

## ORIGINAL RESEARCH

# Study On Bacteriology Of Pathogenic Bacteria Of Acute Tonsillitis In A Tertiary Care Hospital

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## ABSTRACT

**Introduction:** Infection of the tonsil may occur primarily or secondary as a result of infection of the upper respiratory tract.

**Material and Method:** This study was conducted to analyze the bacterial pathogen causing acute tonsillitis. This present study was conducted on 160 patients with signs and symptom of tonsillitis for a period of one year. Tonsillar swab was taken. Bacterial identification and antimicrobial susceptibility was done.

**Result:** Maximum tonsillitis cases were observed in between 13 to 20 years age group. Staphylococcus aureus was the most common bacterial pathogen identified which was responsible of causing acute tonsillitis. Ciprofloxacin was effective 77% against isolates of S.aureus.

**Conclusion:** So proper pathogenic bacterial identification and their antibiotic sensitivity may prevent the complication of tonsillitis.

**Keywords:** Acute tonsillitis, surface swab, Bactriology

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## INTRODUCTION

Tonsillitis is inflammation of tonsils Acute tonsillitis is a common childhood disease Viral infection is the most common cause of acute tonsillitis but it is seen

that recurrent tonsillitis is mostly caused by bacteria.<sup>1</sup> Tonsillitis is one of the most common ailments encountered at childhood. The inflamed tonsils harbour numerous types of bacteria, alone or in combination.<sup>2</sup> Common symptoms of tonsils are sore throat, red swollen tonsils, cough, headache, chills, pain when swallowing, fever, pain in ears or neck, change in voice etc.<sup>2</sup>

The present study was conducted to identify the prevalent bacterial pathogens and their antibiotic sensitivity which would prevent the complication of tonsillitis and also avoids surgical treatment.

## METHODS AND MATERIALS

The present study is comprised of 160 patients presenting with signs and of tonsillitis.i.e. sore throat, fever, difficulty in swallowing and with history of recurrent upper respiratory tract infection, pain in ears or neck, red swollen tonsils etc at ENT OPD of Patna Medical College Hospital, Patna from Jan 2012 to December 2012. In all cases the tonsillar swab were collected and send to Microbiology department.

- Swabs were inoculated onto blood agar, nutrient agar and MacConky's medium agar. They were incubated at 37<sup>0</sup> C for 24hours and colonies were identified by Gram stain and biochemical reaction. The antibiotic sensitivity test was done according to Kirby Bauer's disc diffusion method.<sup>3</sup> The following standard antibiotic disc were used i.e. amoxicillin, co-trimoxazole, chloramphenicol, ceftazidime, oxacillin, tobramycin, ciprofloxacin
- Among 160 cases 90 were males and 70 were female. On the basis of age groups patients were divided into four age groups i.e. between 5 to 12 years, 13 to 20 years, 21 to 28 years and then above 28 years of age.

## STATISTICAL ANALYSIS

SPSS version 21 was used to generate tables. Descriptive statistics were used to generate results.

## RESULTS

Total of 160 patients swab were processed in Microbiology department for isolation of common pathogen and its sensitivity. Greater numbers of cases were seen among males (56.2%) with male female ratio 1.2. Among 160 throat swabs 150 cultures (93.7%) showed growth, 6 swabs (3.7%) showed no growth and 4 swabs (2.6%) showed contamination. Increased number of cases 60 (37.6%) were seen among patients between 13 to 20 years of age. 54 (33.7%) were registered between 5 to 12 years of age, 30 (18.3%) were registered between 21 to 28 years of age and 16 (10%) were above 28 years (table-1). S.aureus was the most common isolate 26.6% (40). Along with it in decreasing order of frequency Streptococcus viridans, Moraxella catarrhalis 23.4% followed by Streptococcus pneumoniae 16.6%, E.coli 13.4%, Klebsiella species 13.4% and Pseudomonas species 6.0% (table-2). Streptococcus viridians and Moraxella catarrhalis are the normal bacterial flora of throat. Analysing sensitivity pattern in 40 isolates of S.aureus, it was observed that ciprofloxacin was effective in 31 isolates (77.5%) followed by oxacillin 20 isolates (50%). Streptococcus viridians and Moraxella catarrhalis isolated from 35 (23.4%) swabs are the normal bacterial flora. 18 (72%) isolates of Streptococcus pneumoniae were sensitive to ciprofloxacin but, only 10 (40%) were sensitive to oxacillin. 15(15%) isolates of E. coli were sensitive to ciprofloxacin and 14(70%) isolates were sensitive to oxacillin. 14(70%) isolates of Klebsiella were sensitive to ciprofloxacin and 13(65%) isolates were sensitive to oxacillin. 6 (60%) isolates of Pseudomonas species were sensitive to ciprofloxacin and 5(10%) were sensitive to oxacillin all isolates were resistant to amoxicillin.

Age Group (Years)	Number of cases	Percentage
5-12	54	33.7
13-20	60	37.6
21-28	30	18.3
Above 28	16	10
<b>Total</b>	<b>160</b>	

**Table-1:** Tonsillitis – Age of Occurrence

## DISCUSSION

The present study included that the distribution of tonsillitis was more in males 56.2% as compared to female patients with male female ratio 1.2.<sup>4</sup> Increased number of cases were seen in patients between 13 to 20 years of age (37.6%) and children between 5 to 12 years of age (33.7%). Similar observations were reported by others for the age group 6-12 years.<sup>4,5</sup>

Sr. No	Bacterial Isolates	Number of isolates	Percentage
1	Staphylococcus aureus	40	26.6
2	Streptococcus viridans, Moraxella catarrhalis	35	23.4
3	Streptococcus pneumoniae	25	16.6
4	Escherichia coli	20	13.4
5	Klebsiella species	20	13.4
6	Pseudomonas species	10	6.0
		150	

**Table-2:** Bacterial isolates from throat swabs

The bacteriological study of the throat revealed that 93.7% showed growth, 3.7% showed no growth and 2.6% showed contamination. The reason for no growth may be due to administration of antibiotics or tonsillitis of other etiology.

The most commonly isolated organism was Staphylococcus aureus<sup>6-8</sup> followed by Streptococcus pneumoniae 16.6%, E.coli 13.4%, Klebsiella species 13.4% and Pseudomonas species 6.6%. Sensitivity of the isolates indicated that majority of the isolates were sensitive to ciprofloxacin.

## CONCLUSION

The present study included that S. aureus is the main pathogen responsible for acute tonsillitis and most prevalent age group was between 13-20 years of age. Ciprofloxacin was most effective drug. Proper line of treatment may prevent the complications of acute tonsillitis and also avoids surgical treatment.

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