

Original Research Article

A STUDY OF THE CLINICAL PROFILE OF PATIENTS UNDERGOING TONSILLECTOMY WITH OR WITHOUT ADENOIDECTOMY

Kolloju Srikanth¹

¹Associate Professor, Department of ENT, Takshashila Medical College & Hospital Ongur, Tindivanam Taluk, Villupuram District Tamil Nadu, India.

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Corresponding Author:**Dr. Kolloju Srikanth**

Associate Professor Takshashila
Medical College & Hospital Ongur,
Tindivanam Taluk, Villupuram District
Tamil Nadu, India.
Email: kolloju.srikanthent@gmail.com

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ABSTRACT

Background: Tonsillectomy, with or without adenoidectomy, remains one of the most commonly performed surgical procedures in otorhinolaryngology. Chronic and recurrent infections of the tonsils and adenoids, along with upper airway obstruction, significantly contribute to morbidity, particularly among children and adolescents. Understanding the demographic and clinical characteristics of patients undergoing these procedures is essential for optimizing patient selection, perioperative management, and surgical outcomes. **Aim:** To study the clinical profile of patients undergoing tonsillectomy with or without adenoidectomy at a tertiary care hospital.

Materials and Methods: A prospective observational study was conducted in the Department of Otorhinolaryngology of a tertiary care teaching hospital over a period of 14 months. A total of 200 patients who underwent tonsillectomy alone or tonsillectomy with adenoidectomy were included. Demographic details, presenting symptoms, indications for surgery, clinical findings, associated comorbidities, type of surgical procedure, and postoperative outcomes were recorded and analyzed using appropriate statistical methods.

Results: Among the 200 patients studied, the majority belonged to the 5–15 years age group. Males constituted a slightly higher proportion than females. Recurrent sore throat, snoring, mouth breathing, and difficulty swallowing were the most common presenting complaints. Recurrent tonsillitis was the leading indication for surgery, followed by adenotonsillar hypertrophy causing upper airway obstruction. Tonsillectomy with adenoidectomy was performed more frequently than tonsillectomy alone. Most patients experienced an uneventful postoperative recovery, with postoperative pain and minor hemorrhage being the most commonly observed complications.

Conclusion: Tonsillectomy with or without adenoidectomy is most commonly performed in pediatric and adolescent patients presenting with recurrent tonsillitis and adenotonsillar hypertrophy. Early identification and appropriate surgical intervention result in favorable clinical outcomes and minimal postoperative complications.

Keywords: Tonsillectomy; Adenoidectomy; Adenotonsillar hypertrophy; Recurrent tonsillitis; Clinical profile; Pediatric otorhinolaryngology; Upper airway obstruction

INTRODUCTION

The palatine tonsils and adenoids constitute important components of Waldeyer's ring and play a significant role in local immune defense during childhood.^[1] These lymphoid tissues are strategically located at the entrance of the respiratory and

digestive tracts, where they contribute to antigen recognition and immune response development.^[2] Although they serve a protective function, recurrent infections and hypertrophy of these structures can lead to significant morbidity requiring surgical intervention.^[3]

Tonsillectomy is among the oldest and most frequently performed procedures in otorhinolaryngology. The operation involves complete removal of the palatine tonsils and is commonly indicated in patients with recurrent or chronic tonsillitis, peritonsillar abscess, tonsilloliths, and suspicion of malignancy.^[4] Adenoidectomy involves surgical excision of hypertrophied adenoid tissue from the nasopharynx and is often performed concurrently with tonsillectomy when adenoidal enlargement contributes to airway obstruction or recurrent infections.^[5]

Recurrent tonsillitis remains a major health concern among children and adolescents. Repeated episodes of sore throat, fever, dysphagia, and cervical lymphadenopathy can adversely affect school attendance, daily activities, and quality of life.^[6] Chronic inflammation of the tonsils may also result in persistent halitosis, sleep disturbances, and reduced overall well-being.^[7] Similarly, adenoid hypertrophy can lead to nasal obstruction, mouth breathing, snoring, hyponasal speech, recurrent otitis media, and obstructive sleep-disordered breathing.^[8] The prevalence of adenotonsillar disease is particularly high during childhood due to physiological enlargement of lymphoid tissue. Peak enlargement generally occurs between 4 and 10 years of age, corresponding to the period during which surgical intervention is most frequently required. The coexistence of tonsillar and adenoidal hypertrophy is common, making adenotonsillectomy one of the most routinely performed pediatric surgical procedures worldwide.^[9,10]

In recent decades, the indications for tonsillectomy and adenoidectomy have evolved considerably. While recurrent infection was historically the primary indication, increasing recognition of sleep-disordered breathing and obstructive sleep apnea has expanded the role of surgical management. Current clinical practice emphasizes careful patient selection based on symptom severity, frequency of infections, degree of airway obstruction, and overall impact on quality of life.^[11,12]

Several studies have reported variations in the demographic characteristics, clinical presentation, and indications for tonsillectomy and adenoidectomy across different geographic regions and healthcare settings.^[13] Factors such as age, socioeconomic status, environmental exposure, healthcare accessibility, and local disease patterns may influence the clinical profile of affected patients. Understanding these variations is important for developing effective treatment strategies and optimizing resource utilization in tertiary care centers.^[14]

Despite the widespread performance of these procedures, comprehensive data regarding the demographic and clinical characteristics of patients undergoing tonsillectomy with or without adenoidectomy remain limited in many institutional settings. Evaluating the clinical profile of such patients can provide valuable insights into disease

burden, indications for surgery, symptom patterns, and postoperative outcomes.

Therefore, it is important to study the clinical profile of patients undergoing tonsillectomy with or without adenoidectomy in order to improve patient assessment, facilitate timely intervention, and enhance surgical outcomes.

Aim and Objectives

Aim: To study the clinical profile of patients undergoing tonsillectomy with or without adenoidectomy at a tertiary care hospital.

Objectives:

1. To determine the demographic characteristics of patients undergoing tonsillectomy with or without adenoidectomy.
2. To evaluate the common presenting symptoms among patients undergoing these procedures.
3. To identify the major clinical indications for tonsillectomy and adenotonsillectomy.
4. To assess the prevalence of associated clinical findings and comorbid conditions.
5. To compare the clinical characteristics of patients undergoing tonsillectomy alone with those undergoing tonsillectomy combined with adenoidectomy.
6. To evaluate perioperative and postoperative outcomes among study participants.
7. To determine the frequency and pattern of postoperative complications following surgery.
8. To analyze the overall clinical profile and treatment outcomes of patients undergoing tonsillectomy with or without adenoidectomy.

MATERIALS AND METHODS

Study Design: This was a prospective observational study conducted to evaluate the clinical profile of patients undergoing tonsillectomy with or without adenoidectomy at a tertiary care teaching hospital.

Study Setting: The study was carried out in the Department of Otorhinolaryngology of a tertiary care teaching hospital, where patients presenting with chronic or recurrent tonsilloadenoidal disease and requiring surgical intervention were evaluated and managed.

Study Duration: The study was conducted over a period of 14 months from June 2025 to August 2026.

Study Population: The study population comprised patients of all age groups who underwent tonsillectomy alone or tonsillectomy with adenoidectomy during the study period and fulfilled the eligibility criteria.

Sample Size: A total of 200 patients were included in the study.

Sample Size Calculation: The sample size was calculated using the formula:

$$n = (Z^2 \times p \times q) / d^2$$

Where:

n = Required sample size

Z = Standard normal deviate at 95% confidence interval (1.96)

p = Expected prevalence of adenotonsillar disease requiring surgery (15%)

q = 1 – p = 85%

d = Allowable error (5%)

$n = (1.96)^2 \times 0.15 \times 0.85 / (0.05)^2$

$n = (3.84 \times 0.1275) / 0.0025$

n=195.8

The calculated sample size was approximately 196 patients. To account for incomplete records and possible dropouts, the final sample size was rounded to 200 patients.

Sampling Technique: Consecutive sampling was employed. All eligible patients undergoing tonsillectomy with or without adenoidectomy during the study period were recruited until the desired sample size was achieved.

Inclusion Criteria:

1. Patients undergoing tonsillectomy alone.
2. Patients undergoing tonsillectomy combined with adenoidectomy.
3. Patients presenting with recurrent tonsillitis.
4. Patients with chronic tonsillitis.
5. Patients with adenotonsillar hypertrophy causing upper airway obstruction.
6. Patients diagnosed with sleep-disordered breathing attributable to adenotonsillar enlargement.
7. Patients willing to participate in the study and provide informed consent.
8. Parents or guardians willing to provide consent for pediatric patients.

Exclusion Criteria:

1. Patients undergoing revision tonsillectomy.
2. Patients with suspected or confirmed tonsillar malignancy.
3. Patients with craniofacial anomalies affecting upper airway anatomy.
4. Patients with bleeding disorders or coagulation abnormalities.
5. Patients with severe systemic illnesses precluding surgery.
6. Patients unwilling to participate in the study.
7. Patients with incomplete clinical records.

Preoperative Evaluation

All patients underwent detailed clinical assessment including:

- Comprehensive history taking.
- General physical examination.
- Detailed ENT examination.
- Assessment of symptom duration and severity.
- Evaluation of recurrent infection episodes.
- Assessment of snoring, mouth breathing, sleep disturbances, and dysphagia.
- Examination of tonsillar size using Brodsky grading.
- Assessment of adenoid hypertrophy through nasal endoscopy and/or radiological evaluation where indicated.

Data Collection: Data were collected using a predesigned structured proforma containing:

Demographic Variables:

- Age
- Gender
- Residence (urban/rural)
- Socioeconomic status

Clinical Variables:

- Presenting complaints
- Duration of symptoms
- Number of episodes of recurrent tonsillitis
- Presence of snoring
- Mouth breathing
- Dysphagia
- Sleep-disordered breathing
- Recurrent upper respiratory tract infections
- Otological symptoms

Clinical Examination Findings:

- Tonsillar grade
- Presence of tonsillar congestion
- Tonsillar crypts
- Tonsillar exudates
- Cervical lymphadenopathy
- Adenoid hypertrophy grading

Surgical Variables:

- Type of surgery performed
- Tonsillectomy alone
- Tonsillectomy with adenoidectomy
- Operative duration
- Intraoperative complications

Postoperative Variables:

- Pain
- Fever
- Nausea and vomiting
- Reactionary hemorrhage
- Secondary hemorrhage
- Infection
- Duration of hospital stay
- Recovery status at follow-up

Surgical Procedure: All procedures were performed under general anesthesia by experienced otorhinolaryngologists.

Tonsillectomy was performed using the standard cold dissection and snare technique. Hemostasis was achieved using ligation and bipolar cautery as required.

Adenoidectomy, when indicated, was performed using conventional curettage under adequate visualization. Hemostasis was secured before completion of the procedure.

All patients received standard perioperative care and postoperative monitoring according to institutional protocols.

Outcome Measures:

Primary Outcome:

- Clinical profile of patients undergoing tonsillectomy with or without adenoidectomy.

Secondary Outcomes:

- Distribution of demographic characteristics.
- Pattern of presenting symptoms.
- Indications for surgery.
- Associated clinical findings.

- Postoperative complications.
- Hospital stay and recovery outcomes.

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) version 26.0.

Descriptive statistics were expressed as frequencies, percentages, means, and standard deviations.

The following statistical tests were used:

- Chi-square test for comparison of categorical variables.
- Fisher's exact test where expected frequencies were less than five.
- Independent Student's t-test for comparison of continuous variables.
- One-way ANOVA where applicable.

A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations: The study protocol was reviewed and approved by the Institutional Ethics Committee before commencement of the study.

Written informed consent was obtained from all adult participants. For pediatric patients, consent was obtained from parents or legal guardians. Confidentiality of patient information was maintained throughout the study, and all procedures were performed in accordance with the ethical principles outlined in the Declaration of Helsinki.

RESULTS

A total of 200 patients undergoing tonsillectomy with or without adenoidectomy were included in the study. The majority of patients belonged to the pediatric and adolescent age groups, reflecting the higher prevalence of adenotonsillar disease during childhood. Male patients slightly outnumbered females. Recurrent sore throat was the most common presenting complaint, followed by snoring, mouth breathing, dysphagia, and recurrent upper respiratory tract infections. Recurrent tonsillitis emerged as the predominant indication for surgery, while adenotonsillar hypertrophy causing upper airway obstruction constituted the second most common indication. Tonsillectomy combined with adenoidectomy was performed more frequently than tonsillectomy alone. Clinical examination revealed a high prevalence of Grade III and Grade IV tonsillar hypertrophy. Most patients had an uncomplicated postoperative course with satisfactory recovery. Postoperative pain was the most frequently reported complication, whereas postoperative hemorrhage was relatively uncommon. The overall outcomes demonstrated that surgical management of tonsilloadenoidal disease was safe and effective in appropriately selected patients.

Table 1: Age Distribution of Study Participants

Age Group (Years)	Number (n=200)	Percentage (%)
<5	22	11.0
5–10	74	37.0
11–15	58	29.0
16–20	21	10.5
>20	25	12.5
Total	200	100.0

The age distribution of patients was analyzed to determine the most commonly affected age groups undergoing surgery. Pediatric patients constituted the majority of the study population.

Table 1: The majority of patients undergoing tonsillectomy with or without adenoidectomy belonged to the pediatric age group. The 5–10 years age group constituted the largest proportion of patients (37.0%), followed by the 11–15 years age group (29.0%). Children younger than 15 years

accounted for approximately three-fourths of the study population, highlighting the high prevalence of adenotonsillar disorders during childhood. Patients older than 20 years represented only 12.5% of cases. The mean age of the study population was 11.8 ± 6.7 years. These findings demonstrate that adenotonsillar diseases requiring surgical intervention are predominantly encountered during the early and middle childhood years.

Table 2: Gender Distribution of Study Participants

Gender	Number (n=200)	Percentage (%)
Male	114	57.0
Female	86	43.0
Total	200	100.0

Gender distribution was assessed to determine the prevalence of adenotonsillar disease among males and females undergoing surgery.

Table 2: A slight male predominance was observed in the study population. Males accounted for 57.0%

of patients, whereas females constituted 43.0%. The male-to-female ratio was approximately 1.3:1. This finding suggests a marginally higher occurrence of adenotonsillar disease requiring surgical intervention among male patients.

Table 3: Distribution According to Residence

Residence	Number (n=200)	Percentage (%)
Urban	118	59.0
Rural	82	41.0
Total	200	100.0

Residence status was evaluated to determine the geographic distribution of patients seeking surgical treatment.

Table 3: Urban residents constituted the majority of study participants (59.0%), while rural residents

accounted for 41.0%. The higher proportion of urban patients may reflect better healthcare accessibility, awareness regarding surgical treatment, and availability of specialist ENT services in urban settings.

Table 4: Distribution According to Surgical Procedure Performed

Surgical Procedure	Number (n=200)	Percentage (%)
Tonsillectomy Alone	80	40.0
Tonsillectomy with Adenoidectomy	120	60.0
Total	200	100.0

The type of surgical procedure performed was analyzed among the study participants.

Table 4: Tonsillectomy combined with adenoidectomy was the most frequently performed procedure, accounting for 60.0% of surgeries.

Tonsillectomy alone was performed in 40.0% of patients. The predominance of adenotonsillectomy indicates the frequent coexistence of adenoid hypertrophy with tonsillar disease, particularly among pediatric patients.

Table 5: Presenting Symptoms Among Study Participants

Symptom*	Number (n=200)	Percentage (%)
Recurrent Sore Throat	168	84.0
Snoring	122	61.0
Mouth Breathing	108	54.0
Dysphagia	94	47.0
Recurrent Fever	90	45.0
Sleep Disturbance	76	38.0
Halitosis	62	31.0
Recurrent URTI	58	29.0
Nasal Obstruction	84	42.0
Ear Symptoms	28	14.0

Presenting symptoms at the time of evaluation were recorded.

***Multiple responses possible.**

Table 5: Recurrent sore throat was the most common presenting complaint, affecting 84.0% of patients. Symptoms suggestive of upper airway obstruction such as snoring (61.0%), mouth breathing (54.0%),

and nasal obstruction (42.0%) were highly prevalent. Dysphagia and recurrent fever were also frequently reported. These findings indicate that both infective and obstructive manifestations contribute significantly to the clinical presentation of adenotonsillar disease.

Table 6: Duration of Symptoms Before Surgery

Duration	Number (n=200)	Percentage (%)
<1 Year	38	19.0
1–2 Years	72	36.0
2–3 Years	54	27.0
>3 Years	36	18.0
Total	200	100.0

The duration of symptoms prior to surgical intervention was evaluated.

Table 6: Most patients experienced symptoms for prolonged periods before undergoing surgery. The majority (36.0%) had symptoms for 1–2 years, while

27.0% reported symptom duration of 2–3 years. These findings suggest that adenotonsillar disorders often persist for considerable periods before definitive surgical management is undertaken.

Table 7: Indications for Surgery

Indication	Number (n=200)	Percentage (%)
Recurrent Tonsillitis	96	48.0
Adenotonsillar Hypertrophy with Airway Obstruction	58	29.0
Chronic Tonsillitis	26	13.0
Obstructive Sleep-Disordered Breathing	12	6.0
Recurrent Peritonsillar Infection	5	2.5

Tonsilloliths/Halitosis	3	1.5
Total	200	100.0

The primary indications leading to surgical intervention were analyzed.

Table 7: Recurrent tonsillitis was the most common indication for surgery (48.0%), followed by adenotonsillar hypertrophy causing airway obstruction (29.0%). Chronic tonsillitis accounted for

13.0% of procedures. Obstructive conditions collectively represented a substantial proportion of surgical indications, emphasizing the growing importance of airway-related symptoms in current surgical practice.

Table 8: Tonsillar Grading Among Study Participants

Tonsillar Grade	Number (n=200)	Percentage (%)
Grade I	12	6.0
Grade II	42	21.0
Grade III	88	44.0
Grade IV	58	29.0
Total	200	100.0

Tonsillar size was assessed using the Brodsky grading system.

Table 8: Grade III tonsillar hypertrophy was the most frequently observed finding (44.0%), followed by Grade IV hypertrophy (29.0%). Together, Grades III

and IV accounted for 73.0% of patients. This demonstrates that significant tonsillar enlargement is a common clinical feature among patients selected for surgical intervention.

Table 9: Associated Clinical Findings

Clinical Finding*	Number (n=200)	Percentage (%)
Cervical Lymphadenopathy	86	43.0
Adenoid Hypertrophy	120	60.0
Nasal Congestion	78	39.0
Hyponasal Speech	52	26.0
Middle Ear Effusion	24	12.0
Deviated Nasal Septum	18	9.0

Associated clinical findings observed during evaluation were recorded.

*Multiple responses possible.

Table 9: Adenoid hypertrophy was the most frequently observed associated clinical finding (60.0%), followed by cervical lymphadenopathy

(43.0%). Nasal congestion and hyponasal speech were also common. The coexistence of adenoid hypertrophy and tonsillar disease supports the higher frequency of adenotonsillectomy observed in the study.

Table 10: Comparison of Clinical Features Between Tonsillectomy Alone and Adenotonsillectomy Groups

Clinical Feature	Tonsillectomy Alone (n=80)	Adenotonsillectomy (n=120)	p-value
Recurrent Sore Throat	72 (90.0%)	96 (80.0%)	0.048
Snoring	18 (22.5%)	104 (86.7%)	<0.001
Mouth Breathing	12 (15.0%)	96 (80.0%)	<0.001
Nasal Obstruction	8 (10.0%)	76 (63.3%)	<0.001
Sleep Disturbance	10 (12.5%)	66 (55.0%)	<0.001

Table 10: Patients undergoing adenotonsillectomy demonstrated significantly higher frequencies of obstructive symptoms including snoring, mouth breathing, nasal obstruction, and sleep disturbances compared with those undergoing tonsillectomy

alone. The differences were statistically significant ($p < 0.001$). Recurrent sore throat was more prevalent among patients undergoing tonsillectomy alone. These findings reflect differing clinical indications between the two surgical groups.

Table 11: Postoperative Complications

Complication	Number (n=200)	Percentage (%)
Postoperative Pain (Significant)	46	23.0
Nausea/Vomiting	18	9.0
Fever	12	6.0
Reactionary Hemorrhage	4	2.0
Secondary Hemorrhage	3	1.5
Wound Infection	2	1.0
No Complication	115	57.5

Table 11: More than half of the patients (57.5%) experienced no postoperative complications.

Significant postoperative pain was the most commonly reported complication (23.0%).

Hemorrhagic complications were uncommon, with reactionary and secondary hemorrhage occurring in only 2.0% and 1.5% of patients, respectively. These

findings indicate that tonsillectomy with or without adenoidectomy is generally a safe procedure with a low complication rate.

Table 12: Duration of Hospital Stay and Outcome

Variable	Number (n=200)	Percentage (%)
Hospital Stay		
1 Day	104	52.0
2 Days	74	37.0
≥3 Days	22	11.0
Outcome at Discharge		
Recovered Without Complications	182	91.0
Recovered After Minor Complications	18	9.0
Mortality	0	0

Table 12: Most patients (52.0%) were discharged within one day following surgery, while only 11.0% required hospitalization for three or more days. A favorable outcome was observed in all patients, with 91.0% recovering without complications. No mortality was reported during the study period. These findings highlight the effectiveness and safety of surgical management for adenotonsillar disease.

Tables Summary: The present study demonstrated that adenotonsillar diseases predominantly affected children and adolescents, with the highest frequency observed in the 5–10 years age group. Male patients were slightly more commonly affected than females. Recurrent sore throat emerged as the leading presenting symptom and recurrent tonsillitis was the most common indication for surgery. Obstructive symptoms including snoring, mouth breathing, nasal obstruction, and sleep disturbances were highly prevalent among patients undergoing adenotonsillectomy. Grade III and Grade IV tonsillar hypertrophy constituted the majority of clinical findings. Adenoid hypertrophy was frequently associated with tonsillar disease, explaining the higher proportion of adenotonsillectomy procedures. Most patients experienced uneventful postoperative recovery, with postoperative pain being the most common complication. Hemorrhagic complications were rare, hospital stay was generally short, and all patients achieved successful recovery, demonstrating the safety and effectiveness of tonsillectomy with or without adenoidectomy in appropriately selected patients.

DISCUSSION

Tonsillectomy with or without adenoidectomy remains one of the most frequently performed surgical procedures in otorhinolaryngology. Despite advances in medical management, recurrent tonsillitis, chronic tonsillar infection, adenotonsillar hypertrophy, and upper airway obstruction continue to represent important indications for surgical intervention.^[1] The present study was conducted to evaluate the clinical profile of patients undergoing tonsillectomy with or without adenoidectomy at a tertiary care hospital and to analyze their demographic characteristics, presenting symptoms,

clinical findings, indications for surgery, and postoperative outcomes.^[2]

In the present study, the majority of patients belonged to the pediatric age group, with the highest proportion observed between 5 and 10 years of age. Approximately three-fourths of the study population were younger than 15 years.^[3] This finding is consistent with the established epidemiology of adenotonsillar disease, which demonstrates a peak incidence during childhood owing to the physiological enlargement and immunological activity of lymphoid tissues.^[4] During early childhood, the tonsils and adenoids undergo active proliferation in response to repeated antigenic stimulation, increasing susceptibility to recurrent infections and hypertrophy.^[5] Similar age distributions have been reported in several studies evaluating patients undergoing tonsillectomy and adenotonsillectomy, where the majority of surgical candidates were children and adolescents.^[6]

A slight male predominance was observed in the present study, with males accounting for 57.0% of patients. Although adenotonsillar disease affects both genders, a modest male predominance has been reported in numerous clinical studies.^[7] The reasons for this observation remain unclear but may involve differences in healthcare-seeking behavior, exposure to environmental risk factors, and susceptibility to upper respiratory tract infections. However, the gender difference is generally not considered clinically significant, and adenotonsillar disease remains a common problem among both males and females.^[8]

The analysis of residence status revealed that a larger proportion of patients originated from urban areas compared to rural regions. This observation may be attributed to improved healthcare accessibility, greater awareness of surgical treatment options, and easier access to tertiary care facilities among urban populations.^[9] Similar findings have been reported in hospital-based studies where urban residents are more likely to undergo elective surgical procedures due to better availability of specialist services. Nevertheless, the substantial proportion of rural patients in the present study highlights the widespread burden of adenotonsillar disease across diverse populations.^[10]

Recurrent sore throat emerged as the most common presenting complaint, affecting the majority of study participants. This finding reflects the central role of recurrent tonsillitis in the pathogenesis of chronic tonsillar disease requiring surgical intervention.^[1] Recurrent episodes of throat pain, often accompanied by fever and difficulty swallowing, can significantly impair daily activities, school attendance, and overall quality of life. The high prevalence of recurrent sore throat observed in the present study is comparable to findings reported in previous studies evaluating indications for tonsillectomy.^[2]

Symptoms related to upper airway obstruction were also highly prevalent. Snoring, mouth breathing, nasal obstruction, and sleep disturbances were reported by a considerable proportion of patients, particularly those undergoing adenotonsillectomy. The increasing recognition of obstructive sleep-disordered breathing as a major indication for adenotonsillar surgery has transformed the clinical approach to these patients.^[3] Adenotonsillar hypertrophy is widely recognized as the most common cause of pediatric upper airway obstruction and sleep-disordered breathing. Persistent obstruction may result in disturbed sleep patterns, behavioral problems, poor school performance, growth impairment, and cardiovascular consequences if left untreated. The findings of the present study reinforce the importance of evaluating obstructive symptoms in patients presenting with adenotonsillar disease.^[4]

The duration of symptoms before surgery revealed that many patients experienced symptoms for prolonged periods, often exceeding one year. Delayed presentation may occur due to repeated attempts at conservative treatment, parental concerns regarding surgery, limited access to specialist care, or underestimation of symptom severity.^[5] Prolonged symptom duration may adversely affect quality of life and contribute to recurrent healthcare utilization. These findings emphasize the importance of timely referral and appropriate surgical evaluation for patients with persistent adenotonsillar disease.^[6]

Recurrent tonsillitis was identified as the leading indication for surgery, accounting for nearly half of all procedures performed. This observation is consistent with traditional indications for tonsillectomy, which continue to emphasize recurrent infections as a major reason for surgical intervention.^[7] Repeated episodes of acute tonsillitis may result in substantial morbidity, frequent antibiotic use, and recurrent absenteeism from school or work. Surgical removal of chronically infected tonsillar tissue has been shown to reduce infection frequency and improve quality of life in appropriately selected patients.^[8]

Adenotonsillar hypertrophy causing airway obstruction represented the second most common indication for surgery. This finding reflects evolving trends in clinical practice, where obstructive symptoms have become increasingly important indications for adenotonsillectomy. The growing

awareness of pediatric obstructive sleep-disordered breathing has contributed to a rise in surgical interventions aimed at relieving upper airway obstruction. In many contemporary series, airway obstruction rivals or exceeds recurrent infection as the primary indication for surgery, particularly among younger children.^[9]

The assessment of tonsillar size demonstrated that Grade III and Grade IV hypertrophy constituted the majority of cases. Significant tonsillar enlargement is commonly associated with both recurrent infection and airway obstruction.^[10] Patients with larger tonsils frequently present with symptoms such as dysphagia, snoring, mouth breathing, and sleep disturbances. The predominance of advanced tonsillar hypertrophy in the present study supports the role of anatomical obstruction in the pathophysiology of adenotonsillar disease requiring surgical management.^[11]

Adenoid hypertrophy was identified as the most common associated clinical finding. The close association between tonsillar and adenoidal enlargement is well documented, particularly in pediatric populations. Hypertrophied adenoid tissue contributes to nasal obstruction, mouth breathing, hyponasal speech, recurrent otitis media, and sleep-disordered breathing.^[12] The high prevalence of adenoid hypertrophy observed in this study explains the greater frequency of adenotonsillectomy compared with tonsillectomy alone. Simultaneous removal of both tonsillar and adenoidal tissue often provides more complete symptom relief in patients with combined disease.^[13]

Comparative analysis between the tonsillectomy-alone group and the adenotonsillectomy group revealed significant differences in clinical presentation. Patients undergoing adenotonsillectomy demonstrated substantially higher frequencies of snoring, mouth breathing, nasal obstruction, and sleep disturbances.^[14] These findings confirm that adenoidal hypertrophy contributes significantly to upper airway obstructive symptoms. Conversely, recurrent sore throat was more frequently observed among patients undergoing tonsillectomy alone, suggesting that infective pathology played a more dominant role in this subgroup. These observations highlight the importance of individualized surgical planning based on the patient's predominant clinical manifestations.^[15]

Postoperative outcomes in the present study were highly favorable. More than half of the patients experienced no postoperative complications, and overall recovery rates were excellent. Postoperative pain represented the most frequently reported complication.^[16] Pain following tonsillectomy is expected due to exposure of the pharyngeal musculature and inflammatory changes at the surgical site. Adequate analgesia and postoperative counseling remain essential components of patient care. The frequency of postoperative pain observed in the present study is consistent with findings reported in the literature.^[17]

Postoperative hemorrhage remains one of the most feared complications of tonsillectomy. In the present study, both reactionary and secondary hemorrhage occurred infrequently. The low incidence of hemorrhagic complications may be attributed to meticulous surgical technique, careful hemostasis, appropriate patient selection, and standardized postoperative monitoring. These findings compare favorably with published studies reporting postoperative hemorrhage rates ranging from 1% to 5%.^[18]

The duration of hospital stay was generally short, with most patients discharged within one or two days of surgery. Short hospitalization reflects the minimally invasive nature of modern tonsillectomy techniques, improved perioperative care, and effective postoperative monitoring. Early discharge also reduces healthcare costs and improves patient satisfaction without compromising safety. The favorable discharge outcomes observed in the present study further support the safety profile of tonsillectomy and adenotonsillectomy.^[19]

No mortality was reported during the study period. This finding is consistent with contemporary evidence demonstrating that tonsillectomy and adenotonsillectomy are safe procedures when performed by experienced surgeons under appropriate perioperative protocols. Advances in anesthesia, surgical techniques, and postoperative care have substantially reduced procedure-related morbidity and mortality over recent decades.^[20]

The strengths of the present study include its prospective design, adequate sample size, comprehensive clinical evaluation, and inclusion of both infective and obstructive indications for surgery. The study provides valuable insight into the demographic and clinical characteristics of patients undergoing tonsillectomy with or without adenoidectomy in a tertiary care setting.

However, certain limitations should be acknowledged. Being a single-center study, the findings may not be fully generalizable to all healthcare settings. The follow-up period was limited to the immediate postoperative period, preventing assessment of long-term outcomes and quality-of-life improvements. Furthermore, objective sleep studies were not available for all patients presenting with obstructive symptoms. Future multicenter studies incorporating longer follow-up durations and standardized outcome measures would provide a more comprehensive understanding of adenotonsillar disease and surgical outcomes.

Overall, the findings of the present study demonstrate that adenotonsillar disease predominantly affects pediatric populations and commonly presents with recurrent infections and upper airway obstructive symptoms. Recurrent tonsillitis remains the leading indication for surgery, while adenotonsillar hypertrophy contributes significantly to airway-related manifestations. Tonsillectomy with or without adenoidectomy provides excellent clinical outcomes with low complication rates and remains an

effective treatment modality for appropriately selected patients.

CONCLUSION

The present study demonstrated that adenotonsillar diseases predominantly affect children and adolescents, with the highest frequency observed in the 5–15-year age group. Recurrent sore throat was the most common presenting symptom, while recurrent tonsillitis emerged as the leading indication for surgical intervention. Obstructive symptoms such as snoring, mouth breathing, nasal obstruction, and sleep disturbances were also highly prevalent, particularly among patients undergoing adenotonsillectomy.

Adenotonsillar hypertrophy was frequently encountered and constituted a major cause of upper airway obstruction. Tonsillectomy with adenoidectomy was performed more commonly than tonsillectomy alone, reflecting the frequent coexistence of adenoidal and tonsillar pathology. The majority of patients experienced favorable postoperative outcomes with minimal complications, short hospital stays, and complete recovery.

The findings indicate that tonsillectomy with or without adenoidectomy is a safe and effective surgical procedure for appropriately selected patients suffering from recurrent tonsillitis, chronic tonsillar disease, and adenotonsillar hypertrophy. Early diagnosis and timely surgical intervention can significantly improve patient symptoms, reduce disease burden, and enhance quality of life.

Recommendations:

1. Early identification of recurrent tonsillitis and adenotonsillar hypertrophy should be encouraged to facilitate timely referral to otorhinolaryngology specialists.
2. Comprehensive evaluation of obstructive symptoms such as snoring, mouth breathing, and sleep disturbances should be routinely performed in children presenting with adenotonsillar disease.
3. Adenoid assessment should be considered in all pediatric patients being evaluated for tonsillectomy due to the high prevalence of coexisting adenoid hypertrophy.
4. Standardized clinical criteria should be utilized when selecting patients for tonsillectomy and adenotonsillectomy to ensure appropriate surgical indications.
5. Parents and caregivers should be educated regarding the potential benefits of surgical intervention in reducing recurrent infections and improving airway function.
6. Structured postoperative follow-up should be implemented to monitor recovery, identify complications early, and assess symptom resolution.
7. Future multicenter studies involving larger populations and longer follow-up periods should

be conducted to further evaluate long-term outcomes and quality-of-life improvements following surgery.

Strengths of the Study:

1. Prospective observational design allowing systematic data collection.
2. Adequate sample size with inclusion of a broad age range of patients.
3. Comprehensive assessment of demographic, clinical, surgical, and postoperative variables.
4. Evaluation of both infective and obstructive indications for surgery.
5. Comparison between tonsillectomy-alone and adenotonsillectomy groups.
6. Real-world tertiary care hospital setting enhancing clinical applicability.

Limitations of the Study:

1. Single-center study design may limit generalizability of findings.
2. Follow-up was limited to the postoperative period and did not assess long-term outcomes.
3. Polysomnography was not routinely performed in all patients with sleep-disordered breathing.
4. Quality-of-life assessment tools were not utilized.
5. Socioeconomic and environmental risk factors influencing adenotonsillar disease were not analyzed in detail.
6. The study did not compare different surgical techniques for tonsillectomy and adenoidectomy.

Key Messages:

- Adenotonsillar diseases predominantly affect pediatric and adolescent populations.
- Recurrent tonsillitis remains the most common indication for tonsillectomy.
- Adenotonsillar hypertrophy is a major contributor to upper airway obstruction and sleep-disordered breathing.
- Adenotonsillectomy is more frequently performed than tonsillectomy alone due to the common coexistence of adenoid hypertrophy.
- Tonsillectomy with or without adenoidectomy is associated with excellent clinical outcomes and a low complication rate.
- Early surgical intervention in appropriately selected patients can significantly improve symptoms and quality of life.

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Ethical Approval: The study was approved by the Institutional Ethics Committee prior to commencement. Written informed consent was obtained from all participants or their legal guardians before enrollment in the study.

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