

hospitals after education on whole-body skin examination, on mnemonic signs such as the ABCDE rule and the 'ugly duckling' sign and possibly on the use of dermoscopy.

Teleconsultation is advised whenever possible.^{9,10} Teledermatology may be used for the triage of individual concerning lesions, and for virtual melanoma checks, especially for those at highest risk of SARS-Cov-2 infection including frail or elderly patients, and those with chronic diseases or immunosuppression.¹² Teledermatology cannot replace medical inspection, dermoscopy and physical examination. However, teledermatology can help identify those patients who should present in person for an examination. In our experience, this is necessary in approximately one-third of patients. Among proactive measures to raise awareness on skin cancer screening and diagnosis during the pandemic, TV spots and social media may bring tangible and user-friendly messages to the public.

In conclusion, we have entered a phase of delayed care in the diagnosis and treatment of skin cancer patients due to the Covid-19 pandemic. The actual impact of the pandemic on staging, survival and mortality will continue to be assessed as further empirical evidence accumulates. Once the pandemic is reasonably under control, we should undertake multifaceted efforts to care for those patients who have not been diagnosed or treated.

Conflicts of interest

Dr. Garbe reports grants and personal fees from BMS, personal fees from MSD, grants and personal fees from NeraCare, grants and personal fees from Novartis, personal fees from Philogen, grants and personal fees from Roche, grants and personal fees from Sanofi, outside the submitted work. Dr Stratigos reports personal fees and/or research support from Novartis, Roche, BMS, Abbvie, Sanofi, Regeneron, Genesis Pharma, outside the submitted work. Dr Dessinioti has no conflict of interest to declare.

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Cutaneous manifestations of patients hospitalized with coronavirus disease 2019 (COVID-19)

Dear Editor

In December 2019, a new member of the coronavirus family emerged in Wuhan city in Hubei Province of China, and rapidly spread all over the world causing a pandemic.^{1,2} A recent Cochrane review categorized different presentations of coronavirus disease 2019 (COVID-19) into four groups: respiratory, systemic, cardiovascular and gastrointestinal. However, some bizarre manifestations like olfactory problems,³ thrombotic events⁴ and even mental problems⁵ may exist with this infection. One of these rare presentations is skin involvement that can even be the first presentation of the disease.⁶ Dermatologic signs and symptoms of COVID-19 are diverse and still need investigation to be completed. We conducted a study between September and October 2020 on 387 COVID-19 hospitalized patients in Imam Reza Hospital of Mashhad, Iran. All COVID-19 cases were confirmed according to the diagnosis of pulmonologists and infectious disease specialists based on polymerase chain reaction test

or high-resolution computed tomography of the chest. All patients were visited by an academic dermatologist and a volunteer resident of dermatology at the patients' hospital beds.

Initially, the preliminary data including age, gender, demographic information, past medical history, drug history, clinical and laboratory findings of each patient were extracted from their medical files. Then, cooperative patients were asked about the history of any dermatologic lesion from a few weeks before clinical signs and symptoms of COVID-19 appear up to this point. Those with a positive history of these lesions were examined to define the distribution of the lesion. Furthermore, a full history regarding their dermatologic symptoms, any past medical history or family history of a skin problem was taken. For ill patients, physical examination of the skin was performed by a dermatologist. Photographs were also taken of all the patients' lesions. Additionally, we followed up each patient by telephone calls 2 weeks after each

visit in order to detect further skin involvements. All the lesions' photographs were reviewed by three academic dermatologists and the final diagnosis was made based on their consensus. Skin biopsies were conducted in some cases that seemed necessary. The study protocol was approved by the Institutional Ethics Board of Mashhad University of Medical Sciences (IR.MUMS.-REC.1399.175). Written informed consent was signed by all patients or their legal guardians for those with very severe or unconscious conditions. P -value < 0.05 was considered statistically significant. All analyses were performed using SPSS software version 11.5 (SPSS Inc., Chicago, IL, USA).

A total of 387 patients including 205 males and 182 females were enrolled in this study. The details of demographic and baseline data of the patients are presented in Table 1.

The most prevalent accompanying disease was dyslipidaemia (214 cases; 55.3%) followed by hypertension (190 cases; 49.1%). Respiratory symptoms were present in 294 patients (76%); 167 patients (43%) experienced constitutional signs and symptoms; 29 (7.5%) had cutaneous involvement in the presence of COVID-19 infection; 15 cases (3.9%) had dermatological symptoms before and 14 patients (3.6%) during hospitalization. Moreover, four patients (1.0%) developed skin symptoms before, 12 (3.1%) during and 13 (3.4%) after presentation of other clinical symptoms of COVID-19 infection. The most common type of skin lesions was papule/plaque (nine cases; 2.3%) and the diagnoses of our cases included livedo reticularis/racemosa, pityriasis rosea like, herpes labialis, herpes zoster, maculopapular viral exanthema, urticarial viral rash, acral peeling, contact dermatitis and drug reaction in which the most common were livedo reticularis/racemosa (four cases; 1.0%) and acral peeling (four cases; 1.0%). There was no significant difference regarding age, gender, underlying diseases, CRP and lymphocyte levels, ICU admission and outcome of the disease in patients with different cutaneous diagnoses. (Table 2). Further studies are needed to complete these results.

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Conflicts of interest

The authors declare no conflict of interest.

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Ethical approval

All procedures involving human participants were in accordance with the ethical standards of the national research committee

Table 1 Demographic and baseline data of the patients

Feature		Frequency	Percent
Gender	Male	205	53.0
	Female	182	47.0
Admitted ward	ICU	57	14.8
	General	329	85.2
COVID-19 Diagnosis method	Polymerase chain reaction	123	31.8
	Clinical signs and high-resolution computed tomography	264	68.2
Hospitalization duration	≤1 week	140	36.6
	>1 week	242	63.4
Outcome	Recovery	318	82.0
	Death	69	18.0
Past medical history	Hypertension	190	49.1
	Cardiac disease	135	34.9
	Cerebrovascular accident	8	2.1
	Diabetes	84	21.7
	Renal disease	44	11.4
	Dyslipidaemia	214	55.3
Clinical signs	Respiratory	294	76
	Constitutional	167	43.2
	Gastrointestinal	30	7.7
	Neurologic	35	9.0
	Other	2	0.5
Treatments	Immunosuppressive	103	26.6
	Anti-epileptic	33	8.5
	Antiviral (Kaletra)	115	29.9
	Hydroxychloroquine	336	87.5
	Azithromycin	353	91.9
	Ceftriaxone	366	95.3
	Heparin	364	94.8
	Dexamethasone	54	14.1
	Anti-inflammatory	60	15.6
Addiction	Yes	90	23.3
	No	297	76.7

Table 2 Final diagnosis of skin lesions in different genders, age groups, hospitalization statuses and disease outcomes

Feature		Gender			Hospitalization status			Age				Disease outcome		
		Male	Female	P	ICU	Non-ICU	P	<30	30–60	>60	P	Recovery	Death	P
Final diagnosis: frequency (%)	Pityriasis rosea like	1 (6.3)	0 (0)	0.4	0 (0)	1 (4.8)	0.4	0 (0)	1 (6.3)	0 (0)	0.5	1 (5)	0 (0)	0.14
	Herpes labialis	1 (6.3)	1 (7.7)		0 (0)	2 (9.5)		0 (0)	1 (6.3)	1 (8.3)		2 (10)	0 (0)	
	Herpes zoster	0 (0)	2 (15.4)		1 (14.3)	1 (4.8)		0 (0)	2 (12.5)	0 (0)		1 (5)	0 (0)	
	Maculopapular viral exanthema	2 (12.5)	1 (7.7)		1 (14.3)	1 (4.8)		0 (0)	2 (12.5)	0 (0)		2 (10)	0 (0)	
	Drug reaction	1 (6.3)	2 (15.4)		0 (0)	3 (14.3)		0 (0)	0 (0)	3 (25.0)		2 (10)	0 (0)	
	Livedo reticularis/ rasemoca	1 (6.3)	3 (23.1)		2 (28.6)	2 (9.5)		1 (100)	2 (12.5)	2 (16.7)		1 (5)	3 (50)	
	Acral peeling	4 (25.0)	0 (0)		0 (0)	4 (19.0)		0 (0)	3 (18.8)	1 (8.3)		3 (15)	1 (16.7)	
	Contact dermatitis	1 (6.3)	2 (15.4)		2 (28.6)	1 (4.8)		0 (0)	1 (6.3)	2 (16.7)		1 (5)	1 (16.7)	
	Urticarial viral rash	2 (12.5)	0 (0)		0 (0)	2 (9.5)		0 (0)	1 (6.3)	1 (8.3)		2 (10)	2 (33.3)	
	Other	3 (18.8)	2 (15.4)		1 (14.3)	5 (19.0)		0 (0)	3 (18.8)	2 (16.7)		5 (25)	5 (83.3)	

and the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

All patients or their legal guardians signed informed consent regarding publishing their data and photographs.

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Retiform purpura and extensive skin necrosis as the single manifestation of SARS-CoV-2 infection

Dear Editor,

It is known that dermatological manifestations of SARS-CoV-2 infection are heterogeneous and have been a subject of increasing discussion. Most common clinical patterns include maculopapular rash, pernio, urticaria, vesicular eruption, livedo reticularis and retiform purpura.^{1–3} The latter has been exclusively described in critically ill patients, often requiring invasive ventilation for massive pulmonary involvement.^{4–6} Retiform purpura can arise in additional circumstances, such as calciphylaxis, cutaneous vasculitis, purpura fulminans and warfarin-induced necrosis.⁷ We report a case of SARS-CoV-2 infection with associated extensive necrotic retiform purpura and no other organ involvement.

A 44-year-old man sought our emergency department due to the appearance of large (>15 cm) patches with retiform configuration and central necrosis, predominantly involving both thighs, compatible with retiform purpura (Fig. 1). The lesions appeared a week before and had progressively worsened despite treatment with oral prednisolone. He was otherwise asymptomatic, with no fever. Peripheral oxygen saturation was 98% on room air. His past medical history included only untreated type 2 diabetes mellitus. There was no history of previous medications, such as warfarin, or illegal drugs, including cocaine. Initial workup revealed minor leucocytosis and slightly elevated C-reactive protein (10 mg/L) and D-dimers (354 ng/dL). Haemoglobin levels, platelet count, renal function, liver enzymes and coagulation studies were normal. Although otherwise symptomless, a nasopharyngeal polymerase chain reaction for SARS-