

DR. ELISA CINOTTI (Orcid ID : 0000-0002-4009-0659)

DR. FRANCESCO BRUZZICHES (Orcid ID : 0000-0003-1447-7160)

PROF. LINDA TOGNETTI (Orcid ID : 0000-0002-6691-4310)

PROF. ANGELO VALERIO MARZANO (Orcid ID : 0000-0002-8160-4169)

Article type : Letter to the Editor

Eosinophilic dermatosis after AstraZeneca COVID-19 vaccination

Elisa Cinotti, MD, PhD¹, Jean-Luc Perrot, MD, PhD², Francesco Bruzziches, MD¹, Linda Tognetti, MD, PhD¹, Anastasia Batsikosta, MD³, Ester Sorrentino, MD³, Angelo Valerio Marzano, MD, PhD⁴⁻⁵, Pietro Rubegni, MD, PhD¹

¹Dermatology Unit, Department of Medical, Surgical and Neurological Sciences, University of Siena, Siena, Italy.

²Department of Dermatology, University Hospital of St-Etienne, 42055 Saint-Etienne Cedex 2, France

³Department of Human Pathology and Oncology, Pathological Anatomy Section, University of Siena, Siena, Italy.

⁴Dermatology Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy

⁵Department of Pathophysiology and Transplantation, Università degli Studi di Milano, Milan, Italy

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/JDV.17806](https://doi.org/10.1111/JDV.17806)

This article is protected by copyright. All rights reserved

Word count Text: 485

5 references, 0 tables and 1 figure

Funding sources: None

Authors' disclosure statement: None

Key words: eosinophilic dermatitis; eosinophilia; vaccination; COVID-19; skin; cutaneous reaction

Corresponding author: Elisa Cinotti, Dermatology Section, University of Siena, S. Maria alle Scotte Hospital, Viale Bracci 16, 53100 Siena, Italy. Tel: 0039-0577 585428. Fax: 0039 0577 585488, elisacinotti@gmail.com

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Local site reactions, urticaria, and morbilliform eruptions have been recently reported as possible cutaneous adverse reactions after Moderna and Pfizer COVID-19 vaccination¹. We would like to highlight that, in addition to the described skin manifestations related to COVID19 vaccines, AstraZeneca COVID-19 vaccination could trigger a unique skin rash. We observed a 70-year-old man with itchy urticarial plaques centered by tiny vesicles (Fig.1) developed 5 days after the first dose of AstraZeneca vaccination. Cutaneous lesions started on the face and then progressively spread to the neck and trunk and, to a lesser extent, to the limbs over one week.

The lesions could have been consistent with a COVID-19-associated cutaneous manifestation, but the infection was excluded by a history of COVID-19 six months before our observation and a negative molecular test. The patient was hospitalized and received 0.5 mg/kg/day methylprednisolone for one week tapered in the following 3 weeks, with complete resolution of the skin lesions.

During the hospitalization, we observed increased blood leukocyte and eosinophil counts, and C reactive protein up to a peak of $14.13 \times 10^3/\mu\text{l}$, $4.76 \times 10^3/\mu\text{l}$, and 11 mg/dl respectively. These blood tests reverted to normal after 3 days. Fever (38.5°C) was observed the day before the eosinophilia peak. Skin histology revealed spongiosis, intraepidermal vesicles, and a superficial and deep dermal interstitial and perivascular CD4+ and CD8+ T lymphocyte and histiocyte infiltrate with numerous eosinophils consistent with an initial phase of eosinophilic cellulitis (Wells syndrome). Direct immunofluorescence was negative. We could not find any cause for the skin rash and acute eosinophilia other than the vaccination. The patient had been receiving lercanidipine chlorhydrate for arterial hypertension for many years and it was not discontinued. Chest radiography and abdomen ultrasound were negative. Viral serology did not show any reactivation of previous Herpes Simplex 1 and 2 virus and Varicella-Zoster virus infections, and HIV test were negative. Tzanck smear from a fresh vesicle and reflectance confocal microscopy examination of the affected skin did not show any sign of herpetic infection. Parasitological stool examination was also negative. Drug rash with eosinophilia and systemic symptoms (DRESS) syndrome diagnostic criteria were not fulfilled and cutaneous parasitoses were excluded due to negative skin scrapings and dermoscopy examinations.

Interestingly, the skin lesions of our patient had similarities with the COVID-19-related papulovesicular varicella-like exanthema.² Eosinophils were reported in some of the few available histological examinations of COVID-19-associated skin manifestations³ and blood eosinophilia is possibly associated with urticarial manifestations of COVID-19. Histological features of our case were consistent with those of eosinophilic cellulitis, an eosinophilic dermatitis that may show urticarial and vesicular features and has been reported as a rare adverse event following vaccines^{4,5}. We suggest including eosinophilic cellulitis among the huge spectrum of skin reactions to COVID-19 vaccines.

With large-scale vaccination programs, even rare adverse effects of vaccines may be encountered more often. Thus, it is paramount that dermatologists worldwide are acquainted with the possible skin reaction patterns to the coming vaccines.

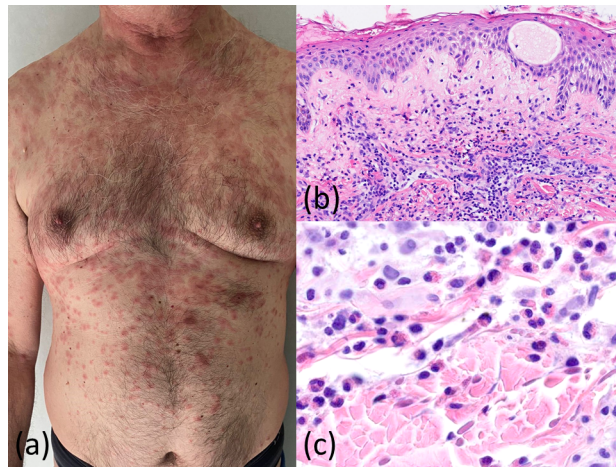
Acknowledgment: The patient in this manuscript has given written informed consent to publication of his case details.

References:

1. McMahon DE, Amerson E, Rosenbach M, et al. Cutaneous Reactions Reported after Moderna and Pfizer COVID-19 Vaccination: A Registry-Based Study of 414 Cases. *J Am Acad Dermatol*. Published online April 7, 2021.
2. Marzano AV, Genovese G, Fabbrocini G, et al. Varicella-like exanthem as a specific COVID-19-associated skin manifestation: Multicenter case series of 22 patients. *J Am Acad Dermatol*. 2020;**83**:280-5.
3. Gianotti R, Recalcati S, Fantini F, et al. Histopathological Study of a Broad Spectrum of Skin Dermatoses in Patients Affected or Highly Suspected of Infection by COVID-19 in the Northern Part of Italy: Analysis of the Many Faces of the Viral-Induced Skin Diseases in Previous and New Reported Cases. *Am J Dermatopathol*. 2020;**42**:564-70.
4. Cinotti E, Rongioletti F. New emerging diseases or syndromes in dermatopathology with impact on clinical management. *Expert Rev Dermatol*. 2012;**7**:69-80.
5. Safran T, Masckauchan M, Maj J, Green L. Wells syndrome secondary to influenza vaccination: A case report and review of the literature. *Hum Vaccines Immunother*. 2018;**14**:958-60.

Legend for figure 1

Clinical (a) and histological (b, c) aspect of the eosinophilic dermatosis developed after AstraZeneca COVID-19 vaccination. Histopathological examination (hematoxylin and eosin stain, b 20x and c 80x) shows spongiosis with intraepidermal vesicles and dermal inflammatory infiltrate of lymphocytes and numerous eosinophils.



jdvd_17806_f1.tif