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Original Research Article

Microbiological Analysis of Chronic Tonsillitis in Pediatric Patients

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Abstract:

Background and Objectives: The Paediatric age group is more prone to tonsillitis. The management of tonsillitis mainly based on understanding of microbiological and pathological features. Tonsillitis is a very common disease in children. Tonsillectomy is the most common surgical procedure performed in children with recurrent tonsillitis. 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 only3 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 subepithelial lymphoid tissue in the oropharynxbetween the palatoglossal pillar anteriorly and the palatopharyngeal pillar posteriorly. Tonsils are in a region where microorganisms are found in ample. Microorganismspenetrate 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 organismcausing tonsillitis. [1]

Tonsillitis is a very common disease in children. Tonsillectomy is the most common surgical procedure performed in children with recurrent tonsillitis. The greatestimmunological 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 acutetonsillitis 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 tonsillarsurface might not be the infecting organism but could be thecolonizing 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). Study Period, From Jan 2022 to Dec 2022.

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 withdrawthemselves 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 tonsillitis 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 tonsillardisease 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.

Organisms isolated	Number
Streptococcus viridans	61
Group A Streptococci	46
Streptococcus pneumoniae	38
Staphylococcus aureus	24
Haempphilus influenzae B	18
Diptheroid spp	3

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

Organisms isolated	Number
Bacteroids spp	21
Peptococcus spp	19
Fusobacterium spp	17
Lactobacillus spp	14
Peptostreptococcus spp	11

Discussion

Previous studies mostly concentrated on microbiologicalprofile 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 normalcommensal of oropharynx. Therefore, isolates taken from the surface of tonsil can mislead. In this present study roleof 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 viridians, Group A Streptococci, Streptococcus pneumoniae, Staphylococcus aureus, Haemophilus influenza type B and diphtheroid 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 and anaerobes isolates.8 The different study done by Omer et al. reported facultative anaerobes such as coagulase negative Staphylococci, alpha-hemolytic Streptococci, and diptheroids. 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 streptocuccus 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. [3] Tonsillar actinomycosis has been reported in various studies. [4,5] 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. [8,9]

Conclusion

The understanding of microbiological profile could help in management of acute tonsillitis. The pathological profilecan 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

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