



BACTERIOLOGICAL PROFILE AND ANTIBIOTIC SENSITIVITY PATTERN OF ACUTE TONSILLITIS IN ADULTS IN A TERTIARY CARE CENTER.

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ABSTRACT

Objective: The objective of this study is to determine the prevalence, identify the common pathogens and antibiotic sensitivity of acute tonsillitis in adults.

Materials and Methods: A descriptive study was carried out from January 2014 to January 2017 among all adult patients attending the ENT outpatient department with acute tonsillitis. The data were retrieved from the medical records using a questionnaire. Statistical analysis was carried out and results were obtained.

Results: A total of 350 patients were included. 18 to 70 years was the average age group. The common clinical types of tonsillitis noted were acute parenchymatous / follicular / exudative tonsillitis. The highest frequency of acute tonsillitis was seen in 20- 29 year age group with the commonest symptoms at presentation being sore throat and fever. A similar clinical presentation during the previous year was noted in about 25% of the patients. Among the study participants whose throat swab cultures were done, Streptococcus was the commonest species identified, a majority being alpha haemolytic streptococci, followed by streptococcus pyogenes and streptococcus pneumoniae. Most of these organisms were sensitive to Amoxycyclavulanic acid and cephalosporins. The majority of patients responded to treatment with oral or parenteral antibiotics of the above group. Other few multidrug resistant patients were treated with piperacillin, ceftriaxone, cefotaxime and meropenem.

Conclusion: Therapeutic guidelines for optimum clinical response to acute tonsillitis among adult patients can be developed based on the common organisms grown on throat swab and their antibiotic sensitivity pattern to reduce patient morbidity and provide cost effective treatment.

KEYWORDS : adult acutetonsillitis, exudative , membranous, microorganisms, antibacterial agents.

INTRODUCTION:

Acute infection of the tonsils is most frequent in childhood in the age group of 5 to 15 years presumably because immunity to common organisms has not been established¹. Initial viral infection may predispose to super-infection with bacteria, or viruses alone may be responsible for tonsillitis in children on many occasions². Adult acute febrile suppurative tonsillitis is relatively uncommon and the bacteriological profile of adults with acute tonsillitis is different from that of a child³. The commonest pathogen in adult acute tonsillitis was shown to be beta hemolytic streptococci, as reported in a study done on 257 young men in military service³. Another study found Haemophilus influenzae was the single most common bacterium isolated from the tonsil core in 262 patients in the 2-7 year old age group with recurrent tonsillitis⁴. Anaerobic bacteria have been implicated in adults with acute tonsillitis, especially the ones with a complication or with a predisposing factor leading to compromised immunity^{4,5}. Acute tonsillitis where viruses like adenovirus, Epstein Barr virus or influenza virus is implicated is treated symptomatically with antipyretics, antiinflammatory drugs and mouth gargles. In case of secondary bacterial infection causing purulent material to accumulate in the tonsillar crypts, penicillin has been the drug of choice⁶. Presently penicillin treatment of tonsillopharyngitis does not meet the minimum United States Food and Drug Administration standards for firstline treatment, which is 85% or greater eradication at the end of therapy. Recent results with amoxicillin suggest its efficacy is also waning. Cephalosporins alone or cephalosporins with metronidazole where anaerobes are implicated have the highest bacteriologic and clinical efficacy⁷. Review of literature indicates that many studies on bacteriological profile of acute tonsillitis have been carried out among children or a mixed population with children and adults, but there are very few studies that are confined to acute tonsillitis in adults. Acute follicular, acute exudative or acute parenchymatous tonsillitis may require admission due to the patient's toxic and dehydrated condition that leads to loss of working hours. Hence, identification of the organisms responsible and their antibiotic sensitivity pattern can guide in early and timely oral antibiotics to preventing wasting of hours of work in hospital stay. The primary objective of this study was to determine the bacteriological profile and antibiotic sensitivity pattern of the adult patients with acute tonsillitis attending the ENT outpatient department at VIMS hospital during a period of three year.

MATERIALS AND METHODS:

A descriptive retrospective epidemiological study design was adopted in the present study. This study was carried out among all adult (18 years and above) patients attending the outpatient department (OPD) of ENT of VIMS, BALLARI with acute tonsillitis from January 2014 to January 2017. The patient's records were obtained from the Medical

Records Division and the culture and sensitivity reports were obtained from the central laboratory.

A pilot-tested questionnaire was used to evaluate the prevalence, pattern and antibiotic sensitivity of acute tonsillitis. The questionnaire included both openended and close-ended questions. Socio demographic characteristics (age, gender), clinical data (clinical diagnosis, clinical manifestations of acute tonsillitis, examination findings), and laboratory data (CBC report, culture and sensitivity report, organisms isolated, sensitivity and resistance pattern) were recorded in the questionnaire. The approval from the Ethics Committee was obtained. Statistical analysis was carried out using SPSS.19 version. Descriptive statistics were calculated.

RESULTS:

A total of 350 patients (males: 205, females: 145) were included. The ages ranged from 18 to 70 years. The common clinical types of tonsillitis noted were acute follicular (Figure1), exudative (Figure 2) and parenchymatous (Figure 3) tonsillitis and acute pharyngotonsillitis. The highest frequency of acute tonsillitis (53.1%) was observed in 20-29 year age group



Figure 1: Acute follicular tonsillitis.



Figure 2: Acute exudative tonsillitis



Figure 3: Acute parenchymatous tonsillitis

The commonest symptoms at presentation were sore throat (85.1 %) and fever (62.3 %) respectively. Details are given in Table 1. The tonsils on examination were enlarged in 80.6% of patients (size 2+ or more) and follicles on the congested surface of one or both tonsil was the commonest finding (94.4%).

About one fourth of the study group had similar episode(s) of clinical presentation in the previous year. Among the study participants whose throat swab culture was done, Streptococcus was the commonest species identified (64.1%), a majority being alpha haemolytic streptococci, followed by streptococcus pyogenes and streptococcus pneumoniae. 12.3% were Neisseria species and a few staphylococcus species (Figure 4).

Table 1: Symptom at the time of presentation

Presenting Symptoms	Number	Percentage
Sorethroat	298	85.1
Fever	218	62.3
Odynophagia	76	21.7
Bodyache	58	16.6
Headache	52	14.9
Cough	46	13.1
Dysphagia	38	10.9
Earache	32	9.1
Nasal congestion	22	6.3
Cold	10	2.9
Nasal discharge	8	2.3
Voice problems	4	1.1
Neck swelling	2	0.6
Dizziness	2	0.6
Mouth breathing	2	0.6
Sneezing	2	0.6
Snoring	2	0.6

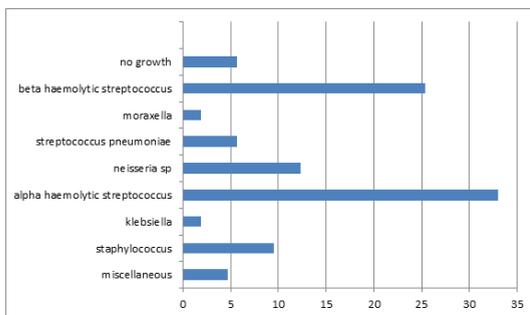


Figure 4: Graph showing bacterial growth

Most of the Streptococcus species were sensitive to third or fourth generation Cephalosporins and Amoxy clavulanic acid. The majority of the patients responded to treatment with oral or parenteral antibiotics of the above group. Some organisms were multidrug resistant, being sensitive only to piperacillin, ceftriaxone, cefotaxime and meropenem.

DISCUSSION:

Acute pharyngotonsillitis is conventionally been known as the clinical disease of the young, but in our study we have noted 350 adult patients

of the same clinical condition over a period of one year. The incidence is 2% of all patients seen in ENT out-patient department and 17% of all inpatients admitted during the study. The highest frequency has been noted in the 20 to 29 year age group. The commonest presentations that most studies indicate, and our patients too presented with, were fever and sore throat⁶. Some of the patients did present with symptoms suggestive of an upper respiratory tract infection, e.g. nasal congestion, malaise, headache, etc. that probably indicates a preceding viral upper respiratory tract infection which was followed by pharyngotonsillitis. Clinical examination in most revealed enlarged erythematous tonsils with follicles on the surface of one or both faucial tonsils. This is due to collection of inspissated debris or purulent material filling the many crypts on the tonsillar surface, indicating a probable bacterial etiology⁸. 97.3% of the patients also had tender unilateral or bilateral cervical lymphadenopathy which indicates an infective etiology⁶. 78.9% of the cases that came to us did not have similar episodes in the previous year. Out of the 350 patients only 212 underwent throat swab culture and sensitivity. This was due the fact that the patient had probably already self administered some antibiotic, was started on the same by a clinician of an outside institution on an ambulatory basis before the patient presented to us or because of financial constraints. Among those who underwent throat swab culture and sensitivity more than 95% had significant bacterial growth. Most of these patients were dehydrated and toxic with high fever that required admission and parenteral antibiotics. The commonest organism grown was alpha haemolytic streptococci followed by beta haemolytic streptococci. Alpha haemolytic streptococci are considered to be commensals in the throat^{6,8}. Most of the Streptococcus species were sensitive to third or fourth generation Cephalosporins and CoAmoxy clavulanic acid. The majority of the patients responded to treatment with oral or parenteral antibiotics of the above group. Some organisms were multidrug resistant, being sensitive only to piperacillin, ceftriaxone, cefotaxime and meropenem has been noted. Viral studies are not routinely included in the diagnosis of acute tonsillopharyngitis. Hence a viral etiology at the outset with a secondary bacterial infection later could not be proved. The role of commensal bacteria in acute tonsillitis needs further elucidation. Either the commensals are primary pathogens or secondary to viral infections. The large number of isolates of alpha-hemolytic streptococci with significant growths on culture would suggest an important role of these organisms in the pathogenesis of acute tonsillitis.

CONCLUSION

Therapeutic guidelines for optimum clinical response to acute tonsillitis among adult patients can be developed based on the common organisms grown on throat swab and their antibiotic sensitivity pattern to reduce patient morbidity and provide cost effective treatment.

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