

Figure 2 (a) Microthrombi occluding almost all small vessels in the superficial and mid dermis (Haematoxylin–eosin stain, $\times 100$). (b) C3 deposits on small dermal vessel walls (Direct immunofluorescence, $\times 200$). (c) C9 deposits on small dermal vessel walls. There is a background staining of elastic fibres (Immunohistochemistry, $\times 200$).

COVID-19 infection in the differential diagnosis of retiform purpura.¹⁰

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Conflict of interest

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X. Bosch-Amate,¹ P. Giavedoni,¹ S. Podlipnik,¹ C. Andreu-Febrer,¹ J. Sanz-Beltran,¹ A. Garcia-Herrera,² L. Alós,² J.M. Mascaró^{1,*}

¹Department of Dermatology, Hospital Clinic of Barcelona, University of Barcelona, Barcelona, Spain, ²Department of Pathology, Hospital Clinic of Barcelona, University of Barcelona, Barcelona, Spain

*Correspondence: J.M. Mascaró. E-mail: jmmascaro_galy@ub.edu

References

- Recalcati S. Cutaneous manifestations in COVID-19: a first perspective. *J Eur Acad Dermatol Venereol* 2020; **34**: e212–e213. <https://doi.org/10.1111/jdv.16387>
- Galván Casas C, Català A, Carretero Hernández G *et al.* Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *Br J Dermatol* 2020. <https://doi.org/10.1111/bjd.19163>. [Epub ahead of print].
- Xiong M, Liang X, Wei Y-D. Changes in blood coagulation in patients with severe coronavirus disease 2019 (COVID-19): a meta-analysis. *Br J Haematol* 2020. <https://doi.org/10.1111/bjh.16725>. [Epub ahead of print].
- Magro C, Mulvey JJ, Berlin D *et al.* Complement associated microvascular injury and thrombosis in the pathogenesis of severe COVID-19 infection: a report of five cases. *Transl Res* 2020; **220**: 1–13. <https://doi.org/10.1016/j.trsl.2020.04.007>
- Manalo IF, Smith MK, Cheeley J, Jacobs R. A dermatologic manifestation of COVID-19: transient livedo reticularis. *J Am Acad Dermatol* 2020. <https://doi.org/10.1016/j.jaad.2020.04.018>. [Epub ahead of print].

- Zhang Y, Cao W, Xiao M *et al.* Clinical and coagulation characteristics of 7 patients with critical COVID-2019 pneumonia and acro-ischemia. *Zhonghua Xue Ye Xue Za Zhi* 2020; **41**: E006.
- Bouaziz J, Duong T, Jachiet M *et al.* Vascular skin symptoms in COVID-19: a french observational study. *J Eur Acad Dermatol Venereol* 2020. <https://doi.org/10.1111/jdv.16544>. [Epub ahead of print].
- Fernandez-Nieto D, Jimenez-Cauhe J, Suarez-Valle A *et al.* Characterization of acute acro-ischemic lesions in non-hospitalized patients: a case series of 132 patients during the COVID-19 outbreak. *J Am Acad Dermatol* 2020; **83**: e61–e63. <https://doi.org/10.1016/j.jaad.2020.04.093>
- Fan BE, Chong VCL, Chan SSW *et al.* Hematologic parameters in patients with COVID-19 infection. *Am J Hematol* 2020; **95**: e131–e134. <https://doi.org/10.1002/ajh.25774>
- Llamas-Velasco M, Alegría V, Santos-Briz Á *et al.* Occlusive nonvasculitic vasculopathy. *Am J Dermatopathol* 2017; **39**: 637–662.

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Retroauricular dermatitis with vehement use of ear loop face masks during COVID-19 pandemic

To the Editor

The coronavirus disease 2019 (COVID-19) pandemic forged the exponential use of masks of various kinds, not just by health workers but also by general population as a personal protective equipment (PPE). Although contact dermatitis due to PPE is well reported, mask induced dermatitis is a relatively unexplored phenomenon. In this article, we report a preliminary data of patients experiencing retroauricular dermatitis due to ear loop face masks.

From 1st April to 30th April, we came across 14 patients including both healthcare workers and general population who

Table 1 Patients' demography, clinical profile, type and material of mask used

S.No.	Age/Sex	Clinical description	Diagnosis	Pre-existing dermatoses	Type of mask	Material of strap	Duration of wear
1	34/M	Erythema, excoriation, spreading to infra-auricular region	Allergic contact dermatitis	Nil	N95	Thermoplastic elastomer	3 days
2	27/M	Erythema, papules, scaling localized to the area of contact	Irritant contact Dermatitis	Nil	N95 mask reused after chlorhexidine application	Thermoelastic polymer	4 days
3	14/F	Erythema, scaling, excoriation	Allergic contact dermatitis	Atopic Dermatitis	Surgical mask	Rubber	1 1/2 days
4	32/M	Erythema, scaling, maceration	Sweat Dermatitis	Nil	N95 mask with headgear	Thermoelastic polymer	10 days
5	58/F	Oedematous wheals	Pressure Urticaria	Chronic urticaria	N95	Thermoelastic polymer	3 h
6	41/M	Erythema, scaling	Irritant contact dermatitis (frictional)	Nil	Double surgical mask	Latex	2 days
7	22/M	Erythema, oozing, crusting	Allergic contact dermatitis	Seborrheic dermatitis	KN 95 mask	Latex	5 days
8	36/F	Erythema, maceration	Sweat dermatitis	Nil	Homemade cloth mask	Nylon	9 days
9	16/M	Erythema, scaling	Allergic contact dermatitis	Atopic dermatitis	Homemade cloth mask	Rubber	6 days
10	24/M	Erythema, maceration, oozing	Sweat dermatitis	Seborrheic dermatitis	FFP 2 mask with headgear	Thermoelastic polymer	8 days
11	19/F	Erythema, papules, scaling, fissuring	Irritant contact dermatitis	Nil	Homemade cloth mask (? Cloth Dye culpable)	Cotton-Polyester	2 days
12	37/M	Erythema, oozing, crusting	Exacerbation of atopic dermatitis	Atopic dermatitis	Surgical mask with <i>n</i> -propanol application	Latex	2 days
13	53/M	Erythema, scaling	Irritant contact dermatitis (frictional)	Nil	Double surgical mask	Latex	3 days
14	62/F	Erythema, papules, scaling, fissuring	Irritant contact dermatitis	Atopic dermatitis	N95 reused after 70% isopropyl alcohol application	Thermoelastic polymer	5 days



Figure 1 Erythema and Scaling involving retroauricular area following ear loop mask.

complained of itching, redness and/or scaling involving the retroauricular region following the use of ear loop face masks. The history, clinical features including onset, duration, pre-existing dermatoses, type and duration of mask used, and material of the straps were recorded, and a clinical diagnosis was made. The patients were treated with emollients, topical corticosteroids and/or oral anti-histamines.

Out of the 14 cases, 5 (35.7%) patients were diagnosed to have irritant contact dermatitis (ICD), four (28.5%) patients were diagnosed with allergic contact dermatitis (ACD), three (21.4%) patients developed sweat dermatitis and one patient diagnosed to have pressure urticaria.¹ Patient presented with exacerbation of pre-existing dermatoses. The patch test could not be performed due to the prevailing dire pandemic. N95 masks were the most commonly used mask in 35.7% of patients, having thermoelastic polymer straps. Sweat dermatitis was observed due to associated headgear use or using nylon cloth masks. Reusing masks after application of disinfectant resulted in ICD in three patients. Latex was the commonest strap material resulting in dermatoses in four (28.5%) patients. Pre-existing dermatoses were present in seven (50%) patients including atopic dermatitis in four, seborrheic dermatitis in two and chronic urticaria in one. The most common symptoms reported were itching and dryness, whereas the most common signs seen were erythema, scaling and papules (Table 1; Fig. 1).

A study by Foo *et al.*¹ from Singapore mentioned adverse skin reactions in 35.5% practitioners using N95 masks, of which 51.4% developed facial itch and 35.8% skin rash. Donovan

*et al.*² reported three persons developing contact urticaria and two persons with ACD following N95 masks.² Contact dermatitis to rubber and dibromodicyanobutane present in the adhesive of polyester foam strip was reported by the use of surgical mask.³ ACD to thiuram present in elastic ear strap has been documented.⁴ Komericki *et al.*⁵ reported cocopropylenediamin-guanidium-diacetate, used to disinfect medical instruments and apparatus, responsible for ACD to non-disposable face masks.⁵ Similar effects on the face by PPE in healthcare workers managing COVID-19 cases have been documented, but no study has elaborated the retroauricular involvement.⁶ Frequent frictions due to the straps, trapping of sweat, use of disinfectant to reuse masks and application of dyes to colour homemade masks are frequent causes of dermatitis using ear loop face masks. The strap material including thermoelastic polymer, rubber and latex further leads to contact dermatitis. Moreover, the masks can cause exacerbation of pre-existing dermatoses.

The authors would like to suggest the use of headband face masks for healthcare professionals using the mask for prolonged periods. The general population using homemade face masks should use cotton cloth based masks with gaiters of appropriate elasticity and avoid any disinfectant application. Persons with pre-existing dermatoses including atopic dermatitis, seborrheic dermatitis and chronic urticaria need to take special precautions, and use of disposable surgical masks should be encouraged. Donning of masks should be done after proper absorption of the emollient to prevent leeching of strap polymers.

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A. Bothra,¹  S. Das,¹ M. Singh,^{2,*}  M. Pawar,³  A. Maheswari⁴

¹Department of Dermatology, Gauhati Medical College & Hospital, Guwahati, India, ²Department of Dermatology, JK Medical College & LN Hospital, Bhopal, India, ³Department of Dermatology, MVP's Dr.M.V.P Medical College & Hospital & Research Centre, Nashik, India, ⁴Private Practice, New Delhi, India

*Correspondence: M. Singh. E-mail: med.mehak@gmail.com

References

- 1 Foo CCI, Goon ATJ, Leow Y, Goh C. Adverse skin reactions to personal protective equipment against severe acute respiratory syndrome—a descriptive study in Singapore. *Contact Dermatitis* 2006; **55**: 291–294.
- 2 Donovan J, Kudla I, Holness LD *et al.* Skin reactions following use of N95 facial masks. *Dermatitis* 2007; **18**: 104.

- 3 Al Badri FM. Surgical mask contact dermatitis and epidemiology of contact dermatitis in healthcare workers. *Curr Allergy Clin Immunol* 2017; **30**: 183–188.
- 4 Kosann MK, Brancaccio R, Cohen D. Occupational allergic contact dermatitis in an obstetrics and gynecology resident. *Dermatitis* 2003; **14**: 217–218.
- 5 Komericki P, Szolar-Platzer C, Kränke B, Aberer W. Face dermatitis from contaminants on a mask for anaesthesia. *Br J Dermatol* 2000; **142**: 163–165.
- 6 Singh M, Pawar M, Bothra A *et al*. Personal protective equipment induced facial dermatoses in healthcare workers managing COVID-19 cases. *J Eur Acad Dermatol Venereol* 2020. <https://doi.org/10.1111/jdv.16628>

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COVID-19: how it can look on the skin. Clinical and pathological features in 20 COVID-19 patients observed in Bologna, north-eastern Italy

Dear Editor,

Global public health is currently dealing with the explosive spread of the novel Coronavirus disease 2019 (COVID-19).¹

This new type of viral pneumonia spread from its first focus in Wuhan (Hubei, China) to across all the world, until a pandemic condition was declared.

Clinically, the most common symptoms of the disease are cough and fever. More than 80% of patients have asymptomatic to moderate disease, but about 15% get severe pneumonia and 5% develop a multi-organ failure.²

The diagnosis of COVID 19 is based on a multifactorial approach including clinical symptoms, vital parameters, radiological and laboratory findings. The virus isolation, necessary to confirm the diagnosis, is obtained through nasopharyngeal and oropharyngeal swab.

Italy is one of the most involved countries in this pandemic with 207 428 total cases till now.³

There are only a few reports concerning the skin manifestations in COVID 19 patients.

Until now, 20 skin manifestations in COVID 19 patients came to the attention of the Dermatology Unit of the city of Bologna, in Emilia Romagna, the third Italian most affected region.

Of the 20 patients observed, 18 of the cases were related to the disease, and two to the devices used for the ventilation assistance, one developing a severe seborrheic dermatitis of the face and one a facial herpes. Among the 18 cases related to the disease, nine presented exanthematic rashes (Fig. 1a,b), six presented acral vasculitic eruptions (Fig. 1c,d), two a polymorpho-like urticaria (Fig. 1e) and one a varicelliform eruption. The median age of the patients was 51 years; 17 were male, and three were female.

With regards, the cases related to the disease, in two, the signs were present at the onset, while in the other 16, they appeared later. We excluded a iatrogenic origin, as these patients had not assumed any drugs potentially involved in skin reactions over the previous 15 days. Other viral aetiologies were excluded by



Figure 1 (a,b) Erythematous exanthema of the trunk in two COVID 19 patients. (c,d) Acral ischaemic lesions resembling perniosis on the extremities of a COVID 19 patient. (e) Detail of polymorpho-like urticaria on the left hand. (f) Superficial perivascular dermatitis with lymphocytic infiltrate, dilated vessel in the papillary and mid dermis were observed. Mild spongiosis, lymphocytes along the dermoepidermal junction and vacuolar alteration were present. H&E 2×.