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Prospective study of patients with membranous patch over the tonsil at GIMS, Kalaburagi

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ABSTRACT

Background: Current study was done to know various clinical aspects of membranous patch over the tonsil. **Methods:** Data for the study were collected from patients who presented with membranous patch over the tonsil in the department of ENT at GIMS, Kalaburagi from January 2019 to December 2019. This is a prospective case study. 225 patients were included in the study. Once patient was presented to us detailed history, examination and necessary investigations were done.

Results: The present study included 225 patients out of which out of which females were 132 (59%) and males were 93 (41%). The predominant clinical features were sore throat (225 cases), fever (212 cases), dysphagia (90 cases) and bull neck (45 cases). The most common cause of membranous patch over tonsil was found to be diphtheria (68%) followed by streptococcal tonsillitis (30%) and others (2%). In our study microbiological investigations like Albert stain was positive in 153 cases and culture was positive in 140 cases.

Conclusions: It was observed in our study that diphtheria constitutes the majority (68%) and the incidence of adult is almost on par with paediatric age group. Despite of UIP we have seen increased incidence in the adult age group. Hence it requires the health agencies and the Government to increase immunization coverage, as India has witnessed the highest number of cases in the world for the year 2015. As evident from the shift in age groups being infected, adult booster dose has to be introduced at 10 years interval.

Keywords: Membranous patch, Diphtheria, Pseudomembrane

INTRODUCTION

Diphtheria is an acute infectious preventable disease caused by *C. diphtheria*. Diphtheria is a localized infection of mucous membrane or skin. A characteristic pseudo membrane may be present at the site of infection. Membranous patch over tonsil is a special entity, which confuses treating doctor because of its diverse aetiology. Every insult to the tonsil heals by ulcer and later membrane formation. Because of increasing incidence of patients presenting with membranous patch over tonsil, a prospective study to analyse the cases of membranous

patch over tonsil in terms of aetiology, clinical features, diagnosis, treatment protocols and outcome is necessary.¹

It was a leading cause of childhood mortality in prevaccination era. The disease has been almost completely eradicated in many developed countries. On the contrary, in developing countries, although the incidence has reduced, it still accounts for 80-90% of global burden. In 2016, India reported 50.17% (3380/6736) of the globally reported cases of diphtheria. There have been reports of outbreaks/epidemics from Assam (2010), Karnataka (2011) and Andhra Pradesh (2014) among other Indian states. Despite success of mass immunization worldwide,

it remains a lethal resurgent infection. However, reports of resurgence/persistence of diphtheria represent the tip of the iceberg as not all cases are not reported or published. There is no system for surveillance of diphtheria in India. Thus, diphtheria is widely prevalent but neglected from a public health perspective. An accurate microbiological diagnosis of diphtheria is crucial and is always regarded as being complementary to clinical diagnosis, because diphtheria is often confused with other conditions such as severe streptococcal sore throat, Vincent's angina of glandular fever. This makes a high index of suspicion mandatory for diagnosis of diphtheria. Early diagnosis and timely intervention help to reduce incidence, contain infection in the community and decrease morbidity and mortality in affected individuals.

The main objective of the current study was to study various aspects of membranous patch over the tonsil like aetiology, clinical features, diagnosis, treatment options and outcome of the disease.

METHODS

A prospective observational study was conducted from January 2019 to December 2019 at Gulbarga institute of medical sciences, Kalaburagi.

Inclusion criteria

All Patients presenting with symptoms of sore throat and membranous patch on examination over tonsil were included in the study.

Exclusion criteria

Patients presenting with symptoms of sore throat and no membranous patch on examination over tonsil were excluded from the study.

The study was approved by the institutional ethical committee. Informed consent was obtained from the patients and parents or local guardians of all the participants in case of children.

All cases with history of sore throat and white patch over tonsil are taken up for this study irrespective of age, sex, occupation, religion. A detailed history, clinical examination, relevant biochemical, haematological and microbiological investigations were performed and after arriving at an appropriate diagnosis, the cases were treated according to existing treatment protocols.

The patients with clear cut membrane over tonsils and whose clinical and laboratory reports suggested diphtheritic aetiology were isolated and treated. These patients were given antidiphtheritic serum and antibiotic therapy (erythromycin) for about a period of 14 days. After treatment patients were followed up to 3 months for any residual cardiac and neurological defects.

Patients whose culture and laboratory reports are in favour of streptococcal tonsillitis were given procaine penicillin G (erythromycin in case of penicillin hypersensitivity) for a period of 1-2 weeks. For the patients of infectious mononucleosis simple supportive measures with rest and analgesic are given. Corticosteroid therapy is given for mucosal fragility disorders and severe allergic reactions. For oral candidiasis, clotrimazole mouth troches were given. All patients were followed up for 6 months.

All patients were evaluated for the presence of complications. All details that are demographic data, clinical features, immunization status, complications and outcome were entered in systematically designed proforma and analysed.

Statistical method

Statistical data was analysed by SPSS 16.0 version software, descriptive analysis.

RESULTS

The present study was prospective study conducted between January 2019 to December 2019 which included 225 patients out of which females were 132 (59%) and males were 93 (41%) as shown in (Figure 1). Number of patient between 0-5 years of age were 9, between 6-10 years were 81, between 11-15 years were 15, between 16-20 years were 15, between 21-25 years were 69, between 25-30 years were 14 and >30 years were 22 as shown in (Table 1).

Table 1: Age distribution (n=225).

Age (years)	N	Percentage
0-5	09	4.0
6-10	81	36.0
11-15	15	6.66
16-20	15	6.66
21-25	69	30.66
25-30	14	6.22
>30	22	9.70

The predominant clinical features were sore throat (225 cases), fever (212 cases), bull neck (45 cases) and dysphagia (90 cases) as shown in (Table 2).

In current study the most common cause of membranous patch over tonsil was found to be diphtheria (68%) followed by streptococcal tonsillitis (30%) and others (2%) as shown in (Figure 2).

In current study microbiological investigations like Albert stain was positive in 153 cases and culture was positive in 140 cases as shown in (Table 3).

In current study of 225 cases complications like palatal palsy was seen in 12 cases (5.3%), pharyngeal palsy in 6 cases (2.6%) as shown in (Table 4).

Table 2: Clinical presentation.

Symptoms	N	Percentage
Sore throat	225	100
Fever	212	94.22
Enlarged lymph nodes (Bull neck)	45	20.00
Dysphagia	90	40.00

Table 3: Laboratory investigations.

Albert's staining (positive)	Culture report (positive)
153	140

Table 4: Complications.

Complication	N	Percentage
Palatal palsy	12	5.3
Pharyngeal palsy	06	2.6

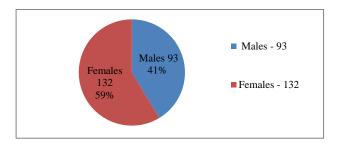


Figure 1: Sex distribution.

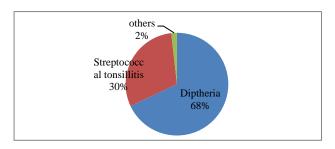


Figure 2: Etiological factors.

Outcome

5 cases (2%) of diphtheria succumbed to the disease as they developed severe respiratory obstruction (4 cases) and one case developed advanced stage of myocarditis, all the cases were unimmunized and they presented at a later stage of disease. Rest of the 220 cases (97%) recovered well.

In current study of 225 cases, 135 cases (60%) were unimmunised, 45 cases (20%) were immunised and 45

cases (20%) were partially immunised as shown in (Figure 3).

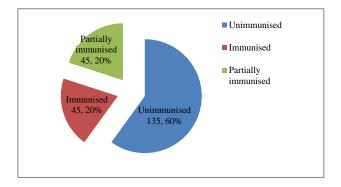


Figure 3: Immunisation status.

DISCUSSION

The membranous patch over the tonsil constitutes about 68% of diphtheria cases in our study. Usually the incidence of diphtheria is more during winter season but in our study cases have been reported throughout the year.

Diphtheria is known to cause significant morbidity and mortality because of severe complications like airway obstruction, myocarditis, cranial nerve palsies and secondary pneumonia.² According to our study it has been noted that there shift in age groups infected with diphtheria from paediatric age groups to young adults.

In the present study most of the cases were either unimmunized or partially immunized or unknown immunization status. It was also noticed that increased cases in young adolescents and adults. A few previous reports from various parts of the country have revealed an increased incidence of diphtheria cases in adults. ¹⁷⁻¹⁹ Serological studies in many countries have revealed that due to lack of adult vaccination and natural immunity a high proportion of adults become susceptible to diphtheria. ²⁰

As there is increased incidence of diphtheria in adolescents and adults there is need to revise the UIP is urgent and has been discussed before. Adult boosters at 10 years intervals are currently non-existent in the country and could be considered. 9,10

Diphtheria, in spite of being a vaccine preventable disease has infected 4071 cases and caused 104 deaths in India for the year 2014.¹³ Hence the health agencies and the Government will have to take maximum efforts to increase immunization coverage from present 50-60% to more than 90% and bring down the worst statistics of diphtheria.¹⁴

The increased incidence of diphtheria in Kalaburagi district has been attributed to lack of awareness about immunization in rural places, poor immunization

coverage. WHO recommends adult vaccination with Td combination for unvaccinated individuals of 7 years and older which not implemented in India yet.²¹ The adult vaccination in India has not been implemented yet although WHO recommends Td combination vaccination for unvaccinated individuals of 7 years of age and older.¹³

Limitations

Sample size was small and long term follow up of patients could not be undertaken.

CONCLUSION

It was observed in our study that diphtheria constitutes the majority (68%) of cases and its incidence is observed throughout the year. In our study the incidence of adult is almost on par with paediatric age group hence this point also has to be addressed keenly. The prognosis in diphtheria depends on early diagnosis and management with antidiphtheritic serum. The health agencies and the Government will have to take maximum efforts to increase immunization coverage as India has witnessed the highest number of cases in the world for the year 2015. As evident from the shift in age groups being infected, adult boosters at 10 years intervals should be made available in our country.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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