Original Article

Adenoid Hypertrophy in Adult Patients and Its Relation with Various Factors

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Abstract

Adenoid hypertrophy is common in children. Size of the adenoid increases up to the age of 6 years, then slowly atrophies and completely disappears at the age of 16 years. Adenoid hypertrophy in adults is rare. Present study shows that adenoid hypertrophy is now increasing in adults because of various causes. Study has been conducted in the Department of ENT, Jawahar Lal Nehru medical college, Ajmer. Study shows that incidence of adenoid hypertrophy is increasing as the cause of nasal obstruction in adults. This study identified the different causes of adenoid hypertrophy in adult patients. The common causes of adenoid hypertrophy in adults are chronic infection and allergy. Pollution and smoking are also important predisposing factors. Sometimes it is also associated with sinonasal malignancy, lymphoma and HIV infection. Study shows that 21 % of adult nasal obstruction is due to adenoid hypertrophy. But in case of the patient with chronic tonsillitis only 8 % were associated with adenoid hypertrophy. Males are more commonly involved (80 %) then female, may be because of out door activities and more commonly exposed to pollutants. And most commonly involved age group is 16–25 years. Majority of the cases with adenoid hypertrophy are associated with infection and allergy i.e. allergic rhinitis in 38 % cases descending infection in 28 % cases, and ascending infection in 22 % cases. Association of sinonasal tumors, are rare i.e. 4 % each. So any cases of adult adenoid hypertrophy should be treated seriously to exclude the dangerous causes.

Keywords: *Waldeyer's Ring, Tonsillectomy, Adenoidectomy, Rhinoscopy*

Introduction

The adenoid is the peripheral lymphoid organ located in the nasopharynx that is part of the Waldeyer ring and contributes to the development of immunity against inhaled micro-organisms in early life.1 In early childhood it is the first site for immunological contact of inhaled allergens. Adenoids are present at birth, show physiological enlargement upto 6 years of age, atrophy at puberty and almost completely disappear by 20 years of age.2

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 maltreated.3 Presence of lymphoid hyperplasia in the adult nasopharynx, including the persistence of childhood adenoids is associated with chronic inflammation. Regressed adenoidal tissue may re-proliferate in response to infections and irritants.

Many triggers, among which are microbial stimuli such as moulds 4 or external irritants such as cigarette smoke,5 have been related to the enlargement of adenoid tissue and hence development of symptoms. Symptoms related to adenoid hypertrophy range from nasal obstruction, rhinolalia clausa, open mouth breathing and snoring, to the so-called 'adenoid facies'.

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In children, both Allergic rhinitis and adenoid hypertrophy may give rise to similar symptoms, and therefore Allergic rhinitis and adenoid hypertrophy need to be differentiated at the time of consultation.

Present study is a series of adult patients' age more then 16 years having enlarged adenoid mass in the nasopharynx, some are isolated and some associated with chronic tonsillitis. We have tried to find out the causes of the enlarged adenoid. Different symptomatologies are reviewed. Here also we have given emphasis on the management of these atypical cases.

Materials and Methods

Study Design

This was a 3 years prospective study of 300 adult patients, all aged more than 16 years. Out of those, 200 patients having complaint of nasal obstruction were reviewed. Rest 100 patients planned for tonsillectomy were screened for adenoid enlargement.

Study Setting

This was a hospital based study conducted in the J.L.N Medical College, Ajmer, Rajasthan

Study Period

February 2014–January 2017

Sampling Criteria

All the adult patients aged more than 16 years with adenoid hypertrophy were taken into study. In this study 42 adult patients having adenoid hypertrophy were found out by screening 200 adult patients having nasal obstruction and 100 patients planed for tonsillectomy. These 42 patients were evaluated and studied.

Inclusion Criteria's

1. Patient giving consent for study.
2. Age of the patient should be more than 16 years
3. Patients having enlarged adenoid on investigations

Exclusion Criteria's

1. Patient not giving consent for the study
2. Pregnancy and breast feeding
3. Those who suffering from blood disorders.

Procedure and Technique

First of all, the patients attending ENT outpatient department were divided into two categories.

First category having patients complaining of nasal obstruction and it may be unilateral, bilateral, continuous or intermittent. History of symptoms like sneezing, rhinorrhoea, itching of the nose, headache, fever, loss of smell, cough etc along with Relevant past history and family history. This was followed by detailed clinical examination, Anterior rhinoscopy was useful to detect deviated nasal septum, septal spur, hypertrophic turbinates, nasal polyp, foreign body, rhinolith etc. Posterior rhinoscopy was possible only in few cases to examine the nasopharynx thoroughly. So most of the cases, it was not so much informative regarding adenoid hypertrophy and nasal obstruction. Investigations like X-ray nasopharynx was obtained in an erect position with the neck extended and the mouth opened in order to visualize the shadow of the adenoid. The palatal airway was evaluated as described by Bitar.6 The degree of nasopharyngeal obstruction was determined by assessing the ratio of adenoid shadow diameter to the nasopharyngeal diameter. Mild if <50 % of the palatal airway was obstructed, moderate if >50 % was obstructed but not up to 100 % and severe if there was complete nasopharyngeal obstruction and no air column was seen on the post nasal space. If adenoid or adenoid like masses were found in the nasopharynx, then our next step was endoscope guided punch biopsy and sending the mass for histopathological study. In all the cases of adenoid enlargement, we were sending the throat swab for culture and sensitivity test and antibiotics were started accordingly. As well as all cases were tested for allergy by blood differential count of leucocytes, absolute eosinofil count, nasal smear for eosinofil and serum Ig E level.

And after conformation of mass, adenoidectomy were performed and the mass were again sent for histopathological study. In case of simple adenoid mass, adenoidectomy was the treatment of choice and response was very good.

Second category of the patients was having symptoms like throat pain, dysphagia, foreign body sensation of throat, recurrent attacks of fever and throat pain. By proper history taking and thorough clinical examination these patients were diagnosed as chronic tonsillitis. Tonsilar enlargements were graded as per Brodsky grading method.7 Grade 1+ means tonsils were completely in the tonsila fossa and rarely seen behind the anterior pillars. Grade 2+ means tonsils were visible behind the anterior pillars. Grade 3+ means tonsils extended 3/4th of the way to midline. Grade 4+ means tonsils were touching each other and completely obstructing the airway. Then all the investigations mentioned in first category were performed to find out adenoids. Those patients having adenoid hypertrophy, both adenoidectomy and tonsillectomy were done and the adenoid masses were sent for histopathological study. Rest of the patients were undergone only tonsillectomy.

Now the patients of both the categories having adenoid enlargement were studied.

Results and Observation

In this study first category of patients having nasal obstruction were reviewed. Table 1 showed the causes of nasal obstruction in these patients. Out of 200 patients 138 were male and 62 were female.

Table 1 Causes of nasal obstruction (n = 100)

Sl. No.	Pathology	Male	Female	Total	%
1	DNS &/or Spur	59	20	79	39.5
2	ITHa	18	8	26	13
3	Nasal polyps	12	5	17	8.5
4	Atrophic rhinitis	0	1	1	0.5
5	Nasal tumour	2	0	2	1
6	Allergic rhinitis	14	19	33	16.5
7	Allergic rhinitis with Adenoid hypertrophy	13	6	19	9.5
8	Adenoid hypertrophy	20	3	23	11.5

Table 2 showed the sex distribution of the patients diagnosed as chronic tonsillitis and planned for surgery. Adenoid hypertrophy is 9 % in adult tonsillitis. Those 9 patients with adenotonsillitis were taken into study.

Table 2 Sex distribution of patient with chronic tonsillitis and adenoiditis (n = 100)

Sl. No.	Pathology	Male	Female	Total	%
1	Only chronic tonsillitis	52	40	92	92
2	Chronic tonsillitis with adenoiditis	7	1	8	8
3	Total 58	42	100	100	

Out of above two categories total 50 adult patients were found to have adenoid hypertrophy and considered for study.

Table 3 showed the age and sex distribution of the patents with adenoid hypertrophy. Out of 30 patients 40 were male and 10 were female. Most commonly involved age group was 16–25 years it showed that males are more commonly involved than female.

Table 3 Age and sex distribution of the patients with adenoid hypertrophy (n = 30)

Sl. No.	Age group	Male	Female	Total	%
1	16-20	23	7	30	60
2	21-30	13	2	15	30
3	>30	4	1	5	10
4	Total	40	10	50	100
5	Percentage	80	20	100	100

As per habitat distribution 36 patients out of 30 were from urban areas and only 14 patients were from rural areas.

On observing the occupation of the patients it was found that majorities were working in the road side (16 patients), factories (11 patients) and doing agriculture (9 patients). This implies that pollution may be an important factor in development of adenoid hypertrophy.

Table 4 Occupation of the patients (n = 30)

Sl. No.	Occupation	No. of patients	%
1	Agriculture	9	13.4
2	Factories	11	26.7
3	Road side work	16	33.4
4	Student	1	3.3
5	AC office room	9	16.6
6	Open office room	4	6.6
7	Total	50	100

By using above all diagnostic methods we had tried to identify the predisposing factors for adenoid hypertrophy in these 50 adult patients. Out of 40 male patients 22 members and out of 10 female patients nobody having the habits of smoking.

Table 5 showed the predisposing factors for adenoid hypertrophy in our series. Commonest factor here was the descending infections like allergic rhinitis ,chronic sinusitis, rhinitis and otitis media . Rare factors associated with adenoid hypertrophy in our series were nasal polyp and benign tumors (4 patients), sinonasal tumour (2 male patient).

Table 5 Predisposing factors for adult adenoid hypertrophy (n = 30)

Sl. No.	Disease	Male	Female	Total	%
	Descending infection like chronic sinusitis, rhinitis and otitis media	12	2	14	28
	Allergic rhinitis	13	6	19	38
	Ascending infection like chronic tonsillitis, pharyngitis and dental infection	9	2	11	22
	Polyp and benign tumour	4	0	4	8
	Angiofibroma	2	0	2	4
	Total	40	10	50	100

Discussion

Adenoid is condensation of lymphoid tissue in the posterosuperior part of the nasopharynx. Santorini described the nasopharyngeal lymphoid aggregate or 'Lushka tonsil' in 1724. The term adenoid was coined by Wilhelm in 1870, to what he described as nasopharyngeal vegetations 8

Along with palatine tonsils, lingual tonsils, tubal tonsils and the lateral pharyngeal bands, it forms the inner Waldeyer's ring. Adenoids protect the body from airborne infections and produce antibodies providing immunity. They have an important role in the development of 'immunological memory' in young children.9

Adenoid appears to have an important role in the development of an 'immunological memory' in younger children. Removal of the adenoid at a young age may be immunologically undesirable 10 but there appears to be no decrease in IgE levels after adenoidectomy.11Although the cause of adenoid hypertrophy is not exactly known but certain reasons have been proposed. Presence of lymphoid hyperplasia in the adult nasopharynx, including the persistence of childhood adenoids is associated with chronic inflammation.3 Regressed adenoidal tissue may re-proliferate in response to infections and irritants.12 Finkelstein et al. 13 reported the presence of obstructive adenoids in 30 % of heavy smokers but in another study percentage of smokers was not significantly higher han in males of the same age.14 In our study 12 members were having history of smoking (22 male, 0 female).

In a study by Hamdan et al.15 prevalence of adenoid hypertrophy in adults with nasal obstruction approached 63.6 % in patients with nasal obstruction and 55.1 in the control group (p = 0.007). In our study the prevalence of adenoid hypertrophy in patients with nasal obstruction is 21 %.

There are various clinical features associated with adenoid hypertrophy. All patients have nasal obstruction 3 which may result in oral breathing, recurrent nasal infection and hypo nasal speech. Higher percentage of children with Adenoid Hypertrophy was reported to suffer from snoring compared with adults.2

A study conducted by Yaldrim et al. 2 in 2008 showed etiology and pathological characteristics of adult and childhood adenoid hypertrophy (AH). Clinical and morphological features and accompanying otolaryngological pathologies were recorded in 40 adults and 23 children undergoing adenoidectomy for obstructive adenoid hypertrophy. Both adenoid hypertrophy forms were similar in terms of symptomatologies and associated inflammations. There were, however, significant differences in otitis media rate, with effusion and dullness, and retraction in the eardrum both more prevalent in childhood adenoid hypertrophy. Adult adenoid hypertrophy was associated with nasal septum deviation in 25.0 % of patients (39.5 % in our series).

In studies where they have been compared to more normal-sized adenoids, a chronic infection with Hemophilus influenza, normal bacteria of the upper respiratory tract, has been identified. The adenoid can also hypertrophy from chronic irritation from infected or inflamed nasal secretions being swept back over it. There may be some adenoidal enlargement occurring with chronic allergic states. Adenoidal hyperplasia in adults is quite rare. If it is identified, malignancies of the type B white blood cell (lymphoma plasmacytoma) or HIV must be considered. In our series Allergy was associated with 38 % of the adenoid hypertrophy in adult and other sinonasal malignancy was associated with 4 % cases each. Descending infection is responsible for 28 % cases of adenoid hypertrophy where as ascending infection is responsible for 22 % cases.

Long-term adenoidal enlargement can lead to ear disease and chronic mouth-breathing. There is some concern that chronic mouth-breathing in children may result in elongation of the middle part of the face and a narrow, high-arched palate that can result in orthodontic abnormalities. Undiagnosed obstructive sleep apnea may cause pulmonary hypertension, poor mental alertness, and hypertrophy of the right side of the heart.

If the adenoidal enlargement is fairly acute, it will often respond to antibiotics and oral steroids. In some individuals a big adenoid can be reduced by long term nasal steroid sprays. In those who do not respond to these forms of medical management, surgery is often employed. In a study by Demirhan et al. 16 in 2010 showed that 76 % patients having adenoid hypertrophy, surgery was eliminated by using fluticasone propionate nasal drop.

If the adenoid is acutely enlarged and responds well to antibiotic and steroid therapy, then it will return to a smaller size, with lessening of the amount of nasal obstruction. However, if the adenoid re-enlarges and re-creates the symptoms, surgery would then be necessary. Typically those individuals who have required adenoidectomy have an improvement in eustachian tube function and lessening of their nasal obstruction and excessive nasal discharge; and in those children who have had their adenoid removed for chronic sinus disease, 25 % of them will have their sinus disease resolve.

Conclusion

In conclusion adenoid hypertrophy is common and a normal finding in children. And it is an uncommon finding in adults. Now the incidence of adult adenoid hypertrophy is increasing because of allergy, chronic infection. Pollution is thought to be a predisposing factor.

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