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Regression of common viral warts in an immunocompetent child and an immunosuppressed adult relative after mRNA BNT162b2 COVID-19 vaccine

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Dear Editor,

As mass vaccination programs against COVID-19 are ongoing worldwide, physicians acknowledge a broad range of side effects, some of which may have a positive impact.[1-2] Herein, we describe two cases of considerable regression of common warts, involving a 12-year-old immunocompetent girl and her 77-year-old immunosuppressed grandmother following mRNA vaccination against SARS-CoV-2.

A 12-year-old, otherwise healthy female presented with recalcitrant warts of the fingers (periungual) and hands, which had appeared 4 years earlier. The young patient was a nail biter and had been self-treated with topical formic acid (EndWarts PEN®) with no improvement, but rather with appearance of new lesions. She was then referred to a dermatologist who suggested treatment with cryotherapy. In the meantime, she got two doses of mRNA BNT162b2 COVID-19 vaccine (September 10 and October 01, 2021). Three weeks after the second dose and without any therapeutic intervention for the warts, all lesions regressed completely (Figure 1). Her grandmother, a 77-year-old immunosuppressed woman, suffering from chronic thrombotic thrombocytopenic purpura in remission since 2015, experienced similar resolution of warts. The patient had also hypothyroidism, dyslipidemia, hypertension, and macular degeneration with significant vision loss. She had common warts on fingers and hands for 8 years, that have remained untreated due to the priority of her other health problems. Interestingly, approximately 4 weeks after receiving the third booster dose of the mRNA BNT162b2 COVID-19 vaccine (doses: March 12, April 2 and October 22, 2021), she experienced a significant regression of her skin lesions (Figure 2). More importantly, for both patients, no recurrences occurred throughout the follow-up period (until June 2022).

Common warts caused by HPV infection types 1-4, 7-8, 10, 27 and 57, may affect up to 10% of the general population, resulting in significant physical and psychological distress.[3-4] Most HPV infections are oligosymptomatic and transient, while approximately 90% heal spontaneously within 2 years in immunocompetent subjects.[3] Cellular host-immunity plays an important role in the clinical course of HPV-infections.[5] In the literature, there are two reports of regression of HPV-related cutaneous lesions (common warts[6] and facial verruca plana[7]) after administration of a viral vector COVID-19 vaccine (ChAdOx1-S, Astra Zeneca), but no relevant reports exist for mRNA vaccines. Furthermore, a case of regression of multiple recalcitrant common warts has been reported after COVID-19 infection with reoccurrence after three months.[7] Clinical resolution of warts may be attributed to the systemic stimulation of plasmacytoid dendritic cells and subsequent synthesis of interferon type 1 following COVID-19 infection or vaccination[5-9]. Similar resolution has been observed after intralesional application of certain vaccines (MMR or BCG vaccines), as well as after systemic administration of HPV vaccines, possibly due to an upregulation of IFN-γ and IL-1 and a decrease in IL-10.[10] Though not targeted by current quadrivalent HPV vaccines, a significant regression of wart lesions has been observed in 77% of patients in the post-vaccine period, attributed mainly to the homology of L1 capsid protein amid HPV types, conferring cross-immunity protection.[4]

To our knowledge, these are the first reported cases of common warts resolution after administration of mRNA vaccination against SARS-CoV-2. In addition, these cases involved members of the same family, implying that an interaction of genetic and immune mechanisms may be implicated in the pathophysiology of cutaneous HPV infections. Nevertheless, the possibility of spontaneous resolution of the common warts in our patients

cannot be excluded. More studies with similar cases are needed to confirm this intriguing finding of resolution of warts following mRNA COVID-19 vaccination.

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Legend to Figure 1: Periungual warts of the right hand of a 12-year-old girl**. Left.** 3 weeks before vaccination **Right.** One month after the second dose with mRNA BNT162b2 COVID-19 vaccine.

Legend to Figure 2: Common wart of the right index finger in a 77-year-old female. **A-B.** 5 months prior to COVID-19 vaccination. **C-D.** Two months after the third dose (booster) with BNT162b2 COVID-19 vaccine.

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