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# A Clinical Study of Complications of Diphtheria

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**Abstract**

**Background:** Diphtheria is a localized infection of mucous membrane or skin. To study complication of diphtheria.

**Methods:** In this study all cases of diphtheria and all age groups which attended department of ENT.

**Results:** It was observed that most common post diphtheria complication was myocarditis (23.00%). In neurological complication most common was palatal palsy followed by pharyngeal palsy and motor weakness.

**Conclusion:** In order to prevent complication of the disease active immunization is customary and in order to detect the disease at early stage and for prompt treatment masses should be educated regarding the dreadful nature of the disease.

**Keywords:** Diphtheria, Outcomes, Complication.

## Introduction

Most of the vaccine preventable diseases showed a decline after introduction of Expanded Program of Immunization in 1978 and Universal Immunization Program in 1985. The reported incidence of diphtheria in the country during 1987 was about 12,952 whereas during the year 1999, there were only 2,725 cases showing a decline of about 79%[1]. It is still endemic in our country. The last decade has seen resurgence of diphtheria in both developed and developing countries where it was previously well controlled. [2]

Poor immunization coverage is the main factor for the persistence of diphtheria. National Family Health Survey-4 found 62% children between the ages of 12 and 23 months fully immunized nationwide, and immunization coverage was as low as Rajasthan, India. There is also tremendous heterogeneity in state- and district-level immunization in the country.[3]

## Material and Methods

In this study all cases of diphtheria and all age groups which attended department of ENT were included. A detailed history and physical examination was done in all the cases soon after their admission and all relevant finding was recorded in the specially prepared proforma. The case were divided into confirmed case, probable case and suspected case as per WHO guideline. Informed consent was obtained from parents of all patients participating in the study. The protocal of study review & approved by ethical committee of hospital that represent the local institution review board. The following points were taken into consideration during study.

**Data Analysis**

Statistical analysis was performed with the Epi-info software. The Categorical data were presented as numbers (percent) and were compared among groups using Chi square test. Groups were compared for demographic data. Concordant rate were calculated to evaluate the agreement between two diagnosis test.

**Observations**

**Table 1: Age Incidence**

| Age | No. of Cases | Percentage |
|---|---|---|
| 0-5 | 24 | 24.00 |
| 5-10 | 50 | 50.00 |
| 10-15 | 21 | 21.00 |
| 15-20 | 4 | 4.00 |
| > 20 | 1 | 1.00 |

In the present study highest numbers of cases were recorded among 5-10 years of age followed by 0-5 year of age group.

**Table 2: Sex Incidence**

| Sex | No. of Cases | Percentage |
|---|---|---|
| Male | 58 | 58.00 |
| Female | 42 | 42.00 |

58.00% patients were male and 42.00% patients were female.

**Table 3: Complication**

| Complication | No. of Cases | Percentage |
|---|---|---|
| Myocarditis | 23 | 23.00 |
| Palatal Palsy | 18 | 18.00 |
| Pharyngeal Palsy | 8 | 8.00 |
| Broncho Pneumonia | 7 | 7.00 |
| Motor Weakness | 4 | 4.00 |

It was observed that most common post diphtheria complication was myocarditis (23.00%). In neurological complication most common was palatal palsy followed by pharyngeal palsy and motor weakness.

**Discussion**

Myocarditis was the most common complication observed followed by neurological complication. Majority of the patients with myocarditis were asymptomatic, had only ECG changes, SGOT elevation, and had a favorable outcomes. Another observation was that almost all patients developed cardiac involvement within first week of onset of respiratory symptoms and patients who had bull neck and extensive faucial patches had more incidence of cardiac involvement. [5,6] The patients who were adequately immunized and received ADS earlier, improved with less complications in comparison to unimmunized/partially immunized patients who received ADS late/inadequate doses. [7] It had been observed that patients who had developed frank features of heart failure showed persistently

elevated SGOT level which was closely parallel to the intensity of myocarditis and this may be used to monitor its course. [4]

Diphtheritic polyneuropathy is recognized as one of the most severe complications of diphtheria caused by exotoxin of *C. diphtheriae*. The term "diphtheritic polyneuropathy" encompasses all neurological symptoms with the onset of palatal paralysis as the first symptom. Palatal paralysis is a very common neurological complication, which may occur alone or in association with bulbar palsy. Manikyamba *et al*.[5] reported isolated palatal palsy in 56% cases. Mateen *et al*.[6] found palatal palsy only in 13% cases. The onset of neurological complications in our series was seen from 6 to 51 days after respiratory symptoms. Similarly, in the Latvian study of 50 adult patients with diphtheritic paralysis, neurological complications appeared in 2–50 days (median, 10 days) after the onset of respiratory diphtheria.[7] It was a bit early in our series as compared to other studies in which a latent period between the appearance of first symptom of diphtheria and the development of palatal palsy varied from 10 days to 3 months.[8] This could be attributed to the severity of diphtheria at the time of presentation.

## Conclusion

In order to prevent complication of the disease active immunization is customary and in order to detect the disease at early stage and for prompt treatment masses should be educated regarding the dreadful nature of the disease. The health workers should be aware of complications of diphtheria and refer the case to higher centre as early as possible.

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