



## Clinical Characteristics of Monkeypox

### Maymun Çiçeğinin Klinik Özellikleri

  Şafak Kaya

University of Health Sciences, Gazi Yasargil Training and Research Hospital, Department of Infectious Diseases and Clinical Microbiology, Diyarbakir, Turkey

ORCID ID: Şafak Kaya <https://orcid.org/0000-0001-9912-7340>

\*Sorumlu Yazar / Corresponding Author: Dr. Safak Kaya, e-posta / e-mail: ksafak76@gmail.com

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#### Öz

Maymun çiçeği, Poxviridae ailesinden Orthopoxvirus cinsine ait Monkeypox virüsünün neden olduğu zoonotik bir hastalıktır. Ateş, yorgunluk, halsizlik, baş ağrısı, döküntü ve lenfanopati ile karakterize bir klinik sergilemektedir. Monkeypox, genellikle 2-4 hafta süren semptomlar ile kendi kendini sınırlayan bir hastalıktır. Bunun yanı sıra ağır vakalar da ortaya çıkabilmektedir. Bu çalışmanın amacı maymun çiçeğinin klinik özelliklerini gözden geçirmektir.

Anahtar Kelimeler Maymun Çiçeği, Klinik, Komplikasyon

#### Abstract

Monkeypox is a zoonotic disease caused by the Monkeypox virus, which belongs to the Orthopoxvirus genus of the Poxviridae family. It exhibits a clinical condition characterized by fever, fatigue, malaise, headache, rash and lymphopathy. Monkeypox is a self-limited illness with symptoms usually lasting 2-4 weeks. In addition, severe cases may occur. The aim of this study is to review the clinical features of monkeypox.

Keywords Monkeypox, Clinic, Compication

## INTRODUCTION

Monkeypox is a viral zoonotic infection. It presents with a smallpox-like rash. However, its person-to-person spread and mortality rate is significantly lower than with smallpox. Monkeypox virus was first identified as a human disease agent in the Democratic Republic of Congo in the 1970s.<sup>1</sup> The prevalence of this disease, which is seen in 11 countries with tropical rainforests in Central and West Africa, especially in Nigeria and the Democratic Republic of Congo, is not known exactly. The disease is occasionally transmitted from the African continent to other parts of the world through infected animals or humans, where regional clusters of cases are observed in which a small number of people are affected. However, since the number of cases detected outside of Africa has so far increased to exceed the total number of cases seen outside of Africa, it has drawn the attention of the World Health Organization (WHO) and the scientific community. A new outbreak of monkeypox was first reported in Europe in May 2022.<sup>2</sup> On 23 July 2022, WHO declared this monkeypox epidemic a public health emergency of international importance.<sup>3</sup> In this review, I aimed to present the clinical features of Monkeypox.

Most patients with monkeypox were symptomatic during the global epidemic that emerged in 2022. Asymptomatic infections appear rare.<sup>4,5</sup> The clinical appearance of monkeypox is similar to smallpox, but less severe than smallpox in terms of complication rate, mortality rate and scar development.<sup>6,7</sup>

The incubation period of monkeypox virus infection is usually 5 to 13 days but can range from 4 to 21 days. In a study of 29 patients, it was reported that the estimated incubation period after exposure to the disease was 12 days. People with a history of animal bites or scratches were found to have a shorter incubation period than those with a history of contact (9 vs 13 days, respectively).<sup>8-9</sup> In addition, the duration of symptoms and signs is estimated at 2 to 5 weeks. The disease begins with non-specific symptoms

and signs such as fever, chills, headache, lethargy, asthenia, lymph node swelling, back pain, and muscle pain, before rash appears. The prodromal period, which typically lasts up to five days, is characterized by fever, severe headache, lymphadenopathy, myalgia, and fatigue. Lymphadenopathy can be seen all over the body or localized to several areas. However, during the monkeypox epidemic that began in May 2022, some patients had genital, rectal, and/or oral lesions without an initial prodrome.<sup>8</sup> One to 5 days after the onset of fever, rashes of varying sizes appear first on the face, then on the body, hands, legs and feet. The rash tends to be more intense on the face, but usually develops on the palms and soles. The rash starts as a macule and then turns into papules, vesicles, and pustules. Finally, it crusts and over time, the crusts fall off with healing. Pharyngeal, conjunctival and genital mucositis may also be seen. Lesions typically begin to develop simultaneously and co-evolve elsewhere in the body.<sup>10</sup>

However, during the global monkeypox epidemic that began in May 2022, not all lesions were at the same stage of development.<sup>11</sup> The rash associated with monkeypox is often described as painful, but may become itchy during the healing phase.<sup>10</sup>

It is very difficult to distinguish the clinic of monkeypox from smallpox. Although clinical symptoms are milder than smallpox, it can be fatal. Complications such as secondary bacterial infections, bronchopneumonia, encephalitis, corneal infection causing vision loss, and diarrhea with dehydration have been reported. Mortality rates in epidemics vary between 1% and 10%. Deaths occur mostly among young adults and children. Especially those who are immunocompromised are at risk of serious illness. Lymphadenopathy occurs in up to 90% of patients and appears to be a clinical feature that distinguishes human monkeypox from smallpox.<sup>12-16</sup> In individuals vaccinated with smallpox vaccine, it provides some protection against monkeypox infection and the clinical course may be milder. Monkeypox is more common among those who have

not been vaccinated against smallpox. Compared to the vaccinated, the disease described for the unvaccinated is more severe, more mortal, and the rash is pleomorphic.<sup>17-21</sup> The first disease to be considered in the differential diagnosis is chickenpox with lesions on the palms and soles. The lesions in chickenpox are more superficial and occur in clusters of the same stage, more intensely on the body than on the face and extremities.<sup>7,22</sup>

Monkey pox can be confused with chickenpox, molluscum contagiosum, measles, rickettsial infections, bacterial skin infections, anthrax, scabies, syphilis, and drug reactions. Therefore, these should be considered in the differential diagnosis. The feature that distinguishes monkeypox from smallpox and chickenpox is lymphadenopathy.<sup>23</sup> In the study in which 7 patients followed up for Monkeypox virus infection in the UK between 15 August 2018 and 10 September 2021 were examined; 5 of the cases had LAP and 7 had rashes. All of the patients were young and had no previous comorbidities, and none of them had smallpox vaccination. However, most experienced a relatively mild course of illness and all recovered. Only two of the seven patients had sore throat.<sup>24</sup>

During the 2017-2018 outbreak in Nigeria, a report of 122 human monkeypox cases was identified. The rash was present in all patients and included all parts of the body, with the face most affected; fever, pruritus, headache, and lymphadenopathy were also common.<sup>25</sup>

During the 2003 United States outbreak, a detailed review of 34 patients found that the predominant signs and symptoms were rash (97%), fever (85%), chills (71%), lymphadenopathy (71%), headache (65%), and myalgia (56%) reported. The onset of fever was approximately two days before the rash, but the median duration of fever was shorter than the rash (8 and 12 days, respectively).<sup>19</sup> Atypical presentations have been described during the 2022 pandemic. Some cases started with a rash that appeared on the genitals, then spread to the face and body;<sup>8</sup> in other

cases, the lesions did not involve the face or extremities at all. Patients also presented with visible perianal vesicular, pustular, or ulcerative skin lesions and anorectal pain, tenesmus, and rectal bleeding found to be associated with proctitis. Lesions have sometimes been at different stages of progression in a particular anatomical region. Prodromal symptoms such as fever, malaise, headache, and lymphadenopathy did not always precede the rash, and in some cases no prodrome was reported.<sup>11</sup>

### **Disease course and prognosis**

For most people, monkeypox is a self-limiting illness with symptoms lasting two to four weeks. However, some patients may develop serious illness.

### **Risk factors for severe disease**

Severe cases of monkeypox are more common among children and are related to the degree of exposure to the virus, the presence of underlying disease, and the severity of complications.<sup>19,26</sup>

### **Hospitalization rate**

During the 2022 global pandemic, few hospitalizations were reported, most of them for the purpose of isolating the patient.<sup>27</sup> Other reasons for hospitalization include the need to provide adequate pain management and treat secondary infections.<sup>4,28,29</sup>

### **Mortality rate**

The mortality rate associated with monkeypox has varied. In Central Africa, the mortality rate has been reported as about 10 percent, and deaths usually occur in the second week of illness.<sup>30,31</sup> In contrast, there were no deaths in the 2003 outbreak in the United States. In the case series of seven patients diagnosed with monkeypox between 2018 and 2021 in the UK, all patients made a full recovery.<sup>24</sup> As of mid-July 2022, no deaths were reported in non-endemic countries during the 2022 outbreak, but new cases continue to emerge.

### **Asymptomatic infection**

Seroepidemiological studies in Africa suggest that some patients may have subclinical or asymptomatic monkeypox infection.<sup>17</sup> Asymptomatic infections were rare in the 2022 outbreak.<sup>4,5</sup> As an example, in a June 30, 2022 update from the European Center for Disease Prevention and Control, only one of 1435 patients reported with monkeypox was listed as “asymptomatic”.<sup>4</sup> The potential for transmission from a person with an asymptomatic infection is uncertain. In an unpublished preprint study conducted at the beginning of the 2022 outbreak in Europe, preserved anogenital and oropharyngeal specimens from 224 men tested for gonorrhea and chlamydia were PCR tested for monkeypox; Three men had anorectal specimens that were positive for monkeypox DNA, although no symptoms or exposure to a person with monkeypox was reported.<sup>5</sup> While the finding raises concern that people with mild illness may contribute to continued transmission, none of the three men’s contacts developed clinical monkeypox, and a follow-up monkeypox test was negative 21 to 37 days after the initial positive sample.

As a result, the incubation period is usually 5 to 13 days. Patients present with a systemic illness including fever, chills, and myalgia followed by a typical rash. The rash typically starts as macules and evolves into papules, vesicles, and then pustules. The lesions eventually crust over and these crusts dry up and then fall off. However, during the monkeypox epidemic in 2022, some patients had genital, rectal and/or oral lesions without an initial prodrome.

### **Conflict of Interest**

There is only one author. The author declared no conflicts of interest with concerning to the authorship and/or publication of this article

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#### Kaynaklar

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