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ABSTRACT

Introduction: Tonsillitis is the most common disease, after nasal pharyngeal infections, with pathogens. Palatine tonsils are part of the Waldeyer’s lymphatic ring, responsible for the first line of defense against pathogens. Aim: To investigate the common pathogen causing acute tonsillitis. Study Design: Prospective study. Material and Methods: A total of 112 patients with acute tonsillitis presenting to ENT OPD were included in the study. Sterile cotton swabs were used to collect the samples from the surface of tonsils in patients with acute tonsillitis. The swabs were cultured and incubated aerobically for 24-48 hours. Results: 80 aerobic bacterial isolates were obtained giving a percentage positivity of 71.4% out of which 66 isolates were Gram positive and 14 were Gram negative isolates. Microbiological results revealed that Staphylococcus aureus and Streptococcus pyogenes were the most common bacterial isolates representing about 33.7% and 27.5% respectively. Conclusion: Understanding the microbiology of acute tonsillitis is an important step in its management.

INTRODUCTION

Tonsils are subepithelial lymphoid tissue in the oropharynx between the palatoglossal pillar anteriorly and the palatopharyngeal pillar posteriorly.1 Palatine tonsils are part of the Waldeyer’s lymphatic ring, responsible for the first line of defense against pathogens because it is located at the entrance of the air and digestive tracts.2 Tonsils are predominantly B-organs and B-lymphocytes comprise 50–60% of tonsillar lymphocytes.3 The tonsils are major components of the MALT (Mucosal Associated Lymphoid Tissues). They consist of aggregations of lymphoid cells that are present in the mucosa of the nasopharynx (NALT), the oropharynx (GALT), and the laryngopharynx (LALT).4 Tonsillitis is the most common disease, after nasal pharyngeal infections, with pathogens. Acute tonsillitis is more common in children between the ages of 5 and 15 years. The prevalence of bacterial tonsillitis, specifically group A beta-hemolytic streptococci (GABHS), is 15% to 30% of children with sore throat and 5% to 15% of adults with sore throat.5,7

Thus, understanding the microbiology of acute tonsillitis is an important step in its management. The present study was undertaken to investigate the common pathogen causing acute tonsillitis.

MATERIAL AND METHOD

This prospective study was designed and carried out in ENT Department of SKIMS MCH from January 2019 to December 2019 for a period of 1 year in order to survey the common microbiological etiology of acute tonsillitis. A total of 112 patients with acute tonsillitis presenting to ENT OPD were included in the study.

Inclusion Criteria

1. Patients with acute tonsillitis having age > 1 year and < 50 years.
2. Patients of either sex.

Exclusion Criteria

Refusal to participate in the study.

METHODOLOGY

Sterile cotton swabs were used to collect the samples from the surface of tonsils in patients with acute tonsillitis. The swabs were cultured on Blood and MacConkeys agar and incubated aerobically for 24-48 hours. This study was limited to identification of aerobic bacterial isolates from the samples submitted for culture.

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RESULTS

A total of 112 specimens were obtained from patients under study. Among these patients, 62 were males and 50 were females. Maximum patients were in age group of <10 years i.e. 52.67%. There were 80 aerobic bacterial isolates obtained giving a percentage positivity of 71.4% out of which 66 isolates were Gram positive and 14 were Gram negative isolates consisting Klebsiella pneumoniae and Pseudomonas aeruginosa. No growth was seen in 32 patients which can be attributed to anaerobes or viruses as our study was limited to identification of aerobic bacterial isolates only.

Table 1: Age Distribution

<table>
<thead>
<tr>
<th>Age Distribution</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-10</td>
<td>59</td>
<td>52.67</td>
</tr>
<tr>
<td>11-20</td>
<td>21</td>
<td>18.75</td>
</tr>
<tr>
<td>21-30</td>
<td>15</td>
<td>13.39</td>
</tr>
<tr>
<td>31-40</td>
<td>7</td>
<td>6.25</td>
</tr>
<tr>
<td>41-50</td>
<td>10</td>
<td>8.92</td>
</tr>
</tbody>
</table>

Table 2: Distribution of Bacterial Isolates

<table>
<thead>
<tr>
<th>Organism</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staph. Aureus</td>
<td>27</td>
<td>33.7</td>
</tr>
<tr>
<td>Strep. Pyogenes</td>
<td>22</td>
<td>27.5</td>
</tr>
<tr>
<td>Gr B Streptococcus</td>
<td>17</td>
<td>21.2</td>
</tr>
<tr>
<td>Klebsiella pneumoniae</td>
<td>9</td>
<td>11.2</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>5</td>
<td>6.2</td>
</tr>
</tbody>
</table>

DISCUSSION

Our present research on the microbiological study of acute tonsillitis was aimed at identifying the aerobic organisms. In our study, aerobic bacterial isolates were identified in 71.4% of cases. This is in comparison with M.S. Al Ahmary et al. (2012) who reported percentage positivity of 65.38%. In our study, microbiological results revealed that Staphylococcus aureus and Streptococcus pyogenes were the most common bacterial isolates representing about 33.7% and 27.5% respectively. In the study done by M.S. Al Ahmary et al., predominant isolate was staphylococcus aureus accounting for 44.1%. In a study done by Wurud Ali Hathal et al., predominant isolate was staphylococcus aureus representing 26.1% and 19.5% respectively. Raja Kalaiarasi et al. reported that 22.25% bacterial isolates obtained in their study was Streptococcus Pyogenes.

In our study, gram negative isolates i.e. Klebsiella pneumonia and Pseudomonas aeruginosa were obtained in 11.2% and 6.2% patients respectively. In the study done by M.S. Al Ahmary et al., Klebsiella was seen in 8.82% of patients. Wurud Ali Hathal et al. reported that Pseudomonas aeruginosa was isolated in 4.3% of cases.

CONCLUSION

The study suggests that the common etiological agents for acute tonsillitis were S. aureus followed by Strep. Pneumonia. It is very much needed that the doctors should have knowledge about the pattern of causative agents as it gives them clue regarding the use of appropriate antibiotics.

Bibliography