



**ORIGINAL RESEARCH PAPER**

**Otorhinolaryngology**

**ROLE OF ADENOTONSILLECTOMY IN MANAGEMENT OF SNORING IN PAEDIATRIC PATIENTS**

**KEY WORDS:** Snoring, Adenotonsillitis, Adenotonsillectomy

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**ABSTRACT**

Adenotonsillitis is most common disease of paediatric age group. A prospective study was conducted on 21 Children with history of snoring, nasal obstruction and mouth breathing having adenotonsillitis. Conventional adenotonsillectomy was performed and patients were followed up 3 months after surgery. Most number of patients with snoring complaints of nasal obstruction. Most of the patients are male with mean age 7.1 years. Most of the patients with snoring had grade III adenoids along with grade III enlargement of tonsils. Most of the children showed improvement in clinical features after surgery.

**INTRODUCTION:**

The most common diseases in the Ear Nose Throat is upper respiratory tract infection including adenotonsillitis. The palatine tonsils, nasopharyngeal tonsil along with tubal tonsils forms Waldeyer's ring at the entrance of aerodigestive tract. The adenoids are found at the junction of roof and posterior wall of the nasopharynx. The palatine tonsils are present in lateral wall of oropharynx in between anterior and posterior pillars. The most common problem in children is recurrent infection and enlargement of faucial and nasopharyngeal tonsils. 1 Children with adenotonsillitis can result physiological and psychological disorders which hamper the learning process.<sup>2</sup>

Upper airway tract infection occurs due to partial or complete obstruction of the nose. Impaired dental and maxillofacial development occur due to upper airway obstruction 3 which leads to mouth breathing and results in the typical 'adenoid face'.<sup>4</sup> Recurrent adenotonsillitis greatly impair the day-to-day activities of the patient and as compared to adenotonsillectomy patients and their parents report that operation has a good effect and improve the quality of life of the patient.<sup>5</sup>

The aim of the study was to assess the clinical outcome on snoring and nasal obstruction in paediatric patients undergoing adenotonsillectomy.

**MATERIALS AND METHODS:** This prospective observational study was conducted in the Department of Otorhinolaryngology, Silchar Medical College and Hospital for one year. Twenty-one children with history of snoring, nasal obstruction and mouth breathing having adenotonsillitis were examined in the age group of 3 to 12 years. Patients with history of snoring were clinically evaluated and examined by anterior and posterior rhinoscopy and diagnostic nasal endoscopy.

Children between the age of 3 to 12 years with symptoms of adenotonsillar hypertrophy such as nasal obstruction, snoring, and mouth breathing were included in the study. Children with bleeding disorders, acute upper respiratory tract infection, previous history of adenoidectomy, cleft palate or previous history of cleft palate repair, neuromuscular or

craniofacial anomalies and Down syndrome were excluded. Under general anaesthesia adenoidectomy was performed by curettage method using St. Clair Thompson adenoid curette. Tonsillectomy was done using Diathermy method in Rose's position with help of Boyle-Davis mouth gag is held in place by Draffin's bipods. All patients with snoring were followed up at 1 month and 3 months after surgery.

**RESULTS**

1. Patient Characteristics: In our study, most of the patient fall under 3-6 years (57%) age group followed by 38% of cases in 7-10 years age group. The mean age of presentation of adenotonsillitis was 7.1 years. In this study, there were 15 males and 06 females. In cases of presented with snoring most common symptom was nasal obstruction followed by mouth breathing.

**Table 1: Showing the distribution of clinical features**

Clinical Features	No. of patients	Percentage
Nasal obstruction	20	95%
Mouth breathing	19	90%
Snoring	21	100%

**2. Size of the tonsil:**

The size of tonsils ranged from grade 2-4, with 76% (16) of children having grade III tonsils. 4 (19%) patients have grade II, while 1 (5%) child have grade IV. (Table 2)

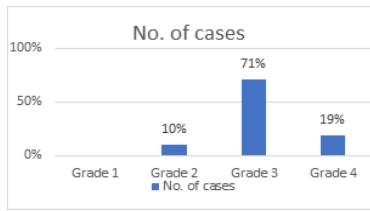
**Table 2: Showing size of tonsil according to Brodsky Score**

Size of tonsil	No. of cases	Percentage
Grade I	0	0%
Grade II	4	19%
Grade III	16	76%
Grade IV	1	5%
Total	21	100%

3. Distribution of size of adenoids based on diagnostic nasal endoscopy:

On nasal endoscopy, grade III adenoid hypertrophy was the most common followed by grade IV and grade II accounting for 71 (15), 19 (04) and 10% (02) respectively. (Fig 1)

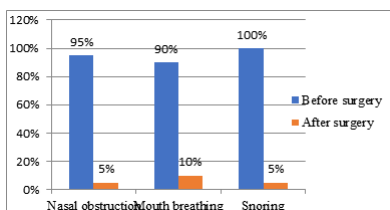
**Figure1: Bar diagram showing distribution of size of adenoid based on Diagnostic Nasal Endoscopy**



**4. Clinical features after surgery:**

In present study, 21 (100%) patients suffered from snoring preoperatively which during the follow up was reduced to 01 (05%) patient after 3 months of surgery. Nasal obstruction was complained by 20 (95%) patients, which reduced to 1 (05%) child after surgery. 19 (90%) patients complained of mouth breathing which after 3 months were reduced to 02 (10%) patient. (Fig 2)

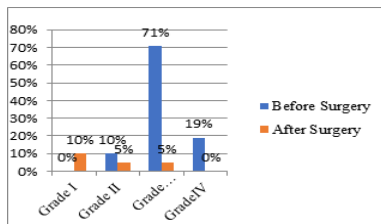
**Figure2: Bar diagram showing distribution of clinical features before and after adenotonsillectomy.**



**5. Size of adenoids after surgery in diagnostic nasal endoscopy:**

In present study majority 15 (71%) children had grade 3, followed by 02 (10%) had grade 2 and 04 (19%) had grade 4. After adenotonsillectomy 2 children had grade 1, 1 (5%) had grade II and 1 (5%) had grade III enlarged adenoid. (Fig 3)

**Figure3: Bar diagram showing size of adenoid before and after the surgery in Diagnostic Nasal Endoscopy**



**DISCUSSION:**

The individual histories were reviewed, patients thoroughly examined and investigated. The results were analysed in the light of available literatures pertaining to age and sex distribution, clinical features and outcome of adenotonsillectomy.

**Patient characteristics**

In this study, 71% of the cases were males and 29% of the cases were females. This difference is difficult to explain. It possibly reflects the preferential treatment in Indian families to the male child who is more often taken to hospital. The mean age of presentation was 7.1 years. Most of the patients fall in the 3 to 6 years of age group. These findings were similar to the study conducted by Vanika Anand et al in 2013 they found 70% cases were males and 30% were females. The mean age group of presentation was 7.70 years.<sup>5</sup>

However, Foster Tochukwu Orji et al in 2012 performed a study on 59 children, they found mean age of 3.3 years of adenotonsillitis and 63% patients were below 4 years and 68% were males.<sup>7</sup>

In 2009, Luiz Euribel Prestes Carneiro et al analysed 51 children, 78% were males and 39.22% were females. The higher prevalence was seen between 3 to 6 years of age group, a period in which the mucosa-associated lymphoid tissue (MALT) is under development and had an increase susceptibility to allergic and infectious processes. The tissue in 8-9 years of age group had presents stage of maturation and makes the child less prone; a fact was demonstrated by Modrzynski and Zawisza (2007).<sup>8</sup>

In our study, we observed that snoring was the main domain, followed by nasal obstruction and mouth breathing. Our study matched with Bernard Soccol Beraldin (2009) et al, they found snoring (78%) was the main domain followed by sleep disorders (41.5%) in preoperative period.<sup>9</sup> While Sanu P. Moideen et al (2018), they found nasal obstruction followed by mouth breathing and snoring were the most common symptoms in their study.<sup>10</sup> In present study, the nasal obstruction and mouth breathing were present in 20(95%) and 19(90%) of children, respectively. This finding is similar to Sanu P. Moideen et al, they found nasal obstruction and mouth breathing in 91.66% and 87.50% of children respectively performed in children with adenotonsillar hypertrophy.<sup>10</sup> However, our study does not match with the findings of Luiz Euribel Prestes Carneiro et al study, they found nasal obstruction in 76.47% children before adenotonsillectomy.<sup>8</sup> Diagnostic nasal endoscopy.

In present study, 2 (10%) children had Grade II adenoids, 15 (71%) children had grade III and 4(19%) had Grade IV adenoids during nasal endoscopy.

Our study matches with Vanika Anand and Vanita Sarin et study, they found Grade III adenoids was the most common nasal endoscopic finding followed by Grade II and Grade IV respectively.<sup>6</sup>

The nasal endoscopy view helps in determining the size of adenoids in relation to the posterior part of nasal septum and its lateral extension to Eustachian tube opening. This makes nasal endoscopy essential to assess upper airway conditions in paediatric age group.

**Improvement in clinical features after surgery:**

In present study 21 (100%) patients suffered from snoring preoperatively; during follow up, which was reduced to 01 (05%) postoperatively after 3 months. Total 95% of improvement was seen.

Nasal obstruction was complained by 20 (95%) patients, which reduced to 1 (05%) child after surgery. Total 90% of improvement was seen.

19 (90%) patients complained of mouth breathing which after 3 months were reduced to 02 (10%) patient. Total 80% improvement was seen.

In study performed by Osman Bahadir et al, nasal obstruction, mouth breathing, and snoring were present in 91.6%, 85%, and 83% of children respectively. They found that after the operation, the improvement in nasal obstruction, mouth breathing, and snoring and were 85%, 76.6%, and 78.3% respectively.<sup>11</sup>

Size of adenoids after surgery in diagnostic nasal endoscopy In our study majority 15 (71%) children had grade III, followed by 04 (19%) had grade II and 04 (16%) had grade IV changes to 2 children had grade I, 1 (5%) had grade II and 1 (5%) had grade III, enlarged adenoid in follow up. 16(81%) had complete removal and rest 4 (19%) had partial removal.

This finding is matches with Vanika Anand et al found 75% cases had complete removal while 25% had partial removal of adenoids in patients who underwent conventional curettage

adenoidectomy.<sup>6</sup>

**CONCLUSION:** Most number of patients with snoring complaints of nasal obstruction. Majority of the patients are male and fall in the 3-6 years of age group. Majority of the patients with snoring had grade III adenoids along with grade III enlargement of tonsils.

There is considerable improvement in snoring in post adenotonsillectomy patients along with mouth breathing and nasal obstruction.

We can conclude that greater the adenoid hypertrophy leads to snoring, nasal obstruction and mouth breathing. Adenotonsillectomy was found to be very beneficial for relief of symptoms. Proper and adequate removal of adenoid during surgery down grade adenoid grading leads to clinical improvement and are of symptoms free. There should be a pre-operative educational program to prevent all the complications due to chronic adenotonsillitis or adenotonsillar hypertrophy. The most common cause of nasal obstruction is adenoid hypertrophy in paediatric population having negative impact on quality of life of children.

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