

## HISTOPATHOLOGICAL ANALYSIS OF TONSILLECTOMY SPECIMENS IN OUR HOSPITAL - A RETROSPECTIVE STUDY

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### ABSTRACT

**Objectives:** Tonsillectomy is a frequently performed surgical procedure in ENT. Routine histopathological examinations (HPE) of the dissected tonsillar tissue are a gray area with no formal consensus among most of the otolaryngologists. The accidental discovery of underlying malignancy in the tonsillar specimens among the vulnerable group adds to the conundrum of whether it is mandatory to examine all tonsillar tissue. In this study, we retrospectively analyzed histopathological reports of tonsillar tissue dissected under the specific indication of chronic tonsillitis and documented the major histological features in chronic tonsillitis.

**Methods:** One hundred patient's tonsillar specimens were retrospectively studied and analyzed and the major histopathological features are documented. The majority of patients were in the 11–20 years age group (45%). A slight male predominance (51%) was seen over females (49%).

**Results:** All the specimens were subjected to HPE and were demonstrated reactive lymphoid hyperplasia in all cases (100%), among others changes are surface ulcerations (45%) and bacterial colonies (40%) contributed to the other major histopathological findings. Significantly none of the one hundred tonsils have demonstrated the presence of metaplasia or neoplasia.

**Conclusions:** A tetrad of histopathological findings constitutes chronic tonsillitis with reactive lymphoid hyperplasia seen in all tonsillectomy specimens. No tonsillectomy specimen was demonstrated any underlying malignancy. Still, as a policy, it is better to check these specimens for any underlying neoplastic changes in the light of increasing chewing of tobacco-related products.

**Keywords:** Chronic tonsillitis, Tonsillectomy, Histopathology.

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### INTRODUCTION

Tonsillectomy with adenoidectomy or tonsillectomy alone is the most common ENT surgeries that children undergo [1].

Chronic tonsillitis is common in childhood with a peak at 5–6 years of age. The palatine tonsils are subepithelial lymphoid aggregates in the oropharynx, have a significant role in antimicrobial defense mechanism [2]. They are covered by non-keratinized stratified squamous epithelium along with deep crypts that invaginate into the parenchyma, in which B-lymphocytes are found [3].

Group A Beta Hemolytic Streptococci is the most commonly implicated organism in tonsillitis. Diagnosis of chronic tonsillitis is usually based on the rate of acute tonsillitis episodes. At least three or more episodes in each of the three preceding years, despite adequate medical therapy, can be accepted both as a clinical criterion of chronic tonsillitis and as an indication for the tonsillectomy [4,5].

Obstructive sleep apnea (OSA) is the most common indication for tonsillectomy nowadays, unlike recurrent tonsillitis in the past [6]. Although the most common indication for tonsillectomy in adults is chronic tonsillitis, it has been increasingly applied as a part of surgical treatment of OSA in recent years [7].

The widely adopted practice in the chronic case is the recommendation of tonsillectomy, which continues to be a very common practice in childhood around the world. Chronic tonsillitis is still the most common indication for tonsillectomy [8]. An area of discordance is whether the removed tonsillar tissue should be subjected to HPE. The proponents of mandatory HPE point out accidental findings of occult carcinomas and lymphomas to propagate their arousal to the cause for HPE.

There is a common practice of HPE of all routine surgical specimens in most institutions to analyze harboring infections or malignancy without assessing the risk factors of the patients because of fear of medicolegal issues [9].

As a department policy at our GITAM Institute of Medical Sciences and Research (GIMSR) institute, all tonsils removed under the indication of chronicity are sent for HPE. This study aims to retrospectively study 100 such specimens sent over the past 12 months (December 2020–November 2021) and document the histopathological changes occurring in the chronically inflamed tonsil. This study also aims to postulate it as a mandatory HPE is necessary when chronically inflamed tonsils were removed to exclude rare possibilities.

### METHODS

This retrospective analysis was done at GIMSR between December 2020 and November 2021. A prior consent was taken from all the patients before the tonsillectomy surgery, and the tonsillectomy specimens were sent for HPE and reports documented. The tonsillectomy specimens were fixed in 10% buffered formalin, routinely processed, and embedded in paraffin. The paraffin sections are stained with Hematoxylin and Eosin and Gram stain (bacterial colonies) and examined under the microscope.

#### Chronic tonsillitis is generally defined as

1. More than 7 attacks in 1 year.
2. More than 5 attacks in 2 consecutive years.
3. More than 3 attacks in 3 consecutive years.

Associated clinical findings in chronic tonsillitis were hyperemia of anterior tonsillar pillars, bilaterally enlarged tonsils with bilaterally enlarged nontender jugulo-digastric lymph nodes.

**Inclusion criteria**

1. Children were >3 years of age diagnosed with chronic tonsillitis.
2. OSAS in children suffering with chronic tonsillitis
3. Patients with streptococcal pharyngitis and valvular heart disease.

**Exclusion criteria**

1. Unilateral enlargement of the tonsil.
2. Acute tonsillitis.
3. Tonsils were removed in cases of occult neck primary with neck secondary's.
4. Tonsils were removed as a part of styloidectomy surgery.
5. Tonsils were removed as a part of the uvulopalatopharyngoplasty procedure.

**Statistical analysis**

The statistical methods used in our study were the test of proportion and percentage.

**RESULTS**

One hundred patients admitted with chronic tonsillitis and underwent a tonsillectomy in GIMSR. The specimens were subjected to histopathological analysis during the review period. Selected patients were in the age group range of 3–50 years. A majority of patients diagnosed with chronic tonsillitis fell in the age group between 11 and 20 years (45%), while the age group between 3 and 10 years comprised the next largest (35%) 21 and 30 years occupies next (17%) 31 and 50 years was the least (3%). Males comprised 51% and the females comprised 49%.

The HPE demonstrated reactive lymphoid hyperplasia in all cases (100%), among others changes are surface ulcerations (45%) and bacterial colonies (40%) contributed to the other major histopathological findings. Significantly none of the one hundred tonsils have demonstrated the presence of metaplasia or neoplasia. The presence of salivary gland tissue (13%) and mucus glands (2%) could be explained as due to resection of adjacent normal oropharyngeal mucosa during tonsillectomy.

**DISCUSSION**

Although the HPE is generally performed after tonsillectomy and/or adenoidectomy, there is still a debate about whether the HPE is necessary or is required in selective cases only. In the study by Strong *et al.* [10], it was found that 67% of otolaryngologists send adult tonsillectomy specimens to the pathology laboratories and that only 38% send pediatric tonsillectomy specimens to the pathology laboratories. Tonsillectomy specimens should be sent for HPE in all adults and in children with tonsillar asymmetry, mucosal changes, night fevers, and cervical lymphadenopathy [10].

Ugras *et al.* [11] in their study of histopathological findings of chronic tonsillitis in palatine tonsils concluded that slight to moderate lymphocytic infiltrations in the surface epithelium and crypt abscess and/or diffuse lymphocytic infiltrations were pathognomonic of chronic tonsillitis. The presence of lymphoid hyperplasia was documented in only 45% of tonsils.

Hiari [12] in his prospective study to assess the value of HPE in post-tonsillectomy specimens had chronic lymphoid hyperplasia (95%) as the major histopathological feature.

Williams and Brown [13] in their retrospective study of routine tonsillectomy specimens in patients aged 21 years or younger concluded that microscopic examination of all routine tonsils and adenoids for individuals 21 years or younger is not indicated. The incidence of unexplained malignancy in tonsil and adenoid specimens varies between 0% and 1% in both children and adults [14,15].

In our study, all one hundred tonsils had reactive lymphoid hyperplasia (100%) followed in descending order of frequency surface ulceration

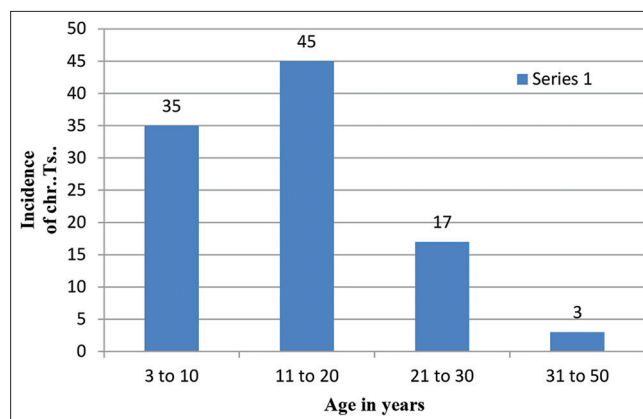


Fig. 1: Age distribution

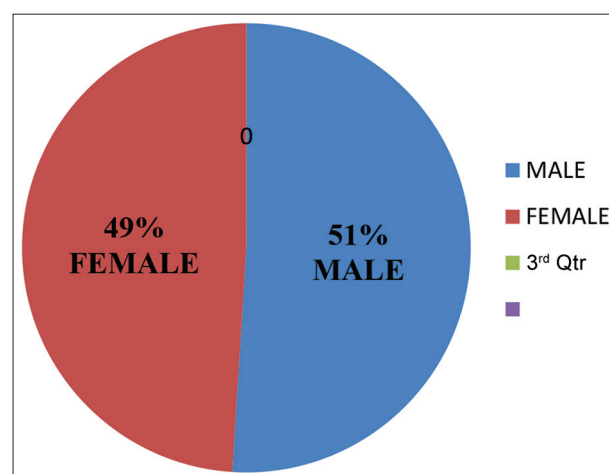


Fig. 2: Sex distribution

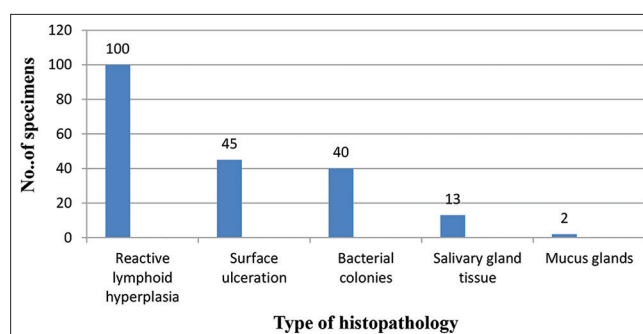


Fig. 3: Histopathological findings

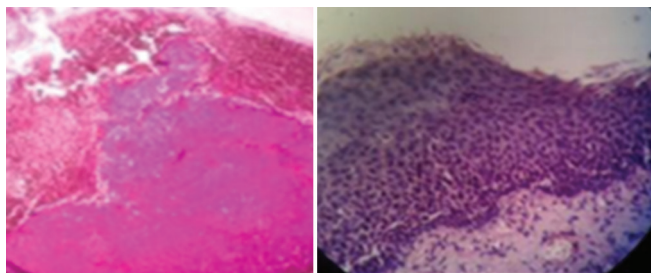
(45%), bacterial colonies (40%), and crypt abscess (8%). There were no distinct histopathological features in the adult tonsillectomy specimen and the tonsillectomy specimens from the pediatric age group.

Significantly no tonsil specimen exhibited features of neoplasia. None of the specimens from children showed evidence of malignancy. In the literature, large-scale studies also revealed similar rates (0% and 0%) [16,17].

We contend that the histopathological features suggestive of chronic tonsillitis should be:

1. Reactive lymphoid hyperplasia.
2. Surface ulceration.
3. Bacterial colonies.
4. Crypt abscess.

The presence of granulations, keratin flakes in crypts, and tonsillar cysts comprise <10% of histopathological findings and therefore should not be considered pathognomic of chronic tonsillitis.



Histopathological picture of bacterial colonies

Histopathological picture of superficial ulceration

## CONCLUSION

Although the absence of neoplasia in any of the one hundred tonsillar specimens and lack of specific differentiating features between adult and pediatric tonsillectomy specimens, it is our recommendation to subject the tonsil removed under the indication of chronic tonsillitis to be sent for routine HPE in the light of the increased usage of tobacco-related products chewing in the target groups and also to counter the medicolegal challenges in the rarest occasions.

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## CONFLICT OF INTEREST

There is no conflict of interest declared by the authors.

## AUTHORS' CONTRIBUTION

The main author of the study PJ had performed the research work. The Co-authors of the study GY wrote the first draft of the manuscript collected the literature and MH performed the statistical analysis part of the work and corrected the final draft of the manuscript.

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