

Study of clinical profile of chronic adenoiditis in paediatric age group (0-12 years)

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Abstract

Background: Enlarged and infected adenoids may cause nasal (adenoiditis, rhinosinusitis), Aural (recurrent otitis and otitis media with effusion), and obstructive sleep apnea. Present study was aimed to study clinical profile of chronic adenoiditis in 0-12 years age group at a tertiary hospital. **Material and Methods:** Present study was a prospective, observational and cross-sectional study conducted in children less than 12 years, who presented with snoring, mouth breathing, nasal obstruction, nasal discharge, recurrent respiratory infections, hard of hearing and diagnosed as chronic adenoiditis. **Results:** In present study, 72 children diagnosed as chronic adenoiditis were studied. Majority of children were from 5- 7 years (45.83 %) and 8-10 years (29.17 %) age group, male (59.72 %). Clinical symptoms were nasal obstruction/snoring (100.00 %), nasal discharge (88.89 %), hearing difficulties (69.44 %), sore throat (30.56 %) and fullness of ear (20.83 %). Associated clinical conditions noted were tonsillitis (27.78 %) and sinusitis (18.06 %). On otoscopic examination, tympanic membrane was dull, lustreless, amber coloured in majority of children (61.11 %) and associated with minimal hearing loss (63.89 %). Clinically, majority of children had grade 3 adenoiditis (51.39 %). On digital X-ray nasopharynx lateral view majority had grade 3 (43.06 %) and grade 2 (34.72%) adenoiditis. On analyzing children endoscopically, 48.61 % of cases presented with grade III, and 23.61 % presented with grade IV. **Conclusion:** The classical presentation of chronic adenoiditis is mouth breathing, snoring, nasal obstruction and nasal discharge

Keywords: adenoid hypertrophy, adenoidectomy, chronic adenoiditis, infection, upper airway obstruction

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INTRODUCTION

Adenoids and palatine tonsils are lymphoid tissues located at the pharyngeal portion of the upper aero-digestive tract. The nonphysiological enlargement of adenoids (hyperplasia) is defined as adenoid hypertrophy (AH). AH is a prevalent pathology among children, varying between 1.3% - 50.6% depending on hypertrophy grades and age groups.¹ Adenoid hypertrophy (AH) is an extremely

common condition in the pediatric and adolescent populations that can lead to various medical conditions, including acute rhinosinusitis, with a percentage of these progressing to chronic rhinosinusitis (CRS). Hypertrophied adenoids can mechanically obstruct the airway and/or the Eustachian tube, forming a bacterial reservoir for recurrent otitis media and chronic sinusitis.^{2,3} Enlarged and infected adenoids may cause nasal (adenoiditis, rhinosinusitis), Aural (recurrent otitis and otitis media with effusion), and obstructive sleep apnea. Other problems include excessive daytime sleepiness, failure to thrive, poor academic performance, psychological problems, and cognitive disabilities.⁴ Optimal evaluation for adenoid hypertrophy is made by focused history and physical examination, as well as adenoid assessment with direct visualization, flexible nasopharyngoscopy or radiography. Present study was aimed to study clinical profile of chronic adenoiditis in 0-12 years age group at a tertiary hospital.

MATERIAL AND METHODS

Present study was a prospective, observational and cross-sectional study conducted in the Department of ENT in a tertiary teaching hospital in rural area of Konkan region during January 2020 to December 2021 (2 years).

Inclusion criteria: Children less than 12 years, who presented with snoring, mouth breathing, nasal obstruction, nasal discharge, recurrent respiratory infections, hard of hearing and diagnosed as chronic adenoiditis. Children with clinical and radiologic features of chronic adenoiditis

Exclusion criteria: Children with previous adenoidectomy, cerebral palsy, genetic syndrome, ear discharge, tympanic membrane (TM) perforation, cleft palate, and congenital ear deformities.

Study was explained to parents and a written informed consent was taken for participation. Children considered for study underwent history taking, clinical examination including otoscopy. Radiological investigations such as digital X-ray nasopharynx lateral view was done in all the patients.

The nasopharyngeal measurement represents the distance between the posterior border of the hard palate and sphenobasi-occiput-synchondrosis and was graded as follows:

Grade 0 (0.0-0.25) no adenoid enlargement

Grade 1 (0.26-0.50) minimal enlargement

Grade 2 (0.51-0.75) moderate enlargement

Grade 3 (0.76-1.00) gross enlargement.

All children underwent a transnasal endoscopy after application of topical anesthesia (lignocaine 2%) at both nostrils. The degree of obstruction by the adenoid tissue over the posterior choanae was estimated and graded as
Grade I: Adenoid tissue filling one-third of the vertical portion of the choanae.

Grade II: Adenoid tissue filling from one-third to two-thirds of the choanae.

Grade III: From two-thirds to nearly complete obstruction of the choanae.

Grade IV: Complete choanal obstruction.

Data was collected and entered in Microsoft Excel. Statistical analysis was done using descriptive statistics.

RESULTS

In present study, 72 children diagnosed as chronic adenoiditis were studied. Majority of children were from 5- 7 years (45.83 %) and 8-10 years (29.17 %) age group, male (59.72 %). Clinical symptoms were nasal obstruction/snoring (100.00 %), nasal discharge (88.89 %), hearing difficulties (69.44 %), sore throat (30.56 %) and fullness of ear (20.83 %). Associated clinical conditions noted were tonsillitis (27.78 %) and sinusitis (18.06 %).

Table 1: Demographic and clinical characteristics

Characteristics	No. of patients (N)	Percentage (%)
Age (in years)		
< 5	6	8.33
5-7	33	45.83
8-10	21	29.17
11-12	12	16.67
Gender		
Male	43	59.72
Female	29	40.28
Clinical symptoms		
Nasal obstruction/snoring	72	100.00
Nasal discharge	64	88.89
Hard of hearing	50	69.44
Sore throat	22	30.56
Fullness of ear	15	20.83
Associated clinical conditions		
Tonsillitis	20	27.78
Sinusitis	13	18.06

On otoscopic examination, tympanic membrane was dull, lustreless, amber coloured in majority of children (61.11 %) and associated with minimal hearing loss (63.89 %).

Table 2: Otoscopic findings and hearing loss

Otosopic findings of tympanic membrane		
Dull, lustreless, amber coloured	44	61.11
Retraction	21	29.17
Air bubbles	6	8.33

HL in dB		
16-25 (minimal)	46	63.89
26-40 (mild)	26	36.11

Clinically, majority of children had grade 3 adenoiditis (51.39 %).

Table 3: Clinical grading

Clinical grade	Number of cases	Percentage
Grade I	3	4.17
Grade II	17	23.61
Grade III	37	51.39
Grade IV	15	20.83

On digital X-ray nasopharynx lateral view majority had grade 3 (43.06 %) and grade 2 (34.72%) adenoiditis.

Table 4: Radiological grading

X-ray grade	Number of cases	Percentage
Grade I	6	8.33
Grade II	25	34.72
Grade III	31	43.06
Grade IV	10	13.89

On analyzing children endoscopically, 48.61 % of cases presented with grade III, and 23.61 % presented with grade IV.

Table 5: Endoscopic grading

Endoscopic Grading	Number of cases	Percentage
Grade I	6	8.33
Grade II	14	19.44
Grade III	35	48.61
Grade IV	17	23.61

DISCUSSION

In pediatric patients, adenoidectomy, which is considered the last resort in the treatment of AH, can be performed separately or in combination with tonsillectomy. Adenoidectomy is indicated in children for the treatment of sleep-disordered breathing, nasal airway obstruction, recurrent acute otitis media, and chronic rhinosinusitis.⁶ Viral infections of the upper airways and their possible evolutions are of particular interest due to their occurrence: 6 – 7 % of upper respiratory viral infections may progress to adenoiditis and acute rhinosinusitis, with a percentage of these progressing to chronic rhinosinusitis (CRS), condition characterized by 90 or more uninterrupted days of respiratory symptoms, including cough, nasal discharge, or nasal obstruction.^{6,7} In a review and meta-analysis of eight randomized controlled trials using mometasone for adenoid hypertrophy, it was found to be associated with improved nasal obstruction and symptoms, decreased adenoid size, and improved quality of life.⁸ Ajayan PV *et al.*,⁹ studied 35 children with features suggestive of secretory otitis media, tonsillar and adenoid hypertrophy who underwent adenoidectomy with tonsillectomy. 56% of cases, after 6 weeks showed complete resolution of OME which improved to 67% after 3 months (assessed by PTA and tympanometry). 33% showed partial improvement with Type C curve in tympanometry and improvement in PTA values, may be due to factors like

allergy, anatomical deformities, immunological which prevented the complete resolution of symptoms in OME. Hamza SB¹⁰ studied 100 children, diagnosed as chronic adenoiditis clinically with relevant investigations. Mean Adenoidal-nasopharyngeal ratio for which OME was present was 0.72 which corresponds to X-ray grade 2. It was also found that 80.6% of X-ray grade 3 adenoids had OME and 100% of cases of endoscopic grade 4 adenoids had OME in either or both ears. 36 cases with grade 3 X-rays, 69% were in endoscopic grade 3 and 19.4% cases were shown to have complete choanal obstruction (grade 4). In study by Ghosh AM *et al.*,¹¹ among 80 children most common age group was 5–7 years which included 34 children (42.5%). Mean adenoid–nasopharyngeal ratio for which otitis media with effusion (OME) was present was 0.72 which corresponds to X-ray grade II. It was also noticed that 71.4% X-ray grade III had OME and 65.8% of cases of endoscopic grade III adenoid had OME. Rajeshwary A *et al.*,¹² studied 100 patients aged between 3-12 years who underwent adenotonsillectomy/adenoidectomy. Aerobic organisms grew in 93% of the specimens and anaerobic organisms in 68%, whereas 7% had no growth. The surface was predominated by commensals and the pathogens were mainly found in the core. The predominant pathogens were *Staphylococcus aureus*, *Streptococcus pneumoniae*, and *Enterococcus* species. The organisms were resistant to

penicillin but showed sensitivity to co-amoxiclav and ciprofloxacin. Co-amoxiclav and ciprofloxacin should be considered as the first line of medical treatment for adenotonsillar diseases. Poor Cooperation from the child, radiation exposure, invasive nature, and expensiveness of diagnostic tests propels the clinicians to have a reliable method in the accurate diagnosis of severity of adenoidal obstruction. Nasal endoscopy is considered the gold standard in diagnosing chronic adenoiditis. Lateral extensions of adenoids to eustachian tube orifices can be noticed in nasal endoscopy.¹¹ Chronic adenoiditis has unique clinical manifestations and is accompanied by various complications and comorbidities that are substantially different than those associated with adenoidal hypertrophy. Adenoidectomy may benefit some patients. More studies and investigations are needed to further the understanding of this disease, and pediatricians should pay particular attention to this condition.

CONCLUSION

The classical presentation of chronic adenoiditis is mouth breathing, snoring, nasal obstruction and nasal discharge. Reaching the correct diagnosis of chronic adenoiditis at the earliest is the main key in treatment to prevent complications and sequelae related to this clinical condition

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