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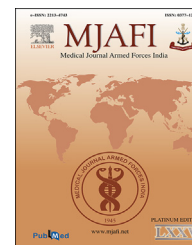
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Correspondence/Letter to the Editor

Unmasking of asymptomatic COVID-19 cases following vaccination

Dear Editor,

On 30 Jan 2020, the WHO Emergency Committee declared COVID-19 a global health emergency based on growing case notification rates.¹ Thereafter, over the last 24 months, the globe has witnessed multiple waves of the COVID-19, and presently too the world is witnessing a surge in COVID-19 cases with the new variant of concern (VOC), B.1.1.529 (Omicron). The omicron variant with a large number of mutations in the spike protein is considered to have much higher transmissibility as compared to previously known VOC.^{2,3}

In India, the first two waves of COVID-19 cases took place from April 20 to September 20 and March 21 to August 21, respectively. The first case of omicron variant was reported in India on 02 December 2022, and since then there has been a sharp rise in new confirmed COVID-19 cases across the country. As on mid-January 22, India is recording more than 2.5 lakh new confirmed cases daily.

Amid the recent reports suggesting that the previous vaccine doses may not provide prolonged immunity, many countries launched booster dose vaccination programs primarily targeting the vulnerable/at risk individuals. In many parts of the world, the booster vaccination was started on April 21 and till mid-January 22, booster dose had been administered to almost 10.61 per 100 people in the world.⁴ On 10 January 2022 the Government of India also launched the precaution dose (booster) for the Health care workers (HCWs), frontline workers, and individuals of age more than 60 years with comorbidities.⁵

In the present study, we describe the phenomenon of individuals developing mild flu-like symptoms following Adverse Event Following Immunization (AEFI) vaccination and testing positive for COVID-19 following the precaution dose of the COVID-19 vaccine. We followed-up the precaution dose recipients of our institute, a medical college in Western Maharashtra. The category-wise distribution of cases testing positive for COVID-19 by RT-PCR within 48 h of vaccination is tabulated in [Table 1](#). A total of 37 (4.07%) recipients of precaution dose were symptomatic within 48 h of vaccination. All individuals had mild symptoms predominantly headache, body ache, and fever.

Our institute was witnessing a surge of COVID cases since 01 Jan 2022, with almost 10% of the staff testing positive, and almost 100% tested positive were symptomatic. In line with the

government policy, asymptomatic contacts are not being tested. Recent reports from countries having an exponential rise in cases (South Africa and the United Kingdom) suggest that omicron has increased transmissibility and a higher rate of asymptomatic “carriage” than earlier variants.⁶ Considering that almost 10% of staff had tested positive and the test positivity rate of the institute was around 50%, it is prudent to assume that a large number of cases would be asymptomatic and would not have been reported due to the policy of non-testing of asymptomatic individuals. The precaution dose vaccination drive was started in our institute on 11 January 22, while we were experiencing a massive surge of cases. It is known that the booster dose (third dose) has the same level of AEFI as was observed after the second dose.⁷ Hence, there is a high probability that the individuals (37 persons) who had tested positive after vaccination developed symptoms due to AEFI but reported for testing assuming that they had developed the symptoms due to COVID-19 infection as many of their colleagues had already tested positive. This phenomenon of detecting COVID-19 infection due to AEFI can be called as “unmasking of asymptomatic COVID-19 cases due to precaution dose.”

In our study, 4.07% of all recipient of precaution dose became symptomatic and tested positive for COVID-19. In our institute, we had observed a higher percentage of AEFIs following first (65.9%) and second dose (47.56%), respectively. Since they have been tested within 48 h of vaccination it is unlikely that the infection has occurred after or during vaccination. As the cases were tested after the onset of symptoms following vaccination, it is difficult to differentiate symptoms from AEFI or symptoms from infection. As regards to COVID-19 vaccination authors have reported unmasking of glomerulonephritis after

Table 1 – Precaution dose and positivity within 48 h as per professional categories.

Category	Booster dose (n)	Symptoms within 48 h of booster dose and tested positive (n, %)
Faculty and residents	259	13 (5.01%)
Medical students	502	12 (2.39%)
Nursing staff including nursing students	147	12 (8.16%)
Grand total	908	37 (4.07%)

vaccination.⁸ However, none of the authors have reported unmasking of COVID-19 due to vaccination.

It is now well established that serum antibody titers decrease over time after the second dose, and studies have revealed that people who had taken the booster doses were at a substantially decreased risk of infection and severe disease.⁹ Thus, the present level of scientific knowledge definitely indicates that a booster dose (a third dose) is necessary to maintain the effectiveness of vaccines regardless of the type and two-dose immunization procedure.¹⁰ However, there is a dearth of literature regarding the timing of introduction of the booster dose in the community, that is, should the booster dose be introduced in anticipation when cases are less or when the cases have already started rising, similarly the phenomenon of the unmasking of asymptomatic due to vaccination has also not been explored. The phenomenon of the unmasking of asymptomatic COVID-19 cases due to precaution dose described in the study, although is limited to data from only one institute but is very relevant in the present times. As India has started precaution dose after the country had started seeing a rise in cases. The HCWs who are the most essential commodity to combat COVID-19 are the first ones to receive the precaution dose, but it may be too late in terms of the timing as there is rampant omicron transmission already underway in our country, and it would take at least 14 days¹¹ for the vaccine boost effect to come into play. Secondly, even if an individual is infected and asymptomatic, which is highly likely, considering the nature of the variant and two doses of the vaccine have already been given, inoculation of the precautionary dose may lead to AEFI, driving individual to test for COVID-19 infection. In light of the current policy¹² irrespective of the symptoms the individuals who test positive have to be isolated for at least 07 days leading to loss of essential manpower. The findings are also relevant for HCWs involved in COVID-19 vaccination. Since some of the vaccine recipients may already have asymptomatic infection, the HCWs must take appropriate precautions to prevent themselves from getting the infection. All COVID-19 norms should be followed while vaccination to prevent cross-transmission among vaccinees.

To conclude, the unmasking of asymptomatic infection by precaution dose opens up two issues for debate. Firstly, was the timing of the introduction of precaution dose appropriate, or like many other countries India should have introduced precaution dose in early December when it was reporting the least number of new COVID-19 cases ever. Secondly, whether we need to still continue with the policy of minimum 07 days of isolation of positive cases irrespective of symptoms or simply switch to time tested symptomatic approach (isolate and treat till symptoms last) as has been followed for ages in case of flu.

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