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Original Research Article

A STUDY OF ACUTE FOLLICULAR TONSILLITIS REPORTED AT A TERTIARY CARE CENTER IN COIMBATORE

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ABSTRACT

Background: Inflammation of the tonsils, or tonsillitis, is a common clinical ailment that ENT practitioners frequently face. Thus, we retrospectively studied Acute Follicular Tonsillitis cases reported at a Coimbatore tertiary care centre on patients aged over 13 years with tonsillitis. **Materials and Methods:** This retrospective study was conducted at a tertiary care centre in Coimbatore between July and November 2019 on 68 patients of either sex over 13 years of age with acute follicular tonsillitis. The clinical and laboratory (culture and sensitivity) study was carried out. Information was taken from the extensive electronic health record system, including outpatient and inpatient care information. **Result:** Age and sex distribution with <20 years are 32%, 21-30 are 40%, >30 years 24% and 41% male and 59% female respectively. Fever was present in almost all the patients with <3 Days fever in 79% and > three days fever in 21%. Other common symptoms presented by the patients were throat pain, difficulty swallowing, cough with expectoration and swelling of the neck. Tonsillar enlargement was present in almost all patients, with Grade II tonsillar enlargement predominantly found in 54%. Among the cases, 24 patients were found to have diphtheria grown in culture. Among the reported cases, one of the patients with diphtheric tonsillitis went for 9 and 10th cranial nerve palsy during her 10th day of illness (p-value=0.252). **Conclusion:** This study demonstrates that diphtheria is still a common disease in the modern Indian context, highlighting the need for quick case reporting and appropriate vaccination program implementation to contain outbreaks.

INTRODUCTION

Diphtheria is an acute infection caused by Corynebacterium diphtheria that usually attacks the respiratory tract but may also involve any mucous membrane or skin wound. Nasal, Laryngeal, Pharyngeal and Cutaneous forms of diphtheria occur. Pharyngeal diphtheria is the most common form, and the tenacious grey membrane covers the tonsil and pharynx. Diagnosis made clinically should be confirmed with the culture of the organism. Other differential diagnosis includes Streptococcal pharyngitis, Infectious mononucleosis, Adenovirus, Herpes simplex infection, Vincent angina and Candidiasis.[1-3]

Active immunization with the diphtheria toxoid is a part of routine childhood immunization. A pentavalent vaccine containing Diphtheria toxoid is given at 6, 10, and 14 weeks. DPT Booster 1 and 2 are given between 16-24 months and 5-6 years respectively. Women should receive Tdap with each pregnancy between 27 and 36 weeks. Antitoxin prepared from horse serum is given in mild and early pharyngeal or laryngeal disease at the dose of 20,000 to 40,000 units, in moderate nasopharyngeal disease at the dose of 40,000 to 60,000 units, and in severe, extreme cases need 80,000 to 1,00,000 units given as IV bolus as infusion. In most cases, the membrane resolves on treatment with ADS (anti-diphtheria serum) and antibiotics. Sometimes, the removal of the membrane can effectively prevent airway obstruction.[4,5]

In patients reported at CMCH as cases of follicular and membranous tonsillitis, all patients were treated with Inj. Crystalline penicillin 1 Lakh IU /Kg/Day in 4 doses and Tab. Erythromycin 30mg/Kg/Day in 4 divided doses. [6] Contacts were given 500 mg for seven days to eradicate carriage. Susceptible persons, including contacts of the patients, were given a booster dose of diphtheria toxoid. In cases diagnosed

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as non-diphtheritic tonsillitis, the treatment was given for one week. The cases diagnosed as diphtheria by gram stain and culture and sensitivity were treated for at least two weeks until repeat culture turned negative. Azithromycin and clarithromycin can be used as an effective alternative.[4-6]

The main objective is to study Acute Follicular Tonsillitis cases reported at a Coimbatore tertiary care centre on patients with tonsillitis who are aged over 13 years.

MATERIALS AND METHODS

This retrospective study was conducted at a tertiary care centre in Coimbatore between July and November 2019 on 68 patients of either sex over 13 years of age with acute follicular tonsillitis. Ethical approval was obtained from the institutional ethics committee of Coimbatore Medical College Hospital, and parents of all children provided written informed consent before the initiation of the study.

Inclusion Criteria

Patients with acute follicular tonsillitis with recurrent sore throats and either sex over 13 years of age and who attended Coimbatore Medical College Hospital. Also, the patients with medical records containing detailed information on signs and symptoms, Diphtheria culture and sensitivity, treatment received, and complications were included.

Exclusion Criteria

The parents who were not provided with their informed consent, Primary sleep breathing disorder, suspected malignancy, bleeding diathesis (including haemophilia, sickle cell disease and platelet dysfunction), therapeutic anticoagulation, and inability to complete self-reported questionnaires and sore throat returns were not included.

Of all the 68 cases, most were referred from hilly hamlets in Satyamangalam Taluk, Erode district-about 100 km from the Coimbatore Medical College Hospital. Each selected patient was studied as per the standard procedures. The clinical and laboratory (culture and sensitivity) study was carried out.

Following inclusion, all patient medical records were retrospectively evaluated between July and November 2019. Information was taken from the extensive electronic health record system, including outpatient and inpatient care information. A uniform protocol was created to make the review process easier. Routine records had information about tonsillectomy, problems within 30 days of inclusion, and new visits due to sore throats. Entries were thoroughly reviewed and evaluated for potential re-labelling of ICD-10 codes for outcomes to reduce documentation bias.

Statistical Analysis

Data was collected from medical records and then transferred to SPSS software for further analysis. For categorical variables, two-sided $\chi 2$-testing of proportions was used. A two-sided Fisher's exact test was employed where expected numbers were low. The diagrams are presented as Bar diagrams, and the p-value ≤ 0.05 was considered significant.

RESULTS

Of all the 68 cases, most were referred from hilly hamlets in Satyamangalam Taluk, Erode district-about 100 km from the Coimbatore Medical College Hospital. Age and sex distribution with <20 years are 32%, 21-30 are 40%, >30 years 24% and 41% male and 59% female respectively.

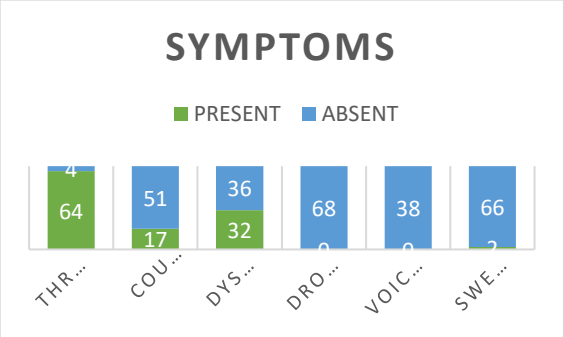

Figure 1: Distribution of symptoms

Table 1: Place distribution

Place distribution	No of patients	Percentage
Coimbatore	22	32%
Erode	39	57%
Tirupur	4	6%
Other	3	5%

Symptoms

Fever was present in almost all the patients with <3 days fever in 79% and >3 days fever in 21%. Other common symptoms presented by the patients were throat pain, difficulty swallowing, cough with expectoration and swelling of the neck.

Table 2: Distribution of fever between groups

Fever	Acute tonsillitis	Diptheric tonsillitis
< 3 days	37	17
> 3 days	7	7

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Signs

Tonsillar enlargement was present in almost all patients, with Grade II tonsillar enlargement predominantly found in 54%. Along with tonsillar enlargement, follicles or dirty white membranes cover the tonsil. Other common findings found in these patients were cervical lymphadenopathy and pharyngeal congestion.

Table 3: Comparison of signs between groups

Signs		Acute tonsillitis	Diptheric tonsillitis	P value
Lymphadenopathy	Present	18	11	0.691
	Absent	26	13	
Follicle	Present	16	12	0.274
	Absent	28	12	
Membrane	Present	22	15	0.322
	Absent	22	9	
Pharyngeal congestion	Present	39	23	0.317
	Absent	5	1	
Tonsillar enlargement	Grade I	4	2	0.426
	Grade II	23	14	
	Grade III	13	12	

With diphtheric tonsillitis compared with Acute tonsillitis, patients with tonsillar enlargement with follicles or membranes were found to have significant p-values of 0.274 and 0.322, respectively. Also, patients with pharyngeal congestion have a p-value of 0.317.

Diphtheria culture and sensitivity

Among the cases, 24 patients were found to have diphtheria grown in culture, accounting for about 35% of the total 68 cases.

Treatment

Diphtheria culture takes about 48 hours; initially, patients suspected of diphtheria were given ADS at admission. The remaining patients were given based on the report of diphtheria culture sensitivity reports. Patients with diphtheric tonsillitis were given 14 days of antibiotics, and a repeat culture was taken. If again found positive, a further 14-day course of antibiotics was given. Patients are discharged after the culture becomes negative for diphtheria.

Complications

Among the reported cases, one of the patients with diphtheric tonsillitis went for 9 and 10th cranial nerve palsy during her 10th day of illness (p-value=0.252).

DISCUSSION

Of all the 68 cases, age and sex distribution with <20 years are 32%, 21-30 are 40%, >30 years 24% and 41% male and 59% female, respectively. The incidence of acute tonsillitis for population distribution was reported to vary differently. In our study, we have observed a great proportion in the 21-30 age group. Vijayashree et al. reported that the maximum tonsillitis cases, i.e. 61%, were in the 6-12 years age group, followed by 12-18 years age groups (20%), children (4-5 years) 10% and the minimum, i.e. 9% occurrence seen in youth (19-30 years).[7] Moreover, the sex distribution of tonsillitis was observed more in male patients (55%) than female patients (45%),[7] which is not in line with our findings. This is probably why more female patients were admitted than male patients.

Further, in our study, we observed that fever was present in almost all the patients with <3 Days fever in 79% and > three days fever in 21%. Other common symptoms presented by the patients were throat pain, difficulty swallowing, cough with expectoration and swelling of the neck. The occurrence of symptoms indicated that a fever was reported in all the patients. Bukhari et al.[8] reported that sore throat was present in all the patients, whereas fever, odynophagia, and constitutional symptoms were observed in 73%, 36%, and 45%. Evans and Dick reported similar observations to Bukhari et al. for a sore throat and fever.[9,8] Bukhari et al.[8] reported that 59% of the patients showed acute parenchymatous tonsillitis signs, 40% acute follicular signs and only 1% acute membranous tonsillitis. Observations made by Bukhari et al. are comparable to the findings of Veltri et al.[10]

Tonsillar enlargement was present in almost all patients, with Grade II tonsillar enlargement predominantly found in 54%. Along with tonsillar enlargement, follicles or dirty white membranes cover the tonsil. Other common findings found in these patients were cervical lymphadenopathy and pharyngeal congestion. With diphtheric tonsillitis compared with Acute tonsillitis, patients with tonsillar enlargement with follicles or membranes were found to have significant p-values of 0.274 and 0.322, respectively. Also, patients with pharyngeal congestion have a p-value of 0.317.

Among the cases, 24 patients were found to have diphtheria grown in culture, accounting for about 35% of the total 68 cases. Diphtheria culture takes about 48 hours; initially, patients suspected of diphtheria were given ADS at admission. The remaining patients were given based on the report of diphtheria culture sensitivity reports. Patients with diphtheric tonsillitis were given 14 days of antibiotics, and a repeat culture was taken. If again found positive, a further 14-day course of antibiotics was given. Patients are discharged after the culture becomes negative for diphtheria. Among the reported cases, one of the patients with diphtheric tonsillitis

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went for 9 and 10th cranial nerve palsy during her 10th day of illness (p-value=0.252).

Vijayashree et al. reported that the bacteriological studies showed the 51.4% occurrence of predominant bacteria β-hemolytic Streptococci, which was followed by coagulase-positive Staphylococci (12.5%) and Pneumococci (9.7%). Corynebacterium diphtheria was found in only one case.[7] In terms of monobacterial and polybacterial infections, it was found that 76.4% of cases of acute tonsillitis were caused by monobacterial infections, compared to 23.6% by polybacterial infections. Whereas 8.3% of patients had both Coagulase-positive Staphylococci and Pneumococci, 6.9% had Klebsiella and Streptococcus pyogens, and two instances had Pseudomonas sp. and Klebsiella as the cause of tonsillar infection.[8]

Acute tonsillitis typically lasts seven to ten days, after which it is thought to be a self-limiting illness, except for the few who develop complications such as acute nephritis or peritonsillar abscess. However, because the patients are so unwell and distorted, any treatment aimed at relieving the symptoms and particularly at reducing the length of the illness is required in the arsenal of medical treatments.[11,12]

CONCLUSION

This study provides an overview of the various causes of acute tonsillitis, how it manifests, and how patient outcomes are impacted by treatment. This study also demonstrates that diphtheria is still a common disease in the modern Indian context, highlighting the need for quick case reporting and appropriate vaccination program implementation to contain outbreaks.

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