



Study on the effect of tonsillectomy on obstructive sleep apnea syndrome

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Abstract

Objective: To determine if symptoms improve following isolated tonsillectomy for obstructive sleep apnea (OSA) patient.

Study Design: Cross sectional study

Methods: 48 patients were included in the study. All the patients who came to ENT Department, LLRM, Medical College were categorized according to age and chief complaints. Statistical analysis was done.

Results: In our study, Majority of patients were of 6 to 16 yrs of age group. Majority of the patients were male (27 out of 48). All the patients had snoring as a common complaint. 38 patients had sore throat. Apnea is present in 38 patients out of all the patients.

Conclusion: Isolated tonsillectomy can be successful as treatment for adult OSA, especially among patients with large.

Keywords: tonsillectomy, obstructive sleep apnea

Introduction

Obstructive sleep apnea is a potentially serious sleep disorder [1]. It causes breathing to repeatedly stop and start during sleep. Obstructive sleep apnea (OSA) is a type of sleep-disordered breathing (SDB) which is a disorder characterized by partial and/or complete upper airway obstruction that affects normal ventilation and hypopneas due to repetitive collapse of the upper airway during sleep [2]. If left untreated, OSA will be most certainly associated with symptoms of excessive daytime sleepiness, impaired daytime function, metabolic dysfunction, and an increased risk of cardiovascular disease [3]. Snoring is one of the most often reported symptoms of SDB in adult populations, and its prevalence ranges from 1.5 to 27.6% for different studies and populations. Tonsillectomy has also been reported as a primary treatment modality when the tissue is hypertrophied [4].

Tonsillectomy and OSA

Interestingly, there has been only one systematic review and meta-analysis of tonsillectomy alone for OSA in the adult population. Ahmed [5] *et al.* in 2016 identified 17 studies with pre- and postoperative AHI data in adults' greater than 18 years of age undergoing tonsillectomy alone for OSA. In 203 patients, they demonstrated an AHI reduction of 65.2% from a mean \pm standard deviation of 40.5/28.9 events hour to 14.1/17.1 events per hour [6]. Twelve of the studies included did not describe palate position or Friedman stages; however, all of the patients were described as having hypertrophic, enlarged, grade 2–4 tonsils [7]. Significant predictors of tonsillectomy success were preoperative AHI and BMI. Among patients with an AHI >30 events per hour preoperatively, the success rate, defined as decrease in AHI less than or equal to 50%, was 100% in 25 patients. For patients with a preoperative AHI <30 events per hour, the success rate was 72% and the cure rate was 34% [8].

Predictive Factors

In 2017, Simmons [9] *et al.* at Walter Reed Army Medical Center evaluated preoperative PSG results and clinical factors to help predict postoperative respiratory complications in children. They identified 22 studies with a median of 157 patients. Major respiratory complications were defined as events requiring significant medical intervention by a staff member and include: positive airway pressure, intubation, unplanned admission, elevation of care, pulmonary edema, insertion of nasopharyngeal or oropharyngeal airway, or Death. Seven variables were evaluated: age, neck circumference (NC), BMI, Epworth Sleepiness Scale (ESS) score, snoring, observed apnea, and hypertension.

Symptoms

Signs and symptoms of obstructive sleep apnea include:

- Excessive daytime sleepiness
- Loud snoring
- Observed episodes of breathing cessation during sleep
- Abrupt awakenings accompanied by gasping or choking
- Awakening with a dry mouth or sore throat
- Morning headache
- Difficulty concentrating during the day
- Experiencing mood changes, such as depression or irritability
- High blood pressure
- Night time sweating
- Decreased libido
- Intermittent pauses in your breathing during sleep
- Excessive daytime drowsiness, which may cause you to fall asleep while you're working, watching television or even driving a vehicle [10].

Aims and Objects

To study the effectiveness of bilateral tonsillectomy in patients with OSAS.

Materials and Methods

48 patients were included in the study. All the patients who came to ENT Department, LLRM, Medical College were categorized according to age and chief complaints. Statistical analysis was done.

Results

In the present study, we have taken 48 patients who underwent tonsillectomy under general anesthesia, for OSA from 12 July 2018 to 11 July 2019, in the department of Otorhinolaryngology, LLRM, Medical College, Meerut. Results have been shown in tables and diagrams.

1. Age of the patient

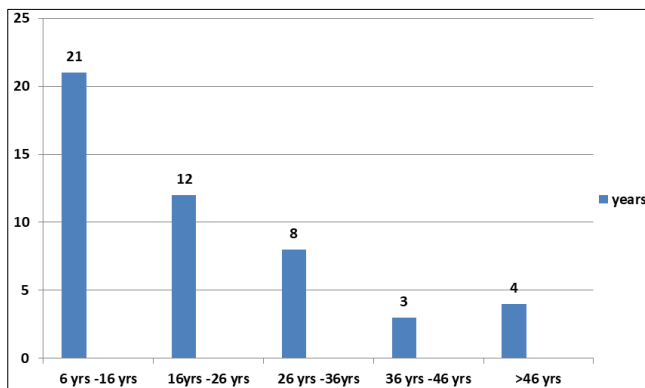


Fig 1: Majority of patients were of 6 to 16 yrs of age group.

2. Sex of the patient

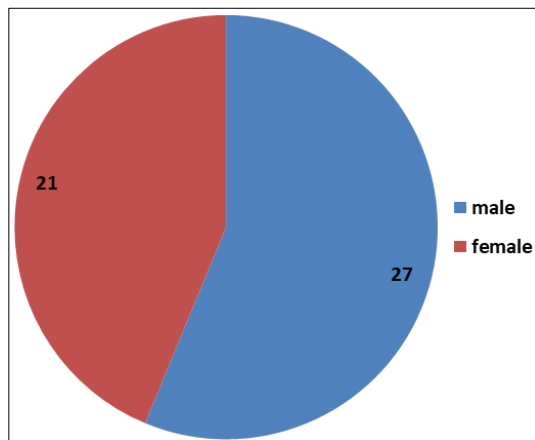


Fig 2: In our study, majority of the patients were male (27 out of 48).

3. Chief complaints

All the patients had snoring as a common complaint. 38 patients had sore throat. Apnea is present in 38 patients out of all the patients.

4. Grade of tonsillar enlargement

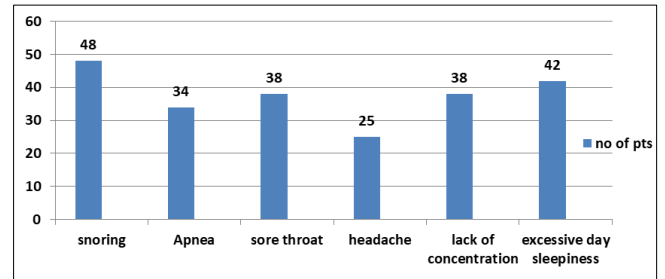


Fig 3: 36 patients had grade 4 tonsillar enlargement causing OSA.

5. Tonsillectomy alone or with adenoidectomy:

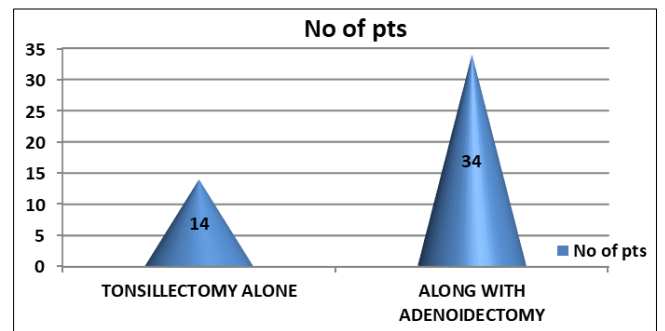


Fig 4: 34 patients underwent tonsillectomy along with adenoidectomy.

6. Improvement in the symptoms of Obstructive Sleep Apnea:

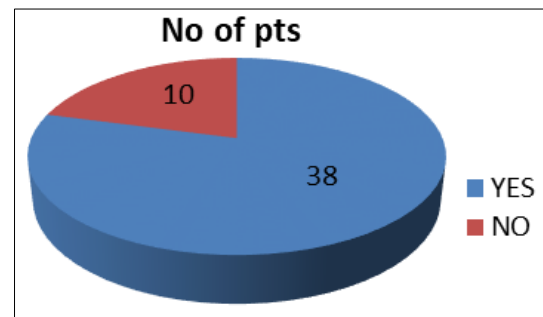


Fig 5: Majority of patients were relieved of the symptoms of obstructive sleep apnea after tonsillectomy (38 out of 48).

7. Other causes of Obstructive Sleep Apnea:

Table 1

Causes	No. Of patients
DNS, polyp	7
Macroglossia	1
Thickened soft palate	1
Elongated epiglottis	1

In the present study, 10 patients out of 48, had others causes of OSA, which included DNS, nasal polyp, macroglossia, thickened soft palate, elongated epiglottis.

Discussion

Tonsillectomy has been demonstrated to be an effective treatment tool for OSA in both children and adults. While there are hundreds of articles published regarding tonsillectomy, it is difficult to find systematic reviews of tonsillectomy alone, especially for pediatric patients. Tonsillectomy and adenoidectomy are most often performed simultaneously as the primary treatment for OSA in children. Pediatric success and cure is variable based on clinical factors such as tonsil size, palate position, craniofacial abnormalities, comorbid syndromes, and obesity. Tonsillectomy as an isolated treatment modality is rarely performed in pediatric patients with OSA; however, in combination with adenoidectomy, both have demonstrated efficacy as the primary treatment option for most children. Considering the limited adult data, tonsillectomy alone for OSA has a surprising success rate; yet, more research is required to determine long-term efficacy and need for further treatment of other causes of OSAS.

Conflict of Interest

Authors state no conflict of interest.

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