



## Prevalence of Human Monkeypox virus

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## انتشار فايروس جدري القردة في الانسان

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### ABSTRACT

Monkeypox virus appeared in the countries of Central and West Africa. Two distinct species have been identified, the West African type and the Congo type, also known as the Central African type. In the outbreak of monkeypox was first discovered in 1958, while the first human case of the disease was diagnosed in 1970 in the Republic of the Congo in a 7-year-old child. The incubation period ranges from 5-21 days. Monkeypox is transmitted to humans by contact with the virus that causes it through; Mouth and contact with infected animals, including mice, rats, and squirrels, common for monkeypox transmission in Africa, during animal bites from infected animals to humans. Touching the fur or skin of animals, or what comes out of them from blood or bodily fluids. In the case of monkeypox, the virus is transmitted from the mother to the fetus. The main symptoms of monkeypox are similar to the symptoms of smallpox, but they are milder, with the only difference being swollen lymph nodes, fever, headache, backache, cough, sore throat, stuffy nose, fatigue, exhaustion and sweating. The rash of monkeypox begins to appear after 1 - 3 days from the patient with fever, which appears on the face first, then the body begins to spread to the rest of the parts, such as the hands, legs, inside the mouth, genitals, conjunctiva, and the cornea. A complication of monkeypox is Secondary bacterial infection, such as pneumonia, encephalitis, and eye infection.

**Key words:** Monkeypox virus, Prevalence, outbreak



## الخلاصة

ظهر جدري القروء في بلدان وسط وغرب إفريقيا. تم التعرف على نوعين متميزين ، نوع غرب أفريقيا والنوع الكونغو ، والمعروف أيضًا بنوع إفريقيا الوسطى ، تم اكتشافه لأول مرة في عام 1958 ، بينما تم تشخيص أول حالة بشرية للمرض في عام 1970 في الجمهورية من الكونغو في طفل يبلغ من العمر 7 سنوات ، وانتشر جدري القروء بشكل أساسي في دول وسط وغرب إفريقيا ، حيث تم تسجيل المرض خارج قارة إفريقيا 3 مرات فقط بحلول عام 2022 ، تم العثور على أدلة على جدري القروء في الحيوانات بما في ذلك السناجب والجرذان . تتراوح فترة الحضانة من 5-21 يومًا ، وينتقل جدري القروء للإنسان عن طريق الاتصال بالفيروس المسبب له ؛ الفم والاتصال بالحيوانات المصابة ، بما في ذلك الفئران والجرذان والسناجب ، وهو أمر شائع لانتقال جدري القروء في إفريقيا ، أثناء عضات الحيوانات من الحيوانات المصابة إلى البشر. ملامسة فرو أو جلد الحيوانات أو ما يخرج منها من الدم أو سوائل الجسم. ينتقل الفيروس من الأم إلى الجنين. تتشابه الأعراض الرئيسية لجدري القروء مع أعراض الجدري ، لكنها أكثر اعتدالًا ، والفرق الوحيد هو تورم الغدد الليمفاوية والحمى والصداع وآلام الظهر والسعال والتهاب الحلق وانسداد الأنف والتعب والإرهاق والتعرق. يبدأ الطفح الجلدي لجدري القروء بالظهور بعد 1-3 أيام من المريض المصاب بالحمى التي تظهر على الوجه أولاً ، ثم يبدأ الجسم بالانتشار إلى باقي الأجزاء مثل اليدين والساقين وداخل الفم والأعضاء التناسلية. والملتزمة والقرنية. من مضاعفات جدري القروء عدوى بكتيرية ثانوية ، مثل الالتهاب الرئوي والتهاب الدماغ والتهاب العين.

**الكلمات المفتاحية:** فايروس، جدري القروء، انتشاره.

## INTRODUCTION

Monkeypox is a rare disease that is an indication of monkeypox, a disease similar to the disease (smallpox) that causes the Variola virus, but the form cannot be found as in the case of smallpox.

## History and outbreak of monkeypox virus

Smallpox was first discovered in 1958, while the first case of the disease in humans with 7 years old was diagnosed in 1970 in the Republic of the Congo [1,2]. More than 400 cases were reported in humans between 1970 and 1986, and small viral outbreaks cause deaths by 10%, hence the rate of secondary infection varies Person-to-person transmission is relatively similar to the injuries that occur in central and western tropical Africa. The first outbreak of the virus was reported in the United States in 2003 in central western Illinois, Indiana and Wisconsin, with one infection detected in New Jersey, which came from prairie dogs that were infected with the virus as a result of contact with a gambian rodent [6].



Monkeypox was mainly spread in the countries of Central and West Africa, where the disease was recorded outside the continent of Africa only 3 times by 2022, and they are as follows: 2003 in the USA.

2018 in England.

2021 in Texas and Maryland [1,2].

*Smallpox* started, Italy, Portugal, Spain, Sweden, Britain, USA. Only one account in Switzerland.

**2017 outbreak in Nigeria;** Reports said monkeypox has spread around southeast and south-south Nigeria, some states and the federal government in Nigeria is currently looking for a way to contain it, in addition to finding a treatment for infected patients. The disease has spread to Lagos, Akwa Ipium, Bayelsa, Cross River, Delta, Wanogo, Imo, Ekiti, Ibadan, Nasarawa, Niger, rivers and capital territory federation.

**Disease outbreak in 2022;** Monkeypox spread to Spain in May 2022, with about 80 confirmed cases, 11 in Britain, and 50 other cases under examination and verification in 11 other countries. It is another focus of monkeypox infection, and the World Health Organization said that there is no monkeypox vaccine available, although the previous vaccination against *smallpox* proved highly effective in preventing monkeypox as well (7,8).

### Types of monkeypox virus

There are two types or biological branches of monkeypox virus, which divide this virus into the following two groups:

- Central African monkey pox virus (Congo Basin), this type is characterized by causing more severe symptoms than the other type, and causing higher rates of death, as it is easier to transmit.
- West African monkeypox virus, which is currently spreading, and which causes less severe symptoms than the other type, and the process of transmission from one person to another through contact is limited [4,5] .



## Causes of monkeypox

Monkeypox develops as a result of infection with the monkeypox virus, or what is known (orthopoxvirus), which is a virus belonging to the family of poxviruses (Poxviridae) [2] .

The natural source of monkeypox virus is still unknown, but it is believed that species of African rodents play a role in transmitting this virus.

## Prevalence of Monkeypox

Monkeypox spreads to humans through contact with the virus that causes either:

Direct contact with another infected person, including:

- Touching the rash and scales on the affected person's skin.
- Touching fluids that come out of the infected person's skin.
- Respiratory secretions, during prolonged face-to-face contact, but the mode of transmission of monkeypox is uncertain.
- Kissing, hugging, having sex, and touching infected animals, including mice, rats, and squirrels, is a common method of monkeypox transmission in Africa, if:
- Bites of these infected animals to humans.
- Touching the fur or skin of these animals or what comes out of them from blood or bodily fluids.
- Eating meat from infected animals that has not been cooked properly.
- Touching surfaces and objects contaminated with the virus, such as clothing and bedding [1-3] .
- Also, if monkeypox occurs to a pregnant woman, the virus can be transmitted from the mother to the fetus [1] .

A monkeypox patient becomes contagious, but the infected person is not contagious during the incubation period of the virus, but becomes so as soon as symptoms appear and until the scales of smallpox lesions begin to fall off. Thus, a person with monkeypox is usually contagious for four to five weeks after symptoms appear.



## Monkeypox symptoms

Although the symptoms of monkeypox are similar to those of smallpox, they are milder, with the only difference being swollen lymph nodes from monkeypox [1,4] .

The incubation period for monkeypox virus usually ranges from 6-13 days, but it can also range from 5-21 days before symptoms start [5] .Early symptoms of monkeypox can include:

- headache fever;
- muscle pain;
- Back pain.
- Swollen lymph nodes.
- Chills.
- Fatigue and tiredness.
- sweating;
- Cough and sore throat.
- stuffy nose;
- nausea [2-4]

As for a rash (monkeypox), it usually begins to appear 1-3 days or more after the patient has a fever, which often appears on the face first, and then begins to spread to the rest of the body, such as the hands, legs, inside the mouth, and genitals , conjunctiva, and cornea [3,5]

However, it should be noted that not all patients suffer from all symptoms of monkeypox, for example, an individual may suffer from only the rash without the other symptoms [1,4] ,while Pox usually lasts 2-4 weeks [1] .

## Monkeypox diagnosis

It may be difficult to diagnose monkeypox because of its great similarity with smallpox and measles, but the diagnosis is made by performing a physical examination by a specialist doctor, where monkeypox can be distinguished from other types of smallpox by swollen lymph nodes in the case Monkey pox [4] .



The diagnosis may also perform some laboratory tests and tests to verify the type of virus that causes the disease, including: The polymerase chain reaction (PCR), ELISA assay. And Western blot examination [2,4]. These tests help to detect antigens, either the virus itself or the antibodies that the body produces to fight the virus that are present in the patient's blood or tissues in the lesions that appear on the surface of the patient's skin [2,4].

### Monkeypox treatment

There is still no effective and safe treatment for monkeypox, but the smallpox vaccine has been used to combat the disease due to the similarity of the two viruses that cause these diseases [1].

Some antiviral drugs such as cidofovir and tecovirimat may be used, however, only in patients with life-threatening symptoms [1,2]. In addition, immunoglobulin therapy is used to control outbreaks of monkeypox [2]. Severe monkeypox is usually treated in a hospital, where the patient may be placed on a ventilator [2,3].

### Prevention of monkeypox

Adhering to certain preventative measures can help reduce or prevent monkeypox infection. These measures include:

Receiving the smallpox vaccine, as reports indicate that the smallpox vaccine reduces the risk of developing monkeypox, and can be used especially for individuals at high risk of contracting the disease. Avoid contact with animals that may carry the monkeypox virus, which includes sick animals, or animals found dead in areas where the virus is common.

Avoid contact with any material that has come into contact with animals or humans infected with the virus, such as bedding, clothing, etc.

Isolate patients with monkeypox from other people at risk of contracting the disease.

Practicing good hygiene after contact with infected humans or animals, such as washing hands thoroughly with soap and water, or using alcohol sterilizers, Practice safe sex, using condoms. Use personal protective equipment when caring for sick people [1,4,5].



## Complications of monkeypox

A possible complication of monkeypox is secondary bacterial infections, such as pneumonia, encephalitis, and eye inflammation. The patient may also become dehydrated [2,4]. Monkeypox is not fatal, as studies indicate that the death rate associated with monkeypox in central and western Africa among people who do not enjoy good medical care may reach 2%, and the risk of death from monkeypox increases in the event of complications [2]. Also, after the recent onset of monkeypox, no deaths from the disease have been reported, possibly because most infections are caused by the less severe form of monkeypox, West African monkeypox virus [4].

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## Conflict of interests.

There are non-conflicts of interest.

## References

- [1] Centers for Disease Control and Prevention. Monkeypox. Retrieved on the 28th of July, 2022. (<https://www.cdc.gov/poxvirus/monkeypox/index.html>)
- [2] Melissa Conrad Stöppler. Monkeypox. Retrieved on the 28th of July, 2022. (<https://www.medicinenet.com/script/main/art.asp?articlekey=147142>)
- [3] National Health Service. Monkeypox. Retrieved on the 28th of July, 2022. (<https://www.nhs.uk/conditions/monkeypox/>)
- [4] Cleveland Clinic. Monkeypox. Retrieved on the 28th of July, 2022. (<https://my.clevelandclinic.org/health/diseases/22371-monkeypox>)
- [5] World Health Organization. Monkeypox. Retrieved on the 28th of July, 2022. (<https://www.who.int/news-room/fact-sheets/detail/monkeypox>)
- [6] Meyer, H.; Mathilde Perrichot; Markus Stemmler; Petra Emmerich; Herbert Schmitz; Francis Varaine; Robert Chungu; Florimond Tshioko; Pierre Formy "Outbreaks of Disease Suspected of Being Due to Human Monkeypox Virus Infection in the Democratic Republic of Congo in 2001", Journal of Clinical Microbiology, American Society for Microbiology, 40 (8): 2919–2921, 2002 doi :10.1128/JCM.40.8.2919-2921.2002, PMC 120683, PMID 12149352.



- [7] "Monkeypox is spreading in Britain with the emergence of 11 new cases. Know the medicines and vaccines", Youm7, May, 2022,
- [8] "Monkeypox . 80 confirmed cases and Spain suspects a new focus of gay parties", mubasher.aljazeera.net, archived from the original on May, 2022