



# An Unfortunate Case of Measles Infection in Second Trimester of Pregnancy Mistaken for Dengue Fever, Complicated by Septic Abortion in Singapore.

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## Introduction

Measles is an uncommon infection found in Singapore. It shares many overlapping clinical features with dengue fever, a viral illness endemic to tropical regions such as Singapore. The COVID 19 pandemic has increased the risk of a global measles outbreak, due to disruption to measles vaccinations. It is important to raise awareness that the incidence of measles is expected to rise with the resumption of global travel post pandemic. A missed diagnosis risks catastrophic outbreaks in vulnerable communities and a high index of suspicion and detailed travel history is essential.

## Case Report

We present a case of a 37-year-old pregnant women referred to the acute care centre of our hospital with suspected acute dengue fever. She had 3 previous uneventful full term normal vaginal deliveries and was a tourist travelling to Singapore from the Middle East. She presented with fever associated with productive cough, a generalized body rash, vomiting and coryza of 2 days duration. On examination, she appeared septic with temperature of 38.7 degrees Celsius, acute bilateral conjunctivitis and generalized blanching maculopapular rash over her trunk. There were no Koplik spots observed. A transabdominal ultrasound scan showed a viable fetus corresponding to gestational age of 20 weeks and 2 days.

The differential diagnosis upon admission was of acute dengue fever and she was admitted to the negative pressure isolation ward. She had persistent fever after admission but remained clinically stable.

**White blood cells:** 10 x10<sup>9</sup> / litre

**C-reactive protein:** 48mg/litre

**Serum lactate:** 1.5

**Respiratory multiplex swab:** negative

**Dengue serology screen with NS1Ag:** negative

**Urine and blood cultures:** no bacterial growth

**Chest X-ray:** normal

**Rubella IgG:** negative

**Day 2:** Measles reverse transcriptase polymerase chain reaction (PCR) test was ordered, which returned positive, confirming gestational measles infection. A daily fetal doppler during the admission confirmed ongoing fetal viability.

**Day 3:** Patient developed sudden lower abdominal cramps with vaginal bleeding. She suffered a spontaneous mid trimester abortion, which was complicated by a retained placenta requiring curettage of uterus.

The patient recovered well post surgery and was discharged well on day 7 of admission. She was agreeable for the MMR vaccination at her follow up appointment and expressed desire to conceive again soon. She was counselled for the need for completion of her vaccinations prior to conceiving again.

## Discussion

Measles is an airborne, highly contagious disease that was making a comeback in 2019 prior to the COVID pandemic. The 2019 measles outbreak in USA was linked to travel related cases that reached undervaccinated populations. Over 61 million doses of measles-containing vaccine were postponed or missed due to COVID-19 related delays in supplementary immunization activities, increasing the risk of bigger outbreaks around the world. Therefore, it is important to highlight the increased risks of a global measles outbreak in a post COVID pandemic era, assisted by resurgence of global travel.

In our hospital, we have enhanced protocols for patients presenting with acute respiratory infections in view of the COVID pandemic, with focus on diagnosing COVID infections early. Healthcare personnel are well trained on COVID infections, while infectious diseases that were previously a global concern have lost much of its focus, such as MERS COV and measles. In addition, with only 3 reported cases of measles infections in Singapore in 2022, it is a disease that most healthcare practitioners in Singapore have never treated. Therefore, it is understandable that measles infections are easily mistaken for more common diseases such as acute dengue fever.

### Symptomology

- Three 'C's': cough, coryza and conjunctivitis
- Prodrome of high fever
- Koplik spots on buccal mucosa towards the end of the prodromal phase
- Blanching maculopapular rash, which typically starts from the head, before spreading to the trunk and lower extremities and fades in similar order. Onset of rash usually on day 14 post exposure.

**Incubation period:** 10 to 12 days

**Infection rate:** 90%

**Treatment:** supportive with no specific anti-viral therapy

Laboratory tests are required to differentiate the diagnosis of measles from dengue, as both diseases have overlapping clinical features. A high index of suspicion for measles is required for all patients presenting with febrile exanthem, especially from travellers from countries facing measles outbreaks.

It is known that measles infection in pregnancy increases the risk of complications and can lead to adverse pregnancy outcomes. Pregnant women infected with measles are more likely to develop pneumonia and have increased mortality compared to non-pregnant women. Adverse pregnancy outcomes include pregnancy loss, preterm birth and low birth weight, while risk of congenital defects do not appear to be increased. Measles has a 90% infection rate, and despite previous vaccination, exposed individuals including healthcare workers remain at risk of infection. Post infection, it is still important to discuss MMR vaccinations. It was most unfortunate that the patient contracted measles during pregnancy, leading to an unfortunate pregnancy loss. We are fortunate to have isolated her upon presentation, reducing the risk of a catastrophic outbreak in a maternal hospital.