



patients with PV had effective morphological abnormalities, which was more than in healthy controls ($P < 0.01$). Among patients with PV there was no significant difference in the density or capillary architecture between those with and without NP, but the blood flow velocity of the fourth nail of those with NP was significantly lower than in those without NP ($P < 0.05$). In total 63% of patients with NP had effective morphological abnormalities.

Based on these findings, it was concluded that patients with PV had significant NFC abnormalities, including decreased capillary density, increased proportion of abnormal morphological capillaries, decreased blood flow velocity and dilated capillary loops. Bakirci Ureyen *et al.* reported that the nail fold vessel resistive index (NVRI) was higher in patients with PV and nail involvement than in the healthy control group, and NVRI was higher in psoriatic nails with tortuous capillaries than in nails without tortuous capillaries, as measured by ultrasound.³ Capillary endothelial cell dysfunction could trigger inflammatory responses including immune complex deposition and complement cascade activation, which would thicken the vessel wall to increase resistance in the bloodstream.^{4–6}

Patients with PV without NP already showed significant NFC abnormalities, and these changes, especially decreased blood flow velocity, can lead to trophic disturbances in the periungual region.⁶ Such inflammatory factors accumulate easily around the nail and then cause nail damage. Low blood flow of NFCs can also be a consequence of NP, which may be related to the effect of a local inflammatory reaction of the psoriatic nail on NFCs. Branching capillary is a form of neoangiogenesis, which might be a compensation for the slow blood flow and the decreased capillary density. Our study shows no significant correlation between the blood flow velocity and PASI or BSA, which needs to be verified through further investigations with large samples.

Taking the evidence together, our study found concrete abnormalities in the NFCs of patients with PV. Low blood flow of NFCs may well be a cause of NP or a secondary consequence of NP, and further studies are needed.

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F. Long,¹ F. He,¹ J. Wang,² L. Wang,² J. Tu,¹ Z. Zhang,¹ J. Xia,¹ Z. Yin ¹ and Y. Lu ¹

¹Department of Dermatology, and ²Department of Rheumatology, First Affiliated Hospital of Nanjing Medical University, Nanjing, China

Correspondence: ZhiQiang Yin.

Email: yinzhiqiang@njmu.edu.cn

F.L. and F.H. contributed equally to this manuscript.

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Occupational dermatology in the time of the COVID-19 pandemic: a report of experience from London and Manchester, UK

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DEAR EDITOR, The coronavirus disease 2019 (COVID-19) pandemic has resulted in healthcare systems responding to rapidly rising demand. Simultaneously, increased infection prevention measures for staff, which includes additional personal protective equipment (PPE) and more rigorous hand hygiene procedures, has resulted in an increased incidence of occupational skin disease in frontline staff.¹

From April to June 2020, self-referral occupational dermatology ‘drop-in’ and virtual clinics were established at Guy’s and St Thomas’ NHS Foundation Trust (GSTT) and Salford Royal NHS Foundation Trust (SRFT) to support frontline staff. We describe our patient cohorts, delineate the commonly seen diagnoses and offer practical management advice.

Questionnaires were completed for each consultation, with 167 consultations (146 staff, average age 35.7 years, range 23–69) at GSTT and 92 (85 staff; average age 39.5 years, range 24–59) at SRFT. Overwhelmingly, staff were female (85.1% at GSTT, 87% SRFT), reflecting the workforce demographic (Table 1).

Occupational hand dermatitis is well recognized in healthcare workers. Lan *et al.* reported occurrence in 74.5% of 526 staff in Hubei province, China.¹ Irritant contact dermatitis (ICD) was present in 97.1% of staff with hand dermatitis at GSTT and 76% at SRFT, reinforcing the importance of preventative strategies for frontline workers. Within our trusts an information leaflet was publicized in trust briefings and on intranets. Moisturizers were made freely available to all staff. This is particularly

important as soap substitutes may not offer sufficient virucidal action against COVID-19.² Active dermatitis was treated with topical corticosteroids to gain control and prevent staff absence. With pharmacy assistance, medications were dispensed directly from clinics (GSTT) and prescription fees were waived for occupational dermatoses, facilitating prompt management.

Limited patch testing was performed at GSTT (COVID-19 restrictions) but was carried out according to the European Society of Contact Dermatitis guidelines.³ Of 12 staff tested with hand dermatitis, five had contact allergies of possible or probable relevance and one had occupational ACD to rubber accelerators in polyisoprene gloves. The high number of clinically relevant results underlines the necessity of patch testing, as highlighted by Cronin.⁴

High rates of facial dermatitis from facial masks and/or goggles have been described.¹ This is the first time such significant and frequent issues from medical-grade, fit-tested face masks have been observed. Short-lived erythema (lasting several hours after doffing of PPE) and more significant skin disease were reported (Table 1).

Pressure-induced facial dermatitis has been rarely reported. Pilots in the Royal Air Force, required to wear rubber masks while flying, developed ICD due to pressure, occlusion, heat and friction effects.⁵ At GSTT, 66.3% of staff with facial rashes experienced pressure ICD, likely due to both the pressure required to make the FFP3 mask 'fit' (i.e. protect against inhalation of airborne virus) and the long periods over which the masks are worn, often in a warm environment.

NHS England published advice stating 'it is important that you take regular breaks (we recommend every two hours) from wearing a mask to relieve the pressure and reduce moisture build-up.' In our experience, staff numbers were insufficient to allow this advice to be followed.

Our management method is to recommend (i) adherence to the NHS England guidelines; (ii) application of a light moisturizer before shifts and (iii) application of Siltape (Advancis, Kirkby-in-Ashfield, UK; soft silicone perforated tape) over the bridge of the nose and cheeks before donning FFP3 masks. If skin breakdown has occurred, Mepilex Border Lite 4 × 5-cm dressing (Molnlycke, Gothenburg, Sweden) over the bridge of the nose is helpful. These silicone-based dressings offer both pressure distribution and protection. Additionally, the adhesive minimizes skin damage upon removal. Fit testing should be repeated. The tapes should be removed at each doffing as they may be contaminated. Adhesive remover, such as Appeel wipes (CliniMed Ltd, High Wycombe, UK), may be useful. This methodology has been approved by Infection Control and Tissue Viability.

ACD to components of masks has been reported in this pandemic,^{6,7} but no cases were found in our cohort, although six of 15 staff tested to date had potentially relevant contact allergies.

Chemical ICD was seen at GSTT following introduction of reusable masks, with advice to sanitize using Clinell wipes (GAMA Healthcare, Watford, UK) then leave to dry. Build-up of antimicrobial agents, including benzalkonium chloride, a nonvolatile surfactant known to be an irritant,⁸ led to eczema




Table 1 Comparative occupation and job role location data for Guy's and St Thomas' (GSTT) and Salford Royal (SRFT) NHS Foundation Trusts, obtained by questionnaire at the time of consultation. The diagnoses at initial consultation were made by the consultant dermatologist in occupational clinics. Some staff were diagnosed with more than one pathology at presentation, with the most significant recorded under primary diagnosis

	GSTT		SRFT	
Staff occupation				
Administrative	6 (4.1)		7 (8)	
Allied health professional	16 (11.0)		23 (27)	
Doctor	10 (6.8)		2 (2)	
Healthcare assistant	6 (4.1)		11 (13)	
Nurse	105 (71.9)		38 (45)	
Pharmacist	1 (0.7)		1 (1)	
Support (porter/cleaner)	1 (0.7)		1 (1)	
Other	1 (0.7)		2 (2)	
Total	146 (100)		85 (100)	
Job location				
Community	1 (0.7)		1 (1)	
Emergency department	1 (0.7)		6 (7)	
General ward	24 (16.4)		38 (45)	
Intensive care	101 (69.2)		12 (14)	
Surgery	9 (6.2)		9 (11)	
Other	8 (5.5)		19 (22)	
Unknown	2 (1.4)		0	
Total	146 (100)		85 (100)	
Diagnosis	Primary	Secondary	Primary	Secondary
Facial dermatoses				
Atopic eczema	1	2	3	–
Chemical ICD	10	3	–	–
Occlusive acne	16	5	5	–
Pressure mechanical ICD	41	13	2	–
Pressure urticaria	–	–	2	–
Rosacea	–	1	4	–
Seborrhoeic dermatitis	5	6	5	–
Suspected ACD	8	3	1	1
Other	1	5	3	–
Total	82	38 (46)	25	1 (4)
Hand dermatoses				
Atopic dermatitis	4	9	14	3
ICD	56	10	37	7
Psoriasis	1	1	2	–
Suspected ACD	7	4	1	18
Not occupational	–	–	4	–
Total	68	24 (35)	58	28 (48)

The data are presented as the number of staff (%). ACD, allergic contact dermatitis; ICD, irritant contact dermatitis.

at contact points from the masks. Rinsing with tap water (approved by Infection Control) after use of Clinell wipes resulted in resolution. Staff should wear gloves when handling such wipes.

Occupational dermatoses have been the epidemic within the COVID-19 pandemic. Robust risk assessment and appropriate preventative strategies need to be implemented within the National Health Service. Staff occupational dermatology clinics appear effective in ensuring the wellbeing of frontline staff as we move forward in the 'new normal'.

F.J. Ferguson ¹, G. Street,² L. Cunningham ¹, I.R. White,¹ J.P. McFadden¹ and J.D.L. Williams ²

¹St John's Institute of Dermatology, Guy's Hospital, London, SE1 9RT, UK; and ²Contact Dermatitis Investigation Unit, Salford Royal NHS Foundation Trust, Manchester, M6 8HD, UK
Email: felicity.ferguson@gstt.nhs.uk

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COVID-19 in patients with hidradenitis suppurativa

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DEAR EDITOR, Information on hidradenitis suppurativa (HS) and COVID is scarce. HS is a chronic inflammatory cutaneous disease associated with comorbidities such as obesity, metabolic syndrome, smoking and cardiovascular disease, which are known to negatively affect COVID outcomes.^{1,2}

This retrospective cohort study aimed to evaluate the outcomes of patients with HS who had confirmed COVID-19. We used the Research Patient Data Registry, a clinical data registry

from various Partners Healthcare System (PHS) affiliated hospitals in the Boston area. This area was highly affected between the months of March and May in 2020. As of 25 June 2020, of around 12 330 confirmed COVID cases in PHS, approximately 24.0%, 7.7% and 4.5% were admitted to hospital, a critical care unit and/or died, respectively.

Among more than 8000 patients who had a diagnosis of HS (International Classification of Disease 10th revision code L73.2) and more than 100 patients who were on biological therapy, we identified 58 patients with confirmed COVID-19 (positive reverse-transcriptase polymerase chain reaction) between 15 March and 25 May 2020. After reviewing their medical records on an electronic medical record system (Epic, Verona, WI, USA), we excluded 19 patients because HS could not be confirmed or was inactive for more than 3 years.

Demographic and clinical data are reviewed in Table 1. The majority of our patients with HS were female and of either Hispanic or African American race/ethnicity. They were relatively young and most were obese. Around one-third of these patients had diabetes, hypertension and/or were past or current smokers. Overall, 26%, 44%, 23% and 8% of patients had involvement of one, two, three and four or more anatomical sites, respectively. The majority of patients were not on any current systemic treatment for HS when COVID was diagnosed. These patients had been treated with topical antibiotics or steroids, intralesional steroids, incision and drainage and/or local surgery, in addition to prior courses of systemic antibiotics that had been discontinued before diagnosis of COVID-19.

In terms of hospitalization, we found that more male patients required hospital admission. The proportions of patients within each ethnic group who required hospitalization were not significantly different [17% (two of 12) of African American patients, 20% (two of 10) of Hispanic patients and 25% (four of 16) of white patients]. Mean age, proportion of patients on systemic antibiotics for HS and diagnosis of diabetes were all increased in patients requiring hospitalization, but these trends were not statistically significant. Two patients who were pregnant (4 weeks and 18 weeks) had mild disease.

In our sample, eight patients were admitted to the hospital (for an average of 22 days, range 1–66). A 60-year-old patient died. He had hypertension, diabetes and peripheral artery disease. He was not on systemic treatments for HS. Rates of hospital and intensive care unit admission and death were not increased in our study sample when compared with the entire PHS population with confirmed COVID-19 at that time. Only one patient was on a biologic (infliximab). He had mild COVID and did not require hospitalization. Patients received follow-up calls for an average of 34 days (range 2–69) after the diagnosis of COVID.

There has been some debate on whether patients with HS would have an increased risk of severe COVID because of an overlap between comorbidities associated with HS and prognostic factors of COVID-19.² An international registry has been developed in an attempt to collect more comprehensive data on HS severity, therapy and COVID-19 outcomes.³ There has also been concern regarding potential racial disparities