MICROBIOLOGICAL PROFILE OF CHRONIC TONSILLITIS IN THE PEDIATRIC AGE GROUP

Dr Jairaj Kumar Vaishnav
Assistant Professor, Department of ENT RVRS Medical College Bhilwara (Rajasthan)

Article Info: Received 01 July 2021; Accepted 13 August 2021
DOI: https://doi.org/10.32553/ijmbs.v5i8.2141
Corresponding author: Dr Jairaj Kumar Vaishnav
Conflict of interest: No conflict of interest.

Abstract
Background: The paediatric age group is more prone to tonsillitis. The management of tonsillitis mainly based on understanding of microbiological and pathological features. This study aimed to discuss the microbiological profile of acute tonsillitis in children.

Methods: Children fewer than 18 years age group was included in this study and the children underwent tonsillectomy or in antibiotics for at least one month were excluded from study. The throat swabs were taken for microbiological diagnosis.

Results: The most common isolates were Streptococcus viridians group, Group A β-hemolytic Streptococci. There were only 3 cases with polymicrobial growth

Conclusions: The understanding of microbiological profile could help in management of acute tonsillitis. The pathological profile can help us to identify the organisms which are difficult to culture.

Keywords: Acute tonsillitis, Bacteria, Profile

Introduction
Tonsils are sub epithelial lymphoid tissue in the oropharynx between the palatoglossal pillar anteriorly and the palatopharyngeal pillar posteriorly. Tonsils are in a region where microorganisms are found in ample. Microorganisms penetrate into the tonsillar tissue through the defect in the epithelium and get access to the lymphatic system, which is responsible for all the individual attacks of tonsillitis. Hence, it is important to know the individual organism causing tonsillitis.1

Tonsillitis is a very common disease in children. Tonsillectomy is the most common surgical procedure performed in children with recurrent tonsillitis. The greatest immunological activity of the tonsil is found between the ages of three to 10 years. As a result, the tonsils are more prominent during this period and later demonstrate age-dependent involution. One or more attacks of acute tonsillitis per year are common in the primary school age group children. The common symptoms include sore throat, dysphagia, and fever with or without a history of upper respiratory tract infection. Children experiencing recurrent tonsillitis may develop enlarged tonsillar crypts with debris, persistent congestion of the tonsils, and dilated blood vessels on the surface of tonsils. Tonsillar diseases affect other anatomical-related structures like the middle ear cleft, paranasal sinuses, and upper aero digestive tract. In chronic tonsillitis, a culture of organisms obtained from the tonsillar surface might not be the infecting organism but could be the colonizing species. So, core culture from the tonsil would be more reliable.2

Material and methods
This descriptive study included all children less than 18 years of age with chronic tonsillitis presenting to the otorhinolaryngology outpatient department (OPD).

Children were recruited for the study after explaining the nature, methodology, and risks involved to the parents or guardians. Participants were given full freedom to withdraw themselves from the study at any time.

Recurrent tonsillitis is described as more than seven episodes in one year, more than five episodes annually for more than two years, more than three episodes annually for more than three years, or two weeks or more of lost school in one year due to tonsillitis. The clinical features of sore throat plus the presence of temperature >38.30C, cervical lymphadenopathy (tender lymph nodes or >2 cm), tonsillar exudates, or a positive culture for Group A beta hemolytic Streptococcus.3 Children with recurrent tonsilitis and recurrent tonsillitis with obstructive symptoms were included in the study. Children who underwent tonsillectomy for obstructive symptoms alone and children who received antibiotics at least one month prior to surgery were excluded from the study.

Results
The mean age of children included in this study was 9.23 ±2.34 years. The duration of symptoms due to tonsillar disease ranged from four weeks to 27 months. There were 46 males and 54 females.
Table 1: List of aerobic organisms isolated from 100 tonsillitis specimen.

<table>
<thead>
<tr>
<th>Organisms isolated</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Streptococcus viridans</td>
<td>61</td>
</tr>
<tr>
<td>Group A Streptococci</td>
<td>46</td>
</tr>
<tr>
<td>Streptococcus pneumoniae</td>
<td>38</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>24</td>
</tr>
<tr>
<td>Haemophilus influenzae B</td>
<td>18</td>
</tr>
<tr>
<td>Diptheroid spp</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 2: List of anaerobic organisms isolated from 100 tonsillitis specimen.

<table>
<thead>
<tr>
<th>Organisms isolated</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacteroids spp</td>
<td>21</td>
</tr>
<tr>
<td>Peptococcus spp</td>
<td>19</td>
</tr>
<tr>
<td>Fusobacterium spp</td>
<td>17</td>
</tr>
<tr>
<td>Lactobacillus spp</td>
<td>14</td>
</tr>
<tr>
<td>Peptostreptococcus spp</td>
<td>11</td>
</tr>
</tbody>
</table>

Discussion

Previous studies mostly concentrated on microbiological profile of tonsillitis mainly find out the aerobic bacterial isolates. The role of anaerobes in acute or chronic tonsillitis is less studied, because of mostly anaerobes are normal commensal of oropharynx. Therefore, isolates taken from the surface of tonsil can mislead. In this present study role of both aerobes and anaerobes were recorded. Specimens were also taken from deep tonsillar tissue to study the disease-causing organisms. In this study common bacterial isolates were such as, Streptococcus viridans, Group A Streptococci, Streptococcus pneumoniae, Staphylococcus aureus, Haemophilus influenza type B and diphertheroid spp. According to the study done by Agarwal et al most common isolates were, Streptococcus viridans, Staphylococcus aureus, Enterococcus, Pneumococcus, Bacteroid fragilis and Corynebacterium spp. and without anaerobes isolates.8 The different study done by Omer et al. reported facultative anaerobes such as coagulase negative Staphylococci, alpha-hemolytic Streptococci, and diphertheroids. In case of obligate anaerobes such as Propionibacterium acnes, Peptostreptococcus anaerobius and Prevotella melanino genica. In our study common anaerobic bacteria isolates were Bacteroid spp, Peptococcus spp, Fusobacterium spp, Lactobacillus spp, Veillonella spp and Pepto streptococcus spp. The histopathological examination showed non-specific follicular hyperplasia in all children. Actinomyces was related with follicular hyperplasia in 2 specimens, which indicates Actinomyces are causative organism causing tonsillitis. Actinomycosis is commonly associated with liver, breast, spleen, parotid, pulmonary, craniofacial and ileocecal areas.7 Tonsillar actinomycosis has been reported in various studies.4,5,8 But, Gaffney et al. reported there was no association between tonsillitis and actinomycosis and concluded Actinomyces are saprophytes in the tonsillar tissue.6 Another study done by Kansu et al. reported Actinomyces are pathogenic organisms in tonsillitis.7 Actinomyces colonization in the crypts can be diagnosed by H & E staining.5,9

Conclusion

The understanding of microbiological profile could help in management of acute tonsillitis. The pathological profile can help us to identify the organisms which are difficult to culture. The limitation of this study is smaller sample size and short duration of study.

References