

ORIGINAL RESEARCH

Persuasion of the long-term consequences and quality of life after surgical adenotonsillectomy in 3-15 year old subjects

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ABSTRACT

Background: Children with recurrent tonsillitis and tonsillar hypertrophy undergo surgical operations to correct their condition, allowing them to continue growing normally in terms of both their physical and mental development and their quality of life. **Objectives:** to compare and evaluate the symptoms that children under the age of 18 had following tonsillectomy, adenoidectomy, or adenotonsillectomy. The study also sought to determine how these surgical treatments influenced the children's quality of life. **Methods:** A thorough examination of the head and neck region was carried out on 110 patients between the ages of 3 and 15 years. The included participants' parents completed questionnaires on their children's tonsillitis frequency, medical visits, sleep patterns, absences from work or school, feelings of wellbeing, and sleep apnea three months before and three months after the surgical procedures. To formulate outcomes, a statistical examination of the obtained data was performed. **Results:** Adenoidectomy was used to treat 16.36% (n=18) of the 110 trial participants. Tonsillectomy was performed on 47.27% (n=52) of the study participants, and adenotonsillectomy on 36.36% (n = 40) of the participants. In the research group, sleep apnea decreased considerably from 3.01 ± 0.98 to 0.01 ± 0.96 ($p < 0.001$). From three months before to surgery to three months following, there was a substantial decline in the frequency of throat discomfort and absences from school ($p < 0.001$). With a p-value of 0.001, visits to the doctor likewise reduced from 5.08 ± 2.12 to 0.30 ± 2.14 visits. The sense of wellbeing also greatly improved. **Conclusion:** In light of its limitations, the current study finds that tonsillectomy, adenoidectomy, or adenotonsillectomy done to treat recurrent tonsillitis or tonsillar hypertrophy greatly enhances the quality of life in afflicted individuals.

Keywords: Adenoidectomy, Pediatric patients, quality of life, recurrent tonsillitis, tonsillectomy

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INTRODUCTION

As elective surgical treatments, adenotonsillectomy, tonsillectomy, and adenoidectomy are often performed on kids and teenagers. Candidates are not admitted to the hospital for these operations; they are performed at daycare facilities. Children are treated and released the same day when these protocols are followed. The only instances where participants are not released the day after surgery are those with post-operative problems.¹

Researchers disagree about the advantages of these operations. The candidates who need these surgeries benefit from them, although the researchers disagree over the procedures' indications.²

The most frequent indications for performing an adenotonsillectomy, tonsillectomy, or adenoidectomy on children include sleep apnea, mouth breathing, and/or recurrent tonsillitis. These symptoms, as well as palatine tonsillar hypertrophy and recurrent tonsillitis, are frequently observed in children.³ As a result of blockage of the upper respiratory tract,

hypertrophy of the palatine tonsils and adenoids in children typically causes respiratory problems. One of the most frequent etiologic factors linked to OSAS (obstructive sleep apnea syndrome) in children is adenotonsillar hypertrophy. Their quality of life is impacted by recurrent tonsillar infections that cause throat discomfort.⁴

In children with recurrent tonsillar infections and tonsillitis, tonsillectomy has a vital role in reducing throat discomfort and enhancing quality of life. A painful throat and at least three months of ongoing inflammation of the palatine tonsils are required for the diagnosis of chronic tonsillitis. Children older than 3 years old have tonsillectomy, adenoidectomy, and/or adenotonsillectomy surgeries in an effort to treat these disorders.⁵ Children with impacted tonsillitis and tonsillar hypertrophy undergo surgical operations for treatment in order to allow for ongoing normal development of their physical and mental health as well as an increase in their quality of life. However, the literature provides a thorough description of the indications, benefits, and related problems of various surgical treatments.⁶ There are presently few reliable statistics available for the Indian population about their impact on quality of life.⁷

Thus, the current clinical investigation was carried out to compare and evaluate symptoms that were clinically reported after juvenile participants underwent a tonsillectomy, adenoidectomy, or adenotonsillectomy. The study also sought to determine how these surgical treatments influenced the quality of life for the afflicted kids.

MATERIALS AND METHODS

110 patients between the ages of 3 and 15 years, both sexes, with a mean age of 7.4 years participated in the current observational retrospective study. The pediatrics department's referral of the included individuals was due to a probable airway obstruction brought on by adenotonsillar hypertrophy.

Subjects who received an adenoidectomy, tonsillectomy, or adenotonsillectomy for adenotonsillar hypertrophy/recurrent tonsillitis were included in the research, regardless of their gender or age. Subjects with recurrent tonsillitis, defined as having three to four episodes of tonsillitis in a year grade II, III, or IV tonsillitis, as well as throat discomfort, were required to meet the inclusion criteria. Obstructive sleep apnea detected when tonsil size was three or more with apnea was also required. +3 tonsil size (filling 50% of the oropharynx) and a history of heavy snoring were taken into consideration for upper airway obstruction. Based on choanae blockage, the size of the adenoids was graded from 0 to 4, where 0 indicated no adenoids, 2 indicated non-obstructive adenoids, 3 indicated moderately obstructed choanae, and 4 indicated fully obstructed choanae.

Subjects who had tonsillectomy for reasons other than obstructive sleep apnea or upper airway obstruction, bleeding problems, immunodeficiency, craniofacial abnormalities, and/or suspected tonsillar cancer were excluded from the study. The presence of any condition, abnormal psychomotor or neurological development, congenital hearing loss, tonsillar tumors, or a history of recurrent pharyngitis was further grounds for subject exclusion.

After final inclusion, one skilled examiner did a thorough examination of the head and neck region. Obesity, asthma, dysphagia, laryngomalacia, and reactive airway disorders are some of the related comorbidities that were noted.

The parents of the included participants (n=110) were polled by questionnaire. The questionnaire asked questions on how often people get tonsillitis, how often they go to the doctor, how often they slept, how often they missed work or school, how they felt overall, and how often they had sleep apnea.

The questionnaires were completed by the research participants three months before and three months after the tonsillectomy, adenotonsillectomy, or adenoidectomy treatment. Using the coblation method, a single surgeon completed all of the surgical operations.

Using SPSS software version 21.0, 2012, Armonk, NY, ANOVA, and t-test, the obtained data were statistically evaluated. The findings were calculated using a significance threshold of 0.05.

RESULTS

The 110 patients in the current observational retrospective study, who ranged in age from 3 to 15 years and had a mean age of 7.4 years, were both men and females. Table 1 details the participating respondents' demographic research characteristics.

It was seen that there were 55.45% (n=61) males and 45.54% (n=49) females in the present study.

In the current study, where the majority of participants were from the medium socioeconomic group, there were 7.27% (n=8) children from the low socioeconomic group, 74.45% (n=83) from the middle socioeconomic group, and 17.27% (n=19) from the high socioeconomic group. When evaluating the disease's symptoms, 84.54% (n=93) of the participants reported snoring, gasping, disrupted sleep, apnea, and rhinitis. 40.90% (n=45), 59.09% (n=65), 17.27% (n=19), 80.90% (n=89), and 58.18% (n=64) people, respectively. In terms of tonsillar hypertrophy, Grades 1, 2, 3, and 4 were seen in 9.09% (n=10), 20% (n=22), 28.18% (n=31), and 24.54% (n=27) respondents, respectively. In contrast, Grades 2, 3, and 4 adenoid hypertrophy was observed in 5.45% (n=6), 23.63% (n=26), and 22.72% (n=25) research participants.

None of the research participants had Grade 0 tonsillar hypertrophy or Grade 0 or 1 adenoid hypertrophy (Table 2). Adenotonsillectomy, tonsillectomy, and adenoidectomy were the three procedures carried out in the research. 16.36% (n=18)

of the 110 research participants underwent an adenoidectomy. As indicated in Table 3, tonsillectomy was performed in 47.27% (n=52) of the study participants, while adenotonsillectomy was conducted in 36.36% (n=40) of the participants. None of the research individuals experienced any postoperative problems. Three youngsters, however, required clearance for lung illness, which was granted. The current study additionally evaluated how the study subjects' quality of life had changed based on the responses made by their parents to the provided questionnaire (Table 4).

The findings demonstrated that the research individuals' levels of sleep apnea considerably decreased from 3.01 ± 0.98 to 0.01 ± 0.96 ($p < 0.001$). From three months before to surgery to three months following, there was a substantial decline in the frequency of throat discomfort and absences from school ($p < 0.001$). With a p-value of 0.001, visits to the doctor likewise reduced from 5.08 ± 2.12 to 0.30 ± 2.14 visits. As indicated in Table 4, tonsillectomy, adenoidectomy, and adenotonsillectomy considerably improved quality of life as well as the sensation of wellbeing.

Table 1: Demographic characteristics of the study subjects

Demographic Characteristics	Percentage (%)	Number (n)
Mean age (years)	7.4	
Age Range (years)	3-15	
Gender		
Male	55.45	61
Female	45.54	49
Socioeconomic status		
Low	7.27	8
Middle	74.45	83
High	17.27	19
Tonsillar Grades		
Grade I	0	0
Grade II	47.27	52
Grade III	31.81	35
Grade IV	20.90	23

Table 2: Symptoms and Disease assessment in the study subjects

Disease Characteristics	Percentage (%)	Number (n)
Presenting Symptoms		
Mouth Breathing	84.54	93
Snoring	80.90	89
Disordered Sleep	58.18	64
Apnea	17.27	19
Rhinitis	40.90	45
Gaspings	59.09	65
Tonsillar Hypertrophy		
0	0	0
1	9.09	10
2	20	22
3	28.18	31
4	24.54	27
Adenoid Hypertrophy		
0	0	0
1	0	0
2	5.45	6
3	23.63	26
4	22.72	25

Table 3: Surgical Procedures Performed in the study subjects

Surgical procedure performed	Percentage (%)	Number (n)
Adenoidectomy	16.36	18
Tonsillectomy	47.27	52
Adenotonsillectomy (Adenoidectomy+ Tonsillectomy)	36.36	40

Table 4: Change in Quality of life in the study subjects after surgical procedures

Parameter	3 months pre-surgery	3 months post-surgery	p-value
Sleep Apnea	3.01±0.98	0.01±0.96	<0.001
Throat Pain Frequency	7.43±1.24	1.33±1.26	<0.001
Feeling of well-being	0.49±0.28	8.06±3.14	<0.001
Absence from school	8.48±1.42	0.56±1.44	<0.001
Visit to Doctors	5.08±2.12	0.30±2.14	<0.001

DISCUSSION

The current observational retrospective study, which included 110 participants, compared and evaluated symptoms that appeared clinically following children tonsillectomy, adenoidectomy, or adenotonsillectomy. The study also sought to determine how these surgical treatments influenced the children's quality of life.

Males and girls with a mean age of 7.4 years made up the study's participants, who ranged in age from 3 to 15 years. The demographic research features of the respondents involved in the current study were 45.54% (n=49) females and 55.45% (n=61) men. In the current study, where the majority of participants were from the medium socioeconomic group, there were 7.27% (n=8) children from the low socioeconomic group, 74.45% (n=83) from the middle socioeconomic group, and 17.27% (n=19) from the high socioeconomic group. These features were consistent with those of the individuals in research by Bellussi LM et al.² in 2011 and Alho AP et al.⁷ in 2007, where similar subject characteristics were taken into account by the authors.

When evaluating the disease's symptoms, 84.54% (n=93) of the participants showed signs of mouth breathing, snoring, disrupted sleep, apnea, rhinitis, and gasping. participant in each group comprised 80.90% (n=89), 58.18% (n=64), 17.27% (n=19), 40.90% (n=45), and 59.09% (n=65) participants, respectively. Grade 1, 2, 3, and 4 tonsillar hypertrophy were identified in 9.09% (n=10), 20% (n=22), 28.18% (n=31), and 24.54% (n=27) patients, respectively. Grade 2, 3, and 4 adenoid hypertrophy were identified in 5.45% (n=6), 23.63% (n=26), and 22.72% (n=25) research participants, respectively. No research participant had Grade 0 tonsillar hypertrophy or Grade 0 or 1 adenoid enlargement. These symptoms were also noted by Erosy B et al⁸ in 2005 as typical manifestations of recurrent tonsillitis and adenoid hypertrophy.

The three surgeries performed in the study were adenoidectomy, tonsillectomy, and adenotonsillectomy. 16.36% (n=18) of the 110 research participants underwent an adenoidectomy. Tonsillectomy was performed on 47.27% (n = 52) of the study participants, and adenotonsillectomy on 36.36% (n = 40) of the participants. None of the research individuals experienced any postoperative problems. Three youngsters, however, required clearance for lung disease, which was granted. These outcomes were comparable to those of studies by Di Francesco RC et al⁹ in 2004 and Ikeda FH et al¹⁰ in 2012, in which the authors reported comparable

outcomes without any surgical problems. The current study evaluated the change in study subjects' quality of life based on the responses supplied by their parents to the provided questionnaire.

The findings demonstrated a substantial decrease in sleep apnea in the research participants, going from 3.01±0.98 to 0.01±0.96 (p <0.001). From three months before to surgery to three months following, both the frequency of throat discomfort and absences from school dramatically decreased (p <0.001). Additionally, doctor visits declined from 5.08 to 2.12 to 0.30 to 2.14, with a p-value of 0.001. Additionally, a substantial improvement in overall well-being was seen, demonstrating the better quality of life following tonsillectomy, adenoidectomy, and adenotonsillectomy. These findings corroborated those of studies by Sans Capdevila O et al¹¹ in 2008 and Aydogan M et al¹² in 2007, which found a substantial increase in quality of life in patients with recurrent tonsillitis and tonsillar hypertrophy following tonsillectomy operations.

CONCLUSION

Within its constraints, the current study draws the conclusion that surgical techniques such tonsillectomy, adenoidectomy, or adenotonsillectomy used to treat recurrent tonsillitis or tonsillar hypertrophy greatly enhance the quality of life in afflicted individuals. The frequency of throat discomfort, medical visits, sleep apnea, absences from school, and feelings of well-being considerably decreased among research participants. To promote physical, mental, and social development, early treatments should be used with children who have obvious warning signs. The study did, however, have certain drawbacks, such as a small sample size, a brief observation time, geographic region biases, and its observational character. To draw a firm conclusion, further longitudinal experiments with a longer observation time and higher sample numbers are required.

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