

The occurrence of EN after vaccination is rare, but has been reported in the literature after vaccination for hepatitis B, human papillomavirus, cholera, malaria, rabies, small pox, tuberculosis, typhoid and Tdap. The pathogenesis of EN secondary to vaccinations is unclear, but a reaction to antigens of the infectious agent, or a hypersensitivity reaction to components of the vaccine, has been hypothesized.⁸

To our knowledge, this is the first report of EN occurring after vaccination with ChAdOx1 nCoV-19 vaccine and should be investigated whether the immune response to the vaccine could trigger the onset of this cutaneous manifestation, as it has been suspected after COVID-19 infection; recognition of emerging skin reactions to vaccines by physicians, in particular dermatologists, is fundamental for patient adherence to COVID-19 vaccination and therefore for the success of the vaccination strategy.

Acknowledgements

The patients in this manuscript have given written informed consent to the publication of their case details.

Conflict of interest

The authors declare that they have no competing financial interests or other potential conflict of interests.

Funding sources

No funding sources were used for this article.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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References

- 1 Leung AKC, Leong KF, Lam JM. Erythema nodosum. *World J Pediatr* 2018; **14**: 548–554.
- 2 Ordieres-Ortega L, Toledo-Samaniego N, Parra-Virto A, Fernández-Carracedo E, Lavilla-Ollerós C, Demelo-Rodríguez P. Atypical erythema nodosum in a patient with COVID-19 pneumonia. *Dermatol Ther* 2020; **33**: e13658.
- 3 Voysey M, Costa Clemens SA, Madhi SA *et al*. Single-dose administration and the influence of the timing of the booster dose on immunogenicity and efficacy of ChAdOx1 nCoV-19 (AZD1222) vaccine: a pooled analysis of four randomised trials. *Lancet* 2021; **397**: 881–891.
- 4 Riad A, Pokorná A, Mekhemar M *et al*. Safety of ChAdOx1 nCoV-19 vaccine: independent evidence from two EU states. *Vaccines (Basel)* 2021; **9**: 673. Published 2021 Jun 18.
- 5 Bogdanov G, Bogdanov I, Kazandjieva J, Tsankov N. Cutaneous adverse effects of the available COVID-19 vaccines [published online ahead of print, 2021 Apr 27]. *Clin Dermatol* 2021; **39**: 523–531.

- 6 Kim JE, Lee H, Paik SS, Moon JY, Yoon HJ, Kim SH. Delayed cutaneous reaction to ChAdOx1 nCoV-19 vaccine: Is it an 'AstraZeneca arm'? *J Eur Acad Dermatol Venereol* 2021; **35**: e711–e714.
- 7 Voysey M, Clemens SAC, Madhi SA. Safety and efficacy of the ChAdOx1 nCoV-19 vaccine (AZD1222) against SARS-CoV-2: an interim analysis of four randomised controlled trials in Brazil, South Africa, and the UK. *Lancet* 2021; **397**: 99–111.
- 8 Cohen PR. Combined reduced-antigen content tetanus, diphtheria, and acellular pertussis (tdap) vaccine-related erythema nodosum: case report and review of vaccine-associated erythema nodosum. *Dermatol Ther (Heidelb)* 2013; **3**: 191–197.

DOI: 10.1111/jdv.17762

Regression of common viral warts after ChAdOx1-S COVID-19 vaccine

Editor

A 28-year-old woman (phototype III), with hypothyroidism (treated by levothyroxine 50 µg), presented to a dermatology outpatient clinic due to viral warts (Fig. 1a). The first lesion appeared two years before on the right thumb. Since that time, the patient has tried self-treatment methods including mechanical removal of hyperkeratotic masses and over-the-counter freezing spray, with further appearance of new lesions.

In March 2021, the lesions became painful, which made the patient to visit a dermatologist. In the period when she was awaiting a medical consultation, she got two doses of vaccination against COVID-19 (ChAdOx1-S). At the turn of March and April 2021, after the first vaccine dose, the patient experienced increased hair loss, which lasted till the end of May 2021. After receiving the second vaccine dose, hair loss episode reoccurred, with even higher intensity, due to that 2 weeks after the second vaccination dose, the patient started taking biotin. Additionally 3 weeks after vaccination and the week after she started taking biotin, the changes in viral warts were observed including severe pain associated with crust formation, which preceded their clinical resolution. Approximately 4 weeks after the second vaccine dose, all viral warts disappeared completely.

Besides skin lesions associated with COVID-19 infection, there is growing evidence on the relation between COVID-19 vaccine and its cutaneous adverse effects.¹ There have been reports on local site reactions, urticaria, morbilliform rash, pernio, pityriasis rosea, erythema multiforme, erythromelalgia, lichen planus, varicella-zoster and herpes simplex reactivation, which occurred after the vaccination.²

Despite viral warts may affect 7%–12% of the general population, we are unaware of any previous reports concerning their

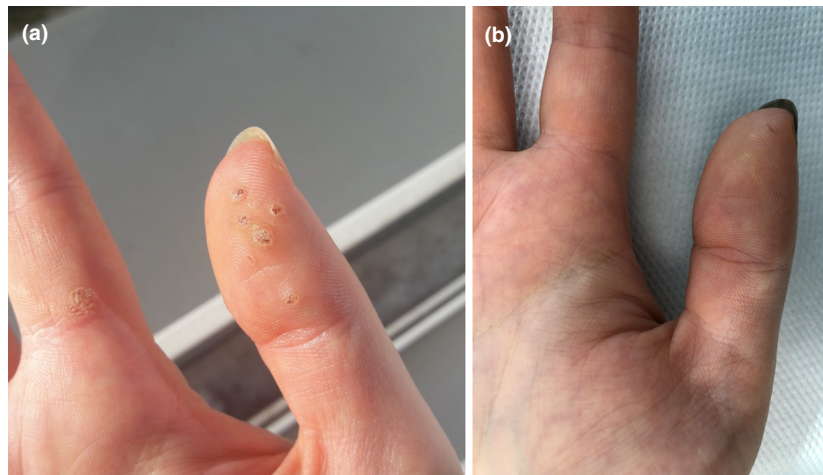


Figure 1 (a) Clinical presentation of viral warts after the second dose of COVID-19 vaccine, during crust formation. (b) Condition at about 4 months after vaccination against COVID-19.

regression after COVID-19 vaccine.³ In contrast, the association between clinical course of HPV infection and host immunity is well-documented.⁴

Recently, Er kayman *et al.*⁵ reported a case of regression of multiple, treatment-resistant viral warts, which regressed during COVID-19 infection and reoccurred three months later. Saadeh *et al.*⁶ postulated that regression could be triggered by systemic activation of plasmacytoid dendritic cells during SARS-CoV-2 infection and associated with type I interferon production.

The possible connection between COVID-19 vaccine and clinical resolution of viral warts is interesting, as some vaccines (mumps, measles, rubella vaccine; Bacillus Calmette–Guérin vaccine) are already applied intralesionally in the treatment of viral warts.^{7,8} The studies evaluating cytokine profile in warts treated with this method showed an important role of IL-10 downregulation and upregulation of IL-1 and IFN- γ .⁹ Additionally, there have been case reports showing clinical resolution of viral warts after systemic administration of quadrivalent HPV vaccine.¹⁰

Based on the patient's medical history data, we have also searched the available literature for the role of biotin in the pathogenesis of viral warts, but found no evidence of its possible role in the regression of the lesions.

As in some cases viral warts may resolve spontaneously, we could not exclude this scenario in the presented case; thus, future observations are needed to confirm the hypothesis on wart regression after COVID-19 vaccine.

Acknowledgement

The patient in this manuscript has given written informed consent to the publication of their case details.

Conflict of interest

None.

Funding sources

None.

Data availability statement

Data are available on request from the authors.

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References

- 1 Sławińska M, Nowicki RJ. Dermatological manifestations of COVID-19: a practical summary of the current state of knowledge. *Dermatol Rev/Przegl Dermatol* 2020; **107**: 228–233.
- 2 Sun Q, Fathy R, McMahon DE, Freeman EE. COVID-19 vaccines and the skin: the landscape of cutaneous vaccine reactions worldwide. *Dermatol Clin* 2021; **39**: 653–673.
- 3 Lynch MD, Cliffe J, Morris-Jones R. Management of cutaneous viral warts. *BMJ* 2014; **348**: g3339.
- 4 Sterling JC, Gibbs S, Haque Hussain SS, Mohd Mustapa MF, Handfield-Jones SE. British Association of Dermatologists' guidelines for the management of cutaneous warts 2014. *Br J Dermatol* 2014; **171**: 696–712.
- 5 Er kayman MH, Bilen H. Clearance of longstanding treatment-resistant warts during COVID-19 in a transplant recipient. *Transpl Infect Dis* 2021; **23**: e13572.
- 6 Saadeh D, Kurban M, Abbas Ossama. Plasmacytoid dendritic cell and type I interferons as possible explanation for clearance of longstanding warts during COVID-19 in a transplant patient, reply to Er kayman *et al.* *Transpl Infect Dis* 2021; **23**: e13585.
- 7 Nofal A, Nofal E. Intralesional immunotherapy of common warts: successful treatment with mumps, measles and rubella vaccine. *J Eur Acad Dermatol Venereol* 2010; **24**: 1166–1170.
- 8 Al-Yassen AQ, Al-Maliki SK, Al-Asadi JN. The *Bacillus Calmette–Guérin* (BCG) vaccine: is it a better choice for the treatment of viral warts? *Sultan Qaboos Univ Med J* 2020; **20**: e330–e336.
- 9 Sil A, Dasgupta S, Chandra S, Datta A, Banerjee A, Das NK. Changes in cytokine profile with immunotherapy in viral warts using purified protein

derivative, mumps measles rubella vaccine, and *Mycobacterium w* vaccine. *Indian J Dermatol* 2021; **66**: 67–73.

10 Moscato GM, Di Matteo G, Ciotti M, Di Bonito P, Andreoni M, Moschese V. Dual response to human papilloma virus vaccine in an immunodeficiency disorder: resolution of plantar warts and persistence of condylomas. *J Eur Acad Dermatol Venereol* 2016; **30**: 1212–1213.

DOI: 10.1111/jdv.17771

Impact of the French COVID-19 pandemic lockdown on newly diagnosed melanoma delay and severity

Editor

The COVID-19 pandemic has had a profound impact on the healthcare system worldwide, which led to a decrease in the

number of melanoma diagnosis,¹ but the consequences of lockdown on newly diagnosed melanomas' severity have not been widely reported. We aimed to evaluate how the first lockdown in France impacted the incidence and prognostic characteristics of new melanomas, in our skin cancer centre in the Parisian region, highly affected by the pandemic. We conducted a retrospective study including all new diagnosed melanoma referred to our centre, divided into 4 periods: P1 = 2020 lockdown period (17/03-12/05/2020), P2 = 2020 post-lockdown period (13/05-31/10/2020), P3 = 2019 equivalent lockdown period (17/03-12/05/2019), P4 = 2019 equivalent post-lockdown period (13/05-31/10/2019). We evaluated the differences in American Joint Committee on Cancer (AJCC) staging, Breslow index, ulceration and lymph node (LN) involvement, using logistical regression models, adjusted according to age, gender, performance status, lifestyle, phototype and tumour-infiltrating lymphocytes. Statistical tests were two-sided and *p*-values < 5.0% was considered statistically significant. We included 493 consecutive new melanoma cases, with no difference in baseline patient characteristics

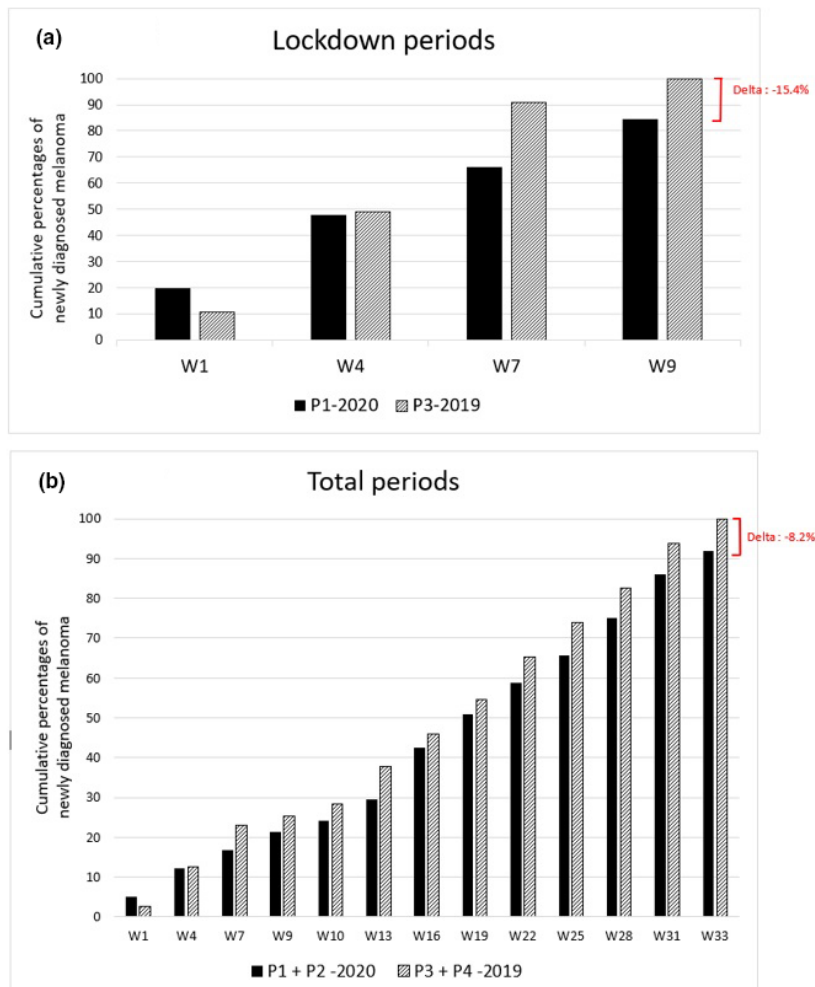


Figure 1 Cumulative numbers of new melanoma cases in 2019 and 2020