

Original Research Article

Clinico-histopathological evaluation of tonsillectomy specimens at a tertiary care hospital

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ABSTRACT

Background: Tonsillar diseases are common in paediatric and adult otolaryngological practice and often require tonsillectomy and specimens are subjected to histopathological evaluation. Chronic tonsillitis is disease with repeated attacks of acute tonsillitis/ a sub-clinical form of a resistant or poorly treated infection. Aim of study was to determine the most common histopathological findings in patients presenting with clinical features of chronic tonsillitis.

Methods: The present study is an observational study carried out at the Departments of Pathology and Otorhinolaryngology at Gujarat Adani Institute of Medical Sciences and GK General Hospital, Bhuj from January 2019 to April 2022.

Results: A total of 35 cases of bilateral tonsillectomy were studied in a span of 40 months. There were 17 (49%) males and 18 (51%) females. The age ranges of the patients varied from 7 to 37 years with maximum number of cases less than 20 years of age. A total of 70 specimens obtained from 35 patients were studied. The most common clinical presentation was throat pain in 29 (83%) patients. The histopathological evaluation confirmed chronic tonsillitis in 40 (57%) specimens, followed by chronic lymphoid hyperplasia/ hypertrophy in 30 (43%) specimens, 14 specimens with chronic tonsillitis showed associated actinomycetes.

Conclusions: Resected tonsillectomy specimens should be routinely evaluated by histopathological examination to know the cause of enlarged tonsils.

Keywords: Actinomycetes, Chronic tonsillar hyperplasia, Tonsillectomy, Ugras's criteria

INTRODUCTION

The palatine tonsils are two ovoid masses of lymphoid tissue situated on either side of the oropharynx and predominantly comprise of B lymphocytes and are thought to have important role in the body's immune system.¹ Wide varieties of diseases such as chronic tonsillitis, peritonsillar abscess, obstructive sleep apnoea, snoring, and malignancy affect the tonsils.^{2,3} Although chronic tonsillitis is still the most common reason for tonsillectomy, histopathological criteria for this infection have not been well documented.⁴ In this report we have analysed histopathological findings of resected tonsils as per Ugras's histopathological criteria.⁵

Aim

Aim of the study was to determine the most common histopathological findings in patients presenting with clinical features of chronic tonsillitis.

METHODS

This is an observational study carried out at the Departments of Pathology and Otorhinolaryngology at Gujarat Adani Institute of Medical Sciences and GK General Hospital, Bhuj from January 2019 to April 2022. A total of 70 tonsillectomy specimens obtained from 35 patients were evaluated microscopically. The

demographic data, clinical findings and laboratory investigations of all the patients were collected from clinical case sheets. The tonsillectomy specimens, fixed in 10% buffered formalin, were processed in paraffin embedding tissue sectioning and 4 to 5 microns thick tissue sections were obtained and stained with haematoxylin and eosin (H and E). Special stains such as periodic acid Schiff (PAS), Grocott methenamine silver (GMS) and Grams were employed as and when required. The histopathological examination of tonsil specimens was carried as per Ugras's criteria for chronic tonsillitis.⁵ The data so collected was analysed using descriptive statistics.

RESULTS

A total of 70 tonsillectomy specimens obtained from 35 patients were evaluated. 18/35 (51%) patients were females and 17/35 (49%) were males. The age ranges of the patients varied from 7 to 37 years with maximum number patients (25, 71%) in the age range of less than 20 years. There were 15 (43%) patients in the age range of 11 to 20 years, followed by 10 (29%) patients each in the age range of 1 to 10 years and more than 20 years (Table 1).

Table 1: Age and gender wise distribution of patients.

Age (Years)	No. of males	No. of females	Total cases (%)
1 to 10	6	4	10 (29)
11 to 20	7	8	15 (43)
> 20	4	6	10 (29)

The most frequent presenting symptom of the patients was throat pain in 29 (83%) patients, followed by sore throat in 5 (14%) patients. The other clinical manifestations were odynophagia 4 (11%), snoring 2 (6%), and one case each of cough and cold, fever and ear discharge (Table 2).

Table 2: Spectrum of clinical presentation.

Clinical symptoms	N	Percentage (%)
Throat pain	29	83
Sore throat	05	14
Odynophagia	04	11
Snoring	02	6
Cough and cold	01	3
Fever	01	3
Ear discharge	01	3

On histopathological examination (HPE), majority of the specimens showed features of chronic tonsillitis (40, 57%) which comprised of chronic tonsillitis (20, 29%), chronic tonsillitis with actinomycetes (14, 20%) and chronic tonsillitis with fibrosis (6, 8%). The rest of the specimens showed features of chronic lymphoid hyperplasia/ hypertrophy (30, 43%) which comprised of chronic lymphoid hyperplasia/ hypertrophy (22, 32%)

and associated fibrosis (8, 11%) specimens. The HPE findings identified in our patients as per Ugras's criteria are shown in Table 3.

Table 3: Histopathological features for diagnosis according to Ugras's criteria.

Histological criteria	No. of specimens (%)	Final diagnosis
Presence of slight to moderate lymphocyte infiltration in the surface epithelium	08 (11)	Chronic tonsillitis
Presence of abscess leading to the defect in the surface epithelium (Ugras's abscess)	32 (46)	Chronic tonsillitis
Presence of diffuse extensive lymphocytes infiltration leading to defect in surface epithelium	0	-
Presence of polymorphonuclear leukocytes in surface epithelium and the subepithelial area	0	-
Presence of lymphoid hyperplasia (Predominance of secondary follicles)	30 (43)	Chronic lymphoid hyperplasia/ hypertrophy
Increase in plasma cells number in subepithelial area and in the interfollicular area	0	-
Fibrosis with features of chronic tonsillitis	06 (9)	Chronic tonsillitis with fibrosis
Fibrosis with lymphoid hyperplasia	08 (11)	Chronic lymphoid hyperplasia/ hypertrophy with fibrosis
Presence of atrophy	0	-

Most common histological criteria identified for chronic tonsillitis Ugras's abscess (32 specimens, 46%) (Figure 1) followed by slight to moderate lymphocyte infiltration in the surface epithelium (8 specimens, 11%); while for diagnosis of chronic lymphoid hyperplasia predominance of secondary follicles (Figure 2) was observed.

We didn't find Ugras's criteria no. 3, 4, 6 and 8 in any of our cases. Additionally, we found actinomycetes (Figure-3) in association with chronic tonsillitis which is not included in Ugras's criteria.

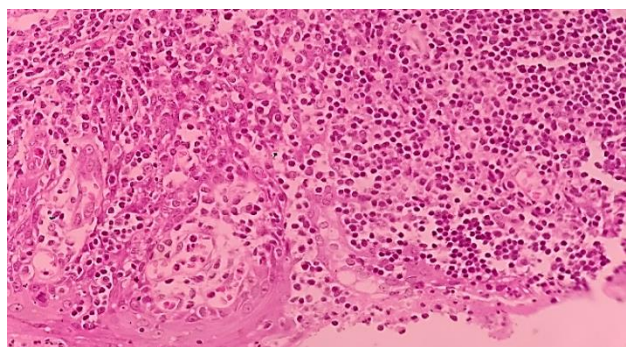


Figure 1: Lymphocytes in the lining epithelium within vesicles (Ugras's Abscess) (H and E, X 400).

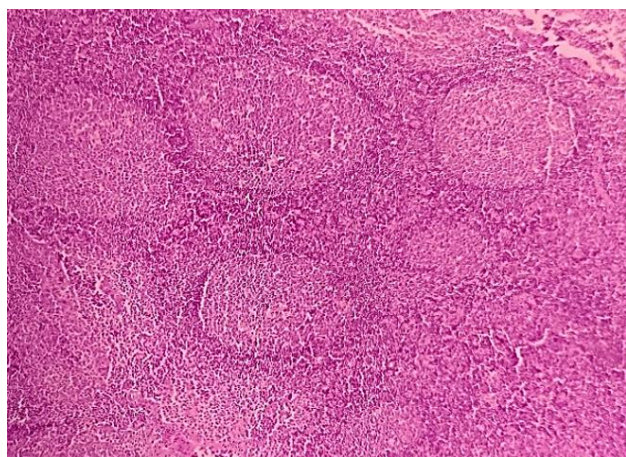


Figure 2: Lymphoid follicles with active germinal centres (H and E, X 400).

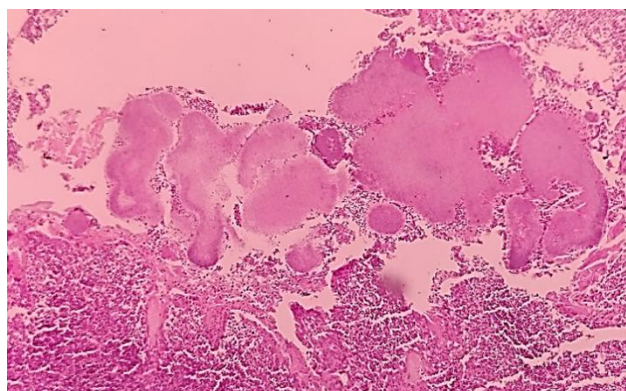


Figure 3: Actinomycetes colonies (H and E, X 400).

DISCUSSION

Palatine and nasopharyngeal tonsils are the lymphatic clusters of the respiratory and digestive tract epithelium. The tonsils are enclosed by fibrous and dense capsule, separating them from a deeper connective tissue.^{6,7} In younger age group recurrent and chronic tonsillitis is very common. Malignancy of tonsils is also not very uncommon.

Chronic tonsillitis is a disease with relapsing and remitting acute attacks or a subclinical form of a resistant infection, a poorly treated kind.⁸ It is impossible to differentiate chronic tonsillitis from recurrent tonsillitis and these two terms were used to represent the same disease process. Recurrent and chronic tonsillitis lead to hyperplasia of the tissue and the treatment given is surgical removal of tonsils, but there is little information about the histopathological findings in a tonsillectomy specimen both in the textbooks and in the literature.⁹ The current indications for tonsillectomy are usually chronic infectious conditions such as chronic tonsillitis or chronic upper airway obstruction in conjunction with tonsillar hypertrophy.¹⁰

In our study patients' age group ranged from 7-37 years, majority of the patients (71%) were less than 20 years of age. Study by Nikethan et al also found similar age group affected by chronic tonsillitis.¹¹ Tuberculosis in tonsils has been reported by Anim et al though there was no case of tonsillar tuberculosis in our study.¹² Tonsillar disease appears to have similar incidence in females (51%) and males (49%). This is dissimilar to the work of Ikram et al where males predominated and also to Ekirle, Garavello and co-workers respectively where females predominated in their result.¹²⁻¹⁴ The common indications for tonsillectomy in our study were recurrent tonsillitis having throat pain, sore throat, odynophagia and snoring. The histological diagnosis is consistent with the clinical features. This is similar to the findings of Ikram, Leif and co-workers.^{2,15}

On HPE, according to Ugras et al eight histopathologic criteria have been identified; Slight-moderate lymphocyte infiltration and the presence of Ugras's abscess and/ or diffuse lymphocyte infiltration leading to the defect in the surface epithelium not present in normal tonsils.⁵ Therefore, combinations of three findings are fairly diagnostic for chronic tonsillitis, while presence of predominance of secondary lymphoid follicle is diagnostic of chronic tonsillar hypertrophy/hyperplasia. In our study chronic tonsillitis was observed in 57% cases while Chronic lymphoid hyperplasia/ hypertrophy was observed in 43% cases. This is similar to the findings of Ikram et al and Adoga et al except that the proportion varies.^{2,16}

Actinomycetes are filamentous bacteria and present as oral cavity commensal organisms. When present in the tonsils, they are associated with recurrent tonsillitis along with complaints of sore throat, fever. Human actinomycosis is mainly caused by *A. israelii*.¹⁷ Van Lierop et al found no tissue reaction due to actinomyces colonies and hence reported no correlation between tonsillar actinomycosis and recurrent tonsillitis.¹⁸ In our study, 14 specimens of chronic tonsillitis showed actinomycotic colonies, without tissue reaction. Similar findings were also found in study by Nikethan et al.¹¹

CONCLUSION

We conclude that symptomatic tonsillitis is common in paediatrics and adolescent age group requiring tonsillectomy. Chronic tonsillitis is the most common histopathological diagnosis followed by chronic lymphoid hyperplasia/hypertrophy. Though actinomycetes is commensal organism of tonsil, it is associated with symptomatic recurrent tonsillitis.

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