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generalizable to other hairdresser communities. Thus, future studies are needed to assess opinions of other hairdressers and to assess the safety and efficacy of training hairdressers in skin cancer surveillance.

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Scalp verruca from barber clippers: An epidemiologic assessment of a common fomite

To the Editor: Scalp verrucae are relatively common in dermatology, and the causal human papilloma virus (HPV) is ubiquitous in the environment. We noted a significant number of patients who developed numerous scalp verrucae after recalled scalp trauma due to short haircuts received on a military base. Scalp verrucae are a particular risk to the military, where men receive frequent haircuts in succession that require firm pressure to ensure uniform length.

An epidemiologic investigation was conducted on 3 local barbershops evaluating their adherence to sanitary practices. The cleaned clippers and guards were sampled with next-generation DNA and RNA whole-genome amplification. Several published databases were referenced, including the National Center for Biotechnology Information (NCBI) reference sequences (RefSeq), the NCBI Taxonomy Database, and sequences from GenBank. The nonhuman sequences were searched using NCBI’s Basic Local Alignment Search Tool (BLAST) software.

The local public health department conducted random no-notice inspections every 6 months and found that the barbers properly performed disinfection using approved commercial solutions between every customer. Despite this, genetic material correlating with HPV types 5, 10, 49, and 92 was recovered. In addition, other nonenveloped pathogens such as Merkel cell polyomavirus and rhinovirus were also isolated (see Table I).

HPV is extremely stable in the environment because of its nonenveloped structure, resistance to heat, desiccation, and ability to viably persist for at least 7 days. It can survive on a variety of surfaces, from ultrasonography probes to clothing. It is resistant to common disinfectants, remaining infectious despite application of quaternary ammonium compounds (eg, wipes containing ammonium chlorides), ethylenediaminetetraacetic acid, 70% and 95% ethanol, 95% isopropanol, 3.4% glutaraldehyde, 0.55% ortho-phthalaldehyde, phenol, and 0.25%
peracetic acid—silver. Only 0.525% hypochlorite (1:10 bleach dilution) and 1.2% peracetic acid—silver—based disinfectants have been shown to reduce infectivity by more than 99.99%.4

The impact of this inadequacy of cleaning solutions transcends the development of mere cutaneous verrucae. HPV has been implicated as an oncovirus in the development of cutaneous squamous cell carcinoma, and at least 1 of the viruses (HPV 5) in this study has been shown to be associated with increased risk for squamous cell carcinoma.5 Merkel cell polyomavirus, an oncovirus implicated in Merkel cell carcinoma, was also isolated from the clippers in significant quantity. The isolation of the virus from barbershop equipment has not been documented previously.

It is imperative that future research be conducted to develop safe solutions that adequately disinfect multiple-use devices such as barbershop clippers to reduce this public health risk. Current alcohol or polyphenolic compounds are shown to be inadequate in our in vivo study, as well as in an in vitro analysis published elsewhere.4 As a result of this study and the cited literature, we examined the practice in our own office of using commercial disinfectant wipes between patient encounters that rely on quaternary ammonium compounds, and we decided to incorporate an approved commercially available 1:10 bleach wipe for surfaces and treatment devices (cryotherapy, cautery, laser distance gauges, etc).

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Table I. Matched genomic data after BLAST analysis*

| Total reads | Virus name                        | Average identity, % | Average alignment length (bp) |
|-------------|-----------------------------------|---------------------|--------------------------------|
| 472         | Merkel cell polyomavirus          | 98.8                | 274.1                          |
| 63          | Human papillomavirus type 10      | 91.1                | 219.2                          |
| 23          | Human papillomavirus type 5       | 95.7                | 214.5                          |
| 23          | Rhinovirus B14                    | 98.3                | 184                            |
| 20          | Human polyomavirus 6              | 98.4                | 284.8                          |
| 20          | Human papillomavirus type 49      | 91.1                | 208.7                          |
| 6           | Human papillomavirus type 92      | 98.8                | 238.3                          |
| 4           | Japanese encephalitis virus       | 98.8                | 145                            |
| 2           | Human coronavirus 229E            | 96.6                | 341                            |
| 1           | Equine infectious anemia virus    | 100                 | 217                            |

Bp, Base pairs; BLAST, Basic Local Alignment Search Tool.
*Columns show number of genetic reads attributable to a virus that were identified, the virus name, the average percentage of the genomic match, and the average length of the aligned fragments of DNA.

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Trunk involvement and peau d’orange aspect are poor prognostic factors in eosinophilic fasciitis (Shulman disease): A multicenter retrospective study of 119 patients

To the Editor: Eosinophilic fasciitis (EF) is a rare inflammatory disorder of unknown origin characterized by a diffuse fasciitis and blood eosinophilia.1

To define risk factors that may affect EF severity and prognosis, we conducted a retrospective study in 27 French centers of 119 patients with EF (1992 to 2018). EF severity criteria analyzed were relapse, use of a second line of treatment, and residual skin fibrosis. Wilcoxon test and Fisher’s exact test were used to compare quantitative and qualitative variables. Rates of event-free survival over time were plotted by the Kaplan-Meier method and compared using the log-rank test. Multivariable Cox models were used to determine potential associations.

The median time to diagnosis and initiation of treatment since the first symptoms was 5.6 months (interquartile range, 2.7 to 8.9; range, 1 to 87 months). Thirty-four patients (29.6%) presented localized morphea, 62 (53.9%) had groove sign, 29 (24.4%) had a peau d’orange aspect, and 37 (31%) had truncal involvement. The mean follow-up was 48 months. Eighty-three (71.6%) patients received corticosteroids alone, and 30 (25.8%) patients received corticosteroids and methotrexate at diagnosis. Thirty patients were treated with methylprednisolone pulses. A second line of therapy was required in 48 (40.3%) patients, and relapses were reported in 24 (20.2%) patients. Twelve patients (10%) presented a resistant EF (3 or more different lines of treatment). Treatments for resistant forms were mycophenolate mofetil (partially effective, 3/4), extracorporeal photochemotherapy (effective, 2/2), cyclophosphamide (partially effective, 2/2), azathioprine (ineffective, 1/1), intravenous immunoglobulins (effective, 1/1). At last follow-up, 49% of patients were in remission without residual skin fibrosis. Four patients died (2 deaths related to EF-associated blood disorders and 2 from unrelated causes). Univariate analysis showed an association between relapse and anemia (P = .004), the need for

Fig 1. Kaplan-Meier curve for the use of a second line of treatment for patients with (red) and without (black) trunk involvement at diagnosis.