



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

- [7] Pollack K, Zlotoff BJ, Borish LC, Commins SP, Platts-Mills TAE, Wilson JM. Gal Syndrome vs Chronic Urticaria. *JAMA Dermatology* 2019;155:115–6, <http://dx.doi.org/10.1001/jamadermatol.2018.3970>.
- [8] Ghahramani GK, Temprano J. Tick bite-related meat allergy as a cause of chronic urticaria, angioedema, and anaphylaxis in endemic areas. *Int J Dermatol* 2014;54:e64–5, <http://dx.doi.org/10.1111/ijd.12672>.
- [9] Epelboin L, Roche F, Dueymes M, Guillot G, Duron O, Nacher M, Djossou F, Soria A. Allergy to mammalian meat linked to alpha-Gal syndrome potentially after tick bite in the Amazon: A case series. *Am J Trop Med Hyg* 2021;105:1396–403, <http://dx.doi.org/10.4269/ajtmh.20-1630>.
- [10] Méndez J, Sánchez A, Martínez JC. Urticaria associated with dermatophytosis. *Allergol et Immunopathol* 2002;30:344–5, [http://dx.doi.org/10.1016/s0301-0546\(02\)79151-9](http://dx.doi.org/10.1016/s0301-0546(02)79151-9).
- [11] Godse KV, Zawar V. Chronic urticaria associated with tinea infection and success with antifungal therapy—a report of four cases. *Letter, Int Soc Inf Dis* 2010;14S:e364–5, <http://dx.doi.org/10.1016/j.ijid.2009.12.005>.
- [12] Altrichter S, Hawro T, Liedtke M, Holtappels G, Bachert C, Skov PS, Maurer M. In chronic spontaneous urticaria IgE against staphylococcal enterotoxins is common and functional. *Allergy* 2018;73:1497–504, <http://dx.doi.org/10.1111/all.13381>.
- [13] Altrichter S, Fok JS, Jiao Q, Kolkhir P, Pyatilova P, Monino Romero S, et al. Total IgE as a marker of chronic spontaneous urticaria. *Allergy Asthma Immunol Res* 2021;13:206–18, <http://dx.doi.org/10.4168/aaair.2021.13.2.206>.
- [14] Lakin E, Church MK, Maurer M, Schmetzer O. On the lipophilic nature of auto-reactive IgE in chronic spontaneous urticaria. *Theranostics* 2019;9:829–36, <http://dx.doi.org/10.7150/thno.29902>.

Chabane H<sup>a,\*</sup>Vitte J<sup>b</sup>Dzvinga C<sup>c</sup>Lambert C<sup>d</sup>Sarrat A<sup>e</sup>Lefevre S<sup>f</sup>Dalampira G<sup>g</sup>Seve E<sup>h</sup>Klingebiel C<sup>i</sup>Nicaise-Roland P<sup>j</sup>Palussière C<sup>k</sup>Bienvenu J<sup>l</sup>Couderc R<sup>m</sup>Demoly P<sup>n</sup>Just J<sup>o</sup><sup>a</sup> Cabinet médical d'allergologie, Paris, France<sup>b</sup> Laboratoire d'Immunologie, hôpital de la Conception, Marseille, France<sup>c</sup> Unité d'allergologie, hôpital privé de la Loire, Saint-Etienne, France<sup>d</sup> Laboratoire d'immunologie, CHU Saint-Etienne, CNRS UMR5307, Saint-Etienne, France<sup>e</sup> Laboratoire d'immunologie et d'immunogénétique, hôpital Pellegrin, CHU de Bordeaux, Bordeaux, France<sup>f</sup> Unité d'allergologie, CHR Metz-Thionville - site de Mercy, Metz, France<sup>g</sup> Cabinet médical d'allergologie, Chalon-sur-Saône, France<sup>h</sup> Cabinet médical d'allergologie, Fontainebleau, France<sup>i</sup> Laboratoire d'analyses médicales SynLab, Marseille, France<sup>j</sup> Laboratoire d'Immunologie, hôpital Bichat-Claude Bernard (AP-HP), Paris, France<sup>k</sup> Cabinet médical d'allergologie, Cenon, France<sup>l</sup> Laboratoire d'immunologie, groupement hospitalier Sud, Pierre Bénite, France<sup>m</sup> Service de biochimie, hôpital d'Enfants Armand Trousseau, Paris, France<sup>n</sup> Département pneumologie et addictologie, hôpital Arnaud de Villeneuve, Montpellier, France<sup>o</sup> Service de pneumo-allergologie pédiatrique, hôpital d'enfants Armand Trousseau, Paris, France

\* Auteur correspondant. 8, rue de Ponthieu, 75008

Paris, France

Adresse e-mail : [habib.chabane@free.fr](mailto:habib.chabane@free.fr) (H. Chabane)

Reçu le 5 juin 2022

Accepté le 11 juillet 2022

Disponible sur Internet le 20 août 2022

<https://doi.org/10.1016/j.reval.2022.07.008>

1877-0320 © 2022 Publié par Elsevier Masson SAS.

## Lethal Toxic Epidermal Necrolysis probably induced by Sinopharm COVID-19 vaccine



*Nécrolyse épidermique toxique létale probablement induite par le vaccin Sinopharm COVID-19*

### 1. Introduction

Toxic Epidermal Necrolysis (TEN) is a rare but severe adverse cutaneous drug reaction associated with high mortality. Medications are the most common cause of TEN, particularly antibacterial sulfonamides, antiepileptic drugs, non-steroidal anti-inflammatory drugs and allopurinol [1]. Vaccination induced TEN is rare, with less than twenty reported cases in the literature [2]. We herein report the original case of TEN, probably due to the Sinopharm COVID-19 vaccine.

### 2. Case report

A 92-year-old man with a past medical history of hypertension presented to an emergency room of the Regional Hospital of Saint-Louis (Senegal) with painful skin lesions evolving for five days. His usual medication included the combination of Perindopril and Amlodipine (Coveram\*) for more than two years. He did not report any known drug.

Clinical examination revealed a necrotic skin detachment over the back (Fig. 1) and upper limbs (Fig. 2), covering 30–40% of the body surface area (BSA) with a positive Nikolski sign, without mucosal involvement. He also had a fever of 38.3°C and a tachycardia of 115 beats/minute.

Based on the clinical features, the diagnosis of TEN was made. A detailed drug survey was taken from the patient's family. It revealed a notion of vaccination with the Sinopharm vaccine, administered twenty days before the onset of signs. The patient had also taken trimethoprim-sulfamethoxazole (TMP-SMX) prescribed less than 24 hours before the onset of signs for an elbow abscess. The patient had no previous similar drug reactions. He also reported no other drug use.

Biological examinations showed lymphopenia (950/mm<sup>3</sup>), thrombocytopenia (77,000/mm<sup>3</sup>), a positive CRP (114 mg/l), a low creatinine clearance levels (46.94 ml/min) with azotemia (1.10 g/l) and hypernatremia (150 mmol/l). Fasting blood glucose, transaminase level and 24 h proteinuria were normal. HIV serology and RT-PCR SARS-CoV-2 test were negatives.

The patient was admitted to the intensive care unit. Management included isolation, fluid and electrolyte balance, nutritional support, pain management and local care. Despite intensive care, the patient died five days after admission. We reported the case to the regional pharmacovigilance centre in Saint-Louis.



**Fig. 1.** Necrotic detachment on the back.



**Fig. 2.** Necrotic detachment in the arm.

### 3. Discussion

Our observation concerns a patient who developed a severe skin drug reaction within 20 days after the first dose of Sinopharm vaccine. The clinical features in our patient were suggestive of TEN with necrotic skin detachment and a BSA of more than 30% affected. However, our patient had no mucosal involvement as described in 10% of TEN [3].

Using the ALDEN score, the responsibility of TMP-SMX was unlikely with a score of 1. The responsibility of the Sinopharm vaccine seemed more probable with a ALDEN score of 3.

To our knowledge, this is the first case of TEN reported with the Sinopharm vaccine and only the fifth case reported with COVID-19 vaccines [4–7]. Two of the previous cases were due to the Pfizer COVID-19 vaccine, one occurring one week after the first dose and the other occurring five days after the second dose of the vaccine [4,5]. US authors reported a third case occurring 24 hours after the second dose of Moderna COVID-19 vaccine [6]. For the fourth case, the type of the COVID-19 vaccine was not specified, and the delay was three days after the first dose [7].

The pathogenic mechanisms behind these vaccine reactions are poorly clarified. Some authors suggest the role of vaccine virotopes, which are expressed on the keratinocyte surface, which could lead to the activation of cytotoxic T lymphocytes and the death of epidermal cells [7,8].

No deaths were reported in the other cases of TEN induced by COVID-19 vaccines. In our patient, the fatal outcome is mainly explained by his poor prognostic factors such as advanced age, renal insufficiency, hydro-electrolytic disorders and thrombocytopenia.

### 4. Conclusion

To our knowledge, we report the first case of TEN induced by the Sinopharm vaccine. Therefore, this is an exceedingly rare adverse effect of the vaccine, and the benefits far outweigh the risks. However, this is a case that merit to be brought to the attention of pharmacovigilance centres.

### Disclosure of interest

The authors declare that they have no competing interest.

### References

- [1] Lerch M, Mainetti C, Terziroli Beretta-Piccoli B, Harr T. Current perspectives on Stevens-Johnson syndrome and toxic epidermal necrolysis. *Clin Rev Allergy Immunol* 2018;54(1):147–76.
- [2] Su JR, Haber P, Ng CS, et al. Erythema multiforme, Stevens Johnson syndrome, and toxic epidermal necrolysis reported after vaccination, 1999–2017. *Vaccine* 2020;38(7):1746–52.
- [3] Dabas R, Donaparthi N, Subramaniyan R, Janney MS. A rare case of alternative medicine induced toxic epidermal necrolysis without mucosal involvement. *Indian Dermatol Online J* 2019;10(6):735–7.
- [4] Bakir M, Almeshal H, Alturki R, Obaid S, Almazroo A. Toxic epidermal necrolysis post COVID-19 vaccination - first reported case. *Cureus* 2021;13(8):e17215.
- [5] Elborae MO, Essa EESF. Stevens-Johnson syndrome post second dose of Pfizer COVID-19 vaccine: a case report. *Oral Surg Oral Med Oral Pathol Oral Radiol* 2021;132(4):e139–42.
- [6] Kong J, Cuevas-Castillo F, Nassar M, et al. Bullous drug eruption after second dose of mRNA-1273 (Moderna) COVID-19 vaccine: Case report. *J Infect Public Health* 2021;14(10):1392–4.
- [7] Dash S, Sirka CS, Mishra S, Viswan P. COVID-19 vaccine-induced Stevens-Johnson syndrome. *Clin Exp Dermatol* 2021;46(8):1615–7.
- [8] Stone Jr CA, Rukasin CR, Beachkofsky TM, Phillips EJ. Immune-mediated adverse reactions to vaccines. *Br J Clin Pharmacol* 2019;85:2694–706.

B. Seck<sup>a,\*</sup>  
A. Dieye<sup>b</sup>  
M. Diallo<sup>a</sup>

<sup>a</sup> Department of Dermatology, Gaston Berger  
University of Saint-Louis, Saint-Louis, Senegal  
<sup>b</sup> Department of Infectious Diseases, Gaston Berger  
University of Saint-Louis, Saint-Louis, Senegal

Received 15 December 2021

Accepted 7 July 2022

Available online 13 July 2022

<https://doi.org/10.1016/j.reval.2022.07.001>

1877-0320 © 2022 Elsevier Masson SAS. All rights reserved.

\* Corresponding author.  
E-mail address: [birame.seck@ugb.edu.sn](mailto:birame.seck@ugb.edu.sn) (B. Seck)