WEEKLY EPIDEMIOLOGICAL REPORT

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Mumps : Hope for prevention

Mumps occur in worldwide and is a human disease. Carrier state is not known to exist. Mumps is an infectious viral disease which classically causes an inflammation of the salivary glands. The disease is characterized by non specific prodromal symptoms of myalgia, anorexia, malaise, headache and fever followed by most common specific manifestations of unilateral or bilateral parotitis in infected persons. Parotitis tends to occur within the first 2 days and be noted as earache and tenderness on palpation at the angle of the jaw. Symptoms tend to decrease in one week and resolve in 10 days.

Orchitis also can occur in 20-30% of affected males in post pubertal age and usually occurs after parotitis in 50% of post pubertal males. It can appear bilaterally in upto 30% of affected males. Abrupt onset of testicular swelling, tenderness, nausea, vomiting and fever could occur. Approximately half of the affected will get testicular atrophy but sterility is rare. Oophoritis (ovarian inflammation) occurs in 5% of post pubertal females and it may mimic acute appendicitis. No relationship is described with oophoritis and impaired sterility. Mumps orchitis has been described to be a risk factor for testicular cancer. Nearly 40-50% of mumps infections have been associated with respiratory symptoms especially in young children under 5 years of age. Mumps can cause sensory neural hearing loss and mild degree pancreatitis occurs in about 4% of cases.

Asymptomatic aseptic meningitis occurs in 10% of cases but usually recovers without complications. Mumps encephalitis is rare but results in serious sequalea. It occurs with an incidence of 1-2/10,000 cases and results in paralysis, fits, and hydrocephalus. The case fatality rate is usually reported as 1%. Pancreatitis is an infrequent complication. Deafness is reported usually in 1:20,000 of reported cases. Sudden onset of hearing impairment could occur and may possibly be permanent. Myocarditis, arthritis and nephritis are very rare complications. Mumps infection during early pregnancy is identified to be associated with spontaneous abortion but congenital abnormalities are not evident.

During the 5th century BC Hippocrates has described the disease as Parotitis and Orchitis. The virus aetiology was described in 1934 by Johnson and Goodpasture. The disease is caused by a paramyxovirus, a type of RNA virus. Mumps is in the *Rubulavirus* genus and it has one antigenic type. Transmission occurs through air borne or direct contact with infected droplets or saliva. Contagiousness is similar to that of influenza or rubella but less than that for measles or varicella. The virus is harbored in the saliva of the patient, and acquired by respiratory droplets. Virus replicates in naso-pharynx and regional lymph nodes. After 12-25 days of acquiring infection, a vireamia occurs which lasts approximately 3-5 days. During this acute vireamia phase virus spreads to multiple tissues including meninges, salivary glands, pancreas, testis and overies. Inflammation of these tissues leads to characteristic symptoms of parotitis and aseptic meningitis. Mumps virus is rapidly inactivated outside by chemical agents (formalin, ether, chloroform,) heat and ultraviolet light.

Incubation period is about 16-18 days (range 12-25 days) maximum infectiousness occurs between two days before onset of illness to four days afterwards. Virus can be isolated from saliva and urine during the period of acute illness. Immunity

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is generally lifelong and described to develop after unapparent or apparent mumps illness.

Mumps is usually a clinical diagnosis. The clinical case definition is an acute onset of unilateral or bilateral tender, self limited swelling of the parotid or other salivary glands lasting more than 2 days without other apparent cause. But disease can be confirmed through a positive serological test for mumps specific IgM antibodies, a significant rise (four fold) in serum mumps IgG titer as determined by standard serological assays. Detection of virus is done by reverse transcription polymerase chain reaction (RT-PCR) in samples collected from throat swabs, urine and cerebrospinal fluid (CSF). Virus isolation from saliva, urine and CSF can be done if the sample is collected within the first 5 days of the illness. Serology for IgM detection is more convenient and is detected within first 14-28 days of the illness and peak about a week after the onset.

Treatment of mumps generally relies on letting the disease run its course while the patient is monitored to ensure that more serious symptoms do not emerge. It is important to keep the patient fed and hydrated, although the swelling around the mouth may make eating difficult. Soft foods like smoothies and yogurts are a good choice. Usually symptomatic treatment is recommended.

In unvaccinated populations, nearly one third of exposed susceptible people have unapparent or subclinical infections. In the absence of immunization, mumps is endemic with an annual incidence of 100-1000 per 100 000 population and usually the endemic peaks every 2-5 years. In many industrialized countries mumps is described as a major cause of viral encephalitis. Evidence of sero surveillance in some countries showed that 90% of persons above 15 years were immune to mumps while in other countries a large proportion of adult population remained susceptible. Most countries where mumps vaccine is not introduced the peak incidence is observed in children aged five to nine years.

Mumps virus was isolated in 1945 and inactivated vaccine was developed in 1948. These initial vaccine preparations were discontinued in mid 1970s due to short lasting immunity. Currently used Jerry Lynn strain of live attenuated mumps virus vaccine was licensed in 1967. Vaccine is available as a single antigen preparation, combined with rubella vaccine, or combined with measles and rubella vaccine (MMR). MMR is a lyophilized (freeze-dried) powder and reconstituted with sterile, preservative free water. Efficacy is 95% (90-97%) and duration of immunity is lifelong. It, needs more than one dose for protective immunity and indicated for all infants above 1 year of age, susceptible adolescents and adults without documented evidence of immunity.

Methods of control:

- ***Preventive measures***

Routine mumps vaccination is recommended in countries with high incidence rates and endemic with high proportion of susceptible individuals. Mumps vaccination is recommended at the age of 12-18 months. Some countries have a two dose schedule, with the second dose given at least one month after the first dose. More than 90% of the recipients develop long lasting or lifelong immunity.

Different strains of live attenuated mumps virus vaccines are available but in most industrialized countries only the Jerry-Lynn strain or strains derived from it are used because of the evidence of association with aseptic meningitis is rare with this strain. The reported incidence of adverse events depends on the strain of mumps vaccine. Fever and parotitis are observed in some and rare adverse reactions include orchitis, sensory neural deafness and thrombocytopaenia. Rarely occurring aseptic meningitis resolves within one week without any sequalea.

Global experience in industrialized countries shows two doses of the vaccine is beneficial in better protection against mumps. First dose is usually given as MMR vaccine at the age of 12-18 months and age of the second dose may range from 2nd year of life to age at school entry.

- ***Control of patients, contacts and the immediate environment***

Mumps is a notifiable disease in Sri Lanka and WHO recommends making mumps a notifiable disease in all countries. Notification on suspected clinical case is required to be notified to the relevant Medical Officer of Health (MOH) from all government institutions, private institutions, General Practitioners or any other practitioner treating the patient. The MOH will notify the Epidemiology Unit through weekly routine notification system and will carry out case investigation procedure in the field on confirmation of clinical diagnosis. This detailed field investigation procedure is important in identifying basic socio demographic characteristics of patients and infact identifying disease epidemiology. These information are important in the implementation of vaccination strategies in the country.

The infected patients are advised to isolate five days from the onset of parotitis. Concurrent disinfection of articles soiled with nasal and throat secretions are recommended in preventing further spread. Immunization after exposure may not always prevent infection.

Sources:

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- ☑ *Atkinson W, Hamborsky J, Wolfy C, Epidemiology and prevention of vaccine-preventable diseases, 2004,135-143.*
- ☑ *David L. Heymann, Control of communicable diseases manual, An official report of the American Public Health Association, 19th Edition,2008.*

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Table 1: Vaccine-preventable Diseases & AFP

22nd –28th January - 2011(04th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2011	Number of cases during same week in 2010	Total number of cases to date in 2011	Total number of cases to date in 2010	Difference between the number of cases to date in 2011 & 2010
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	04	00	02	00	0	00	00	01	00	07	01	08	04	+ 100.0 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	-
Measles	00	00	00	00	00	00	00	00	00	00	02	04	18	- 77.8 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	02	03	- 33.3 %
Whooping Cough	00	00	00	00	01	00	00	00	00	01	00	04	01	+ 300.0 %
Tuberculosis	32	43	01	20	06	01	07	08	35	153	67	687	698	- 1.6 %

Table 2: Newly Introduced Notifiable Disease

22nd –28th January - 2011(04th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2011	Number of cases during same week in 2010	Total number of cases to date in 2011	Total number of cases to date in 2010	Difference between the number of cases to date in 2011 & 2010
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	18	15	04	01	04	08	09	01	09	69	32	303	222	+ 36.5 %
Meningitis	04 CB=1 KL=1 GM=2	03 KN=2 NE=1	01 GL=1	00	00	04 KR=3 PU=1	00	00	03 RP=3	15	09	77	172	- 55.2 %
Mumps	04	05	02	03	02	04	02	00	01	23	04	151	62	143.5 %
Leishmaniasis	00	02 ML=2	00	00	00	00	06 AP=6	00	00	08	07	33	24	+ 37.5 %

Key to Table 1 & 2

Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: East, **NC**: North Central, **NW**: North Western, **U**: Uva, **Sab**: Sabaragamuwa.

DPDHS Divisions: **CB**: Colombo, **GM**: Gampaha, **KL**: Kalutara, **KD**: Kandy, **ML**: Matale, **NE**: Nuwara Eliya, **GL**: Galle, **HB**: Hambantota, **MT**: Matara, **JF**: Jaffna, **KN**: Killinochchi, **MN**: Mannar, **VA**: Vavuniya, **MU**: Mullaitivu, **BT**: Batticaloa, **AM**: Ampara, **TR**: Trincomalee, **KM**: Kalmunai, **KR**: Kurunegala, **PU**: Puttalam, **AP**: Anuradhapura, **PO**: Polonnaruwa, **BD**: Badulla, **MO**: Moneragala, **RP**: Ratnapura, **KG**: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps.

Dengue Prevention and Control Health Messages

Check the roof gutters regularly for water collection where dengue mosquitoes could breed.

Table 4: Selected notifiable diseases reported by Medical Officers of Health

22nd –28th January - 2011(04th Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns Received
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	72	297	5	20	1	2	4	18	0	1	5	31	0	1	0	5	0	1	**69**
Gampaha	20	107	3	12	0	1	0	6	0	0	1	13	1	3	0	9	0	0	**67**
Kalutara	27	47	7	14	1	1	4	11	2	2	3	9	0	0	0	1	0	0	**92**
Kandy	4	23	2	24	0	0	2	2	0	2	1	6	0	6	1	3	0	0	**91**
Matale	5	10	3	13	0	0	0	1	1	3	1	12	0	1	0	0	0	0	**92**
Nuwara	2	3	3	14	0	0	0	3	0	0	1	2	0	2	0	1	0	0	**85**
Galle	2	6	2	7	0	0	0	1	0	1	2	10	1	4	1	3	0	0	**63**
Hambantota	5	11	0	5	1	1	0	0	0	0	1	3	1	8	0	0	0	0	**64**
Matara	7	14	0	7	0	0	0	2	0	0	1	7	1	6	0	1	0	0	**71**
Jaffna	6	53	3	8	0	0	9	24	1	1	0	0	6	32	1	6	0	1	**64**
Kilinochchi	1	2	0	1	0	0	0	1	0	0	0	0	0	3	0	1	0	0	**75**
Mannar	2	7	0	0	0	0	1	4	0	0	0	3	2	12	0	0	0	0	**100**
Vavuniya	2	13	0	2	0	0	0	1	0	0	2	7	0	1	0	0	0	0	**75**
Mullaitivu	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**25**
Batticaloa	11	29	13	50	0	1	0	2	0	0	0	0	0	0	0	0	0	0	**64**
Ampara	1	8	3	16	0	0	0	4	0	13	0	7	0	0	0	1	0	0	**43**
Trincomalee	1	6	9	29	0	0	0	0	0	1	1	11	0	1	0	2	0	0	**82**
Kurunegala	4	24	4	42	0	1	2	9	0	1	3	16	3	10	0	4	0	0	**68**
Puttalam	3	58	2	24	0	0	0	4	0	0	1	8	0	1	0	1	0	0	**56**
Anuradhapu	5	21	3	16	0	0	0	0	1	1	5	24	1	3	0	3	0	0	**84**
Polonnaruw	1	3	6	16	0	1	1	1	0	8	2	9	0	0	0	0	0	0	**86**
Badulla	1	21	4	14	0	0	4	10	0	0	0	2	0	2	1	2	0	0	**67**
Monaragala	5	15	2	5	0	0	1	3	0	0	2	7	0	5	0	1	0	0	**73**
Ratnapura	8	35	5	34	0	0	0	2	0	1	3	20	1	6	0	7	0	0	**78**
Kegalle	4	13	0	5	1	1	1	2	0	2	2	12	0	0	0	6	0	0	**64**
Kalmunai	0	3	3	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**54**
SRI LANKA	**199**	**831**	**82**	**418**	**04**	**09**	**29**	**111**	**05**	**37**	**37**	**219**	**17**	**107**	**04**	**57**	**00**	**02**	**73**

Source: Weekly Returns of Communicable Diseases WRCD).
***Dengue Fever / DHF** refers to Dengue Fever / Dengue Haemorrhagic Fever.
****Timely** refers to returns received on or before 28th January, 2011 Total number of reporting units =320. Number of reporting units data provided for the current week: 232
A = Cases reported during the current week. **B** = Cumulative cases for the year.

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Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to **chepid@sltnet.lk.**

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