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Original Research Paper

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ENDOSCOPIC EVALUATION OF SIZE OF ADENOIDS IN CHILDREN WITH GLUE EAR

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ABSTRACT

Otitis media with effusion (OME) or glue ear is one of the commonest chronic otological conditions of childhood. Two third of children have had at least one episode of OME by the age of 3 years and in one third of them it is asymptomatic[1]. Chronic OME is associated with hearing loss and delayed speech development and may cause permanent middle ear damage with mucosal changes[2]. Mechanical obstruction of the eustachian tube (ET) is one of the main identifiable causes of ET dysfunction, especially due to adenoid hypertrophy (AH) in the pediatric age group. Office nasal endoscopy offers several advantages over the lateral skull radiograph in the evaluation of adenoid hypertrophy. The main objective of this study is to know the association between size of adenoids and occurrence of OME and to evaluate the grades of AH by nasal endoscopy. ET and airway obstruction can be readily identified through nasal endoscopy in all 3 planes. Size of the adenoid in respect to the nasopharynx along with palatal movements and its effects on ET can be studied very well by this technique. This study gives support to the concept that nasal endoscopy is the gold standard for assessing adenoids.

KEYWORDS : Otitis media with effusion,Adenoids, Transnasal endoscopy, ET dysfunction

INTRODUCTION

It is well documented that the large and infected adenoid causes nasal obstruction and nasal discharge. The effect of adenoids on the ear has long been remained a challenging subject. The presence of AH can obstruct the nasopharyngeal ostium of the ET, leading to negative pressure in the middle ear cavity, and eventually mucosal transudation[3]. In children with AH and OME, the surgical removal of the adenoid (associated with ventilation tube insertion) accelerates the recovery of the middle ear mucosa, decreases the risk of recurrence and need of repetitive surgical procedures, and reduces treatment failure rate. Several studies have shown the relationship between large adenoid and occurrence of otitis media in children less than 4 years[4]. Another study concluded that the nasopharyngoscopy is much more accurate diagnostic procedure than radiological evaluation of the nasopharynx[5]. It is observed that the fiber optic examination is more precise than posterior rhinoscopy and correlates well with the X-ray and rhinomanometry[5]. Office nasal endoscopy offers several advantages over the lateral skull radiograph in the evaluation of AH. There is no patient exposure to radiation and the relationship of the adenoid to important adjacent anatomic structures can be evaluated dynamically. Although the image of an endoscope is 2-dimensional, the ability to move the camera in and out of the nose allows the examiner to have a 3 dimensional sense of adenoid size.

Methods:

This study was conducted in the department of otorhinolaryngology, government medical college Thrissur,Kerala for a period of one year from October 2016 to September 2017.It was an observational cross sectional study. A total of 100 children who presented with snoring, mouth breathing, nasal obstruction, nasal discharge, recurrent respiratory infections and hard of hearing, diagnosed as chronic adenoiditis were studied clinically with relevant investigations. All children underwent a transnasal endoscopy after topical anesthesia application (lignocaine 2%) at both nostrils. Transnasal endoscopy was done just before the surgery in some children who were posted for adenoidectomy under general anaesthesia,.The degree of obstruction by the adenoid tissue over the posterior choanae was estimated using the grading system proposed by Clemens & McMurray.

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

RESULTS:

Majority of the children were in the age group of 4-5 years and 6-7 years in this study. Most of the cases presented with snoring and mouth breathing (n=75), nasal obstruction (n=68), recurrent respiratory infections (n=68) and hard of hearing (n=62). Out of the 100 cases studied, 62 cases had OME in either or both ears. 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.

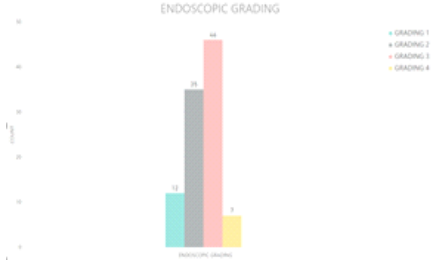

Table 1. OME V/S ENDOSCOPIC GRADES

Endoscopic Grades	OME (Either Or Both Ears)	No OME	Total Cases
Grade 1	5(41.7%)	7(58.3%)	12
Grade 2	19(54.3%)	16(45.7%)	35
Grade 3	31(67.4%)	15(32.6%)	46
Grade 4	7(100%)	0(0%)	7
Total	**62**	**38**	**100**

Table 2.ENDOSCOPIC GRADING V/S MOUTH BREATHING

	MOUTH BREATHING		
Endoscopic Grade	Absent	Present	Total
1	7(58.3%)	5(41.7%)	12
2	10(28.6%)	25(71.4%)	35
3	7(15.2%)	39(84.8%)	26
4	1(14.3%)	6(85.7%)	7
Total	25	75	100

DISCUSSION:

This study shows close association between size of adenoids and occurrence of OME as maximum number of cases corresponds to higher grades of adenoid hypertrophy (endoscopic grading 3 and 4). The study done by Farhad et al also demonstrated a high prevalence of adenoid size 3+ among patients having unilateral and bilateral OME, accounting for 16% and 37% of all cases with OME accordingly. A study done in Nigeria in 2010 by Orji FT et al on 46 children with OME also found a significant association between type B tympanogram and the presence of significant (grade 4) nasopharyngeal obstruction[6].

However a significant percentage of cases with smaller grades of adenoid hypertrophy also shows presence of OME which essentially points to the role of other etiological factors as well .It is possible that such adenoid, even though of small size, encroached laterally to obstruct the ET of the involved ear. Such lateral encroachment was reported to be significant in influencing development of OME. Wright and his colleagues studied on the importance of endoscope in the assessment of adenoid enlargement in lateral direction rather than anterior direction which will be missed by routine X – ray of the post-nasal space[3].The current findings were in agreement with Lourenco et al who found that the mouth breather children who showed small adenoid by X-ray were mostly had moderate size adenoid when examined by endoscopy, those with moderate size adenoid by the X-ray were mostly considered large by endoscope and lastly those with large adenoid seen by X-ray were seen also large by endoscope[7]

CONCLUSION:

There is significant association between the size of adenoids and occurrence of OME. The proportion of OME increases with the severity of nasopharyngeal obstruction by adenoid hypertrophy.

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