

## Outbreak of Rubella cases in Lakhimpur district of Assam

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### ABSTRACT

Blood samples were collected from suspected measles cases occurred at Ghilamora area, Lakhimpur district in Assam. No Measles IgM antibodies were detected among the tested samples. However, Rubella IgM antibodies were detected in eleven nos. of samples. Majority of Rubella IgM positive cases were detected from Milannagar and Ghahigaon villages of Ghilamora. High incidence of Rubella IgM positive cases was observed among the children of below 10 years age groups. The incidence was started during the month of March and continued upto the end of May. This is the first report of Rubella positive cases from Lakhimpur, Assam. All the control measures were undertaken by the investigators and the whole situation is under control.

**Keywords:** Ghilamora, IgM, Lakhimpur, Measles, Rubella.

### INTRODUCTION

Rubella, commonly known as German measles or 3-day measles, is a disease caused by the rubella virus. It is an infection that primarily affects the skin and lymph nodes. The disease was first reported to be a distinct disease entity early in the 19<sup>th</sup> century in Germany [1]. Subsequently, it has become recognized as one of the common infectious diseases of childhood. In contrast, Measles is one of the most contagious diseases in the world and is a leading cause of vaccine-preventable death among children. Although the two have similar symptoms including the red rash, they are unrelated and are from different virus families, but can be easily prevented with combined vaccines. Usually, rubella is neither as infectious nor usually as severe as measles. Measles and Rubella can be prevented with vaccines that can be delivered together as a combined measles-rubella (MR) vaccine, or combined with vaccines against mumps (MMR) and varicella (chickenpox) (MMRV).

Rubella is a mild febrile viral illness characterized by a diffuse punctate and maculopapular rash. Children usually experience few or no constitutional symptoms but adults may experience a one to five day prodrome of low-grade fever, headache, malaise, mild coryza and conjunctivitis. It is transmitted by droplet spread or direct contact with infectious patients with symptoms of coughing and sneezing. Rubella infection during pregnancy can cause congenital rubella syndrome (CRS) and is easily preventable by vaccination. Infants with CRS shed the rubella virus in their nose, pharyngeal secretions and urine for months or even years.

Lakhimpur district in Assam is considered as a zone for emergence of different diseases [2-17]. Keeping in mind a study was undertaken in Lakhimpur district of Assam to find out the distribution of suspected measles cases and the etiology of Measles IgM negative cases.

## MATERIALS AND METHODS

Ghilamora area in Lakhimpur district of Assam had a total population of 64,464 with altogether 92 villages. The study was carried out at Ghilamora area in Lakhimpur district in Assam. Any person with fever and maculopapular rash lasting for more than 3 days, cough or coryza (running nose) or conjunctivitis (red eyes) were suspected as measles and included in our study. All the six affected villages are Milannagar (1635), Ghahigaon (855), Dighalibasti (1023), Soukham Leluani (1280), Moinapara (795) and No-1 Ghilamora (901). Immunization status was taken from each of the participants. The aims and objectives of the study were explained to each participant. The Joint director of health, Lakhimpur was informed about the study. Written informed consent was obtained from patients prior to recruitment into this study. Consent for the children was provided by the parents/guardians while some of the participants provided the assents. Incidence rate of suspected measles cases were calculated in terms of 1000 population for each of affected villages.

Two ml of blood samples were collected from each of the participants. Immediately serum was separated from the blood samples. Serum samples were sent to Microbiology division, Virology laboratory, National Centre for disease control, New Delhi for laboratory investigation. All the samples were tested for detection of Measles IgM antibodies by using Enzyme linked immunosorbent assay (ELISA) as per the procedure given in the kit manual. Further, ELISA was also done for detection of Rubella IgM antibody by using standard ELISA kit.

## RESULTS

Total seventy seven nos. of suspected measles cases were reported from six villages at Ghilamora area in Lakhimpur district. Majority of the cases were reported from Milannagar and Soukham Leluani village area. Blood samples were collected from suspected patients. All the samples found negative for Measles IgM antibodies. The initial case of suspected measles was reported on 13<sup>th</sup> March, 2014 from Moinapara village and thereafter it reached at peak level during the mid of May. 77.92% (60/77) of the total reported suspected measles cases were observed during the month of May. The last case was reported on 22<sup>th</sup> May, 2014. Vaccination history told that 40.26% (31/77) had immunized and 15.58% (12/77) had unimmunized. However, 44.16% (34/77) of the study participant did not know their vaccination status. Among the suspected measles cases, 49.35% (38/77) were below the age groups of 10 years. Sex specific incidence rate indicates that mostly females (54.55%) were victims of measles than the males.

Negative samples were processed for Rubella IgM antibodies. Among the tested samples eleven nos. of samples found positive for Rubella IgM antibodies. All the Rubella IgM positive cases were below 30 years age groups. 73% (8/11) of positive cases were children. 45.45% (5/11) of Rubella IgM positive cases were detected from Milannagar village area (table 1). However the incidence rate of Rubella IgM positive cases was elevated in Ghahigaon village area (table 1). Out of the Rubella IgM positive cases, 63.64% (7/11) had taken measles vaccines. Two Rubella IgM positive patients history told that they had not taken measles vaccine earlier. Both male and female were equally affected.

**Table 1: Incidence rate of suspected measles and rubella positive cases (affected area wise)**

Villages	Nos. of suspected Measles cases	Rubella IgM positive	population	Incidence of suspected Measles (per 1000 population)	Incidence of Rubella (per 1000 population)
Soukham Leluani	15	0	1280	11.72	----
Moinapara	12	1	795	15.09	1.26
Dighalibasti	9	0	1023	8.8	-----
Ghahigaon	13	4	855	15.2	4.68
Milannagar	18	5	1635	11.01	3.06
Ghilamora	10	1	901	11.1	1.11

## DISCUSSION

Measles is one of the leading causes of death among young children even though a safe and cost-effective vaccine is available. From our study, high incidence of suspected measles cases has seen among the children. As per the WHO report, in 2012, there were 1, 22, 000 measles deaths globally – about 330 deaths every day or 14 deaths every hour [18]. But after the measles vaccination resulted in a 78% drop in measles deaths between 2000 and 2012 worldwide. Measles transmitted very fast in a community. This study also indicate the same hypothesis as it transmitted within

the community in a very few days. After the occurrence of first suspected measles case from Moinapara village in 13<sup>th</sup> March, it gradually spread to the entire Ghilamora block area. At the time of detection, the outbreak was at its peak activity. Previous finding indicates, when a person has measles, 90% of the people they come into close contact with will become infected, if they are not vaccinated or previously contracted the disease [19].

Incidence rate of suspected measles were far above the ground in Ghahigaon area which was closely followed with Moinapara village. Alternatively, high incidence of Rubella IgM positive cases was observed among the children below 10 years in Ghahigaon and Milannagar village area. The people in those areas were found that they do not have access to immunization services. Such factors like poor health system, poverty and lack of information can make it difficult to protect their children from this fate. Measles and Rubella and CRS, however, are entirely preventable. Like measles, rubella can be prevented with a safe, effective and inexpensive vaccine alone or in combination of measles/measles and mumps vaccine.

During the outbreak of Rubella, several interventions have been undertaken from district health administration. Mass survey (door to door) was done in the affected area to find out any hidden suspected cases. All the suspected measles cases were treated symptomatically. Vitamin A solution was given to all the suspected cases. Health education regarding measles and measles related complication i.e. diarrhoea, pneumonia and otitis media as well as regarding isolation of cases were imparted to the inhabitants of these areas and nearby villages by the investigators. This could help in preventing further transmission of the burden of measles.

#### CONCLUSION

An outbreak of Rubella has occurred in many villages of Ghilamora area in Lakhimpur district, Assam. Mass immunization may be recommended in the affected village regardless of immune status.

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