

Evaluation and Management of Adult Patients with Bilateral Nasal Obstruction Secondary to Adenoid Hypertrophy using Endoscopic Adenoidectomy

Babu A.R.¹, T.S. Shetty², Bharathi M.B.³, Parijat Joshi⁴

ABSTRACT

Introduction: Adenoid tissue is one of the first line immunological defense mechanisms of upper aero-digestive tract and reaches its maximal size between three and seven years of age. Atrophy occurs from the age of ten years and is usually completed by the age of twenty. However, in current clinical practice especially with advent of nasal endoscopy, adenoid tissue hypertrophy is not uncommonly found in adults. This study aims to assess adenoid hypertrophy in adult patients with bilateral nasal obstruction.

Material and Methods: Included patients were above age of twenty years, presenting with bilateral nasal obstruction and associated symptoms. All cases were evaluated clinically and further assessed by diagnostic nasal endoscopy, X-Ray Paranasal sinuses (PNS)/Nasopharynx, CT PNS. Out of these, 30 confirmed cases of adenoids satisfying inclusion and exclusion criteria were taken and surgically treated.

Results: Endoscopic adenoidectomy was performed in all 30 cases. Endoscopic follow up was done for a period of 6 to 18 months; only two patients had recurrence requiring revision surgery, and two cases required ventilation tubes. There was improvement in all of the preoperative symptoms, 22 cases became asymptomatic, 6 cases improved and 2 cases failed.

Conclusion: Enlarged adenoid in adults should be considered in the differential diagnoses of cases suffering from bilateral nasal obstruction, or presenting with a nasopharyngeal mass with aural problems. Endoscopic adenoidectomy is safe and reliable method of treatment helping in complete removal of adenoid tissue with good hemostasis and with no injury to Eustachian tube.

Keywords: Adenoids, Adults, Bilateral nasal obstruction, Hypertrophy, Nasal endoscopy

INTRODUCTION

Santorini described the nasopharyngeal lymphoid aggregates or 'Luschka's tonsil' in 1724 and Willhelm Meyer coined the term 'adenoid' in 1870. Adenoidal tissue is one of the first line immunity systems of the upper aero-digestive tract attaining maximal size between three and seven years of age. Atrophy begins from the age of ten years which is usually completed by the age of twenty.¹⁻⁴ Although conditions associated with adenoidal hypertrophy are generally considered to be a disease of childhood, to our present knowledge, no study has accurately examined the incidence of adenoidal hypertrophy in adults. In current clinical practice, with nasal endoscopy forming a routine part of clinical nasal examination, adenoidal tissue is not uncommonly found in adults. However, it is not possible to clearly distinguish neoplastic adenoidal tissue from benign hypertrophy based on the macroscopic appearance alone. This study aims to assess adenoid hypertrophy in adult patients with bilateral nasal obstruction with respect to clinical features and investigative findings. Also the effectiveness of transnasal

endoscopic adenoidectomy has been evaluated.

MATERIAL AND METHODS

The prospective study was done in accordance with the Helsinki Declaration of 1975, as revised in 2000. It was conducted on 30 adult patients based on inclusion and exclusion, aged above 20 years presenting with bilateral nasal obstruction along with enlarged adenoids after taking informed written consent. Inclusion criteria were of age 20 years and above, with past history of adenotonsillectomy and with endoscopically and radiologically confirmed adenoid hypertrophy. Benign and malignant lesions of the nasopharynx were excluded.

Routine blood investigations, urine for albumin, sugar and microscopy were undertaken. Radiology included X-ray lateral Nasopharynx and Computed tomography scan of nose and paranasal sinuses. Patients with aural symptoms also underwent pure tone average and impedance audiometry.

The 0 degree, 4 mm nasal endoscope (Karl Storz) was utilized to identify the nasopharyngeal mass. Mass either had smooth or an irregular surface. The origin of the masses was from the vault and /or posterior wall of the nasopharynx. Profuse retained secretions were found in front of the adenoid mass (Figure-2a) at the posterior aspect of the inferior meatus and nasal cavity in six cases (Table-2). Associated chronic sinusitis was found in six cases, secretory otitis media in two cases and bilateral chronic suppurative otitis media in two cases.

The patients were operated under general anesthesia in a supine position with the neck extended. The nasal cavities and nasopharynx were examined with a zero-degree nasal endoscope (4mm) without any vasoconstrictor packing. If the nasal cavity was congested, ribbon gauze soaked with 4% xylocaine or 0.05% oxymetazoline with adrenaline solution was used to pack nasal cavity for 5 minutes to shrink the nasal mucosa. A throat pack was also inserted to prevent any blood from entering the trachea. A Boyle-Davis mouth gag was inserted to open the mouth widely as during the classic adenoidectomy. A suitably sized Beckmann adenoid curette was placed transorally into the nasopharynx.

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Under nasal endoscopic guidance, the blade of the adenoid curette was placed just above the superior border of the adenoid (Figure-2b). The nasal endoscope was then taken out from the nose and the adenoid tissue was curetted using sustained force as described in conventional adenoid curettage. Any bleeding was controlled using transoral packing gauze for 3 to 5 minutes, cauterization was not needed at the adenoid area. The lateral part of the adenoid then removed transnasally using cutting forceps commonly used in the endoscopic sinus surgery. The midline adenoid bulk was then removed transorally by curettage as described previously. Post operatively patients were given oral antibiotics, analgesics and antihistamines. Nasal packing was removed in patients with septoplasty after 48 hours. Endoscopic follow up for a period of 6 to 18 months (average of 12 months) was done.

STATISTICAL ANALYSIS

Descriptive statistics was used to infer results. All symptoms and signs were calculated in percentage. All tables were computed using Microsoft word 2007 and charts using Microsoft Excel 2007.

RESULTS

This study was conducted on adult patients aged above the age of 20 years with bilateral nasal obstruction, 30 such cases of enlarged adenoids were found. There were 18 males and 12 females patients studied for a period of 18 months. All patients had bilateral nasal obstruction along with headache in eight cases, nasal tone and snoring in three cases, postnasal discharge, deafness and rhinorrhea in six cases. The duration of the symptoms ranged between two and ten years with average of six years. (Table-1)

Associated conditions in our series were four patients with history of previous adenotonsillectomy in childhood with one patient having history of septal surgery with partial turbinectomy, two patients with immunocompromised state (HIV), six patients had nasal allergy and eight patients had associated deviated nasal

septum.

All of the cases reported previous medical treatments in the form of antibiotics, antihistamines and/or decongestants (local or systemic).

Most common symptom was nasal obstruction while most common otological sign was retracted tympanic membrane. Most common anterior rhinoscopic finding was mild deviated nasal septum (Table-2). In all the cases endoscopic assisted adenoidectomy was performed under general anesthesia. All 30 patients underwent endoscopic adenoidectomy and postoperative period was uneventful. Endoscopic follow for a period of 6 to 18 months was done. Two patients had recurrence and required revision surgery whereas two cases required ventilation tubes.

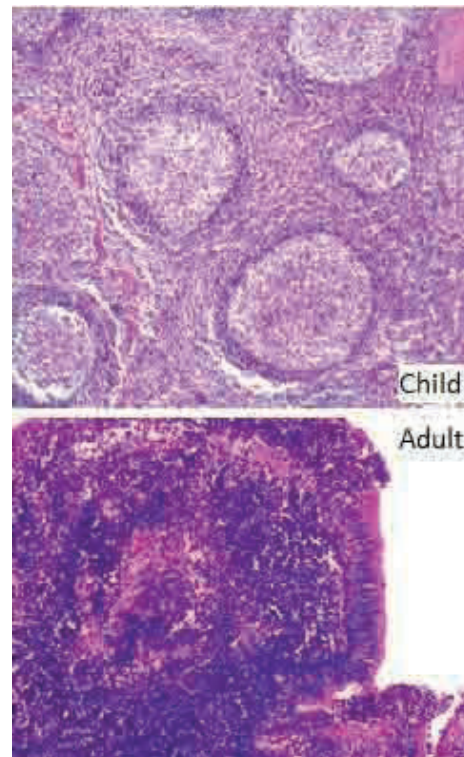


Figure-1: HPE appearance of child and adult adenoids

Sl. No.	Symptom	No.	%
1	Nasal obstruction	30	48.4
2	Head ache	8	12.9
3	Postnasal discharge	6	9.7
4	Rhinorrhea	6	9.7
5	Deafness/tinnitus	6	9.7
6	Nasal tone	3	4.8
7	Snoring	3	4.8
	Total *	62	100

*The total is more than 30 because the symptoms are overlapping
Table-1: Symptoms of adult adenoid

Sl. No.	Finding	No.	%
1	Mild deviated nasal septum	8	30.7
2	Hypertrophied inferior turbinates (pale)	6	23.07
3	Hypertrophied inferior turbinates (congested)	6	23.07
4	Muroid nasal discharge	6	23.07
5	Mucopurulent nasal discharge	Nil	0
	Total	26	100

Table-2: Anterior Rhinoscopic findings of adult adenoid

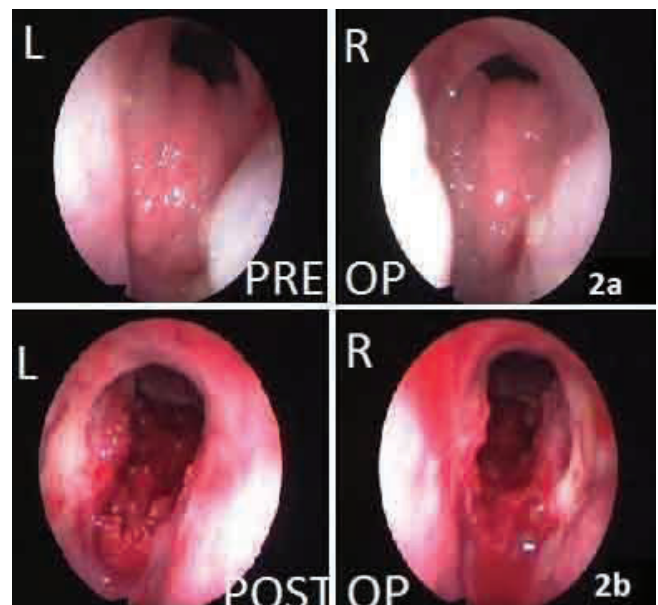


Figure-2: Nasal Endoscopic findings pre op and post op

On histopathological examination, the adenoids showed intense chronic inflammatory cell infiltration and secondary changes such as squamous metaplasia in the surface epithelium and fibrosis (Figure-1).

Subjectively, patients became asymptomatic in 22 cases; partial improvement was seen in six cases, whereas two patients showed no improvement at the end of follow – up.

DISCUSSION

Alaa A, Hamed Wahab¹ studied 18 cases aged 27-59 years with nasal obstruction and/or serous otitis media. All patients were treated by endoscopic nasopharyngeal mass resection and were found to have benign lymphoid hyperplasia on histopathology whereas immunohistochemical study revealed prominent cellular proliferation of B cell lineage, with IgA and IgG defect, and production of IgM, IgE indicating infection, type I hypersensitivity and surface barrier immunodefect.

Park SK et al,³ in retrospective study done on 18 adult patients who underwent adenoidectomy due to adenoid vegetation, showed adenoid to nasopharyngeal ratio in these patients from 7.5 to 9.0. The main symptom of the patients was snoring whereas in our study it was nasal obstruction and associated snoring was present in only 4.8%.

N Yildirim et al⁵ performed a study comparing etiology and pathological characteristics of adults and childhood adenoid hypertrophy and concluded that adults having adenoid hypertrophy represented a long standing inflammatory process rather than being a novel benign entity.

Roy F. Nelson,⁶ M.D., did a clinical study on 19 cases of adenoids in adults with definite pathological importance in twelve and possible significance in three. In six patients, tonsillectomy had been performed previously without attention to the adenoids. A considerable percentage (15.0%) of the adult patients in the present study gave a history of past adeno-tonsillectomy suggesting that there was inadequate removal of the adenoidal tissue at the previous surgery.⁵

James E Mitchell et al⁷ did a retrospective study on 110 adult patients who had biopsies of postnasal tissue. Primary symptoms of patients were otitis media with effusion in 42%, snoring or nasal obstruction in 43%, cervical lymphadenopathy in 11%, 2 cases of bleeding in post nasal space, 2 cases of post nasal drip, 2 cases incidental and one case of facial pain. Biopsies were reportedly benign in 92 (84%) patients. A malignant biopsy was found in 18 cases (16%). Differential diagnosis of malignancy was included in this study. The presence of a lymphoid mass in an adult nasopharynx is suspicious, especially when accompanied by unilateral middle-ear effusion, and nasopharyngeal cancer should always be ruled out in such cases. Ultra structural changes in lymphocytes in smoking-induced AH and malignant transformation in HIV related AH have been demonstrated.^{8,9}

Obstructive AH is usually associated with childhood and has been overshadowed by accompanying rhino pharyngeal disorders.^{10,11} Nasal endoscopic examination is major breakthrough in the diagnosis of sinonasal diseases; it could accurately diagnose the nasopharyngeal adenoid, its size, shape and degree of encroachment on the airway and Eustachian tube. Various mechanisms have been proposed to explain the lymphoid hyperplasia in the adult nasopharynx, including the persistence of childhood adenoids or re-proliferation of

regressed adenoidal tissue in response to irritants like smoke, dust or infections.¹⁰ Finkelstein et al¹² reported obstructive adenoids in 30% of heavy smokers. AH caused by viruses in adults with compromised immunity, patients of organ transplants or having human immune deficiency virus (HIV), is a well-known phenomenon.¹³

Developmental nasal septum deviation usually manifests after adolescence, affecting nasal physiology and predisposing the person to chronic Sinonasal inflammation and post-nasal drip. Nasal septum deviation may also indirectly cause low-grade chronic inflammation of the adenoids. On inspiration, inhaled air passes through thin nasal cavity and then released suddenly and changes direction downwards. As a result, the speed of the air stream becomes slower and the dust, bacilli or poisonous gases adhere or stimulate the nasopharyngeal wall more easily.¹⁴ In our study, the coexistence of obstructive AH and obstructive nasal septum deviation in 25.0% of adult group is noteworthy.

The significant association between AH and otitis media with effusion in the childhood group is unsurprising: it is well known that children are more susceptible to middle-ear inflammation owing to their shorter and less tortuous Eustachian tubes.¹⁵ Although some investigators attributed the enlargement of the nasopharyngeal tonsil in allergic disorders, others denied any significant role of the nasopharyngeal tonsil in allergic reactions.^{2,3} Enlarged nasopharyngeal tonsils in adults has some differences from that in children macroscopically the mass had smooth or irregular surface. The histological features of childhood adenoids are largely consistent with hyperplasia, characterized by an increase in the volume and number of germinal centres.¹⁶⁻¹⁸ In contrast, the surface epithelium of the adenoids removed from adults showed intense chronic inflammation, fibrosis and squamous metaplasia (Figure-1).

In a study by Reda H. Kamel et al¹¹ on 35 adults in Cairo University, Egypt, showed marked improvement in 94% of patients without major complications similar to ours with 100% improvement. Endoscopic follow up for 17 months identified recurrence in two cases similar to our study (recurrence in two cases over 18 months). He further concluded that enlarged adenoid tissue in adults has some histopathological differences from that in children and transnasal endoscopy was safe and reliable, which we concur to the fact that subjectively, patients became asymptomatic in 22 cases, partial improvement was seen in six cases in our study after endoscopic adenoidectomy. Limitations of our study were the small sample size and the patient symptomatic improvement was measured subjectively.

CONCLUSION

Enlarged adenoids in adults should be considered in the differential diagnosis of cases suffering from bilateral nasal obstruction, or presenting by a nasopharyngeal mass with aural problems. Histopathologically it can be termed as chronic hypertrophic nasopharyngitis or chronic adenoiditis. Enlarged adenoids in adults have some macroscopic and microscopic differences from that in children.

Endoscopic adenoidectomy is safe and reliable. The nasal endoscope helps in removal of the enlarged adenoid tissue completely with good hemostasis with no injury to Eustachian tube opening and complications associated with conventional techniques can be prevented.

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