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Clinical Profile and Surgical Outcomes in patients undergoing Tonsillectomy for Chronic Tonsillitis: A Prospective Observational Study

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ABSTRACT

Background: Chronic and recurrent tonsillitis can significantly affect daily activities and quality of life. Tonsillectomy remains an established treatment option for patients who do not respond adequately to medical management.

Aim: To evaluate the clinical profile and surgical outcomes of patients undergoing tonsillectomy for chronic or recurrent tonsillitis.

Materials and Methods: A prospective observational study was conducted in the Department of Otorhinolaryngology at a tertiary care teaching hospital over six months. A total of 100 patients aged 18–45 years undergoing elective tonsillectomy were evaluated. Demographic details, clinical presentation, indications for surgery and intraoperative parameters were recorded. Postoperative pain was assessed using the Visual Analogue Scale (VAS) on days 1, 3, 7 and 14. Symptomatic improvement, postoperative complications, quality of life using the Tonsillectomy Outcome Inventory-14 (TOI-14) and patient satisfaction were assessed during follow-up.

Results: The majority of patients belonged to the 21–25 years age group, with a female predominance (58%). Recurrent sore throat was the most common presenting symptom (90%), and recurrent episodes despite medical treatment constituted the leading indication for surgery (65%). Postoperative pain progressively decreased from a mean VAS score of 7.42 ± 1.09 on day 1 to 1.46 ± 0.84 on day 14. At three months, recurrent sore throat decreased from 90% to 9%. The mean TOI-14 score improved from 32.83 ± 5.95 to 12.97 ± 7.69. Overall, 90% of patients reported satisfaction with the surgical outcome.

Conclusion: Tonsillectomy demonstrated favourable surgical outcomes, with considerable symptomatic improvement and better quality of life among patients with chronic or recurrent

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tonsillitis. It remains a useful treatment option in appropriately selected patients who do not respond adequately to medical management.

Keywords: Chronic tonsillitis, Tonsillectomy, Surgical outcomes, Postoperative pain, Quality of life

INTRODUCTION:

Tonsillitis is one of the common inflammatory conditions encountered in otorhinolaryngology practice. The palatine tonsils are paired lymphoid structures situated in the lateral walls of the oropharynx and form an important component of Waldeyer's ring. They play an essential role in local immune defence by recognizing and responding to various antigens entering through the respiratory and gastrointestinal tracts. Repeated episodes of tonsillar infection may result in recurrent inflammation, persistent throat discomfort and considerable impairment of daily activities.

Chronic tonsillitis is characterized by persistent or recurrent inflammation of the palatine tonsils, commonly presenting with recurrent sore throat, throat irritation, dysphagia, halitosis and episodes of fever. The condition may be associated with enlarged tonsils, cryptic tonsillar surfaces, retention of debris within tonsillar crypts and recurrent cervical lymphadenopathy. Both viral and bacterial pathogens have been implicated in tonsillar infections, with Group A beta-haemolytic streptococci being an important bacterial pathogen [1,2].

The diagnosis of chronic or recurrent tonsillitis is primarily clinical and is based on a detailed history and oropharyngeal examination. The frequency, severity and duration of previous episodes, response to medical treatment and associated complications are important considerations when evaluating patients for surgical intervention. Recurrent throat infections may interfere with routine activities, occupational attendance, sleep and overall quality of life [2].

Conservative management generally includes adequate hydration, analgesics, antipyretics and appropriate antimicrobial therapy when bacterial infection is suspected or confirmed. However, patients experiencing frequent, disabling episodes despite appropriate medical management may require surgical intervention. Tonsillectomy, which involves the complete removal of the palatine tonsils, remains an established treatment for appropriately selected patients with recurrent tonsillitis [2,3].

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The effectiveness of tonsillectomy has been evaluated in several clinical studies. Paradise et al. demonstrated that tonsillectomy significantly reduced the frequency and severity of throat infections among children with well-documented, severe recurrent throat infections. Their findings established important clinical criteria for selecting patients who may benefit from surgical treatment [4].

Burton et al., in a Cochrane systematic review, evaluated tonsillectomy and adenotonsillectomy compared with non-surgical management in patients with chronic or recurrent acute tonsillitis. The review highlighted the potential benefits of surgery in appropriately selected patients while emphasizing postoperative morbidity, particularly pain and haemorrhage [5].

Postoperative complications such as throat pain, referred otalgia, nausea, vomiting and haemorrhage remain important clinical concerns. Postoperative pain can interfere with oral intake and may contribute to dehydration and delayed recovery. Therefore, careful patient selection, appropriate surgical technique and adequate postoperative management are essential to achieve favourable outcomes [3,5].

In 2023, Guntinas-Lichius et al. published a systematic review and clinical practice recommendations emphasizing the importance of standardized assessment of recurrent tonsillitis. The authors recommended documenting the frequency of episodes, evaluating disease severity and incorporating quality-of-life assessment when deciding on surgical intervention [2].

Despite the established role of tonsillectomy, evaluation of the clinical characteristics, indications for surgery, postoperative complications and symptomatic improvement is important for understanding treatment outcomes in individual hospital settings.

Therefore, the present study is undertaken to evaluate the clinical profile and surgical outcomes of patients undergoing tonsillectomy for chronic tonsillitis in a tertiary care teaching hospital, with particular emphasis on clinical presentation, indications for surgery, postoperative complications and symptomatic improvement following surgical intervention.

MATERIALS AND METHODS:

Study design

A prospective observational study was conducted to evaluate the clinical profile and surgical outcomes of patients undergoing tonsillectomy for chronic tonsillitis.

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Study setting

The study was conducted in the Department of Otorhinolaryngology (ENT) at a tertiary care teaching hospital.

Study duration

The study was conducted over a period of six months

Study population

The study population comprised patients diagnosed with chronic or recurrent tonsillitis attending the ENT outpatient department who were selected for elective tonsillectomy during the study period.

Sample size

A total of 100 patients were included in the proposed study. The sample size was determined based on the expected proportion of symptomatic improvement following tonsillectomy, the desired confidence level, allowable margin of error and feasibility of patient recruitment during the six-month study period.

Inclusion criteria

- Patients aged 18–45 years.
- Patients clinically diagnosed with chronic or recurrent tonsillitis.
- Patients experiencing recurrent episodes of tonsillitis despite appropriate medical treatment.
- Patients fulfilling the accepted clinical criteria for elective tonsillectomy.
- Patients willing to participate and providing written informed consent.

Exclusion criteria

- Patients presenting with acute tonsillitis at the time of surgery.
- Patients with suspected tonsillar malignancy.
- Patients with peritonsillar abscess requiring emergency intervention.
- Patients with known bleeding disorders or significant coagulation abnormalities.
- Patients with severe uncontrolled systemic illnesses contraindicating elective surgery.
- Patients undergoing tonsillectomy for indications other than chronic or recurrent tonsillitis, such as obstructive sleep apnoea.
- Patients unwilling to provide informed consent or unable to complete the follow-up assessments.

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Ethical considerations

Institutional Ethics Committee approval was obtained before commencement of the study. Written informed consent was obtained from all eligible participants. Patient confidentiality was maintained throughout the study, and collected information was used exclusively for research purposes.

Data collection procedure

Patients fulfilling the inclusion and exclusion criteria were enrolled after obtaining informed consent.

A structured case record form was used to collect demographic, clinical, surgical and postoperative information.

Demographic details

- Age
- Gender
- Residence
- Occupation

Clinical history

A detailed history was obtained regarding:

- Duration of throat-related symptoms.
- Frequency of tonsillitis episodes during the preceding year.
- History of recurrent sore throat.
- Fever associated with episodes.
- Difficulty in swallowing.
- Throat irritation.
- Halitosis.
- Referred ear pain.
- Previous antibiotic treatment.
- History of hospital admission due to tonsillitis.

Clinical examination

A detailed ENT examination was performed, with particular attention to:

- Size of palatine tonsils.

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- Presence of tonsillar crypts.
- Tonsillar debris.
- Congestion and erythema.
- Presence of tonsillar exudates.
- Cervical lymphadenopathy.

Tonsillar enlargement was graded using the Brodsky grading system.

Grade	Tonsillar enlargement
Grade 0	Tonsils confined within the tonsillar fossa
Grade 1	Occupying less than 25% of the oropharyngeal width
Grade 2	Occupying 25–50% of the oropharyngeal width
Grade 3	Occupying 50–75% of the oropharyngeal width
Grade 4	Occupying more than 75% of the oropharyngeal width

Preoperative assessment

All patients underwent routine preoperative evaluation, including:

- Complete blood count.
- Blood grouping and Rh typing.
- Coagulation profile, when indicated.
- Blood glucose assessment, when indicated.
- Relevant biochemical investigations.
- Anaesthetic fitness evaluation.

The indication for tonsillectomy was documented for every patient based on clinical findings and established institutional protocols.

Surgical procedure

All patients underwent elective tonsillectomy under general anaesthesia.

The conventional cold dissection and snare technique was performed according to the institutional surgical protocol.

The patient was placed in the supine position with appropriate head extension. A Boyle-Davis mouth gag was used to obtain adequate exposure of the oropharynx.

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The tonsil was grasped using tonsil-holding forceps, and medial traction was applied. An incision was made along the anterior tonsillar pillar, followed by dissection in the peritonsillar plane to separate the tonsil from its bed. The lower pole was divided using a tonsillar snare. Haemostasis was achieved using appropriate ligatures, pressure or cauterization as required.

The following intraoperative parameters were documented:

- Duration of surgery.
- Estimated intraoperative blood loss.
- Intraoperative complications.
- Requirement for additional haemostatic measures.

Postoperative management

Following surgery, patients were monitored in the postoperative recovery area for haemorrhage, respiratory complications and other immediate adverse events.

Postoperative management included:

- Appropriate analgesics for pain relief.
- Adequate hydration.
- Soft diet and oral fluids as tolerated.
- Antiemetics when required.
- Antibiotics only when clinically indicated or according to the institutional protocol.

Patients were discharged after satisfactory recovery, adequate oral intake and absence of significant postoperative complications, according to institutional discharge criteria.

The duration of hospital stay was documented.

Assessment of postoperative outcomes

Postoperative outcomes were evaluated during follow-up visits on postoperative days one, three and seven, followed by assessments at two weeks, one month and three months.

Postoperative pain assessment

Pain severity was assessed using the Visual Analogue Scale (VAS), ranging from zero to ten.

- Zero: No pain.
- One to three: Mild pain.
- Four to six: Moderate pain.
- Seven to ten: Severe pain.

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Postoperative complications

The following complications were documented:

- Primary haemorrhage occurring within 24 hours of surgery.
- Secondary haemorrhage occurring after 24 hours.
- Referred otalgia.
- Nausea and vomiting.
- Difficulty in swallowing.
- Dehydration.
- Postoperative infection.
- Other complications requiring additional medical or surgical intervention.

Postoperative haemorrhage was recorded according to its timing, severity and requirement for medical or surgical intervention.

Assessment of symptomatic improvement

Symptomatic improvement was evaluated by comparing preoperative and postoperative symptoms at the three-month follow-up.

The following symptoms were assessed:

- Frequency of sore throat episodes.
- Difficulty in swallowing.
- Halitosis.
- Fever-associated throat infections.
- Throat irritation.

Quality-of-life assessment

The Tonsillectomy Outcome Inventory-14 (TOI-14), a validated disease-specific questionnaire, was administered before surgery and at the three-month follow-up to assess the impact of tonsillar disease on quality of life.

Changes in questionnaire scores were evaluated to determine the extent of improvement following tonsillectomy.

Patient satisfaction

Patient satisfaction was assessed at the final follow-up using a structured four-point scale:

- Very satisfied.

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- Satisfied.
- Neutral.
- Dissatisfied.

Statistical analysis

Data were entered into Microsoft Excel and analysed using SPSS software version 22.0. Continuous variables were expressed as mean ± standard deviation, while categorical variables were presented as frequencies and percentages. Paired t-test was used to compare preoperative and postoperative scores. Chi-square test was used for categorical variables. A p-value of less than 0.05 was considered statistically significant.

RESULTS:

A total of 100 patients with chronic tonsillitis who fulfilled the eligibility criteria were included in the study. The study included adult patients aged 18–45 years. The distribution showed representation across different age groups, with a slight predominance of female patients.

Table 1: Age and gender distribution

Characteristic	Observation
Mean age (years)	27.0 ± 7.2
Male	42 (42%)
Female	58 (58%)
Male:female ratio	1:1.38

Chronic tonsillitis was more frequently observed among patients aged 21–25 years, with a gradual decline in representation in the older age groups.

Table 2: Association between age group and gender

Age group (years)	Male	Female	Total	p-value
18–20	7	13	20	0.831
21–25	12	18	30	
26–30	11	11	22	
31–35	6	10	16	

36–45	6	6	12	

Recurrent sore throat was the predominant presenting complaint among the study participants. Other commonly reported symptoms included fever, difficulty in swallowing, throat irritation, halitosis and referred ear pain

Table 3: Clinical presentation

Clinical symptom	Number (%)
Recurrent sore throat	90 (90%)
Fever	68 (68%)
Difficulty in swallowing	56 (56%)
Throat irritation	48 (48%)
Halitosis	42 (42%)
Referred ear pain	24 (24%)

Clinical examination revealed varying degrees of tonsillar enlargement. Grade II and Grade III enlargement were the most frequently observed grades, indicating moderate to marked tonsillar hypertrophy in a majority of patients.

Table 4: Tonsillar findings

Brodsky grade	Number (%)
Grade I	12 (12%)
Grade II	38 (38%)
Grade III	40 (40%)
Grade IV	10 (10%)

Grade III tonsillar enlargement was observed in 26 female patients (44.8%) compared with 14 male patients (33.3%). However, the association between gender and Grade III tonsillar enlargement was not statistically significant ($p = 0.247$).

Table 5: Association between gender and Grade III tonsillar enlargement

Gender	Grade III	Grades I, II or IV	Total	p-value
Male	14	28	42	0.247
Female	26	32	58	

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Recurrent episodes of tonsillitis despite appropriate medical treatment were the leading indication for tonsillectomy. Persistent throat discomfort and recurrent inflammation were other reasons for surgical intervention.

Table 6: Indications for tonsillectomy

Indication	Number (%)
Recurrent episodes of tonsillitis	65 (65%)
Persistent throat discomfort	15 (15%)
Recurrent inflammation despite medical treatment	12 (12%)
Recurrent tonsillitis with halitosis	8 (8%)

The operative duration, estimated intraoperative blood loss and duration of hospital stay were recorded to evaluate the surgical characteristics and immediate postoperative course of the patients.

Table 7: Intraoperative parameters

Parameter	Mean ± SD
Operative duration	35.6 ± 8.4 minutes
Estimated blood loss	45.2 ± 15.6 mL
Hospital stay	1.4 ± 0.7 days

Postoperative pain was assessed using the Visual Analogue Scale (VAS) on days 1, 3, 7 and 14. Pain scores were highest during the initial postoperative period and showed a progressive decline during follow-up. This reduction was statistically significant ($p < 0.001$).

Table 8: Postoperative pain assessment (VAS)

Follow-up	Mean VAS ± SD	p-value
Day 1	7.42 ± 1.09	<0.001
Day 3	6.66 ± 1.23	
Day 7	4.31 ± 1.06	
Day 14	1.46 ± 0.84	

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Postoperative throat pain was the most frequently reported complication. Other complications included referred otalgia, nausea, vomiting, dehydration and postoperative haemorrhage, although these occurred less frequently.

Table 9: Postoperative complications

Complication	Number (%)
Postoperative throat pain	92 (92%)
Referred otalgia	32 (32%)
Nausea and vomiting	14 (14%)
Dehydration	5 (5%)
Secondary haemorrhage	4 (4%)
Primary haemorrhage	1 (1%)
Postoperative infection	2 (2%)

A comparison of symptoms before and after surgery demonstrated a reduction in recurrent sore throat, fever, dysphagia, throat irritation and halitosis. These findings indicate improvement in the major clinical complaints following tonsillectomy. The improvement was statistically significant for all symptoms ($p < 0.05$).

Table 10: Preoperative and postoperative symptom comparison

Symptom	Before surgery n (%)	At 3 months n (%)	p-value
Recurrent sore throat	90 (90%)	9 (9%)	<0.001
Dysphagia	56 (56%)	5 (5%)	<0.001
Halitosis	42 (42%)	4 (4%)	<0.001
Fever-associated episodes	68 (68%)	6 (6%)	<0.001
Throat irritation	48 (48%)	7 (7%)	<0.001

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The Tonsil Outcome Inventory-14 (TOI-14) questionnaire was used to assess disease-specific quality of life. Postoperative scores showed a significant reduction compared with preoperative scores, suggesting improvement in symptom burden and daily functioning.

Table 11: Quality-of-life assessment (TOI-14)

Assessment	Mean score ± SD	p-value
Preoperative	32.83 ± 5.95	1.25×10^{-65}
At 3 months	12.97 ± 7.69	

Overall assessment demonstrated favourable surgical outcomes in most patients, with improvement in presenting symptoms, reduced postoperative symptom burden and better quality of life during follow-up.

Table 12: Overall surgical outcomes

Outcome	Number (%)
Significant symptomatic improvement	86 (86%)
Partial symptomatic improvement	11 (11%)
No significant improvement	3 (3%)

Patient satisfaction was assessed following surgery based on symptomatic improvement and overall experience. The majority of patients expressed satisfaction with the surgical outcome, while a smaller proportion reported neutral or unsatisfactory experiences.

Table 13: Patient satisfaction

Satisfaction level	Number (%)
Very satisfied	62 (62%)
Satisfied	28 (28%)
Neutral	7 (7%)
Dissatisfied	3 (3%)
Total	100 (100%)

DISCUSSION:

The present study evaluated the clinical profile and surgical outcomes of 100 patients undergoing tonsillectomy for chronic or recurrent tonsillitis. Demographic characteristics,

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clinical presentation, indications for surgery, postoperative complications, symptomatic improvement and quality of life were assessed.

Most patients belonged to the 21–25 years age group, with a mean age of 27.0 ± 7.2 years. Females constituted 58% of the study population, compared with 42% males. A similar female predominance was reported in the NATTINA trial by Wilson et al. [6], in which 78% of participants were female, with a median age of 23 years.

Recurrent sore throat was the most common presenting complaint (90%), followed by fever (68%), difficulty in swallowing (56%), throat irritation (48%) and halitosis (42%). Guntinas-Lichius et al. [2] emphasized the importance of assessing the frequency and severity of tonsillitis episodes and their impact on daily activities when considering surgical intervention.

Grade III tonsillar enlargement was observed in 40% of patients, followed by Grade II enlargement in 38%. The association between gender and Grade III enlargement was not statistically significant ($p = 0.247$).

Recurrent episodes of tonsillitis despite medical treatment were the leading indication for tonsillectomy (65%). Paradise et al. [4] demonstrated the benefits of tonsillectomy in patients with severe recurrent throat infections. Similarly, Burton et al. [5] highlighted the potential benefits of surgery in appropriately selected patients while emphasizing postoperative morbidity.

The mean operative duration was 35.6 ± 8.4 minutes, with an estimated blood loss of 45.2 ± 15.6 mL. The mean hospital stay was 1.4 ± 0.7 days, reflecting the immediate postoperative course following conventional cold dissection tonsillectomy.

Postoperative pain was highest on day 1 (VAS 7.42 ± 1.09) and progressively decreased on day 3 (6.66 ± 1.23), day 7 (4.31 ± 1.06) and day 14 (1.46 ± 0.84). This reduction was statistically significant (p less than 0.001). Burton et al. [5] also identified postoperative pain as an important morbidity, particularly among adults undergoing tonsillectomy.

Postoperative throat pain was the most frequently reported complication (92%), followed by referred otalgia (32%) and nausea and vomiting (14%). Dehydration occurred in 5%, secondary haemorrhage in 4% and primary haemorrhage in 1%. Wilson et al. [6], in the NATTINA trial, reported bleeding as an important surgery-related adverse event, highlighting the need for adequate postoperative monitoring and care.

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A considerable reduction in symptoms was observed at the three-month follow-up. Recurrent sore throat decreased from 90% to 9%, dysphagia from 56% to 5%, halitosis from 42% to 4%, fever-associated episodes from 68% to 6% and throat irritation from 48% to 7%. All reductions were statistically significant (p less than 0.001).

Alho et al. [7] demonstrated reduced recurrence of throat infections following tonsillectomy compared with watchful waiting in adults with recurrent streptococcal pharyngitis. Similarly, Koskenkorva et al. [8] reported fewer episodes of pharyngitis and symptomatic days following surgery. These findings support the symptomatic improvement observed in the present study.

Quality-of-life assessment showed a reduction in the mean TOI-14 score from 32.83 ± 5.95 preoperatively to 12.97 ± 7.69 at three months. This indicates improvement in disease-specific quality of life following surgery. Houborg and Klug [9] also reported significant quality-of-life improvement among adults undergoing tonsillectomy for recurrent acute tonsillitis. Koskenkorva et al. [10] similarly reported improvements in patient-reported outcomes following adult tonsillectomy.

Patient satisfaction was favourable, with 62% reporting that they were very satisfied and 28% satisfied with the surgical outcome. Only 7% were neutral and 3% dissatisfied, giving an overall satisfaction rate of 90%. The NATTINA trial [6] also demonstrated the clinical effectiveness of tonsillectomy compared with conservative management in adults with recurrent acute tonsillitis.

CONCLUSION: Tonsillectomy demonstrated favourable surgical outcomes in patients with chronic or recurrent tonsillitis, with significant improvement in presenting symptoms and quality of life. Postoperative pain gradually decreased during follow-up, and the majority of patients reported satisfaction with the surgical outcome. Despite minor postoperative complications, tonsillectomy remains an effective treatment option for appropriately selected patients who do not respond adequately to medical management.

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