

# Is adenoid hypertrophy associated in HIV infected adults?

## Abstract

**Aim:** To study adenoid hypertrophy (AH) and its association with HIV infected adult individuals.

**Introduction:** Adenoids are the lymphoid tissue present in posterosuperior wall of nasopharynx. They are integral part of inner waldeyer's ring. They are thought to be involved in immunity of child. There are reports and literature search shows adenoid hypertrophy in Human Immune Deficiency Syndrome (HIV) infected individuals. However, there lack a large study in such cases. The goal of present study is to observe AH and its association with HIV infected adult individuals.

**Material and methods:** Present study was conducted in department of otorhinolaryngology of a tertiary care hospital. Patients were randomly chosen from the antiretroviral therapy register of hospital that was undergoing treatment. A total of 100 patients were included in study. A thorough otorhinolaryngology examination was carried out. All patients were then subjected for diagnostic nasal endoscopy. Adenoid status was documented and X- ray neck soft tissue lateral view was done to confirm adenoid hypertrophy.

**Results:** The mean age of subjects were 37.6 years. Most of the patients (61%) were in age group of 31-45 years. 42% patients have insignificant (I and II degree) adenoid hypertrophy and 58% had significant (III and IV degree).

**Conclusion:** Prevalence of adenoid hypertrophy is less among adult individuals. However, in our study we found significant AH in HIV infected adults. Moreover, there is positive association between AH and HIV. Hence, AIDS should be kept as differential diagnosis in cases of AH finding amongst adults.

**Keywords:** Human Immune Deficiency Virus, AIDS, Patients, AH, HIV infected adults, Adenoid hypertrophy

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**Abbreviations:** HIV, Human Immune Deficiency Virus; AIDS, Acquired Immune Deficiency Syndrome; AH, Adenoid Hypertr; ART, Antiretroviral Therapy; OPD, Outdoor Patient Department

## Introduction

Adenoids are the lymphoid tissue present in posterosuperior wall of nasopharynx. They are integral part of inner waldeyer's ring. They are thought to be involved in immunity of child.<sup>1</sup> Adenoids are integral part of paediatric age group and usually regress by 16 years.<sup>2</sup>

Adenoids are present in posterosuperior wall of nasopharynx. Therefore, they are often not diagnosed by physicians.<sup>3</sup> Adenoid hypertrophy (AH) in adults is usually not seen. However, they have been documented in conditions such as organ transplant recipient, lymphoma and Acquired Immune Deficiency Syndrome (AIDS). AH may lead to blockade of the nasal passage. Therefore, further it may lead to recurrent sinusitis, rhinitis and acute otitis media.

There are case reports which show AH in Human Immune Deficiency Syndrome (HIV) infected individuals. However, there is lack of study on large group. The aim of this research is to study AH and its association with HIV infected adult individuals. All the subjects were under antiretroviral therapy (ART).

## Materials and methods

The study was conducted in department of otorhinolaryngology of a medical college over a period of six months. Patients were randomly

chosen from ART register of the hospital. Patients were communicated telephonically and were invited for study enrolment. A total of 100 patients were included in study after obtaining consent. The inclusion and exclusion criteria are as follows-

### i. Inclusion criteria

- Patients with regular follow up at ART centre
- Age > 16 years of either sex
- Patient undergoing ART
- Willing for further investigations as advised

### ii. Exclusion criteria

- Patients having acute upper respiratory tract infection
- Pregnant and breast feeding patients
- Patients not giving consent

100 random patients of HIV undergoing ART were contacted. After fulfilling inclusion and exclusion criteria patients were called in otolaryngology Outdoor Patient Department (OPD). Their detailed histories were obtained and a thorough otolaryngology examination was done. Further, all patients were then subjected to diagnostic nasal endoscopy.

Nasal endoscopy was performed after nasal decongestion with 4% lignocaine and 0.5% xylometazoline solution packs.

Complete procedure was performed with zero degree endoscope and Stammberger technique being used.<sup>4</sup> Cassano et al.<sup>5</sup> classification was used grade the degree of AH (Table 1).

**Table 1** Degree of Adenoid Hypertrophy

S.No.	Degree	Space occupied by adenoids
1	I	Upper segment in the rhinopharyngeal cavity (<25%)
2	II	Upper half (<50%) of the rhinopharyngeal cavity
3	III	Extended over the rhinopharynx (>75%) with obstruction of choanal openings and partial closure of tube ostium
4	IV	Both the tube ostium and the lower choanal border could not be observed, (75- 100 %)

Patients having AH third degree or above were advised X-ray nasopharynx lateral view in erect position with the neck extended and mouth opened to visualize the shadow of adenoids. All the results were documented and statically analyzed.

## Results

The study was carried over a period of 06 months in otolaryngology department. A total of 100 patients were included in study. Their age ranged from 17-56 years. Their mean age was 37.6 years. 61% subjects were in age group of 31-45 years. The age distribution is depicted in Table 2.

**Table 2** Age distribution

S.No.	Age (Years)	Number of Patients
1	17-30	11
2	31-45	61
3	>46	28

There were 39% females and 61% males. Sex distribution of patients is described in Table 3. The duration of HIV infection is documented in Table 4. Their duration was counted from the day they were confirmed HIV positive by standard laboratory methods. 61% were infected for a period of 3-6 years.

**Table 3** Sex distribution

S.No.	Sex	Number of patients
1	Male	61
2	Female	39

**Table 4** Duration of HIV Infection

S.No	Duration of infection (Years)	Number of patients
1	< 3	14
2	3-6	61
3	6-9	25

Following, nasal endoscopy 42% patients had insignificant (I and II degree) AH and 58% had significant (III and IV degree) AH. Results of adenoid hypertrophy are tabulated in Table 5.

**Table 5** Adenoid Hypertrophy Distribution in Patients

S.No.	Degree of adenoid obstruction	Number of patients
1	I	11
2	II	31
3	III	47
4	IV	11

## Discussion

Adenoids tissue was described as "Luschka tonsils" by Santorini in year 1724.<sup>6</sup> Wilhelm coined the term adenoid in year 1870. They

are integral part of inner waldeyer's ring and provide immunity to the body. Adenoids at microcellular level consist of B lymphocytes which form various antibodies against bacteria and viruses.

Adenoids are lymphoid tissue condensation. Therefore, they get hypertrophy in acute and chronic infections. Chronic infections and chronic inflammation are one of the most common etiology for AH. Therefore, AH will subsequently lead to nasal obstruction. Adenoids play a vital role in child's immunity. Hence, it seems that adenoidectomy may lead to reduced immunity in children but there has been no alteration in Immunoglobulin E level after adenoidectomy.<sup>7,8</sup> Adenoids are present normally in children and atrophies by 16 years.<sup>2</sup>

Although, adenoids atrophies by 16 years of age but they are still seen in adults.<sup>9,10</sup> AH in adults are often unnoticed due to its low incidence and not accessible for examination easily.<sup>3</sup> The exact etiology of AH in adults are known but some studies have tried to propose outcomes. Most common cause is persistence of childhood adenoids due to chronic inflammation.<sup>3</sup> Chronic irritant exposure may lead to proliferation of adenoids.<sup>11</sup> Finkenstein et al.<sup>12</sup> documented 30% heavy smokers had AH. Whereas, Barcin et al.<sup>13</sup> showed no such association with smoking.

Rout MR et al.<sup>6</sup> studied AH prevalence in nasal obstruction patients and found it to be 21%. Similarly, 63.6% prevalence was reported by Hamdan & Barzan et al.<sup>14,15</sup> studied nasopharyngeal lymphatic tissue hypertrophy in HIV infected versus control group and found higher incidence in HIV infected group. Yousem DM et al.<sup>16</sup> conducted research over nasopharyngeal tissue dimensions with T 1 weighted magnetic resonance images. Thus, they found that adenoids were much bigger in HIV infected person than control subjects. Erasmus T et al.<sup>17</sup> conducted study over HIV positive individuals and concluded that the nasopharyngeal tissue in HIV is due to lymphoid hyperplasia. In our study, the incidence of significant AH was 58% which is significant.

The various documented causes of AH in adults are allergic rhinitis, malignant tumours, Non Hodgkin's lymphoma, and AIDS.<sup>6</sup> AIDS can present in head and neck in various ways. Few presentations can be seen in initial stage whereas other may be present in advanced stage of the disease. AH can be one of the presentations.<sup>18</sup>

In present study, a significant number of patients were found to have AH irrespective of their nasal complaints. All the subjects were undergoing antiretroviral therapy. Most patients were of 31-45 years age group. The possible explanation for this age group is that firstly, this age group is more sexually active. Secondly, they correspond to the national databases.<sup>19</sup> Most of individuals were male which also corresponded to national database. In our study, 58% patients were having significant AH (third and fourth degree). Our study shows clearly a positive association between HIV infection and AH in randomly selected patients. Further research should seek into histopathological examination and study of CD4 counts association with AH.

## Conclusion

Prevalence of adenoid hypertrophy is less among adult individuals. However, in our study we found significant AH in HIV infected adults. Moreover, there is positive association between AH and HIV. Hence, AIDS should be kept as differential diagnosis in cases of AH finding amongst adults.

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## Conflicts of interest

None.

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