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Monkey Pox- An Overview

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ABSTRACT
Monkey pox was initially discovered in 1970 in central Africa and has historically troubled some of the world's poorest and most vulnerable groups. Humans can contract the monkey pox virus through animal attacks or direct contact with contaminated bodily fluids. Fever, headache, general malaise and fatigue, and swollen lymph nodes all are early symptoms in individuals, two weeks after infection. Centers for Disease Control and Prevention recommends that immune globulin be considered for prophylactic use in people who have been exposed to the monkey pox virus and have severe cellular immunodeficiency and are not eligible for smallpox vaccination.

INTRODUCTION

Monkey pox is a zoonotic disease caused by an ortho-pox virus related to variola virus (smallpox)called the monkey pox virus[1]. In 1958, monkey pox was observed in experimental monkeys for the first time. In Central and West Africa, the virus is more commonly seen in monkeys and rodents, but monkey pox has proven to be particularly hazardous in children, with fatality rates as high as 10% in certain epidemics[2].

It was initially discovered in 1970 in central Africa[1] and has historically troubled some of the world's poorest and most vulnerable groups[3, 4].

Humans can contract the monkey pox virus through animal attacks or direct contact with contaminated bodily fluids[2].

It can also be spread from one person to another by extended physical contact, which is most common among family members[2]. During direct and prolonged face-to-face contact, the virus can be transferred between humans via respiratory droplets. Monkey pox virus can also be transferred through direct touch with an infected person's bodily fluids, mucosa or non-intact skin contact with open rash lesions, or virus-contaminated objects such as bedding or clothing[5, 6].

Monkey pox has been reported sexually, although very often, in the literature. In their study on the 2017 human MPX outbreak in Nigeria, Ogoima et al.[7] speculated that sexual transmission was a probable route of infection because it comprised close skin-to-skin contact during sexual intercourse or transmission via genital secretions.

Fever, headache, general malaise and fatigue, and swollen lymph nodes all are early symptoms in individuals, two weeks after infection. A few days later, rash of raised pimples appear on the face and body. The crusts finally break off, and the sickness takes two to four weeks to resolve. The only step that can be taken is, to relieve the symptoms. In order to contain outbreaks, patients must be isolated and stringent hygiene must be observed around them. Vaccination with Jynneos (Imvanex, or Imvamune), a messenger RNA (mRNA) vaccine, can prevent infection[2].

CLINICAL FEATURES OF MONKEY POX

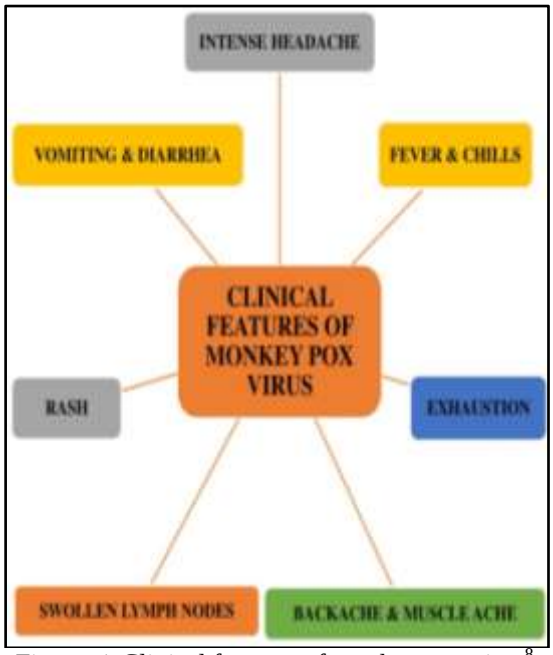

Figure: 1-Clinical features of monkey pox virus[8]

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NATURAL HISTORY AND PATHOGENESIS OF MONKEY POX

Monkey pox develops with an infection of the dermisor the respiratory epithelium. Primary viremia and systemic infection are result of the virus spreading through the lymphatic system. A secondary viremia causes epithelial infection, resulting in skin and mucosal sores. The virus can be transferred to close contacts through oropharyngeal secretions as a result of replication on mucosal surfaces. Factors that influence the likelihood of transmission includes the density of oropharyngeal lesions, the proximity and duration of contact, and virus persistence despite host immune responses.Monkey pox virus has devised a method to evade host immune responses, like other poxviruses.

Based on probable similarities with variola virus, monkey pox virus is expected to be stable on fomites and the quantity of virions necessary for infection is expected to be low. Monkey pox strains in western Africa appear to be more weakened and less transmissible than those in the Congo basin[9]. The incubation period is 10–14 days from the exposure time to the onset of clinical symptoms and signs. Patients are infectious and should be isolated, during the first week of rash[10]. Monkey pox virus infection is usually symptomatic, although it can also be asymptomatic. In the Democratic Republic of Congo, serologic studies of household contacts of acutely infected individuals suggest that around 28% of all monkey pox infections are subclinical. In the United States, immunologic evidence of monkey pox virus exposure have recently been discovered in multiple asymptomatic contacts of sick people[11, 12]. The natural history of disease may be altered by HIV and other diseases that inhibit cell-mediated immunity. There is no evidence on monkey pox, but other poxvirus infections, such as vaccinia and molluscum contagiosum viruses, are more severe in HIV-positive people.

PREVENTION AND TREATMENT

In the absence of external assistance, access to basic health care in isolated forested areas of western and central Sub-Saharan Africa can be difficult, and monkey pox prevention and treatment are severely limited. Pre-exposure smallpox vaccination provided around 85 percent protection against monkeypox[13], according to data from the Democratic Republic of Congo in the early 1980s. In the United States, however, prior smallpox immunization did not confer complete protection against monkeypox[11]. Pre-exposure smallpox vaccination is recommended for field investigators, veterinarians, and healthcare workers who are investigating or caring for patients with probable monkey pox, according to the Centers for Disease Control and Prevention. Although extrapolation from post-exposure vaccination for the prevention of smallpox shows vaccination may prevent or reduce the severity of monkey pox disease, no data on the efficacy of post-exposure vaccination with vaccinia virus is known.

As a result, the Centers for Disease Control and Prevention recommends post-exposure smallpox immunization within four days following monkey pox exposure, with vaccination being considered within two weeks of exposure. Monkey pox patients receive supportive care. The effectiveness of vacciniaimmune globulin for the prevention or treatment of monkey pox complications is unknown; however, the Centers for Disease Control and Prevention recommends that immune globulin be considered for prophylactic use in people who have been exposed to the monkey pox virus and have severe cellular immunodeficiency and are not eligible for smallpox vaccination[14]. In vitro and animal studies, Cidofovir shows anti-monkey pox viral activity[15]. Although it is unknown if humans may benefit, the Centers for Disease Control and Preventionrecommends that Cidofovir therapy be investigated in those who have severe monkeypox[14].

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