This study showed an association between psoriasis and IBD in paediatric patients similar to that in adults. However, the correlation was not as prominent as that of adults because of low prevalence. In addition, a long-term observational study on whether psoriasis and IBD in paediatrics and adolescent affect comorbid disease in adults is needed in the future.

## Acknowledgement

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## Conflicts of interest

The authors have nothing to declare.

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None.

## Data availability statement

The data that support the findings of this study are accessible through the National Health Insurance Sharing Service (https://nhiss.nhis.or.kr/) with permission.

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# Monkeypox virus infection: what dermatologist needs to know?

*Dear Editor*,

By May 2022, an increasing number of human monkeypox virus (MPXV) infections have been reported in Western countries; of these, at least 26 have been confirmed in Europe.[1] Since MPXV isolation in 1958, the disease was mostly endemic in Central and West Africa, where sporadic cases in humans were acquired from animals.[2,3] A small epidemic of 72 cases in the United States in 2003 revealed the MPXV propensity to transmission outside the natural ecological niche.[4] Most of the recent cases have no relation to travel history to endemic areas.[1] Although encountering MPXV infection may be a rare occurrence, dermatologists will be likely called for consultations for patients with suspected MPXV infection. The aim of this letter is to provide dermatologists the essential notions about this infection that recently drew public attention. To this aim, we summarized the principal clinical and epidemiological characteristics of MPXV infection (Table 1).

MPXV is a brick-shaped, enveloped, double-stranded DNA virus, of the Orthopoxvirus genus (Poxviridae family), distinguished into two clades, Western and Central Africa (Congo Basin).[5] MPXV is considered a zoonosis acquired *via* droplets by different reservoirs, such as squirrels, rats and monkeys.[6] Recent cases presented with lesions on the genital area, indicating other possible routes of transmission, as direct contact with body fluids or lesion material and prolonged physical contact during sexual intercourses.[1,4] Monkeypox shares clinical similarities in the appearance, topography and progression of smallpox, whose presentation nowadays has become anecdotal. After an incubation period of 7–17 days, prodromal symptoms (i.e. fever between 38.5 and 40.5 °C and fatigue) are followed by the appearance of a rash. In such phase, a firm and sometimes painful lymphadenopathy involving the maxillary, cervical or inguinal area is an important clue.[4] The smallpox-like rash lasts from 2 to 4 weeks. Lesions spread centrifugally from the face to the entire body including not only hands, lower limbs and feet, but also pharyngeal, conjunctival and genital mucosae. These are well-defined, progressing through macular, papular, vesicular, pustular and crustose phases.[4,6,7] Lesions may be hard, deep and sometimes

**Table 1** Main characteristics of Monkeypox infection

| | |
|---|---|
| Taxonomy | Genus: Orthopoxvirus<br>Family: Poxviridae |
| Genome | Double-stranded-DNA |
| Suspected reservoirs | Rope squirrel (*Funisciurus* sp.)<br>Gambian pouched rat (*Cricetomys gambianus*)<br>Sooty mangabey monkey (*Cercocebus atys*) |
| Transmission | Animal-to-human *via* droplets<br>Human-to-human *via* droplets, fomites or sexually transmitted |
| Incubation time | 7–17 days |
| Prodromal period | 1–4 days |
| Cutaneous manifestations | Smallpox-like rash of hard, deep, well-circumscribed, umbilicated lesions evolving from macular, papular, vesicular and pustular phases |
| Extra-cutaneous manifestations | Fever, fatigue and lymphadenopathy |
| Complications | Pitted scars, vomiting, diarrhoea, pneumonia, encephalitis, ocular infection and sepsis |
| Diagnosis | PCR, immunohistochemistry, rapid point-of-care tests (i.e. Tetracore OrthopoxBioThreat®), viral culture and electronic microscopy; ELISA for anti-OPXV IgM and IgG |
| Differential diagnosis | Chickenpox, molluscum contagiosum, measles, syphilis, yaws, scabies, rickettsialpox, drug reactions |
| Therapy | Antipyretic, antibiotics for secondary bacterial infections, tecovirimat |

PCR, polymerase chain reaction.

umbilicated. In the pustular stage, a further febrile period may develop with severe complications such as vomiting, diarrhoea, pneumonia, encephalitis and sepsis. Superinfections and pitted scars are common sequelae. As opposed to the smallpox, the disease course is usually mild, and most patients self-recover within few weeks.[4] Higher mortality rate was found among children and immunocompromised individuals who are at risk of severe disease.[1] The main differential diagnosis is with chickenpox. Varicella however is not associated with lymphadenopathy, and fever is less prominent; lesions are more polymorphic, affect almost invariably the scalp and oral mucosa, and are itchy. To establish the diagnosis, different laboratory assays can be performed including polymerase chain reaction (PCR) for viral DNA detection, immunohistochemistry for viral antigen detection, including the point-of-care test Tetracore OrthopoxBioThreat®, viral isolation and culture from saliva in early phase, lesion exudate on a swab or crust specimens. ELISA for IgM and IgG antibodies detection may have cross-reactivity to other *Orthopoxviruses*.[6] Treatment is usually symptomatic, for severe cases antiviral treatments (tecovirimat and brincidofovir) can be considered.[6,8] Some studies have shown that vaccination against smallpox provides cross-protection against other orthopoxviruses, as MPXV.[2,4,9] However, more than 40 years have passed from smallpox eradication, and it was estimated that approximately half of the world's population has no immunity against orthopoxviruses.[8] There are some concerns for a MPXV outbreak.[10] Dermatologists are in a privileged position in diagnosing MPXV infection and promoting its awareness. From the COVID-19 outbreak, we have learned the importance of case isolation, contact tracing and use of personal protective equipment, all good hygiene practices that can be translated to MPVX containment.

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## Conflicts of interest

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## Data availability statement

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## Monkeypox virus case with maculopapular exanthem and proctitis during the Spanish outbreak in 2022

*Dear Editor*,

A 30-year-old male patient visited the Emergency Room (ER) on the 16th May 2022 complaining of a new-onset skin rash associated with systemic symptoms. He had not travelled abroad during the previous months. He was diagnosed with HIV infection 9 years prior and maintained a good immune-virologic control under antiretroviral therapy. He also presented past medical history of syphilis, hepatitis B and had been treated for hepatitis C virus. He recognized himself as MSM with high-risk sexual practices[1] such as multiple sexual partners, use of recreational drugs and unprotected sexual intercourse 2 weeks prior his admission to the ER.

The patient first presented with symptoms of proctitis (rectal bleeding, mucopurulent discharge and tenesmus). Four days later, he experienced a sudden onset of systemic symptoms with fever up to 39.3°C, headache, lymphadenopathy, generalized arthralgia and myalgia. The skin rash began 2 days later, on both arms and dorsum of hands and then spread to the trunk, legs, face and, lastly, genitalia, sparing palms and soles. Physical examination revealed a maculopapular pinkish exanthem associated with numerous flat-topped umbilicated pustules (Fig. 1a–c) with a necrotic centre and surrounded by an erythemato-edematous plaque (Fig. 2). In the genitalia, one single pustule in the

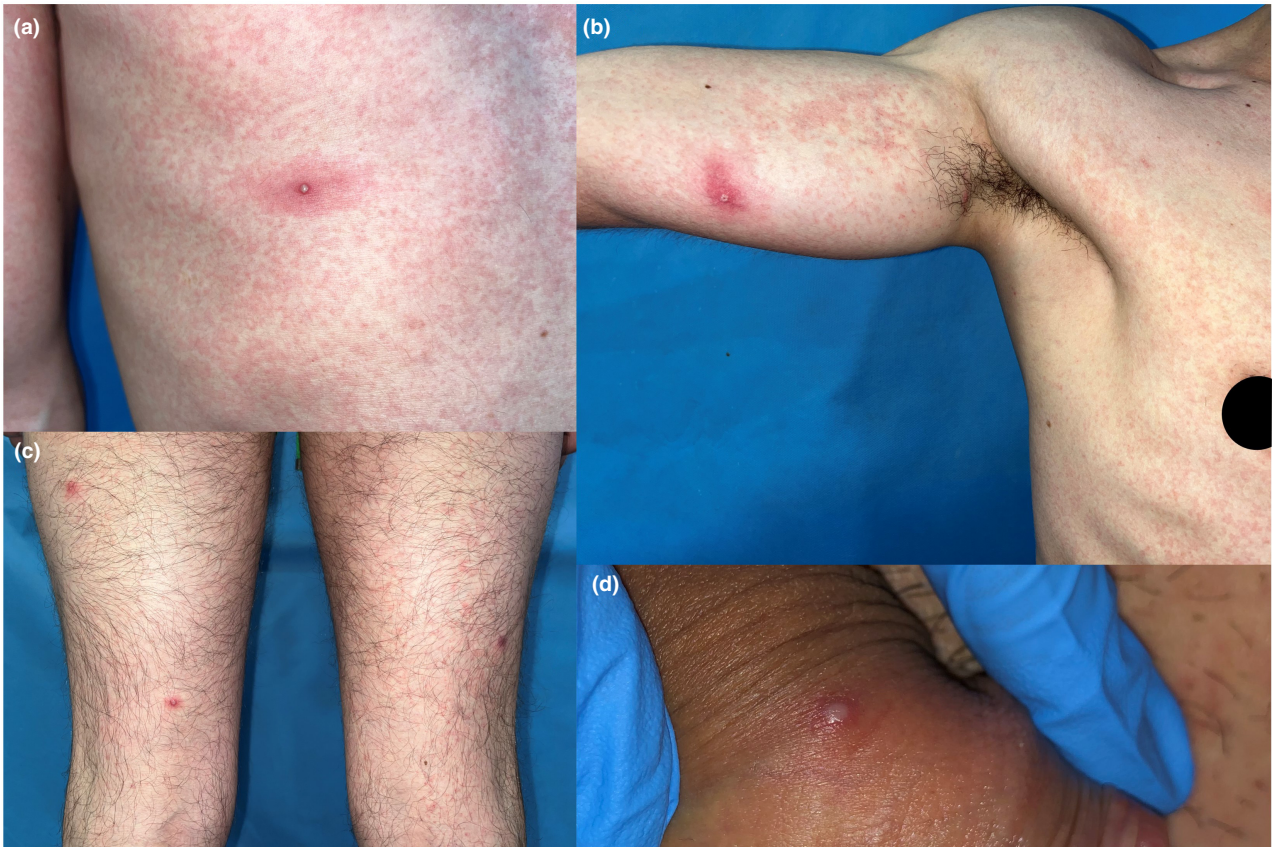


**Figure 1** (a, b, c) Maculopapular exanthem with isolated small pustules over erythematous-edematous plaques are observed, affecting mostly the trunk and proximal limbs. (d) The patient presented as well a non-umbilicated pustule located in the penis body.