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COVID-19: Four Paediatric Cases in Malaysia

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A B S T R A C T

Objective: This is a brief report of 4 paediatric cases of COVID-19 infection in Malaysia

Background: COVID-19, a coronavirus, first detected in Wuhan, China has now spread rapidly to over 60 countries and territories around the world, infecting more than 85000 individuals. As the case count amongst children is low, there is need to report COVID-19 in children to better understand the virus and the disease.

Cases: In Malaysia, until end of February 2020, there were four COVID-19 paediatric cases with ages ranging from 20 months to 11 years. All four cases were likely to have contracted the virus in China. The children had no symptoms or mild flu-like illness. The cases were managed symptomatically. None required antiviral therapy.

Discussion: There were 2 major issues regarding the care of infected children. Firstly, the quarantine of an infected child with a parent who tested negative was an ethical dilemma. Secondly, oropharyngeal and nasal swabs in children were at risk of false negative results. These issues have implications for infection control. Consequently, there is a need for clearer guidelines for child quarantine and testing methods in the management of COVID-19 in children.

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COVID-19, a coronavirus first detected in Wuhan in December 2019, has now spread rapidly to over 30 countries infecting more than 70000 persons. The largest study to date found that out of 44672 confirmed cases registered in China’s Infectious Disease Information System up to 11 February 2020, there were 416 (0.9%) between the ages of 0-9 years and 549 (1.2%) between the ages of 10-19 years (The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team, 2020). There was one reported death in the category of 10-19 years. This seemed to indicate that the number of children infected was much less and their prognosis better compared with the adults. However, there is limited literature on COVID-19 in children.

We report 4 confirmed cases in children that were diagnosed and treated in Malaysia. The cases ranged from 20 months to 11 years of age [Table 1]. All four cases were likely to have contracted the virus in China. Of these, only one was a Malaysian who had visited Wuhan for the Chinese New Year festival as his mother originated from Wuhan. The patients were mostly asymptomatic or had mild symptoms. Case 1 was asymptomatic until day 17 when fever and diarrhoea occurred. Nevertheless, the child’s swabs were negative at that time. Case 2 had intermittent fever and upper respiratory tract symptoms. Case 3 was asymptomatic throughout. Case 4 had a mild cough and wheeze that responded well to salbutamol inhaler. None of the children required treatment with anti-virals. It is unknown why children with COVID-19 appeared to have milder disease. The adults may be more susceptible due to pre-existing conditions such as hypertension, diabetes, heart disease or smoking which could weaken their
the CDC guidance for the prevention and control of influenza in the peri- and post-partum settings recommends temporary separation of an ill mother and her child (Centers for Disease Control and Prevention, 2020). However, this separation may lead to a negative impact on both the child and the mother. The CDC states that the risks and benefits should be discussed with the mother and decisions made in accordance with the mother’s wishes.

Secondly, there are difficulties to obtain respiratory samples from paediatric patients. The 20-month-old child vomited on the doctor during the blood taking procedure. Performing throat and nasopharyngeal swabs are technically more difficult in paediatric patient and may sometimes require more than one healthcare provider to be fully gowned up in the room to assist the procedure. The Malaysian protocol states that the cases would be considered negative if two consecutive swabs are negative. However, some of the throat and nasopharyngeal swabs that were positive in Case 1 and Case 4 turned negative in testing and later reverted to positive ability to ward off infections. The adults may also be more susceptible to an immune overdrive that leads to acute respiratory distress syndrome (ARDS). The mild or asymptomatic presentation in children may have impacted on infection control as they could be missed by existing surveillance. Further research needs to be carried out on the paediatric population to explore this matter.

There were issues regarding the care of paediatric cases that should be highlighted. Firstly, should an infected child under quarantine be separated from parents who were tested negative? Case 1 and Case 4 were brothers who were quarantined with their grandmother who was tested positive and their mother who was initially tested negative but later tested positive. The mother was advised regarding the high risk of being infected but she insisted on being quarantined together with her mother in law and children. Even though the patients were given masks, they may not have fully complied with the proper protocol. Case 2 was quarantined together with a younger sibling and parents who were well and had negative swabs for COVID-19 throughout their

Table 1
Demographic and Clinical data.

|                  | Case 1                  | Case 2                  | Case 3                  | Case 4                  |
|------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Age              | 20 months               | 4 years                 | 9 years                 | 11 years                |
| Gender           | Male                    | Female                  | Male                    | Male                    |
| Ethnicity        | Chinese                 | Chinese                 | Chinese                 | Chinese                 |
| Nationality      | China                   | China                   | Malaysia                | China                   |
| Method of detection | Contact tracing       | Self-presentation       | Screening for Wuhan evacuee | Contact tracing       |
| Date of infection | Left Wuhan on 20 January 2020 | Left Foshan on 19 January 2020 | Left Wuhan on 4 February 2020 | Left Wuhan on 20 January 2020 |
| Date of detection | 24 January 2020         | 26 January 2020         | 4 February 2020         | 24 January 2020         |
| Date of confirmation | 25 January 2020      | 26 January 2020         | 4 February 2020         | 25 January 2020         |
| Site of detection | Hotel, Johor            | Emergency Dept, Hospital | Kuala Lumpur International Airport Hospital Seremban | Hotel, Johor            |
| Site of treatment | Hospital Sungai Buloh   | Hospital Sultanah Malia, Langkawi | Emergency Dept, Hospital | Hospital Sungai Buloh   |
| Symptoms         | Asymptomatic until D17 when he developed mild fever and diarrhoea | Runny nose and cough for 2-4 weeks, intermittent fever between 25–30 January | Asymptomatic | Mild cough for one day. Later diagnosed clinically as asthma |
| Method of diagnosis | Nasopharyngeal and throat swabs taken for PCR | Nasopharyngeal and throat swabs taken for PCR | Nasopharyngeal and throat swabs taken for PCR | Nasopharyngeal and throat swabs taken for PCR |
| Swabs negative on | 10, 11 and 12 February 2020 | 1 and 3 February 2020 | 13 and 17 February 2020 | 10, 11 and 12 February 2020 |
| Other investigations | Renal and liver profile normal, Rectal swab negative for COVID-19 | Blood culture showed no growth. No other investigations. Nasal swab also positive for influenza A | Chest X-ray showed right perihilar opacities | Chest X-ray showed perihilar opacities |
| Treatment        | Paracetamol and Oral Rehydration Salts | Paracetamol, oral penicillin V, loratadine | None | Mdi salbutamol prn |
| Quarantine precautions | Quarantined with family in non-negative pressure room PPE for staff | Quarantined with younger sibling and parents in negative pressure room PPE for staff | Quarantined with father in negative pressure room PPE for staff | Quarantined with family in non-negative pressure room PPE for staff |

Table 2
Swab results.

|                  | Case 1                  | Case 2                  | Case 3                  | Case 4                  |
|------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| OPS              | 23 Jan Positive         | 23 Jan Positive         | 4 Feb Positive          | 4 Feb Positive          |
| NPS              | 23 Jan Positive         | 26 Jan Positive *28.01  | 26 Jan Positive *31.04  | 1 Feb Negative          |
| 1                | 5 Feb Positive *31.5    | 5 Feb Positive *31.04   | 7 Feb Positive          | 7 Feb Positive *32.05   |
| 2                | 8 Feb Negative          | 8 Feb Negative          | 3 Feb Negative          | 3 Feb Negative          |
| 3                | 9 Feb Negative          | 9 Feb Positive *39.97   | 10 Feb Positive *35.04  | 10 Feb Positive *40.64  |
| 4                | 10 Feb Negative         | 10 Feb Positive *37.55  | 13 Feb Negative         | 13 Feb Negative *39.05  |
| 5                | 11 Feb Negative         | 11 Feb Negative         | 17 Feb Negative         | 17 Feb Negative         |
| 6                | 12 Feb Negative         | 12 Feb Negative         | 10 Feb Negative         | 10 Feb Positive *36.42  |
| 7                |                         |                         | 11 Feb Negative         | 11 Feb Negative         |

* RT-PCR Ct Value, OPS : oropharyngeal swab, NPS : nasopharyngeal swab
The early negative results were likely false negatives from sampling error due to difficulty in obtaining respiratory specimens from this age group. It may be necessary to have three consecutive negative swabs before considering the patient to be fully recovered. The RT-PCR cycle threshold (CT) value gives an estimate of the viral load where the lower the CT value, the higher the viral load (Wishaupt et al., 2017). However, the relationship between viral load and disease severity is still uncertain and under research. Presently RT-PCR CT values are not used in the clinical management of COVID-19.

There has been an expert consensus statement from China on the diagnosis, treatment and prevention of COVID-19 on the 7th of February 2020 (Shen et al., 2020). Most of the measures taken in these 4 cases agreed with the statement except for traditional treatments that were not used in our hospitals. We aimed to share the findings of the 4 cases in order to highlight the relatively mild symptoms of COVID-19 in children and the difficulties encountered in the care of paediatric patient affected by the illness.

Conflict of interest

None.

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Ethical approval

This short communication has obtained the permission to publish by the Director General of Health, Ministry of Health, Malaysia.

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