertrophy defined as enlargement in the size of the adenoid tissue usually occurs during childhood, between the age of 6–10. [2] This is followed by physiological atrophy at the age of 16. [2]

Presence of lymphoid hyperplasia in the adult nasopharynx, including the persistence of childhood adenoids, is associated with chronic persistent inflammation. [3] Regressed adenoidal tissue may re-proliferate in response to chronic inflammatory conditions, long standing infections and local irritants. Individuals with a compromised immune system, such as diabetics and HIV sufferers, are especially at risk of suffering from Adenoid hypertrophy resurgence. [4]

Once inflamed, the adenoids may enlarge sufficiently to entirely block airflow through the nasal passages. [5] And even if the enlargement is not substantial enough

to physically block the nose, it can obstruct airflow sufficiently to induce primarily mouth breathing and affect voice pitch and tone. [6]

Considering the inefficiency of current diagnosis methods and the general discomfort a patient may suffer from an untreated condition, we conducted this study, aiming to document the incidence of adenoid hypertrophy, its symptoms, causes and risk factors. With this information at hand, we hope to provide physicians with an insight into the condition and more adequate means for diagnoses.

PATIENTS AND METHODS

It was a prospective study involving Adult patients > 20 years of age, attending the otolaryngology department for their first visit were studied over a 2 years period as nasopharyngeal mass below 20 years of age is of little or no significance. (4) Those presenting a nasal obstruction and undergoing an F.O. scope (for the first time) and CT scan were included in the study. Clinical history was taken and all F.O and CT scan findings were documented so as to assess the presence or severity of

the nasopharyngeal mass. These scans were followed by surgery to remove the mass and a sample of which was sent to a histopathology lab for tissue examination and final diagnosis.

All demographic data, F.O. scope and CT scan findings were analyzed with the help of Statistical Package for Social Sciences (SPSS) version 17.0 by IBM Inc., (USA). Continuous variables were represented as a mean ± standard deviation (SD) and were tested via a Chi Square test or Fisher’s exact test. A t-test was used to test independent variables.

RESULTS

Of the 100 individuals, 24 (24%) cases were found to have detectable nasopharyngeal mass, while the remaining 76 had other nasopharyngeal conditions. Out of these cases, most common histological diagnosis was adenoid hypertrophy in 17 cases. Those suffering from Adenoids had a mean age of 30.07 ± 12.43 , which was significantly different ($p = 0.008$) to those presenting other conditions (39.21 ± 13.78) (Table 1).

Table 1 Comparison of mean age between study groups

Diagnosis	n	Mean	SD	SE of Mean	P value
Adenoid	15*	30.07	12.43	3.21	
Non-adenoid	83	41.63	15.62	1.72	0.008
Total	98*	39.21	13.78	1.58	

* 2 patients did not supply their age

Although the majority of sufferers were male, the difference between male and female incidence was no significant ($p = 0.599$) (Table 2).

Table 2 Gender distribution of patients

Gender	Diagnosis		Total	P value
	Adenoid	Non-adenoid		
Males	11	47	58	
Females	6	36	42	0.599
Total	17	83	100	

Among patients with adenoid hypertrophy, snoring was the most common complaint (94.1%), followed by nasal discharge (76.5%), nasal obstruction (70.6%), post-nasal drip (70.6%) (Table 3).

The most common co-morbidities in Adenoid hypertrophy sufferers were diabetes mellitus (23.5%), thyroid enlargement (11.8%) and bronchial asthma (11.8%). All remaining co-morbidities had prevalence of 6% or less (Table 4).

Table 3 Symptoms of adult patients with adenoids

Symptoms	Frequency	Percent
Snoring	16	94.12
Nasal discharge	13	76.47
Nasal obstruction	12	70.59
Post nasal drip	12	70.59
Headache/facial pain	10	58.82
Recurrent pharyngitis	06	35.29
Hearing deficit	04	23.53
Sneezing	03	17.47
Intranasal polyps	03	17.47
Deflected nasal septum	02	11.76
Anosmia	02	11.76

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Table 4 Co-morbid diseases among adult patients with adenoids

Co-morbid diseases	Frequency	Percent
Diabetes mellitus	4	23.53
Hypertension	2	11.76
Bronchial asthma	2	11.76
Allergic rhinitis	1	5.88
Recurrent tonsillitis	1	5.88
Ischemic heart disease	1	5.88
Thyroid swelling	2	11.76
Hypothyroidism	1	5.88
Renal transplant	1	5.88

DISCUSSION

Adenoids are found in the nasopharynx as a part of the lymphoid tissue system known as the Waldeyer ring which is comprised primarily of B-cell tissue, with the B lymphocytes constituting up to 60% of the cellular makeup. [7] It is believed that the function of the

adenoids is that of a mucosa-associated lymphoid tissue (MALT), which works similarly to the intestinal counterpart in that it secretes immune cells to fight off infection from an exposed internal surface. [8] But, like any tissue, the Adenoids can also experience their own pathologies. Since the adenoid tissue involutes with age, it further complicates the diagnosis via radiographic interpretation of nasopharyngeal scans, [9] as nasopharyngeal soft tissue thickening can be the result of either an arrest in the involution of the adenoids or a new growth secondary to reactive hyperplasia or a neoplastic process. [10, 11]

The exact prevalence of adenoid hypertrophy in adults is not very clear in the literature. Most case series that deal with symptomatic adenoid hypertrophy are reported in pediatric age patients, [12-14] with only a few more recent reports including younger adults. [11,15-18]

Our study showed that 17% of adult Saudi patients were diagnosed with adenoid hypertrophy. In another study from Arabian population by Hamdan et al., found that mean age of adult patients was 26 years and 54% of their patients were males. Findings of current study are different from them. [1]

We also found there to be a slight biasing towards the male gender. This was not unexpected as previous studies have also documented this fact [1] and it can't be explained.

Concerning the ages, we found the mean age to be 32 for Adenoid hypertrophy sufferers. This is slightly above the commonly reported age which is roughly 26 [1] but it is not significantly different to raise any concerns.

Snoring was the most commonly reported symptom, followed by nasal discharge, nasal obstruction and post nasal drip, symptoms which are extensively documented in medical literature. [1,2,14,16-18,20]

These findings are expected when considering the disease is an obstructive mass in the airways and therefore come as no surprise.

In our study sample, 17.4% of individuals had allergies as well as adenoid hypertrophy, a result that supports that there may be a link between the conditions. Unfortunately, no swabs from the nasopharynx were taken for Gram staining or culturing because of the fact that in the start, the authors were not aware of its significance for an academic purpose and also due to lack of microbiological services and funds in this regard which makes a limitation of current study.

Regarding concurrent conditions, none of our patients had otitis media at the time of examination, 17.4% had deflected nasal septum, and 11.8% had intranasal polyps. These findings are in agreement with available

literature [22] there were also a proportion of patients exhibiting immune-compromised states such as diabetes mellitus and post-renal transplant. The presence of these is also not unexpected and is widely documented in the literature. [25-28]

CONCLUSIONS

Adenoid hypertrophy is common (17%) in adults especially those between the age of 21-30 years and having nasopharyngeal mass. Gender is not found as a risk factor for the disease however immuno-compromising conditions like diabetes, post-transplant state, thyroid enlargement and hypothyroidism and allergic diseases like bronchial asthma and allergic rhinitis may have some risk association with adenoid hypertrophy.

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