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Mumps in Children: Clinical Characteristics Observed in a Tertiary Care Hospital in Bangladesh

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ABSTRACT

Background: Mumps is a contagious viral infection that primarily affects children and young adults. The disease is characterized by swelling of the salivary glands, which causes pain and fever. Although the incidence of mumps has decreased in recent years due to vaccination, outbreaks continue to occur. Mumps can lead to serious complications, such as meningitis, encephalitis, and pancreatitis, particularly in unvaccinated individuals.

Aim of the study: The aim of the study was to understand the epidemiology, clinical features, and management of mumps in children is crucial for preventing and managing outbreaks.

Methods: This hospital-based prospective observational study was conducted at the Department of Pediatric High Dependency and isolation, Bangladesh Shishu Hospital & Institute, Dhaka, Bangladesh. This study enrolled and analyzed sixty patients from January 2019 to December 2021.

Result: The majority of patients, 56.67%, were between 6-10 years old, 23.33% were between 1-5 years old, 13.33% were between 11-15 years old, and 6.67% were between 16-18 years old. The mean duration of illness was 9.0±2 days. Furthermore, 60% of patients experienced constitutional symptoms such as headache, myalgia, or fatigue. Cough and dysphagia were observed in 83.33% and 47% of the patients, respectively.

Conclusion: In conclusion, preventing mumps in children is crucial to reducing the disease burden in Bangladesh. Vaccination is the most effective way to prevent mumps, and the vaccine is available in the country's national immunization program. However, vaccine coverage must be improved to ensure that all children receive the vaccine.

Keywords: *Mumps, Children, Clinical Characteristics, Observed.*

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INTRODUCTION

Mumps is a contagious viral illness that primarily affects children and young adults. The disease is caused by the mumps virus, which spreads through respiratory droplets or contact with saliva from an infected person. Mumps is characterized by symptoms such as fever, headache, muscle aches, fatigue, and swelling of the salivary glands. In rare cases, it can lead to complications such as deafness, meningitis, and inflammation of the testicles or ovaries [1-3]. Mumps is characterized by painful, unilateral, or bilateral swelling of the salivary glands, particularly the parotid glands [4]. The most common form of parotitis is called “epidemic parotitis” and is more commonly referred to as “mumps.” There are two distinct phases of mumps, the prodromal phase and the swelling phase [5-9]. The prodromal phase typically presents with the initial onset of mild systemic symptoms such as low-grade fever, headache, myalgia, neck

pain, malaise, and poor appetite [10,11]. The fever usually resolves after four days. Mumps is a significant public health concern in many parts of the world, including Bangladesh, where it remains a common childhood illness. Despite the availability of a safe and effective vaccine, mumps outbreaks continue to occur in Bangladesh, particularly in densely populated urban areas. According to a study published in the Journal of Health, Population, and Nutrition, the incidence of mumps in Bangladesh has been increasing in recent years, with a particularly high burden of disease among children aged 5-14 years [12]. Several factors contribute to the ongoing transmission of mumps in Bangladesh, including low vaccination coverage, poor hygiene practices, and limited access to healthcare services in rural areas [3, 13]. To address this issue, there is an urgent need for increased awareness and education about the importance of vaccination and improvements in healthcare infrastructure and hygiene practices. The study aimed to provide a comprehensive overview of the current status of mumps in children in Bangladesh, including epidemiology and clinical manifestations of the disease. We will also review the current strategies for preventing and controlling mumps, including vaccination programs and public health interventions. The aim of the study was to understand the epidemiology, clinical features, and management of mumps in children is crucial for preventing and managing outbreaks.

METHODOLOGY & MATERIALS

This hospital-based prospective observational study was conducted at the Department of Pediatric High Dependency and isolation, Bangladesh Shishu Hospital & Institute, Dhaka, Bangladesh. This study enrolled and analyzed sixty patients from January 2019 to December 2021. Mumps is the sudden appearance of tender, self-limiting swelling in one parotid or other salivary glands, lasting for at least two days without any other apparent cause. All children who met the inclusion and exclusion criteria for mumps symptoms were recruited from the hospital to conduct the study. The parents or guardians of the patients provided informed consent.

- **Inclusion criteria**:
  - Patients aged under 18 years.
  - Both males and females were clinically diagnosed with mumps.

- **Exclusion criteria**:
  - Patients of more than 18 years were excluded from the study.

The information was displayed in appropriate tables or graphs based on their association, and each visual representation was elucidated for better comprehension. The statistical analysis utilized the Statistical Package for the Social Sciences (SPSS) program on Windows. The continuous variables were conveyed as the mean±SD, while the categorical variables were depicted as frequency and percentage. $P<0.05$ was the benchmark for statistical significance in this study.

RESULT

In this study, 60 patients were enrolled and analyzed. Table 1 illustrates the age distribution of the study population. The majority of patients, 56.67%, were between 6-10 years old, 23.33% were between 1-5 years old, 13.33% were between 11-15 years old, and 6.67% were between 16-18 years old. The results showed that male patients were more affected than females, with males comprising 58.33% and females comprising 41.67% (Figure 1). Table 2 displays the patients' socioeconomic status based on Kuppuswamy's scale. It revealed that most patients (40%) belonged to the lower-middle class, followed by upper-middle and lower-middle classes. Figure 2 showed that only 11.67% of patients were completely immunized, while 88.33% were non-immunized. Regarding the clinical features of cases, fever was the most common presentation observed in all 60 patients. Parotid involvement was the second most common presentation, with 98.33% of cases having parotitis at some point during the illness. Unilateral parotid involvement was observed in 23.33% of patients, while bilateral involvement was observed in 75%. The mean duration of illness was 9.0±2 days. Furthermore, 60% of patients experienced constitutional symptoms such as headache, myalgia, or fatigue. Cough and dysphagia were observed in 83.33% and 47% of the patients, respectively (Table 3).

Table 1: Age distribution of the study population (N=60).

Age group (Years)	Frequency	Percentage
1-5	14	23.33
6-10	34	56.67
11-15	8	13.33
16-18	4	6.67
Total	60	100.00

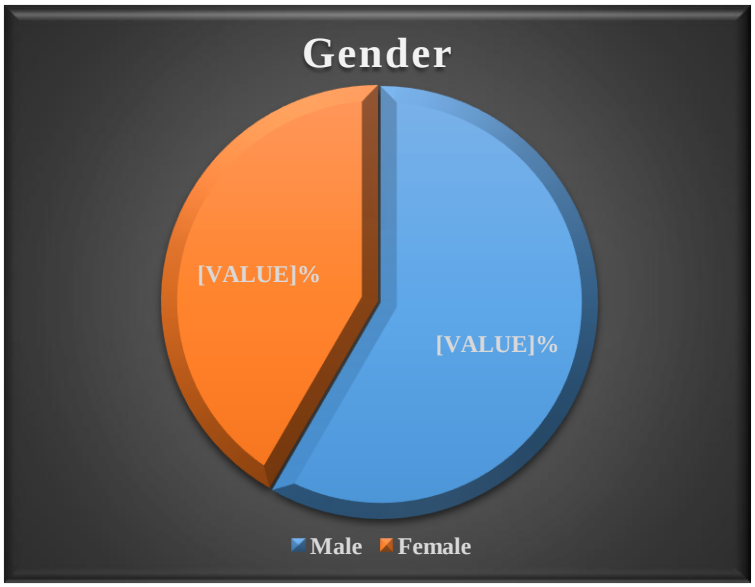

Figure 1: Gender distribution of the study population (N=60).

Table 2: Socioeconomic status of the study population.

Socio. Status	Frequency	Percentage
Poor	14	23.33
Lower middle	25	41.67
Upper middle	16	26.67
Upper	5	8.33

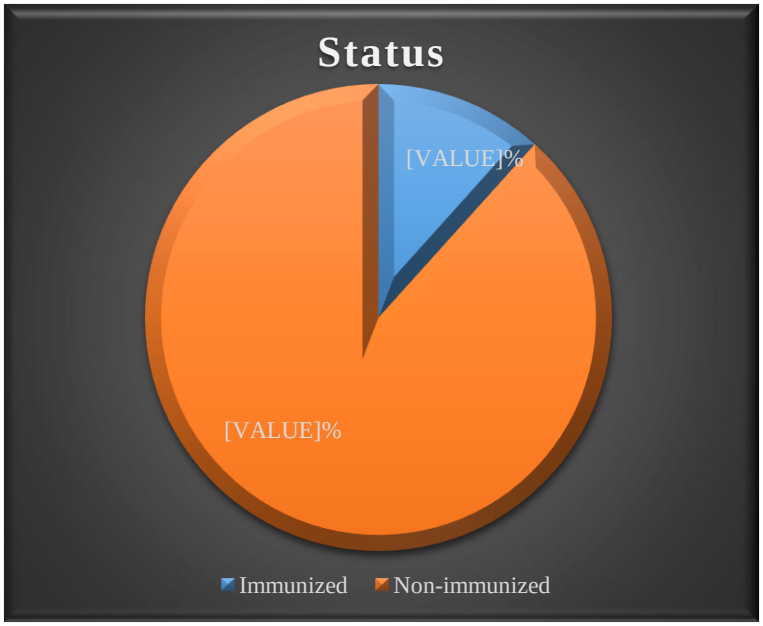

Figure 2: Immunization status of patients with mumps.

Table 3: Clinical features at presentation to the hospital (N=60).

Clinical presentation	Frequency	Percentage	Mean±SD(Days)
Fever	60	100.00	5.0±1.2
Constitutional symptoms (headache, myalgia or fatigue)	35	58.33	5.1±2.1
Swelling of salivary glands	60	100.00	5.5±1.1
Cough and cold	50	83.33	4.7±1.3
Difficulty in swallowing	47	78.33	4.1±2.0
Earache	12	20.00	2.01±2.0

Abdominal swelling	2	3.33	4.5±2.2
Scrotal swelling	3	5.00	4.2±1.3
Parotid swelling			
Unilateral	14	23.33	-
Bilateral	45	75.00	
Submandibular swelling			
Unilateral	3	5.00	-
Bilateral	9	15.00	

DISCUSSION

In our study, we selected 60 clinically diagnosed cases of mumps based on specific inclusion and exclusion criteria. Among the cases, 58.33% were male, and 41.67% were female, resulting in a male-to-female ratio of 1.4:1. The male preponderance was consistent with several other studies, including Raut et al., Ravindra et al., Bemard et al., Heikki et al., and others [14-17]. The age of the infected patients ranged from 1 year to 18 years, with a mean±SD of 8.2±3 years. Moghe et al. reported a median age of 9.4 years (7 months-38 years), with 60% male [18].In our study, none of the cases was below one year of age. However, we identified 20 cases between 1 and 5 years, with 11 in boys and 9 in girls. The largest cases were in the age group of 6 to 10, with 40 cases, 25 in boys and 15 in girls. In the age group of 11-15 years, there were 10 cases, 6 in boys and 4 in girls. We found very few cases beyond 15 years, consistent with the findings of Arshad et al., Sharma, John, et al., and others [19-21].Our data indicated that 40% of the patients belonged to the lower middle class of socioeconomic status, per Kuppuswamy's scale. This was followed by the upper-middle and lower-middle classes, consistent with the results of Gupta et al. [22]. Bakker et al. conducted a study in Canada, which showed an incidence of mumps among 15% of vaccine recipients, similar to our findings [23].In our study, patients reported fever and predominantly bilateral parotid involvement. Fever was the most common presentation, followed by parotid involvement. Parotitis was present in 98.33% of cases at some point during the illness, with 23.33% having unilateral and 75.00% having bilateral involvement. A prolonged duration of multiple salivary gland involvement was observed in 16% of the subjects. The mean duration of illness was 9.0±2 days. Constitutional symptoms, such as headache, myalgia, or fatigue, were observed in 35 patients (58.33%). Cough and dysphagia were seen in 83.3% and 78.33% of the patients. Our findings were similar to those done by Arshad et al. and Moghe et al. [18,19].In a study by Arshad et al., all the patients (100%) were found to have bilateral parotid enlargement, the hallmark of mumps [19]. The fever was usually mild and self-limiting, with 60% of children in the age group of 9-12 years. Among the children in whom fever was present, the rural group had 25 (100%) febrile cases compared to 0 (0%) in the urban group, which was significant. Indranil et al. reported bilateral parotid swelling in 92.3% of cases[24]. Fever was the most common presentation among the general symptoms, reportedly present in 92.3% of the study subjects. The overall mean duration of parotid swelling was calculated to be 6.85±1.89 days, with 6.73±1.95 days and 6.95±1.86 days for males and females, respectively.

Limitations of the study: Every hospital-based study has some limitations and the present study undertaken is no exception to this fact. The limitations of the present study are mentioned. Therefore, the results of the present study may not be representative of the whole of the country or the world at large. The number of patients included in the present study was less in comparison to other studies. Because the trial was short, it was difficult to remark on complications and mortality.

CONCLUSION AND RECOMMENDATIONS

In conclusion, preventing mumps in children is crucial to reducing the disease burden in Bangladesh. Vaccination is the most effective way to prevent mumps, and the vaccine is available in the country's national immunization program. However, vaccine coverage must be improved to ensure that all children receive the vaccine. It is recommended that parents and caregivers ensure that their children receive the mumps vaccine as part of the national immunization program. The government of Bangladesh should also strengthen its efforts to increase vaccine coverage and promote preventive measures. Healthcare providers should be aware of the signs and symptoms of mumps and promptly report suspected cases to the local health authorities. They should also provide appropriate treatment and advice on preventive measures to their patients and their families. A coordinated effort between the government, healthcare providers, and the community is necessary to prevent and control the spread of mumps in children in Bangladesh.

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