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ROUTINE HISTOPATHOLOGICAL EVALUATION OF TONSILLECTOMY SPECIMEN: IS IT NECESSARY?

Pathology

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ABSTRACT

Objectives Tonsillectomy is one of the surgical procedures done in otolaryngology practice for wide range of tonsillar diseases, the most common indication being tonsillar infections. These specimens are rarely sent for histopathology. The present study deals with histopathological changes in tonsils resected for non neoplastic conditions.

Patients and Methods This is a descriptive analytical study on tonsils which were received for histopathology from patients who underwent tonsillectomy over a period of one year. Formalin fixed specimens were examined grossly and histopathology sections stained with H & E were studied in detail. Special stains done wherever necessary.

Results One forty eight tonsils were included for the study. Age of the patients ranged from 3years to 52 years with male to female ratio of 1:2. Nineteen tonsils (12.7%) had colonies of Actinomycetes, Nocardia and Botromyces. Features of chronic tonsillitis were observed in all specimens.

Conclusion Though pathological analysis of all routine tonsillectomy specimens may not alter the clinical course of management it has to be performed so that we discover an array of histopathological changes and organisms.

KEYWORDS:

Chronic tonsillitis, Histopathology, Actinomyces, Nocardia

Introduction

Palatine tonsils are a part of the circular band of lymphoid tissue called Waldeyer's ring, which guard the opening of digestive and respiratory tract. In otolaryngological practice tonsillar diseases are most common often requiring resection. Tonsillectomy is performed for a wide range of indications, the most common being infective cause. The other indications are recurrent infections, peritonsillar abscess, obstructive sleep apnea, snoring and evaluation of suspected malignancy. Despite high prevalence of chronic tonsillitis and tonsillectomy being one of the commonest surgeries, surgical pathologist rarely gets a chance to study the tonsils [1,2,3].

Following tonsillectomy, otorhinolaryngology (ORL) surgeons ignore the importance of sending the specimen for microscopic examination [1].

Actinomycosis of the tonsil has been reported by various authors and is considered as saprophyte of normal tonsil. Whether these colonies are incidental or cause tonsillar lesions is still not definitely solved. Nocardia and Botryomyces are other bacterial colonies reported in the tonsillar crypts [4].

This study was undertaken to highlight the histomorphological changes in resected tonsils.

Materials and Methods

ORL surgeons were requested to send the tonsillectomy specimen for histopathology along with clinical data. Formalin fixed specimens were examined in detail for gross features viz., size, congestion, abscess, cysts etc. Representative tissue bits were taken and processed routinely for histopathology. 4-5µm thickness sections obtained from the paraffin blocks were stained with Hematoxylin and Eosin and studied microscopically. Ziehl-Neelsen stain was done wherever necessary. Microscopic features observed included epithelial changes, lymphoid follicular hyperplasia, tonsillar fibrosis, crypt changes like cryptitis, and presence of bacterial colonies like Actinomycetes, Nocardia etc.

Results

Over a period of one year 149 consecutive tonsillectomy specimens resected from 75 patients were sent for histopathology. 148 tonsils were from 74 patients who underwent bilateral tonsillectomy for tonsillitis. Single tonsil was from a patient who underwent unilateral tonsillectomy for suspected papilloma, this case was excluded from the study.

Age of these patients ranged from 3 years to 52 years with 66.5% (n:49) below 20 years of age. There were more females who underwent tonsillectomy (n:50, 67.5%) with male to female ratio of 1:2.

Of the 148 specimens 114(77%) were tonsillectomy and 34 (22.9%) were adenotonsillectomy specimens. Indications for tonsillectomy varied from recurrent tonsillitis (n: 65, 88%), tonsillar hypertrophy (n:6, 8.1%) to tonsillar cysts (n:3, 4.05%). Features of chronic tonsillitis with lymphoid hyperplasia were found in all the specimens. 8 (5.4%) tonsils in addition showed suppurative inflammatory foci.

Lymphoid hyperplasia, lymphocytic infiltration, ugra's abscess were criteria for making diagnosis of chronic tonsillitis as described by Ugra's.

Tonsils involved in chronic tonsillitis showed combination of microscopic features.

Sub epithelial lymphocytic infiltration was the commonest feature

observed in 91 (61.5%) followed by intra epithelial groups of tightly aggregated lymphocytes ie, ugra's abscess in 55 (37.2%), lymphoid hyperplasia in 50 (33.7%). Fibrosis was seen in 22 tonsils (14.9%). 8 (5.4 %) tonsils showed aggregates of neutrophils in the epithelium ie intra epithelial microabscess.

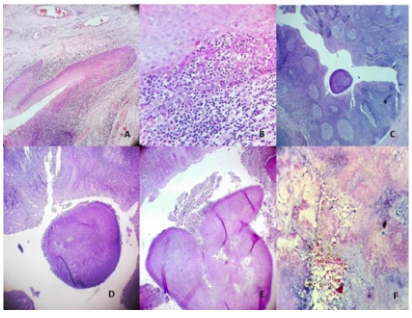
12 (8.1 %) tonsils showed aggregates of bluish filamentous bacterial colonies resembling actinomycosis deep within the tonsillar crypts.The age of the patients with actinomycetes in tonsils ranged from 8 years to 52 years. 8 (66.7%) were females and 4 (33.3%) were males.

The tonsils which showed presence of actinomycetes colonies showed lymphoid hyperplasia with prominent germinal centres and cryptitis.

4 tonsils (2.7%) showed filamentous bacterial colonies in the tonsillar crypts which are purple to pink in colour and were categorized as nocardia. Age of these patients ranged from 6 years to 32 years. 2(50%) were males and 2(50%) were females.

In 3 tonsils (2.02%) bluish bacterial colonies were seen which resembled botromycosis. The material could not be subjected for culture, since specimens were fixed in formalin.

Ziehl-Neelsen stain was performed on all these sections and nocardia were weakly acid fast.



Legend to the Photograph

A: Dense subepithelial lymphocytic infiltration with extensive exocytosis. H & E, Low Power
B: Ugra's abscess -defect in the surface epithelium with lymphocyte aggregation. H & E, High Power
C: Actinomycotic colonies within tonsillar crypts with reactive follicular hyperplasia. H & E, Low Power
D: Basophilic filamentous bacterial colonies in tonsillar crypts – Actinomycosis. H & E, High Power
E: Filamentous bacterial colonies in the tonsillar crypts which are purple to pink in colour, categorized as Nocardia. H & E, High Power
F: Nocardia colony- weakly acid fast. AFB stain, High Power

Discussion

Histopathological request for tonsils removed for tonsillitis is less common in our centre which appears to be same in various centres. Since it is believed that histopathological examination of tonsill ectomy specimens results in financial burden to the patient and loss of histopathologists man hour. Another reason for the same, being microscopic examination of tonsil specimen correlates well with pre-operative clinical diagnosis and pathology findings rarely contribute to alteration in patient management [1,5].

Studies have revealed that excised normal looking tonsils show diversity of pathological entities like lymphomas, choristoma, microabscess, cholesterol clefts, actinomycosis etc [1].

Another reason favouring routine histopathological examination, is that in addition to preventing missing an important diagnosis of occult malignancy, granulomatous disease etc, it is useful for research, as well as for medicolegal purpose.

Since tonsils from pediatric age group, did not reveal any significant findings, Shobha et al suggests continuing the practice of routine histopathological examination of adult tonsillectomy specimens only [6].

Similar to present study recurrent tonsillitis forms the commonest indication for tonsillectomy [2,3,4].

In our study, histopathological examination of 148 tonsils showed no evidence of malignancy or tuberculosis, in contrast to 0.026% of malignancy reported by Brien et al [7].

Though tonsillitis was more common in females, there is no sex predilection for chronic tonsillitis [2].

Age of the patients undergoing tonsillectomy varies, depending on the cause. Mean age of the patients in our study was 20 years, which is similar to other studies [2,4].

Studies related to tonsillitis are confined to lymphoid follicles, germinal centres and crypts. Lymphoid hyperplasia is a nonspecific finding, as lymphoid cells are stimulated by a variety of antigens and allergens which may be seen in tonsillar hypertrophy, acute and chronic tonsillitis[1].

Slight to moderate lymphocyte infiltrate in the surface epithelium, Ugras's abscess or diffuse lymphocyte infiltration leading to the defect in the surface epithelium are the features described as characteristic of chronic tonsillitis [2].

19 (12.8%) tonsils showed presence of bacterial colonies in the tonsillar crypts, with actinomycosis (n:12, 63.2%) being the common organism, affecting more females 8(66.7%) with a mean age of 23 years, and associated with lymphoid hyperplasia and cryptitis.

Significance of actinomycetes in chronic tonsillitis studied by Sujatha et al, highlights adult age, female preponderance and active tissue infections [4].

Frequency of tonsillar actinomycosis and age of the patient affected varies in the literature because of regional differences and environ mental risk factors for colonisation [8]..

Hasan Yasan etal concluded that actinomycetes are saprophytic organisms in tonsillar tissue and do not play any role in tonsillar hypertrophy, fibrosis, or adenoid hyperplasia [9].

4 tonsils showed filamentous bacterial colonies which appeared purplish on H & E and were classified as Nocardia based on their acid fast characteristics with Ziehl-Neelsen stain.

Nocardia species are filamentous gram positive bacteria found in soil as saprophytes and they are rare in tonsil, though iatrogenic nocardial abscess is known to occur in the lung and pharynx.

Adair etal have documented a case of peritonsillar abscess caused by nocardia asteroids [10].

3 tonsils showed non filamentous colonies of bacteria resembling botryomycosis which was nonacid fast. Martens RH et al reported grains in the crypts of six tonsils, four (2.4%) of which were actinomyces and two (1.2%) were botryomyces [11].

Conclusion

Though pathological analysis of all routine tonsillectomy specimens may not alter the clinical course of management it has to be performed so that we discover an array of histopathological changes and organisms. It also adds to the count of surgical specimens received from ORL department for histopathology and may have medicolegal importance .

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