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A CASE SERIES ON PREVENTABLE YET SURGING DISEASE, MUMPS

Dr Namratha K^{1*}, Dr Srinivasa S², Dr TuhinaShree³

¹Post Graduate, ²Professor and Head, Dept of Paediatrics, AKASH INSTITUTE OF MEDICAL SCIENCE AND RESEARCH CENTRE, DEVANAHALLI, BANGALORE RURAL DISTRICT.

³Assistant Professor, Dept of Community Medicine, ESIC MCH, Alwar, Rajasthan, India

***Corresponding Author: Dr. Namratha K, Post Graduate, Dept of Paediatrics, AKASH INSTITUTE OF MEDICAL SCIENCE AND RESEARCH CENTRE, Devanahalli, Bangalore Rural District. India.**

Abstract:

Introduction: Mumps is a highly contagious viral infection affecting the salivary glands, primarily caused by the mumps virus, a member of the Paramyxoviridae family. Despite being a self-limiting disease, mumps can lead to severe complications such as meningitis, encephalitis, orchitis, oophoritis, and permanent hearing loss. The introduction of the MMR vaccine has significantly reduced the incidence of mumps globally, but outbreaks continue to occur, particularly in areas with low vaccination coverage. In India, mumps is not a notifiable disease, and the vaccine is not included in the Universal Immunization Program (UIP), leading to underreporting and insufficient control measures. This study aims to analyze the recent trends in mumps cases in a paediatric population in Vijiyapura town of Bangalore Rural district and emphasize the need for including the mumps vaccine in the national immunization schedule.

Methodology: This study was conducted at the Community Health Center (CHC) of Vijiyapura town in Bangalore Rural district. Cases were collected on an Paediatric Outpatient department (OPD) basis from children presenting with symptoms of mumps between March and May 2024. The World Health Organization (WHO) clinical case definition was used to diagnose mumps. Data were collected from all children who visited the OPD and met the clinical case definition.

Results: A total of 18 cases of mumps were identified between March and May 2024. The age distribution ranged from 3 to 14 years, with a mean age of 7.1 years and a median age of 7 years. The majority of cases (77.8%) were male. Clinical presentations included fever (100%), constitutional symptoms such as headache and myalgia (80%), swelling of salivary glands (100%), with (27%) having unilateral parotid swelling and (73%) having bilateral parotid swelling. Cough and cold were observed in (80%) of the cases.

Conclusion: The study highlights the increasing incidence of mumps in the paediatric population of Vijiyapura town of Bangalore Rural district, emphasizing the need for the inclusion of the mumps vaccine in the UIP. Strengthening the surveillance system and healthcare infrastructure is crucial for better management and control of mumps outbreaks. Collaboration among government agencies, healthcare workers, parents, and the community is essential to implement sustainable solutions and prevent future outbreaks.

Keywords: Mumps, Parotid Glands, Mumps Virus, Pediatric Population, Vaccine, Immunization, India, Surveillance, Outbreaks, Public Health

INTRODUCTION

Mumps is a one of highly contagious viral infection caused by the mumps virus, a member of the Paramyxoviridae family.^[1] It primarily affects the salivary glands and typically presents with painful swelling of the parotid glands, often preceded by prodromal symptoms such as fever, headache, muscle aches, fatigue, and loss of appetite. While mumps is generally a self-limiting disease, it can lead to severe complications, including meningitis, encephalitis, pancreatitis, orchitis, oophoritis, and permanent hearing loss.^[2]

Historically, mumps was a common childhood disease, but the introduction of the mumps vaccine has significantly reduced its incidence in many parts of the world. Despite the availability of the MMR (measles, mumps, and rubella) vaccine, mumps outbreaks continue to occur, particularly in populations with low vaccination coverage.^[3] The disease remains a significant public health concern in countries where the mumps vaccine is not part of the routine immunization schedule.

In India, mumps surveillance is conducted under the Integrated Disease Surveillance Program (IDSP), though reporting is not mandatory.^[4] This leads to underreporting and a lack of comprehensive data on the disease burden. Recent reports have highlighted increased mumps

cases and outbreaks across various regions, emphasizing the need for better surveillance and preventive measures. The mumps vaccine is currently not included in India's Universal Immunization Program (UIP), which poses a challenge in controlling the disease's spread.^[5]

This study investigated the recent trends in mumps cases in a paediatric population in Vijiyapura town, Bangalore Rural district. By analyzing the affected children's clinical presentation and demographic characteristics, the study aims to underscore the importance of including the mumps vaccine in the national immunization schedule. Furthermore, the study seeks to highlight the need for robust surveillance systems to better understand and control the spread of mumps in India.

METHODOLOGY

Hospital Setting and Participants

Cases were collected on Paediatric outpatient department (OPD) basis at the Community Health Centre (CHC) of Vijiyapura town in Bangalore Rural district after recognizing symptoms of mumps.

Criteria for Case Diagnosis

According to the World Health Organization (WHO) clinical case definition, a case of mumps was defined as any person with acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary glands lasting two or more days without any apparent cause. Additional confirmatory tests, such as the IgM antibody test for the mumps virus, were included as part of the diagnostic criteria when possible. Data were collected from all children who visited the OPD and met the clinical case definition. Due to the lack of facilities for virus isolation and the non affordability for further investigations, only a few cases we could get investigated for IgM antibodies, which were positive and confirmed to have got Mumps. Other cases were considered confirmed based on clinical presentation.

Data Collection

Data were collected between March and May 2024 from all children visiting the OPD who fulfilled the clinical case definition of mumps. All cases were considered confirmed, as facilities to isolate the mumps virus were unavailable in the government hospital, and only few patients could afford further investigations. Given the seasonal pattern of mumps outbreaks, these cases were treated on an OPD basis as confirmed cases.

Exclusion Criteria

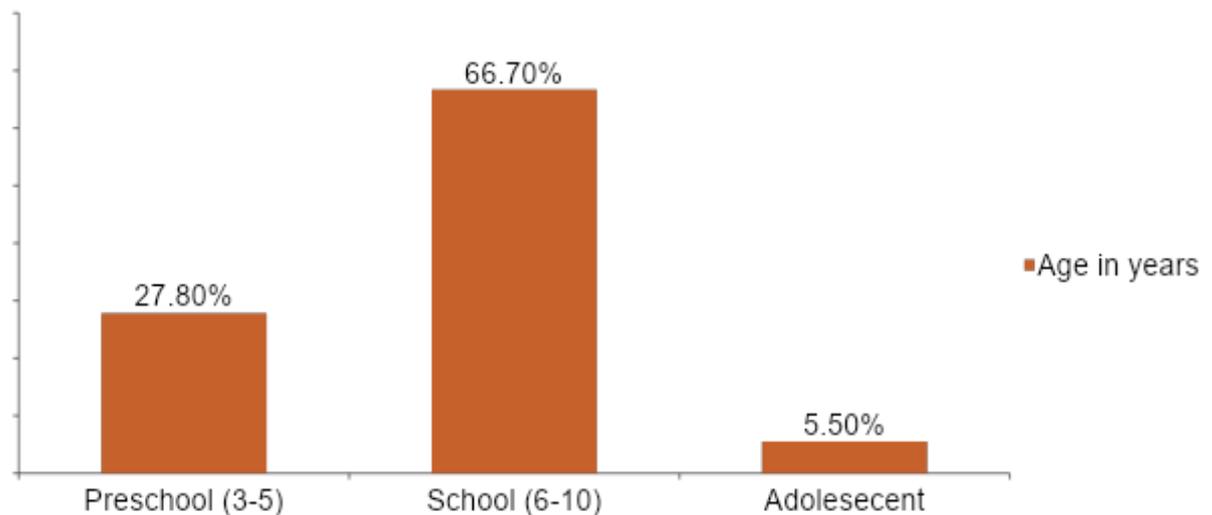
All recurrent parotitis cases, which were confirmed to be not Mumps infection.

RESULTS

Between March and May 2024, a total of 18 cases of mumps were identified according to WHO criteria. The age distribution of cases ranged from 3 to 14 years, with a mean age of 7.1 years and a median age of 7 years. The cases were distributed as follows(fig 1):

- 3 to 5 years: 5 cases
- 6 to 10 years: 12 cases
- 11 to 14 years: 1 case

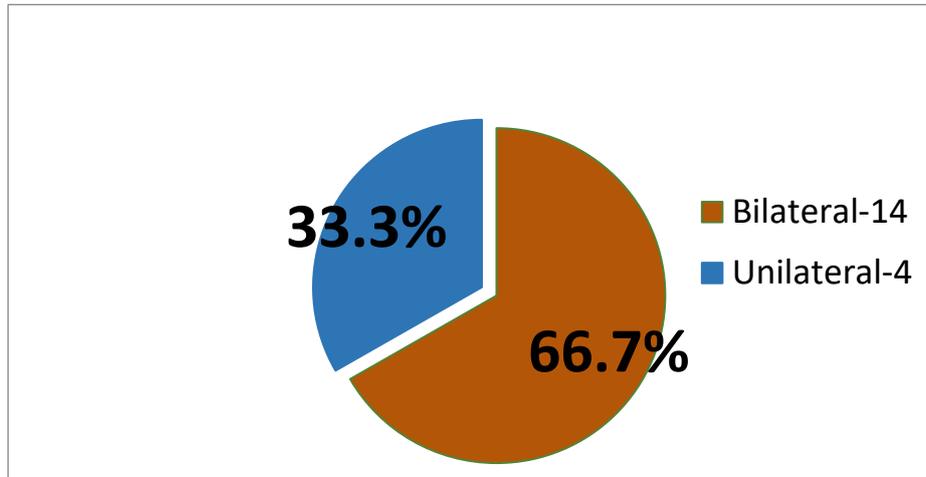
Fig -1 Age distribution of Subjects



Clinical Presentation

- **Fever:** 18 cases (100%)
- **Constitutional symptoms (headache, myalgia, or fatigue):** 14 cases (80%)
- **Swelling of salivary glands:** 18 cases (100%)
 - Unilateral parotid swelling: 4 cases (27%)
 - Bilateral parotid swelling: 14 cases (73%)

Fig -2- Swelling of Parotid Glands



- **Cough and cold:** 14 cases (80%)

Fig- 3- Unilateral and Bilateral swelling of Parotid Gland.



DISCUSSION

Mumps is a highly contagious viral disease predominantly seen in school-going children.. According to WHO, 369,000 cases of mumps were reported worldwide in 2023, excluding reports from countries like India where mumps is not a notifiable disease.^[6]

In this study, the age of infected patients ranged from 3 to 14 years (mean 7.1 years, median 7 years), with 77.8% being male. Bhat et al.^[7] reported the age range of infected patients to be between 1 and 18 years (mean 8.2 years, median 8 years), and 60% were male. Moghe et al. reported a median age of 9.4 years (range: 7 months to 38 years) with 60% male^[5]. This study found a higher incidence among boys, with all cases being non-vaccinated for the mumps

India's IDSP does not include mumps as a notifiable disease, and the WHO VPD surveillance system also does not encompass mumps, as the vaccine is not part of UIP. The ID Surv initiative by the Indian Academy of Paediatrics (IAP) is another surveillance system for infectious diseases, but it relies on private practitioners' reporting.

Global Context

According to the Global Health Observatory, India reported 764 mumps cases between 2021 and 2022. Countries like Israel have successfully controlled mumps outbreaks through strategies such as ring vaccination, which could be beneficial for India.

Epidemiological Insights

The study identified 18 cases of mumps between March and May 2024, predominantly affecting children aged 3 to 14 years, with a mean age of 7.1 years. This aligns with previous studies that have reported mumps predominantly affecting school-aged children.^[7] The male predominance (77.8%) observed in this study is consistent with other research findings, such as those by Bhat et al.^[7], who reported a higher incidence among males in a similar age group.

Clinical Presentation and Complications

All cases presented with fever and swelling of the salivary glands, with a significant proportion (73%) experiencing bilateral parotid swelling. These clinical features are typical of mumps, corroborating the findings of other studies.^[6] However, the lack of severe complications in this

study could be attributed to the limited sample size and short duration of observation. Mumps can lead to serious complications such as meningitis, encephalitis, orchitis, and oophoritis, which were not observed in our study cohort.

Surveillance and Reporting

One of the critical issues highlighted by this study is the inadequate surveillance and reporting of mumps cases in India. The Integrated Disease Surveillance Program (IDSP) includes mumps as an optional reportable disease, resulting in significant underreporting. The lack of mandatory reporting and absence of the mumps vaccine in the Universal Immunization Program (UIP) contribute to the persistent burden of the disease. This is in stark contrast to countries with robust surveillance systems and mandatory vaccination policies, where mumps incidence has significantly declined.

CONCLUSION

Despite challenges like limited seropositivity in studies and the lack of large-scale investigations, the recurrent outbreaks support the need for the inclusion of the mumps vaccine in the UIP. The MMR vaccine is an effective preventive measure against mumps. Strengthening the surveillance system and healthcare infrastructure is crucial. Collaboration among government agencies, healthcare workers, parents, and the community is essential to identify the root causes of outbreaks and implement sustainable solutions.

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