



Review Article

Omicron: The rising fear for another wave in Malaysia

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Abstract: The past two years have been a turmoil for the world and people due to the COVID-19 pandemic. It was the first time in history that the whole world was on a standstill after many countries-imposed movement control orders and restrictions. Many innocent lives were lost, and the spread of infection is still ongoing. Pharmaceutical companies raced against the time to develop vaccines, believing that it would be sufficient to control COVID-19. Nevertheless, the recent emergence of the SARS-CoV-2 variant as Omicron has become a global concern. This new variant of concern (VOC) spreads faster than other VOC strains and poses a high risk, mounting fears of new waves of infections in many countries, including Malaysia. This review discussed characteristics of Omicron, the emergence of Omicron cases in Malaysia, and preventive measures to control the spread of COVID-19.

Keywords: COVID-19; Omicron; variant of concern (VOC); Malaysia; preventive

1. Introduction

The world has been affected by the profound Coronavirus disease 2019 (COVID-19) pandemic for two years since the first discovery of SARS-CoV-2 in December 2019. In these two years of the COVID-19 pandemic, the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus has been evolving and emerging as different variants that have been classified as the variants of concern (VOCs), variant of interest (VOIs), and variants under monitoring (VUMs) according to the World Health Organization (WHO). The well-known VOCs are Alpha (B.1.1.7), Beta (B.1.351), Gamma (P.1), and Delta (B.1.617.2) that had caused a significant increase in COVID-19 cases and deaths in several countries. These variants carry mutations on the spike protein, which cause them to be more transmissible and

prone to immune evasion and vaccine escape^[1]. The current VOIs include Lambda (C.37) and Mu (B.1.621), while there are several VUMs such as AZ.5, C.1.2., B.1.617.1, B.1.630, and B.1.640^[2]. Recently, the world was uproared by the emergence of a new variant known as the Omicron (B.1.1.529). The Omicron was designated as one of the VOCs by WHO on 26th November 2021.

The World Health Organization (WHO) states that the Omicron variant spreads faster than the original SARS-CoV-2 virus and other concern variants. It poses a very high risk worldwide, leading to a surge of infection cases. Some countries, including the United Kingdom (UK), the United States of America (USA), and EU countries, have imposed travel restrictions from African countries. Israel and Japan took drastic precautions by closing their borders to all foreign visitors^[3]. Nevertheless, early studies have given hope that Omicron clinical manifestation is milder than previous variants^[4]. It is reported that researchers in England, Scotland, and South Africa have found that the hospital admission risks are between 15% and 80% lower with Omicron compared to the delta variant^[4].

The emergence of predecessor COVID-19 VOC; the alpha, beta, and delta were linked with new waves of infections across the countries^[5]. The most predominant VOC is the delta variant. The delta VOC was detected from India and associated with a higher viral load, a more extended infectious period, and higher rates of reinfections^[6-8]. The delta variant became a fast spreader and dominant variant in a short duration across the globe, causing waves of new infections. As countries fight against the waves of new infections, there have been mounting concerns about the efficacy of COVID-19 vaccines. It is noted that COVID-19 vaccines have reduced vaccine efficacy over time. As new variants like Omicron emerged, the situation has changed the perception of healthcare professionals, scientists/researchers, and pharmaceuticals that vaccination would be sufficient to control COVID-19. The Omicron variant is causing fear to the people of another new wave of infections in many countries, including Malaysia. Hence, this review discusses the characteristics of Omicron, the COVID-19 cases and Omicron cases in Malaysia. The preventive measures to control the spread of Omicron in Malaysia will also be reviewed.

2. The New Variant of Concern – Omicron (B.1.1.529)

The first confirmed Omicron COVID-19 was detected on 11 November 2021 in Botswana and on 14 November 2021 in South Africa, where its emergence later coincides with the steep increase in COVID-19 cases in South Africa^[9]. The Omicron was classified as VOC by WHO within the shortest period, two days after it was reported to WHO on 24 November 2021. It has triggered significant concerns from the public. Omicron appears to spread rapidly after a few days of its identification. It is currently reported in 57 countries, including Malaysia, Singapore, Hong Kong, Italy, Israel, Belgium, the United States of America, and many more.

The origin of the Omicron variant warrants further investigation; however, phylogenetic analyses suggested that this variant did not evolve from the previously known VOCs (E.g., Alpha or Delta); it instead appears to evolve parallel to them and has diverged early from

them^[10]. Researchers have hypothesized that the Omicron variant might have emerged and circulated in the neglected population, gestated in chronically ill COVID-19 patients or immunocompromised patients. It could be initially evolved from non-human species^[10-12].

Genomic studies have revealed that the Omicron variant possesses the most mutation sites than that of other SARS-CoV-2 variants as it contains over 60 substitutions/deletions/insertions occurring along the viral genome within ORF1a, ORF1b, ORF9b, and structural proteins including envelope, membrane, and nucleocapsid proteins. It should be noted that more than 50% of the mutations occur in the spike of Omicron: 30 substitutions (A67V, T95I, Y145D, L212I, G339D, S371L, S373P, S375F, K417N, N440K, G446S, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H, T547K, D614G, H655Y, N679K, P681H, N764K, D796Y, N856K, Q954H, N969K, and L981F), three deletions (H69/V70, G142/V143/Y144, and N211), and one insertion (three amino acids (EPE) at position 214)^[12]. Thus far, Omicron has the highest number of spike mutations (3 to 4 times higher) than other VOCs.

Despite the comprehensive genomic information of the Omicron variant, there is still insufficient data on its transmissibility and severity of the disease. Nevertheless, there are some similarities between the spike mutations of Omicron and other VOCs, for instance, D614G, N501Y, K417N, P681H, and E484. These mutations have been previously reported to increase transmissibility, binding affinity with angiotensin converting enzyme 2 (ACE2), and resistant to neutralization by antibodies^[12,13]. In addition, the study offered preliminary findings regarding the higher risk of COVID-19 reinfection by the Omicron variant, in which Omicron variant may acquire substantial ability to evade immunity from prior COVID-19 infection^[14]. Further studies are required to investigate whether Omicron infection is more transmissible or causes more severe symptoms than other VOCs.

The Omicron variant is detectable by COVID-19 diagnostic tests such as real-time RT-PCR and rapid antigen tests^[13,15]. The real-time RT-PCR targeting the S gene can detect the Omicron variant at a higher rate by showing the S-gene drop out of the variant, followed by Sanger sequencing to confirm the identity of the variant^[15,16]. As for the rapid antigen diagnostic test, Bekliz *et al.* revealed that the rapid antigen test showed lower sensitivity in the detection of Omicron than other VOCs (Alpha, Beta, Gamma, and Delta)^[17].

3. The COVID-19 Pandemic in Malaysia

Malaysia was one of the Southeast Asian countries with the lowest COVID-19 daily cases at the initial stage. After a religious outbreak at Sri Petaling, the cases slowly started to creep up. The religious gathering was composed of 16,000 participants, with 1,500 being foreigners. By 18th March 2020, 673 people tested positive for COVID-19 in Malaysia, the highest number in Southeast Asia. Around two-thirds of the confirmed cases were linked to the event at Sri Petaling^[18,19]. This event contributed to the biggest COVID-19 cluster in Malaysia, with 3375 individuals infected and 34 deaths^[20].

Ever since then, the Malaysian government has imposed different phases of movement control order (MCO), conditional movement control order (CMCO), and recovery movement control order (RMCO) to curb the rise of COVID-19 in the country. The nation has bravely fought against three COVID-19 waves from March 2020 to December 2021. At one point, the number of cases rose exponentially to a scary daily case of 24,599 on 26th August 2021^[21]. It was the highest number of new daily cases since the onset of the pandemic. On the same day, the country recorded the highest number of deaths of 393, including 100 brought-in dead cases. The healthcare sector was on the verge of collapsing as doctors worked around the clock to cope with the increasing number of hospitalization cases and deaths due to COVID-19 infections.

The worst was not over yet for Malaysians. The new daily COVID-19 cases started to fall gradually but the death cases remained high. On 11th September 2021, Malaysia recorded 592 daily death cases within 24 hours^[21]. The following ten days in a row, the daily death cases were between 350–500 each day. The fear was mounting on the people, as funeral parlors could not cope with the burial or crematorium of so many dead bodies. People were in despair and sorrow of losing their loved ones, which affected their livelihood by the pandemic. Nevertheless, with adequate measures and strict COVID-19 SOP, the government managed to bring down the infection rate and control the spread. As of 15th December 2021, the daily new COVID-19 cases were 3900, with 33 deaths (**Figure 1**).



Figure 1. Illustration of COVID-19 cases in Malaysia

4. Omicron Cases in Malaysia

In Malaysia, the first COVID-19 Omicron case was reported on 2nd December 2021, which involved a 19-year-old South African student returning to Ipoh, Perak^[22]. By 25th December 2021, there were 62 confirmed Omicron cases in Malaysia. Out of the 62 cases, 61 cases were imported infections (international arrivals from Saudi Arabia, United Kingdom, Qatar, Nigeria, Italy, Turkey, United Arab Emirates, and the United States of America), and 1 case was suspected to be local transmission^[23,24]. The suspected local transmission was reported on 24th December 2021, involving a 38-year-old Chinese national without travel history in Sarawak. It is anticipated that there will be a spike in COVID-19 Omicron cases in Malaysia as the virus has started to spread within the community. The main reason driving the spread of Omicron is the breach of the quarantine order^[24]. The nation has been warned of the possibility of a fourth wave due to the spread of Omicron. When this article went to press, many Malaysians were aboard either for a holiday or religious purposes.

5. Preventive Measures

The Malaysian government has been proactively drawing up various strategies to control the COVID-19 spread in Malaysia. Among the initial efforts by the government were enforcing health screening at all the country entry points to detect individuals with suspected COVID-19. Many government hospitals in every state were designated as COVID-19 hospitals to treat patients. In addition, strict rules were implemented in different movement control order phases to prevent the further spread of the virus into the local communities^[25]. Strict standard operating procedures (SOP) were enforced at workplaces, social distancing, prohibiting mass gatherings, compulsory from wearing a double face mask and a face shield, to prevent the spread of COVID-19^[26,27]. These restrictions and SOPs did cost a significant impact on the livelihood of the public; however, it was effective in bringing down the number of cases to a manageable level. Gradually, the Malaysian government announced the National Recovery Plan (NRP) on 15th June 2021 to ease the burden of movement control order on the livelihood and revive the nation economic sector^[28]. As of December 2021, all the states in Malaysia have entered the 4th Phase of NRP; achieving the set target of over 60% vaccinated individuals, reduced usage of beds in ICU, reduced hospitalization cases and death cases.

The introduction of the COVID-19 vaccine differs across the countries, but Malaysia currently accounts for the largest proportion of the vaccinated population in Southeast Asia^[29]. The National COVID-19 Vaccination Program in Malaysia has been distributing vaccines from Pfizer, AstraZeneca, and Sinovac to the public since February 2021, over three phases: Phase 1 targeting the frontline workers; Phase 2 targeting individuals aged 60 years and above, disabled, and high-risk groups; Phase 3 individuals/groups/locations with high disease burden, and the remaining adult population^[30]. Then the government approved the use and rolled out Moderna, CanSino, Janssen, and Sinopharm for the vaccination program. Malaysia aims to have nearly 80% of its population fully vaccinated by 4th August 2022.

Ever since the emergence of the Omicron variant in other countries, the health ministry has proactively taken precautionary measures to ensure the spread of the Omicron variant in

the country. Malaysia announced new COVID-19 restrictions, banning large gatherings and encouraging booster vaccinations for high-risk groups. The health ministry announced that all Malaysian over 60 and adults' recipients of Sinovac vaccines must get either Pfizer or Sinovac booster dose by February 2022 to keep their status fully vaccinated on MySejahtera App^[31]. As the fear of Omicron mounting high, the government encourages all individuals who have completed the two doses of any COVID-19 vaccines to get a booster dose to protect themselves.

6. Conclusion

In face of Omicron emergence in Malaysia, the government and healthcare proactiveness in imposing preventive measures has helped to control a wide spread of Omicron infection in the community. The public should exercise their responsibility in ensuring all standard operating procedures (SOP) are strictly abided and adapt to the New Normal culture of social distancing and wearing a face mask. Getting vaccinated would-be best option for now, especially those who are vulnerable to viral infections. As we know the Omicron would not be the last SARS-CoV-2 variant to emergence, thus making the eradication process more complicated. Nevertheless, with rapid genome data sharing enable all countries to impose precaution measures to face new variant of concerns in future.

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