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## LETTER TO THE EDITOR

# Prospective cohort of 70 consecutive cases of human monkeypox: Clinical description with focus on dermatological presentation

To the editor,

Since May 2022, an unprecedented outbreak of monkeypox is occurring in Western countries outside endemic area.<sup>1,2</sup> We describe the dermatological presentation in 70 consecutively included patients, with PCR-confirmed monkeypox seen from 20 May 2022 to 17 June, 2022, in our centre and systematically evaluated by a dermatologist. Patients' demographic, behavioural and clinical characteristics are shown in the Table 1. All patients reported first occurrence of lesions and/or pain on the penis (48.5%), perianal/perineal area (47%) and/or oropharynx (23%). Genital and perianal lesions were mostly painful large pustules, deep-seated, umbilicated (56%), with necrotic centre (57%) or ulceration (38.5%), sometimes coalescent and vegetating (Figure 1a–d). Anal lesions were associated with signs of proctitis in 18.5% of patients and three showed urethritis with intra-urethral pustules or ulcerations. Pustule or aphthous ulcerations were seen on the lips, tongue, gums or palate in 10% of patients and ulcero-necrotic tonsillitis in 13% (Figure 1e). The primary lesions were located on sites of sexual contact. They were followed in 78.5% of cases with the appearance of satellite and distant lesions within few days, sometimes in several waves with lesions at different stages. Most patients showed a small number of lesions, with 13% showing only clustered genital or anal lesions. Secondary lesions were often smaller than the genital or anal ones, mostly pustules (84%), vesicles (31%), umbilicated (56%), follicular (10%) and/or surrounded with erythema (Figure 1f,g). Four patients (6%) presented with inflammatory inguinal lymphadenopathy with an overlying erythema. A superimposed bacterial infection was suspected in two patients with meliceric crusting on primary monkeypox lesions and in four patients with major inflammatory penile oedema with paraphimosis (Figure 1h). No bacterial culture was performed but evolution was favourable under antibiotic. However, cellulitis-like monkeypox specific lesion is possible. A secondary-appeared maculopapular exanthema was found in six patients (12%) (Figure 1i), of whom three took amoxicillin for suspicion of streptococcal tonsillitis and one had an acute HIV infection. Exanthema might also be related to monkeypox itself, but further analyses with skin biopsies are needed. No patient required hospitalization or specific antiviral treatment.

In the early stages of the current outbreak, diagnosis and disease control have been challenging because many cases were atypical as compared to the classically clinical picture of monkeypox.<sup>3</sup> In concert with recent studies,<sup>2,4–6</sup> we found that cases concern almost exclusively MSM with high-risk sexual behaviours, showing very painful pustular ulcero-necrotic lesions clustered on genital, perianal or pharyngeal area (Figure 1a–e), sometimes chancre or eschar-like (Figure 1b,d), associated with lymphadenopathy and sometimes proctitis or urethritis. These primary lesions were followed with inconstant asynchronous vesiculopustular 'chicken-pox-like' lesions on the rest of the body, without centrifugal distribution, very likely caused by a transient viremia.<sup>7</sup> No external lesion was even visualized in some patients complaining of anal pain. Primary lesions on sites of sexual contact could be regarded as inoculation lesions, such as the one described in cases of transmission by direct contact with infected animals.<sup>8</sup> Differential diagnosis with herpes and syphilis can be challenging in front of genital or perianal unique or clustered ulcerative or crusted lesions (Figure 1b,d). However, these inoculation lesions are often associated with satellite umbilicated pustules, more suggestive of monkeypox than syphilis or herpes. These patients being at high risk of multiple STI, presumptive treatment seems justified, especially in case of urethritis and proctitis. The primary appearance of ulcero-pustular lesion in the genital area or tonsillitis had already been reported in imported cases from Nigeria, without particular sexual exposure.<sup>9,10</sup> However, proctitis and/or urethritis related to monkeypox were never reported before the ongoing outbreak. A form of monkeypox mimicking the four major STI syndromes, that are genital ulceration, urethritis, proctitis and tonsillitis, is emerging. Establishing if monkeypox can be sexually transmitted through seminal fluids will require further studies.<sup>7</sup> This study gives a precise description of dermatological presentation and skin lesions dynamics in the ongoing outbreak, with helpful features for the diagnostic process challenges.

## ACKNOWLEDGEMENT

None.

**TABLE 1** Demographic, behavioural and clinical characteristics of 70 patients with confirmed monkeypox infection

|   | MKPV infections<br><i>n</i> = 70 |
|---|----------------------------------|
| <b>Population characteristics</b>                                 |                                  |
| Sex ratio (M/F)   | 51/0                             |
| Age (years), median (IQR)   | 32.5 (28–39)                     |
| MSM   | 69 (98.5%)                       |
| Known HIV infection   | 31 (44%)                         |
| PrEP  | 30 (43%)                         |
| STI history   | 40/42 (95%)<br>(NC = 28)         |
| Chemsex   | 24 (34%)                         |
| Time between lesions' onset and consultation (days), median (IQR) | 5 (3–6)                          |
| Vaccination against smallpox during childhood                     | 3 (4%)                           |
| <b>Exposition during the previous month</b>                       |                                  |
| Contact with confirmed or suspected monkeypox case                | 21 (30%)                         |
| Gay venues attendance   | 34 (48.5%)                       |
| International travel  | 21 (30%)                         |
| Travel to MKPV endemic areas                                      | 0                                |
| <b>Number of sexual partners</b>                                  |                                  |
| <5  | 29/61 (47.5%)                    |
| 5–10  | 25/61 (41%)                      |
| >10   | 7/61 (11%)                       |
| NC  | 9                                |
| <b>Clinical symptoms and signs</b>                                |                                  |
| Fever   | 33 (47%)                         |
| Asthenia  | 36 (51%)                         |
| Headaches   | 25 (41%)                         |
| Arthromyalgia   | 25 (37%)                         |
| Odynophagia, including:   | 17 (24%)                         |
| Pharyngitis   | 8 (11%)                          |
| Tonsillitis   | 9 (13%)                          |
| Cough   | 4 (6%)                           |
| Lymphadenopathy   | 42 (60%)                         |
| Digestive signs, including:                                       | 21 (30%)                         |
| Proctitis   | 13 (18.5%)                       |
| Urethral signs  | 3 (4%)                           |
| <b>Muco-cutaneous signs</b>                                       |                                  |
| <b>Number of lesions</b>  |                                  |
| Unique  | 6 (8.5%)                         |
| 2–9   | 43 (61%)                         |
| 10–50   | 14 (20%)                         |
| 50–100  | 3 (4%)                           |
| >100  | 1 (1%)                           |
| <b>Type of lesions<sup>a</sup></b>                                |                                  |
| Vesicle   | 22 (31%)                         |

**TABLE 1** (Continued)

|  | MKPV infections<br><i>n</i> = 70 |
|--|----------------------------------|
| Pustule  | 59 (84%)                         |
| Umbilicated                                    | 39 (56%)                         |
| Crusted/necrotic                               | 40 (57%)                         |
| Mucosal ulceration                             | 27 (38.5%)                       |
| Folliculitis                                   | 7 (10%)                          |
| Non necrotizing skin and soft tissue infection | 4 (6%)                           |
| Maculo-papular exanthema                       | 6 (12%)                          |
| <b>Location<sup>b</sup></b>                    |                                  |
| <b>Penis, including:</b>                       |                                  |
| Urethra  | 2 (3%)                           |
| Anus/perianal/perineal                         | 33 (47%)                         |
| Trunk  | 41 (58.5%)                       |
| Upper limbs                                    | 40 (57%)                         |
| Lower limbs                                    | 24 (34%)                         |
| Palms and soles                                | 14 (20%)                         |
| Face   | 27 (38.5%)                       |
| Scalp  | 9 (13%)                          |
| Mouth (excluding pharyngitis and tonsillitis)  | 7 (10%)                          |

Note: Data expressed in *n* (%) unless otherwise specified.

Abbreviations: MSM, men having sex with men; STI, sexual transmitted infection.

<sup>a</sup>Several types of lesions per patient possible.

<sup>b</sup>Several locations per patient possible.

## FUNDING INFORMATION

None.

## CONFLICT OF INTEREST

None to declare.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

## ETHICS STATEMENT

The patients in this manuscript have given written informed consent to publication of their case details.

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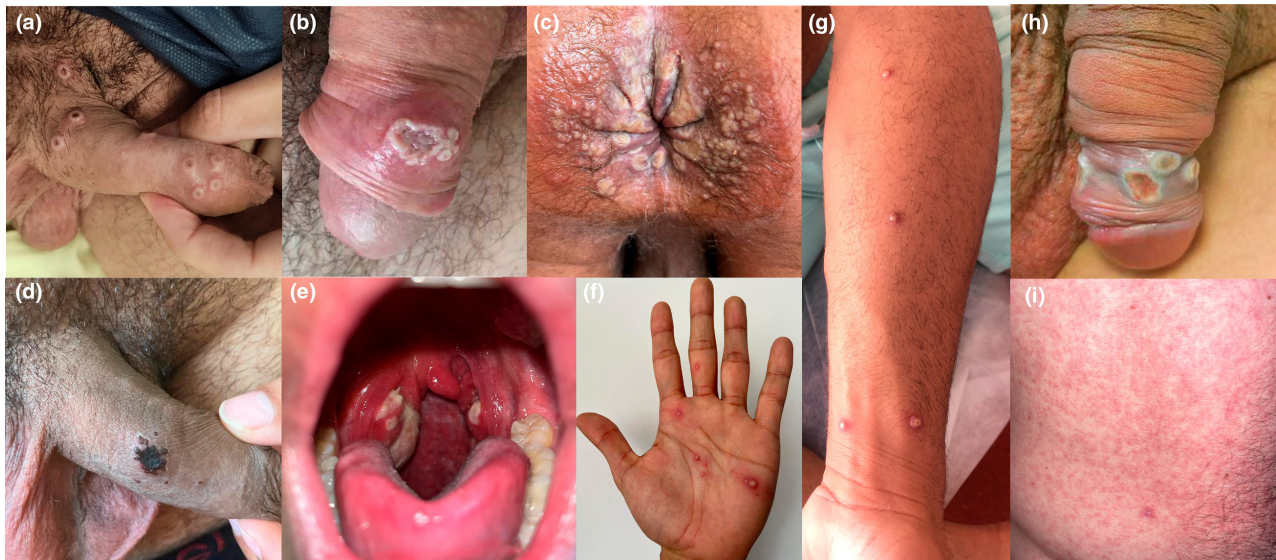
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**FIGURE 1** Mucocutaneous lesions in patients infected with Monkeypox virus in May 2022. (a) Wide deep-seated pustules with central umbilication and progressive central necrosis on the penile shaft. (b) Wide chancre-like ulcerated foreskin lesion with small adjacent umbilicated pustules. (c) Multiple anal and perianal coalescent and vegetating pustules evolving toward ulcerations. (d) Eschar-like lesion on the penile shaft, who presented primarily as a necrotic crust. (e) Bilateral enlargement of tonsils with erosions and fibrinous coating (MPXV PCR positive on local swab). (f) Palmar firm deep-seated pustules on an erythematous basis. (g) Follicular and umbilicated pustules on the arm. (h) Wide ulcerated foreskin lesion with painful inflammatory oedema and beginning paraphimosis. (i) Secondary-appeared maculopapular morbilliform exanthema in a patient with a monkeypox proctitis (negative STI testing), who took amoxicillin for a tonsillitis.

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