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Complicated scarring following mpox infection

Dear Editor,

Since May 2022, more than 80 countries have been experiencing an outbreak of human mpox, a viral zoonotic infection caused by the mpox virus. A characteristic feature of this outbreak is the high frequency of genital and anal skin lesions. Classically, lesions heal spontaneously within a median of three weeks after the crusts have fallen off.

We describe herein four patients with complicated scarring following mpox lesions. All four patients were men who have sex with men (MSM) and had a PCR confirmed diagnosis of mpox at Bichat-Claude Bernard hospital in Paris, France, a referral center for mpox where 624 patients have been diagnosed since may 2022.

The first pattern was hypertrophic scarring of facial lesions in two patients. Initially, the patients presented with typical mpox vesiculous lesions. Patient one was a 38-year-old HIV positive male with undetectable viral load (and CD4 T cell count of 600 cells/mm3), who presented with lesions on the cheek, the forehead, and the chin. Patient two was a 26-year-old male on HIV Pre Exposure Prophylaxis (PreP) with lesions on the chin. After one week of evolution, both patients had persistent inflammatory infiltration and meliceric crusts leading to a suspicion of *Staphylococcus aureus* superinfection. There was no microbiological confirmation due to restrictions for laboratory biosafety reasons in case of suspected or confirmed mpox infection (1). Only one of them was treated with antibiotic, as the second patient was not immediately referred to the consultation. Signs of superinfection regressed in both cases. After the resolution of crusting, persisted nodular erythematous lesions were observed and treated with local silicone gel (Figure 1, A).

The second pattern was a scarring folliculitis on peri-buccal lesions in two patients. Patient 3 was a 23-year-old male, HIV negative with hypothyroidism and patient 4 was a 53-year-old- HIV positive male with undetectable viral load (CD4 T cell count of 237 cells/mm3). At diagnosis, both had signs of superinfection with meliceric crusts and major upper lip edema. Treatment with oral amoxicillin/clavulanic acid 50mg/kg daily for 1 week led to the resolution of edema in both patients. After the resolution of

meliceric crusts, an erythematous patch of alopecic area persisted and was treated with corticosteroids without efficiency (Figures 1, B, and C).

The scarring mechanisms have been investigated in smallpox. According to Regan et al, five different theories can explain the scarring: the extension of suppuration into the dermis; inappropriate treatment and scratching of the lesions; secondary bacterial ecthyma; destruction of elastic fibers; or destruction of sebaceous glands (2,3). Histologic examination of cutaneous biopsies in mpox has demonstrated a marked inflammatory dermic infiltrate (4). Interleukin-10, an anti-inflammatory factor, has been reported to be markedly elevated among individuals suffering from mpox who have very high rash burden (>250 lesions) and it might potentiate or dampen inflammation (5).

Bacterial superinfection after vesicular skin rash has been reported in multiple studies, as well as in patients with mpox infection (6,7). Superinfection is considered as a major risk in delaying healing process of the skin lesions and may lead to hospitalization in immunocompromised patients.

In these observations, the combination of deep dermic inflammation, local super-infection, and scratching may have led to aesthetic complications. This could emphasize the need for quick antibiotic treatment in case of superinfection and the importance of informing patients to avoid manipulations in order to reduce the risk of complicated scarring. The possibility of aesthetic sequelae should be considered in the overall burden of mpox infection. Close follow-up of those patients will help in distinguishing between complicated healing and long-term sequelae. Local treatments need further investigation.

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Figure legends

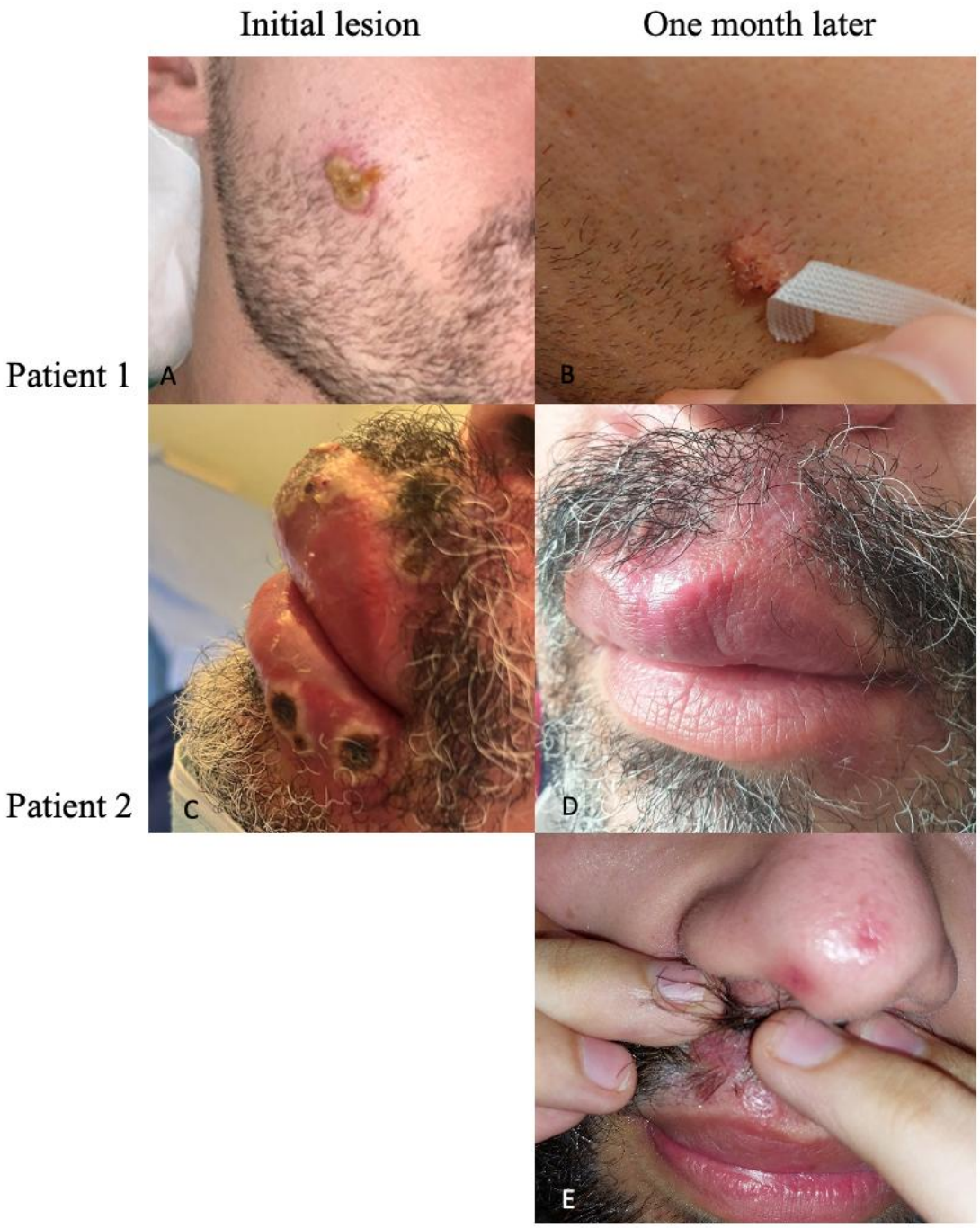

Fig 1. Complicated scarring patterns in mpox infection. A) Hypertrophic lesion with persistant nodular centimetric erythematous lesion of the cheek one month after mpox infection (patient 1). B) Scarring folliculitis lesions of the nasolabial sulcus and inferior lip one month after superinfection (patient 4). C) Scarring folliculitis lesion of the nasolabial sulcus one month after superinfection (patient 3)