

Monkeypox Infections

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ABSTRACT

Monkeypox infections are emerging as a new threat and as a great challenge for the public health professionals. Both clinicians and Laboratory scientists need to be aware of this infection and its epidemiology for its proper management and containment.

Keywords: Monkeypox; Fever; Rash

Introduction

Monkeypox virus is a member of the Poxviridae family. Although the name is such, primates are not the major reservoirs of the infections. Human infections are linked with exposure with rodents like squirrels, abundant in the rain forests of tropical Africa [1]. Monkeypox was discovered for the first time in 1970 in a 9-year-old boy. Monkeypox has till now caused more than 500 cases of infections in 51 countries. The infection is caused by a member of the Poxviridae family. Cases are rarely fatal. Most of the cases have been recorded till now from Europe.

Materials and Methods

Thorough literature search was done using MESH (Medical Subject Heading) terms.

Epidemiology

Monkeypox infections were classically found mainly in Congo and Central African Republic. However now it has spread to 51 countries and caused more than 6000 cases. Primates are not responsible for most of the cases. The cases in US a few years earlier can be traced to the sale of exotic animals like prairie dogs who were kept along with Gambian pouched rats (*Cricetomys gambianus*) [2]. These rats are natural reservoir hosts of Monkeypox infection. Widespread travel has led to more cases now.

Molecular Epidemiology

Monkeypox virus is an enveloped double-stranded DNA virus. It belongs to the Orthopoxvirus genus of Poxviridae family. There are two different genetic clades of the monkeypox virus: the central African (Congo Basin) clade and the west African clade. The Congo Basin clade has so far caused more severe disease and has been considered to be more transmissible. The geographical division between the two clades is Cameroon, the only country in which both virus clades have been found [3].

Clinical Features

Monkeypox is less contagious than smallpox and also causes less severe illness. Mainly there is fever, weakness and rash in Monkeypox. The rash is typically centripetal and accompanied by swollen lymph nodes. Papulovesicular rashes are mostly observed. Death is to the tune of 1 to 10%. Nowadays in Europe there are also frequent genital lesions that are observed. The virus may also be found in semen, and thus may be sexually transmitted [4]. In fact, cases are now more in men who have sex with men (MSM), and this may be an important finding. In the UK now fever and malaise is less common and rashes are commonly seen [5]. Severity is more in very young children. This year, all the deaths have been reported from Africa. In Europe, Spain is the worst affected country, reporting more than 800 cases those year alone.

Laboratory Diagnosis

This is achieved by tell-tale clinical features and detection of the virus from lesions by cell culture or Polymerase chain reaction/PCR [6]. Samples are taken from the scabs or roof of the skin lesions. They can also be taken from the crusts.

Prevention

Monkeypox infections can be prevented by vaccination with the Vaccinia virus. Simple measures like physical distancing, social handwashing and mask can be effective in preventing the spread of Monkeypox infections. There is a dedicated Monkeypox vaccine produced by the firm Bavarian Nordic. It is given in US, UK, Germany and Canada to high-risk people, like men who have sex with men [7]. The vaccine is called Jynneos. It is actually a two-dose vaccine, and each shot is administered four weeks apart. It uses a weak or attenuated strain of virus and is approved for adults aged 18 and above who are at high risk of acquiring monkeypox or smallpox infections [8]. There are two monkeypox vaccines licensed for use in the U.S., ACAM200 and JYNNEOS. These are given the names Imvamune or Imvanex. They are licensed to prevent smallpox but can also effectively prevent monkeypox [9]. The vaccines can have some adverse effects like pain, swelling and redness at the injection site. ACAM2000 can produce some additional adverse effects like fever and lymphadenopathy [9]. This is because ACAM2000 is a live virus-based vaccines and JYNNEOS is a non-replicating virus.

Discussion

Monkeypox is an emerging infection now and is spreading at an alarming rate. Strategies need to be formulated for its management and containment. More research in public health is awaited in this regard. As of now only 4 cases have been found in India so far with one case having no recent international travel history but we need to be vigilant.

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