

Human Monkey Pox Virus (Zoonosis disease)



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Abstract

The recent outbreak of human monkeypox disease which is generally found in West and Central Africa where there are equatorial rainforests and the animals that may contain the virus completely live. These days the outbreak of human monkeypox disease spread in other countries outside west and central Africa where the monkeypox virus is endemic, due to the travelers and tourists who touched with the infected wild animals and imported them to their countries.

Keywords: monkeypox, orthopoxvirus, smallpox, Microscope, Imvanex

Introduction

Human Monkeypox is a zoonotic viral disease which has symptoms similar to smallpox [1,2]. It is an endemic disease in western and central Africa and is most distributed in the Democratic Republic of Congo [2]. It is caused by Orthopoxvirus, a genus that includes cowpox, camel pox, vaccinia, and variola viruses [3,4]. The virus is the most Orthopox virus impacting human populations since smallpox removal, confirmed by the World Health Organization in 1980 [5]. It is a zoonotic viral disease that means the virus can spread from animal to man, also from person to person [6]. Clinical separation of the disease from varicella and smallpox is difficult. Scientists at the Centers for Disease Control and Prevention (CDC) are following up on multiple cases of monkeypox that have been reported in several countries that haven't any cases of monkeypox disease.

Solid immunity to the monkeypox virus was previously carried out with vaccinia vaccination; however, removing smallpox and subsequent lack of vaccination efforts flagged the way for monkeypox to gain clinical relevance [5]. Furthermore, because most conditions of monkeypox take place in country sides. Africa, suspected underreporting may translate to an underestimation of the potential threat of this pathogen [7]. Animal carriers include rodents and primates as the natural reservoirs while first identified in captive monkeys. Infections have occurred in monkeys, rats, mice, squirrels, prairie dogs, and humans [5,8]. Recently in Sudan the number of confirmed cases has risen to 7 in twenty first of September 2022 by the Sudanese health officials.

History of the Disease

Monkeypox virus was first discovered and isolated in 1958 when monkeys imported from Singapore to a Denmark research facility became ill [1]. However, the first positive human case was in 1970 when the virus was isolated from a child in the Democratic Republic of Congo doubtful to have smallpox [9]. In June 2003 the first condition of MPV in the Western Hemisphere was in the US. Historical evidences for monkeypox infection such as recent travel to endemic areas, interaction with wild animals imported from endemic areas, and providing care to an infected animal or human help build a differential diagnosis, but clinical signs are critical.

Causative agents

1. The monkeypox virus belongs to
2. Family: Poxviridae
3. Subfamily: chordopoxvirinae
4. Genus: orthopoxvirus
5. Species: Monkeypox virus.

Through Electron Microscope, the monkeypox virus is relatively large (200-250 nanometers) so it can be seen by a Light Microscope. Poxviruses are brick-shaped, surrounded by a lipoprotein envelope with a linear double-stranded DNA genome [3,4].

Transmission of the virus

People with monkeypox disease are infectious while they have symptoms (normally between two and four weeks) after secondary viremia. So, during the infectious period, the virus has two ways to spread and cause infection, first horizontal transmission such as physical contact with a person who has symptoms or infected animals. Horizontal transmission can occur through contact with the rash, body fluids such as (blood from skin lesions, pus, and fluid) or respiratory droplets of infected animals directly or indirectly via contaminated fomites and scabs are particularly infectious. Person equipment such as bedding, clothing, towels, and utensils. Second vertical transmission, the virus can spread from the pregnant mother to the fetus through the placenta or suckling. Complicated or chronic diseases decrease the person's immunity to be susceptible to the infection orthopoxvirus reflects an increasing threat of disease spread among humans [6].

Clinical features

Primary symptoms include acute headache, fever, fatigue, myalgia, back pain, and lymphadenopathy is a key feature in distinguishing human monkeypox from smallpox. After one to two days of the start of the fever, mucosal lesions start in the mouth, then followed by skin lesions on the face and extremities (including palms and soles), they can also be found on the genital and eyes. The rash may or may not spread to the rest of the body, and the total number of lesions on one person may vary from a small amount to thousands [10].

Lesions remain in the pustular stage for 5 to 7 days before crusts begin to compose. After 7 to 14 days crusts form, and the case resolves around 3 to 4 weeks after symptom onset in most cases and remove away on their own without treatment. After all, crusts fall off, infected individuals are no longer believed contagious [11]. In suckling babies and people with underlying immune deficiencies or under chronic disease, the disease develops into a complicated infection and may lead to serious symptoms and death. The severe infections show pneumonia, eye infections that can lead to loss of vision, and whole skin lesions.

Control and treatment

The infected people should be kept in isolation, and they should wear a medical mask until lesions are covered as much as

rationally possible and all lesion crusts have spontaneously fallen off and new intact skin has formed. The healthy workers should avoid direct contact with them. An antiviral that was developed to treat smallpox (tecovirimat, commercialized as TPOXX) was also approved for the treatment of monkeypox in January 2022. A novel vaccine that was developed for smallpox (MVA-BN, also known as Immune, Imvanex, or Jynneos) was approved in 2019 for use in preventing monkeypox and is not yet widely available. WHO is working with the manufacturer to improve access.

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