

Short Report

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Are vaccines efficacious in preventing COVID-19 contagion? A case report**Cabona C^{1*}; Archilli M¹; Villani F¹; Sticchi L²**¹Division of Clinical Neurophysiology, IRCCS Ospedale Policlinico San Martino, Genoa, Italy.²Department of Health Sciences, University of Genoa, Genoa, Italy.***Corresponding Author: Corrado Cabona**

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Case report

Since 31 December 2019 and as of week 2022-2, 328.558.243 cases of COVID-19 and 5.548.696 related deaths have been reported [1]. In this context, a range of vaccines has been developed, showing high efficacy in preventing Coronavirus 2019 (COVID-19) disease, severe outcomes of infection, and mortality [2] and has been instrumental in mitigating also the transmission of SARS-CoV-2 [3,4].

The following brief case report describes a contagion occurring within a small closed setting and the subsequent different evolution between unvaccinated or vaccinated (with or without booster dose) people. Five people, make a 6-hour round trip by car from Genoa to Turin to go to an event on December 5, 2021. These are 5 people in good health, with a negative history of SARS-CoV-2 infection, aged between 47 and 68 years.

P1, P2 and P3 carried out, the day before the event (T-1), an antigen rapid buffer which was negative. The journey took place the following day (T0), inside a car with closed windows during which all travelers did not wear a mask. P1 complained

of some muscle pain which, however, he attributed to physical activity carried out in the previous days. On the evening of the second day following the event (T2), for the development of fever, P1 performed a new antigen test with a positive result and P5, unaware of P1 clinical state, received the third dose of vaccine. Informed of P1 positivity, the next day (T3), all the others carried out a buffer (molecular P4 and P5; antigenic P2 and P3), with negative results. During the night, P2 developed fever and headache for which at T5, together with P3 which was still asymptomatic, they carried out a new antigen rapid buffer with positive results. P5 also has a fever regressing the next day, however, attributed to a vaccine reaction. At T6, the two vaccinated patients carried out a new control buffer for exiting the self-monitoring phase and P4 was confirmed negative while P5 was positive but asymptomatic. P3 subsequently developed a mild flu syndrome while P1 eight days after the event (T8) was hospitalized for a worsening of symptoms and treated with monoclonal antibodies with a subsequent clear clinical recovery.

With this brief case report we wanted to describe the evolu-

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tion of a SARS-CoV-2 infection between vaccinated (with two or three doses) and unvaccinated people, in a restricted setting such as that of a car.

In our case, it is clear that all three unvaccinated people who made the trip not only positivized the swab, but also manifested, in various ways, a symptomatology. Interestingly, however, the person vaccinated with two doses resulted positive only after greater distance and substantially asymptotically while the only person who had recently carried out the third dose of vaccine, despite being in the central position in the car and therefore in closer contact with the initial case P1, not only did not manifest any symptoms but was also spared by the contagion.

If it is now known that vaccination determines a clear reduction in the risk of developing the disease, it is not equally certain whether the protection also applies to contagion. However, one study showed that the viral load of SARS-CoV-2 in COVID-19-positive and vaccinated subjects is 1.6–20 times lower than the viral load present in infected and unvaccinated subjects [5].

We therefore think that our case describes in a simple but effective way the possibility that vaccines have contributed, in a phase of the pandemic characterized by the dominance of the Delta variant [6], to reduce not only the severity of the symptoms but also the circulation of the virus.

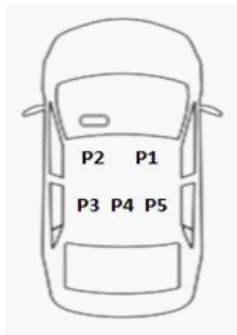


Figure 1: P1, 65-year-old male, not vaccinated, front seat, next to the driver.

P2, a 57-year-old female, unvaccinated, front seat, drove the car.

P3, 68-year-old male, unvaccinated, rear seat, behind the driver.

P4, 56 years old female, vaccinated with the first two doses on January 2021 and the third dose one week before the event (all Pfizer-BioNTech COVID-19 mRNA vaccine), rear seat into the center.

P5, 47-year-old male, double-dose vaccinated on February and March 2021 (Pfizer-BioNTech COVID-19 mRNA vaccine) and waiting for the third one, rear seat, behind P1.

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