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Monkeypox: Regarding a Case

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Abstract | **Case Report**

Monkeypox is an emerging zoonotic disease caused by a DNA virus, the monkeypox virus. It is transmitted to humans through close contact with infected animals or individuals, as well as contaminated inanimate objects. The disease has an incubation period generally ranging from 7 to 14 days and causes various symptoms such as fever, headache, asthenia, myalgia, generalized body aches, lymph node swelling, and skin lesions. Testing is recommended for anyone meeting the definition of a suspected case. Suitable samples include skin lesion swabs, exudates, crusts, or other skin material. Laboratory confirmation relies on nucleic acid amplification tests, such as real-time or conventional polymerase chain reaction (PCR). Monkeypox virus (MPXV) infection is confirmed by considering clinical and epidemiological information. A positive detection using an orthopoxvirus (OPXV) PCR test, followed by specific confirmation of MPXV through PCR and/or sequencing, or direct MPXV detection by PCR in suspected cases, confirms the diagnosis. We report the case of a 30-year-old man from Senegal, residing in Morocco for several years, heterosexual. He presented to the emergency department with a generalized skin rash. Dermatological examination revealed vesiculopustular lesions with an umbilicated center on healthy skin, located on the face, abdomen, back, palms, and genital area, accompanied by asthenia and myalgia. These symptoms appeared seven days after unprotected sexual intercourse. PCR testing on pustule fluid was positive for monkeypox virus (MPXV), confirming the diagnosis of monkeypox.

Keywords: Monkeypox, DNA, Virus, Polymerase chain reaction, Laboratory, Diagnosis.

INTRODUCTION

Monkeypox is a viral disease caused by the monkeypox virus, which belongs to the Orthopoxvirus genus of the Poxviridae family. Two distinct clades are identified: Clade I, found in East and Central Africa, and Clade II, associated with West Africa. The monkeypox virus is transmitted to humans through close contact with an infected person or animal, or by contact with contaminated materials. Laboratory confirmation of monkeypox virus infection is carried out by analyzing skin lesions using the polymerase chain reaction (PCR) method.

CASE REPORT

We report the case of a 30-year-old man, originally from Senegal, who has been residing in Morocco for several years and is heterosexual. He presented to the emergency department with a generalized skin rash. Dermatological examination revealed umbilicated vesiculopustular lesions on healthy skin, affecting the face (Figure 1), abdomen, back (Figure 2), palms (Figure 3), and penis (Figure 4), associated with asthenia and myalgia. These symptoms appeared seven days after unprotected sexual intercourse. Serological tests for HIV, hepatitis B and C, and syphilis were negative. Serologies for CMV, EBV, and HSV indicated a past infection. A skin biopsy was performed on a pustule, and histological analysis showed a widely ulcerated epidermis, replaced by a fibrin-leukocyte block, underlined by a polymorphic inflammatory granulation tissue. Additionally, the dermis was disrupted by a purulent inflammatory infiltrate, rich in altered neutrophilic polymorphonuclear cells, resting on a dense collagen fibrosis base (Figure 5). PCR testing of the pustular fluid was positive for the monkeypox virus (MPXV), confirming the diagnosis of monkeypox. The patient was isolated and received symptomatic treatment, local care with soap and water, proper hydration, as well as nutritional and psychological support. The evolution was favorable, with regression of umbilicated lesions and healing of pustular lesions, although some smallpox-like scars persisted.

Figure 1: Diffuse vesiculopustular lesions affecting the face

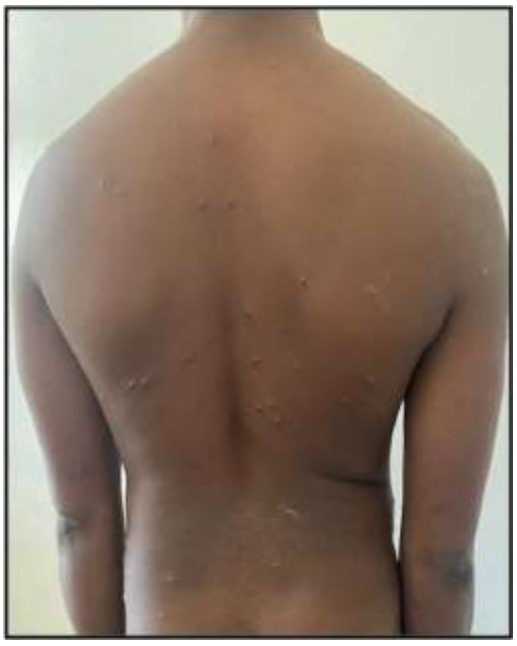

Figure 2: Pustular lesions with a central blackish umbilication on the back

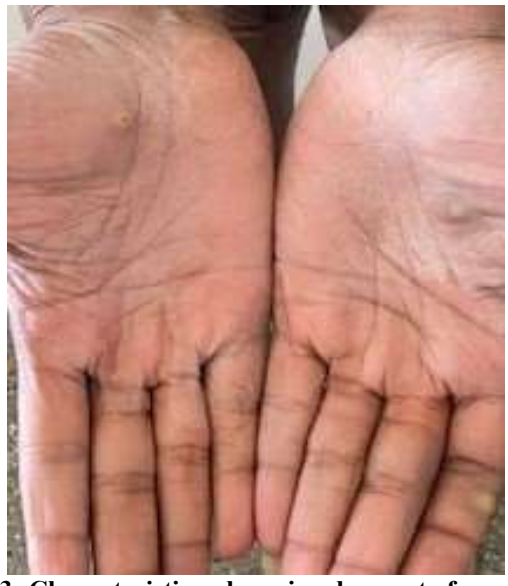

Figure 3: Characteristic palmar involvement of monkeypox

Figure 4: Pustular lesion affecting the glans

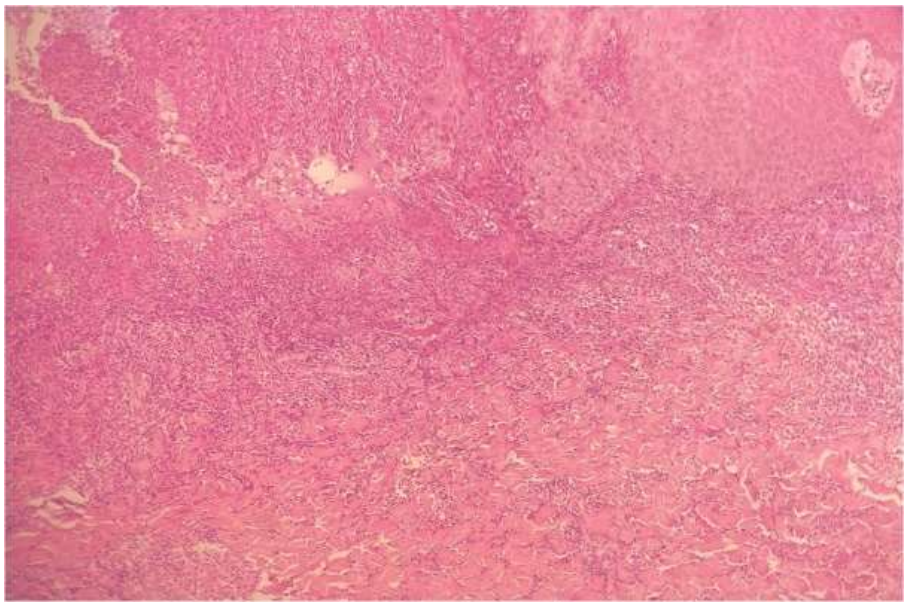

Figure 5: Histological image showing an ulcerated epidermis replaced by a fibrino-leukocytic block, an acanthotic epidermis, and a purulent inflammatory infiltrate

DISCUSSION

Monkeypox is an emerging zoonosis caused by the monkeypox virus (MPXV), a member of the Orthopoxvirus genus in the Poxviridae family. It is a DNA virus related to the smallpox virus [1-5]. Two distinct genetic subtypes are known to cause disease in Central and West Africa. The West African subtype causes a milder form of the disease compared to the Central African (Congo Basin) subtype. Early findings from the current outbreak indicate that the most common and widespread strain is now the West African subtype [3, 5, 6]. Despite its name, monkeypox is primarily found in rodents, such as squirrels, rats, and mice, which are the main reservoirs and transmit the virus to humans. It was named monkeypox because it was first identified in 1958 when it caused a smallpox-like illness in monkeys [7].

The monkeypox virus (MPXV) can be transmitted in various ways and can affect anyone who has close, often skin-to-skin, contact with an infected

person. Transmission can occur through direct contact with the skin lesions, scabs, or bodily fluids of an individual with monkeypox. It can also happen by touching objects, fabrics (clothing, bedding, towels), or surfaces contaminated by an infected person, as well as through inhalation of respiratory secretions. Mother-to-child transmission is also possible during pregnancy via the placenta. Additionally, infection can be contracted from animals carrying the virus, either through bites or scratches, or by handling, consuming meat, or using products from an infected animal [9-19]. An infected person remains contagious from the onset of symptoms until the skin lesions have completely healed, with a new layer of skin forming over them. The duration of the illness typically ranges from 2 to 4 weeks.

The incubation period for monkeypox in humans is typically between 7 and 14 days but can range from 4 to 21 days [8, 11-14, 20]. The illness begins with a febrile phase lasting 1 to 4 days, accompanied by headaches, muscle aches, back pain, and sometimes exhaustion, sweating, fatigue, and skin rashes. Skin lesions usually appear 1 to 3 days after the onset of fever and can manifest on the face, inside the mouth, hands, feet, chest, genitals, anus, and eyes. In some cases, the rash is the first symptom, followed by other manifestations. The number of lesions varies from patient to patient. The lesions go through several stages: they start as macules (flat spots), then become slightly raised papules. They then develop into vesicles filled with clear fluid, which gradually turns yellowish, forming pustules. Eventually, the pustules dry out and form scabs that naturally fall off. Once the scabs have disappeared, the person is no longer considered contagious. The disease can be more severe in immunocompromised individuals. The most common complication is scarring from skin lesions. However, according to a 2009 study on monkeypox in humans, more serious complications, such as respiratory distress and bronchopneumonia, can occur. Unvaccinated patients are at a higher risk of complications and severe outcomes compared to those who have been vaccinated.

Ocular infections may also develop, leading to corneal scarring and, in some cases, permanent vision loss [1, 5, 8, 13, 15, 18, 19, 21-23]. A distinguishing feature that differentiates monkeypox from classical smallpox is the presence of lymphadenopathy. Diagnostic testing for MPXV must be conducted in a properly equipped laboratory by technicians trained in technical protocols and safety measures. The use of polymerase chain reaction (PCR) systems, whether real-time or conventional, is recommended to detect MPXV and/or identify specific sequences of its viral DNA. Post-PCR sequencing can also be performed for a more in-depth analysis. Several teams have developed validated PCR protocols for detecting Orthopoxvirus (OPXV) and, more specifically, MPXV. Some of these protocols allow differentiation between the Congo Basin and West African clades (Fig 1) [8, 19, 23-28].

In the absence of specific therapeutic recommendations and an approved treatment, the management of monkeypox is generally based on supportive care. This includes local wound care with occlusive wet dressings to prevent bacterial superinfections, the application of ointments when lesions reach the scabbing stage, lubrication or topical antibiotics for ocular involvement, rehydration and nutritional supplementation, as well as pain management and targeted treatment of any complications [29].

CONCLUSION

Monkeypox represents a growing health threat that requires constant vigilance and an appropriate global response. Although this disease is less common than other viral infections, it can lead to severe complications, particularly for immunocompromised individuals. Implementing preventive measures such as strict surveillance, vaccination, and public education is essential to limit its spread. Additionally, strengthening research and diagnostic capabilities is crucial to better understand the virus and prevent future outbreaks. Given the ongoing spread of this zoonotic disease, an international collaborative approach remains vital to controlling its transmission and protecting public health.

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