

## Incidence of Adenoid Hypertrophy in HIV Infected Individuals at a Tertiary Care Hospital

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**Received Date:** 04 Jun 2016

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**Accepted Date:** 15 Jul 2016

**Citation:** Saxena A and Saxena S. (2016). Incidence of Adenoid Hypertrophy in HIV Infected Individuals at a Tertiary Care Hospital. M J HIV. 1(2): 008.

**Published Date:** 19 Jul 2016

### ABSTRACT

**Aim:** To study the incidence of adenoid hypertrophy in HIV infected individuals.

**Introduction:** Adenoid is the condensation of lymphoid tissue at the posterosuperior wall of nasopharynx. Adenoids are part of waldeyer's ring. It is considered to have a crucial role in immunological memory of child. There are reported and documented evidences of adenoid hypertrophy in Human Immune Deficiency Syndrome (HIV) infected individuals but there lacks a large study of such cases. The idea of the present study is to observe the status of adenoid hypertrophy in HIV infected individuals.

**Material & Methods:** The study was conducted in the department of otolaryngology of a tertiary health care hospital. Patients were selected randomly from the register of ART centre of hospital that was undergoing treatment. 100 patients were selected who gave consent for inclusion into the study. A thorough otolaryngology examination was carried out which also included anterior rhinoscopy. All patients were then subjected to diagnostic nasal endoscopy. Adenoid status was recorded and lateral view X- ray of neck soft tissue was done to confirm adenoid hypertrophy.

**Results:** The mean age of patients was 37.6 years. Most of the patients (61%) were in age group of 31-45 years. Most of the patients (47 %) have third degree of adenoid hypertrophy. 42% patients have insignificant (1st and 2nd degree) adenoid hypertrophy and 58% had significant (3rd and 4th degree).

**Conclusion:** Adenoid hypertrophy is uncommon among adult individuals. However it is significantly present in adult HIV infected individuals and should be ruled out as cause of nasal complications in HIV infected patients.

### KEYWORDS

Human Immune Deficiency Virus (HIV); Acquired Immune Deficiency Syndrome (AIDS); Adenoid Hypertrophy (AH); Adults.

### INTRODUCTION

The adenoid is the condensation of lymphoid tissue at the posterosuperior wall of nasopharynx. Adenoids are part of waldeyer's ring. They are considered to play a crucial role in immunological memory of childhood infections [1]. Adenoids

are usually present in children between age 6- 10 years and usually regresses by 16 years [2].

Adenoids are usually not seen in adults and if seen are misdiagnosed and wrongly treated [3]. Adenoid hypertrophy (AH) in adults may be due to immunocompromised status such as or-

gan transplant recipient, malignant lymphomas and acquired immune deficiency syndrome (AIDS). Enlarged adenoids can achieve the size of a ping-pong ball and completely block the nasal passage. Further blockade may lead to recurrent sinusitis, rhinitis and acute otitis media.

There are reported and documented evidences of AH in Human Immune Deficiency Syndrome (HIV) infected individuals but there is lack of a large study of such cases. The idea of the present study is to observe the incidence of adenoid hypertrophy in HIV infected individuals. The present study is done on patients suffering from HIV and who are under antiretroviral therapy (ART).

**MATERIALS AND METHOD**

The study was conducted in the department of otolaryngology of a tertiary care hospital from October 2015 to March 2016. Patients were selected randomly from the register of the ART centre of hospital that was undergoing treatment. Patients were communicated with by telephone and were invited for study enrolment. 100 patients were selected who gave consent to be included in the study. The inclusion and exclusion criteria are as follows:

**Inclusion Criteria**

1. Patients with regular follow up at ART centre
2. Age > 16 years of either sex
3. Patient undergoing ART

**Exclusion criteria**

1. Patients having acute upper respiratory tract infection
2. Pregnant and breast feeding patients
3. Patients with irregular follow up at ART centre
4. Patients not giving consent

100 random patients were communicated by their registered telephone number in directory of ART centre. After satisfying the inclusion and exclusion criteria patients were called into the otolaryngology Outdoor Patient Department (OPD). Their detailed history of HIV infection duration and nasal complains if any were noted. A thorough otolaryngological examination was carried out which also included anterior rhinoscopy. 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. The whole procedure was done with zero degree endoscope and the Stammberger technique being used [4]. In order to decide the degree of adenoid hypertrophy, the system used by Cassano et al was employed [5]. (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 with third degree adenoid hypertrophy and above were subjected to X- ray to confirm findings. X-ray nasopharynx lateral view in erect position with the neck extended and mouth opened to visualize the shadow of adenoid were performed. All the results were documented and statically analyzed by SPSS software 14.0.

**RESULTS**

The study was carried out over a duration of 06 months. 100 patients were included in. The age range varied from 17-56 years. The mean age of the patients was 37.6 years. Most of the patients (61%) were in age group 31-45 years. The age distribution is described 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

Out of 100 patients 39 were female and 61 were male. Sex distribution of patients is depicted in table-3. Duration of HIV infection is tabulated in table 4. Most of the HIV infected patients (61%) were known to be infected for duration of 3-6 years. The duration of infection is accounted from the day the patients were confirmed to be HIV positive by standard laboratory tests.

**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

Diagnostic nasal endoscopy was performed in each patient. Most of the patients (47 %) had third degree adenoid hyper-

trophy. 42% patients had insignificant (I and II degree) adenoid hypertrophy 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

Santorini described nasopharyngeal aggregates or “Luschka tonsils” in year 1724 [6]. Wilhelm accounted for the term nasopharyngeal vegetations as adenoid in 1870. The adenoid forms part in Waldeyer’s ring that helps in preventing bacteria, virus and toxins entering the body. The adenoids are composed of B lymphocytes which form various antibodies against bacteria and viruses. Adenoids are usually hypertrophic in children and regress by the age of 16 years.

Adenoids are like tonsils and can become hypertrophic in acute and chronic infections. Due to chronic infection and inflammation, adenoids gradually get hypertrophic. Presence of AH in nasopharynx leads to nasal obstruction. Adenoids have been shown to play a crucial role in immunological memory of younger children. Adenoidectomy may sound immunologically undesirable at a young age but there is usually no alteration in Ig E level after adenoidectomy [7, 8]. Adenoids physiologically get hypertrophic in children between 6-10 years and regress by 16 years [2].

However, adenoid usually regresses by 16 years of age but it is also seen in the adult population [9, 10]. Due to low incidence of adenoid enlargement in adults and access to adenoids is difficult by direct examination, many cases of adenoid hypertrophy are misdiagnosed and treated wrongly [3]. However, the exact causes of adenoid hypertrophy causes are largely unknown, but some reasons have been proposed. One of the causes is persistence of childhood adenoids associated with chronic inflammation [3]. Infection and irritants may also lead to proliferation of adenoids [11]. Finkstein et al [12] showed that 30% of heavy smokers had adenoid hypertrophy however in a study by Barcin C et al [13] smoking was not a significant etiology.

Hamdan et al [14] documented prevalence of AH in patients with nasal obstruction to be 63.6% whereas Rout MR et al [6] reported a 21% prevalence. In the present study the incidence of significant AH was 58%. The possible causes of adenoid

hypertrophy in adults are allergic rhinitis, Non Hodgkin’s lymphoma, malignant tumors and AIDS [6]. Manifestation of AIDS in the head and neck are among the most common complication of this disease. Some manifestation present as initial signs of HIV and others present with full blown AIDS. AH can be one of the presentations [15].

In our study we found a significant number of patients with AIDS to have adenoid hypertrophy irrespective of their nasal complaints. All the subjects were under retroviral therapy. In the present study most of the patients were 31-45 years of age. The two possible reasons for this being that this group is more sexually active and it also corresponds to the national databases [16]. Most individuals were male which also corresponded to national database [16]. 58% of the patients had significant AH (third and fourth degree). Therefore the incidence of adenoid hypertrophy is 58% in the current study. 69% of the patients had complaints of nasal obstruction. Following endoscopy 43% of the patients were found to have a deviated nasal septum (DNS). Due to the concurrent presence of AH as well as DNS, it was not sure whether nasal obstruction is attributable to DNS or adenoid hypertrophy. It was also observed that most patients with AH belonged to the group of 3-6 years age group of HIV infected individuals. This can be explained in two ways. Firstly, that most individuals in this study belonged to 3-6 year age group and secondly the prolonged duration of HIV infection leading to such a possibility.

Our study uncovers the presentation of significant AH in HIV infected individuals who were selected randomly. Further research should be performed to look into histopathological examination and study of the trends of CD4 counts associated with AH.

## CONCLUSION

AH is uncommon among adult individuals. If found it should be methodologically investigated keeping AIDS as an important differential diagnosis. In this study AH is significantly present in HIV infected adult individuals and should be ruled out as cause of nasal complaints.

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