

Significance of Adenoid Hypertrophy in Adults.

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Abstract

Aim: The study was done to find the prevalence of adenoid hypertrophy in adults, its association with various ear, nose and throat infections and to correlate the adenoid nasopharyngeal ratio (ANR) in various infections.

Methodology: This study was done on 305 patients above the age of 18 years who presented with symptoms of nasal obstruction (unilateral & bilateral), snoring, obstructive sleep apnoea, rhinorrhea, hyponasal speech, ear discharge, recurrent throat pain and frequent throat clearance. These patients were divided into 3 categories; Group A with ear complaints, Group B with nasal complaints & Group C with throat complaints. X-ray Nasopharynx soft tissue lateral view was taken in all the patients. Diagnostic nasal endoscopy was done in patients with nasal complaints. Prevalence was calculated in each group. ANR calculated as per the formula of Yusuf et al^[1].

Results: The prevalence of adenoid hypertrophy in adults was found to be 9.8 %. In Group A it was 7.5 % and in them 56% had bilateral Chronic Otitis Media (COM) and 44% had unilateral Chronic Otitis media

(COM). In group B prevalence was 11 % and in them 53% had bilateral nasal obstruction, 35 % had unilateral obstruction & 12 % had snoring & mouth breathing. In group C, prevalence was 12% and all of them presented with chronic tonsillitis.

Keywords: Adenoid hypertrophy, Adults, Adenoid nasopharyngeal ratio.

Introduction

The adenoids (nasopharyngeal tonsils) are part of the Waldeyer’s ring of lymphoid tissue, located in the posterosuperior wall of the nasopharynx^[2]. They hypertrophy physiologically in children between the age group of 6 to 10 years and then atrophy by the age of 10 to 12 years^[3].

The presence of adenoids is usually associated with nasal obstruction, otitis media, and sinusitis. It has been shown that adenoid hypertrophy is also seen in the normal adult population and may cause unilateral or bilateral nasal obstruction, mouth breathing, hyponasal speech, snoring, obstructive sleep apnoea, rhinorrhoea, otitis media, recurrent throat pain & frequent throat clearance^[3]. Adenoid enlargement is often missed to be diagnosed in adults because of the technical difficulty

in the examination of the nasopharynx by posterior rhinoscopy.

Our aim with this study was to find the prevalence of adenoid hypertrophy in adults, its association in various ear, nose and throat infections and to correlate the adenoid nasopharyngeal ratio (ANR) in various infections.

Materials and Methodology

The study was conducted in tertiary care referral hospital on all patients above the age of 18 years who presented to the OPD with symptoms of unilateral and/or bilateral nasal obstruction, snoring, obstructive sleep apnoea, rhinorrhea, hyponasal speech, ear discharge, recurrent throat pain and frequent throat clearance. The study was done as a prospective time bound study over a period of 18 months. 305 patients were screened by convenient sampling. The study was started after getting Institutional ethical committee clearance. These patients were randomized into 3 groups

Group A: Patients presented with Ear symptoms

Group B: Patients presented with Nasal complaints

Group C: Patients presented with Throat complaints

X-ray Nasopharynx Lateral view was taken in all these patients. In patients with positive X-ray findings and in patients with nasal symptoms diagnostic nasal endoscopy was done. ANR was calculated by the method used by Yusuf et al [1].

Using the measuring scale, three lines were drawn from the posterior nasal spine; first line to posterior superior sphenobasioccipital area (U'1), second line to the nearest adenoidal point (U'2) and third to basion of occipital bone (U'3). (Fig No.1) Mean adenoidal depth & mean nasopharyngeal depth was calculated.

ANR = Adenoid size/Nasopharyngeal depth.

Patients who were diagnosed to have adenoid hypertrophy by diagnostic nasal endoscopy were excluded from calculating the adenoid nasopharyngeal ratio calculation as X-ray was not taken in those patients.

Statistical association was calculated in each group by Chi-Square test. p value < 0.05 was considered to be statistically significant.

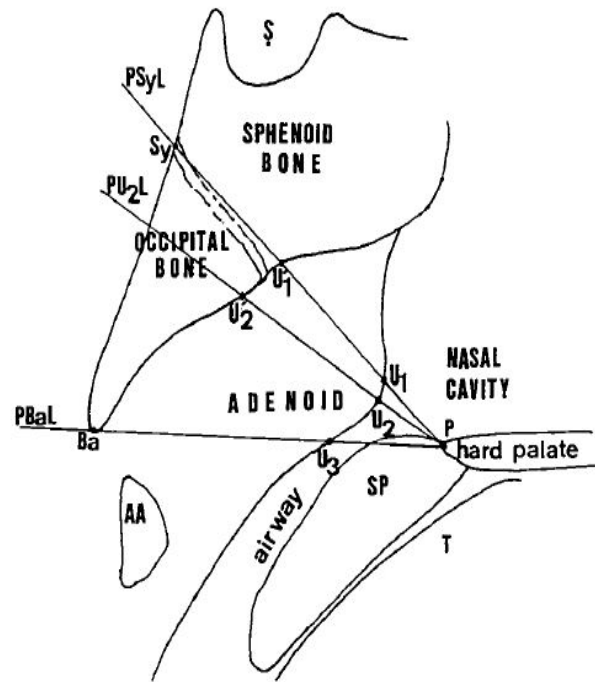


Figure 1 : Showing the reference points [1]

Reference Points	Description
U1	Intersection between adenoidal shadow and PSyL
U1'	Intersection between nasopharyngeal surface of sphenoccipital bone and PSyL
U2	Nearest adenoidal point to P
U2'	Intersection between nasopharyngeal surface of sphenoccipital bone and PU2L

U3	Intersection point between adenoidal shadow and PBaL
Ba	Basion ; most posteroinferior point on anterior margin of foramen magnum
P	Posterior nasal spine ; most posterior part of hard palate
Sy	Posterosuperior point of sphenobasioccipital synchondrosis
Reference Lines	
PU2L	Line through P and U2
PBaL	Line through P and Ba
PSyL	Line through P and Sy
Ratios	
ANR- Sy	Ratio of distance between U1 and U1` to distance between P and U1`
ANR- U2	Ratio of distance between U2 and U2` to distance between P and U2`
ANR – Ba	Ratio of distance between U3 and Ba to distance between Pand Ba10

Results

Adenoid hypertrophy was seen in 30 patients (9.8%). (Table I). 7 were females and 23 were males.

	Total patients screened	Adenoid positive cases	Percentage
Group A Ear complaints	120	9	7.5 %
Group B	153	17	11 %

Nose complaints			
Group C Throat complaints	32	4	12 %

Table1: Total patients screened Vs adenoid positive cases

Group A Ear Complaints

Out of 9 patients with ear symptoms, 5 patients had bilateral ear discharge and the remaining had left sided discharge. Of the 9 positive patients with ear complaints, 4 were diagnosed with diagnostic nasal endoscopy. There is statistically significant association between ear complaints & adenoid hypertrophy.

Adenoid Nasopharyngeal ratio: 2 patients with bilateral ear discharge had significant ANR. There was no statistically significant association.

Group B Nasal Complaints

Among the 17 patients who presented with nasal symptoms, 13 were males. 9 cases were diagnosed by diagnostic nasal endoscopy.

The pattern of nasal symptoms is shown in table II. There is statistically significant association

Nasal Complaints	Count	Percentage
Bilateral Nasal Obstruction	9	52.9 %
Right Nasal obstruction	2	11.8 %
Left Nasal obstruction	4	23.5 %
Snoring & Mouth breathing	2	11.8 %

Table 2: Presenting complaint in adenoid positive patients

5 out of 17 patients had significant ANR.

Group C Throat Complaints

Only 4 patients had throat complaints, 2 females and 2 males. All the four patients presented with throat pain as the presenting complaint. There is statistically significant association between recurrent throat pain & adenoid hypertrophy. 3 patients were diagnosed with X ray soft tissue lateral view & 1 patient with Diagnostic nasal endoscopy. 3 patients had significant Adenoid Nasopharyngeal Ratio.

Discussion

Adenoid hypertrophy in adults is not commonly reported. Normally the adenoid tissue grows rapidly in infancy, plateaus between 2 & 10 years of age & regresses after 12 years of age ^[4]. The persistence of adenoids in adults could be due to chronic inflammation or re-proliferation of regressed adenoidal tissue in response to irritants or infections ^[5]. Finkelstein et al. reported the presence of obstructive adenoids in 30% of heavy smokers ^[6]. Adenoid hypertrophy can be caused by viruses in adults with compromised immunity, especially those receiving organ transplants and those with human immunodeficiency virus (HIV) ^[7]. Enlarged adenoids can cause otitis media with or without effusion, upper airway obstruction, obstructive sleep apnoea, and recurrent rhinosinusitis.

The prevalence of adenoid hypertrophy in our study was found to be 9.8 % from a sample size of 305 patients screened over a period of 18 months. In a study done by Rout M R et al in adults in rural Andhra Pradesh, the prevalence was observed to be between 9 % with nasal complaints and 21 % with throat complaints ^[5]. Kapusuz Z in his study on prevalence of adenoid hypertrophy in adults in a rural area in Turkey based on Computerised Tomography finding found the prevalence to be 26.8 % ^[8].

In our study majority of the adenoid positive patients were males - 76.7 %, females constituted only 23.3 %. The mean age of adenoid positive patient was 25 years. The maximum age was 50 years and the minimum age 18 years.

The most common presenting complaint with which the adenoid hypertrophy patient presented was bilateral nasal obstruction. It was about 30 %. This was followed by unilateral nasal obstruction which was seen in about 20 %. The symptoms are due to enlarged adenoids causing obstruction to the choanae & the eustachian tube.

On group wise analysis, Group A (with ear complaints) showed adenoid hypertrophy to have a prevalence of 7.5%. The presenting complaint for adenoid hypertrophy here was bilateral ear discharge in 55.6 % & unilateral discharge in 44.4%. These symptoms were found to have statistically significant association with adenoid hypertrophy. In a study done by Yildirim N et al on the clinical and morphological aspects of adenoid hypertrophy in adults, of the 40 patients studied only 2 had ear complaints. ^[9] He found out a significant association between adenoid hypertrophy & otitis media with effusion in children which could be because of the increased susceptibility of children to middle-ear inflammation, owing to their shorter and more horizontal Eustachian tubes.

In group B (with nasal complaints), the prevalence of adenoid hypertrophy was found to be 11% The presenting complaint in patients with adenoid hypertrophy here was bilateral nasal obstruction in 52.9 %, unilateral nasal obstruction in 35.3 % & snoring, mouth breathing in 11.8%. These presenting complaints were having statistically significant association with adenoid hypertrophy. Studies have shown a wide variation in the prevalence of nasal complaints in

adenoid hypertrophy. In a study done by Abdul Latif Hamdan et al on the prevalence of adenoid hypertrophy in adults with nasal obstruction, he found the prevalence to be 63 %.^[10] In another study done by Rout M R et al in adults in Andhra Pradesh, the prevalence of adenoid hypertrophy in nasal obstruction among adults was found to be 21%.^[5] Yildirim N et al in his study found that snoring was more common in children compared to adults with adenoid hypertrophy,^[9] this could be because of increased reporting of cases in children compared to adults as they are closely monitored by parents.

In group C (with throat complaints), the prevalence of adenoid hypertrophy was found to be 12 %. All the positive cases of adenoid hypertrophy were chronic tonsillitis patients whose main complaint was recurrent throat pain. On analysis, it was found to have a statistically significant association with adenoid hypertrophy. In a case series on adenoid hypertrophy in adults done by Rout M R et al in Andhra Pradesh, the prevalence of adenoid hypertrophy in adult chronic tonsillitis patients was 9 percent.^[5]

Adenoid Nasopharyngeal Ratio

In our study the presence of adenoid was confirmed with X-ray Nasopharynx soft tissue lateral view & diagnostic nasal endoscopy. Adenoid was diagnosed from lateral neck radiographs in 16 patients while in 14 patients the diagnosis was with diagnostic nasal endoscopy. Of the 14 patients diagnosed by nasal endoscopy, 5 patients had negative findings in the X-ray.

In patients who had positive findings in lateral neck radiographs, we calculated the adenoid nasopharyngeal ratio. A value of 0.7 was considered significant. By doing so we tried to find a reliable & practical radiologic parameter for evaluating the enlargement of

adenoid tissue. Adenoid nasopharyngeal ratio was calculated in each group.

Yusuf KK et al^[11] studied 150 children from 4-10 years in 1999. We used his formula for calculating ANR. The data in his study clearly demonstrated that ANR is a reliable objective criteria for evaluation of adenoid hypertrophy. In a study by Somayaji G K S et al on significance of adenoid nasopharyngeal ratio in the assessment of adenoid hypertrophy in children, it was concluded that ANR of > 0.7 were suitable candidates for adenoidectomy^[11].

In our study, in group A (with ear complaints) the adenoid nasopharyngeal ratio was significant in 2 cases. The mean value of ANR in this group was 0.7. In group B (with nasal complaints) the adenoid nasopharyngeal ratio was significant in 5 patients. The mean value of ANR in this group was 0.8. In group C (with throat complaints) the adenoid nasopharyngeal ratio was significant in 3 patients. The mean value of ANR in this group was 1.2. A statistically significant association could not be established between adenoid nasopharyngeal ratio & presenting complaint in any of the group on analysis. The limitations for lateral neck radiographs include anatomical alterations based on rotation, respiratory cycle & exposure to radiation.^[12]

The best method of adenoid hypertrophy diagnosis is a debatable topic. Lateral neck x-ray and nasal endoscopy are common methods of adenoid hypertrophy assessment. In a study by Wang D on the assessment of adenoid tissue by fiberoptic endoscopy done on 817 children, he found that endoscopy was superior when compared to lateral neck x rays in the diagnosis of adenoid hypertrophy.^[13] However, study by Babak Saedi et al states that despite the popularity of nasal endoscopy, radiography serve as a better planning tool for adenoidectomy.^[14]

Conclusion

As per our study, the prevalence of adenoid hypertrophy in adults was found to be 9.8 %. Most of them were males, probably secondary to exposure to allergens during the outdoor activities. Majority of them had nasal symptoms. We feel that routine diagnostic nasal endoscopy will pick up a greater number of such adult adenoid enlargements.

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