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RESEARCH ARTICLE

A CASE REPORT ON MONKEYPOX OUTBREAK IN INDIA 2022: AN AIRBORNE TRANSMISSION.

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ABSTRACT

Background: The current circumstance initiates from the end of June-early July 2022, an outbreak of monkeypox, an illness clinically alike to smallpox but generally milder, caused by a poxvirus is ongoing. Due to the recent rise in the number of human outbreaks, it is an evolving zoonotic disease that has been considered to have the major pandemic potential for decades. The 1st case of monkeypox in the WHO South-East Asia Region has been confirmed from Kerala, India on 14th July 2022 in a 35-year-old man who arrived from the Middle East. Immediate interaction with infected humans or animals, physical touch, droplet transmission, and consuming infected meat are all examples of how the disease is carried. Rashes that can imitate acne or boils and that grow on the face, inside the mouth, and other areas of the body, such as extremities (hand, feet), chest, genital areas, or the cloaca. This review article provides an updated overview of monkeypox for healthcare and medical experts about India. **Objective:** The main aim of this report is to generate real data on monkeypox cases in India during the 2022 pandemic. **Method:** Online survey of the hospital reports of infected patients through various websites. **Result:** One infected patient of monkeypox has died and others have recovered and discharged from hospitals. **Conclusion:** In the current scenario monkeypox outbreak is the biggest issue outside of Africa in recorded history. But according to data obtained in India, from now onwards monkeypox cases are not increasing day-by-day and became stable.

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INTRODUCTION

The monkeypox virus is identified as a high-threat pathogen that causes a disorder of public health importance. It is clinically comparable to smallpox but often less severe. Because of the long-standing belief that monkeypox is an infectious illness with substantial pandemic potential, it is an emerging zoonotic disease.^[1] In the recent outbreak countries and amongst reported monkeypox cases, transmission appears to be occurring primarily through direct physical contact, including sexual activity. Additionally, infected items including linens, clothing, gadgets, and apparel that contain contagious skin particles can transmit the disease. Monkeypox is most common in Central and West Africa but in May 2022, healthcare experts started reporting an outburst of the virus in various areas outside Africa. In the past, infections from West Africa have been the only source of human monkeypox virus cases in the Britain. Monkeypox cases are already rising quickly among people visiting sexual health clinics in the UK, India, and other nations, with no obvious epidemiological links to endemic regions. The multi-nation monkeypox outbreak that is currently underway in 2022 is the largest issue outside of Africa in history.^[2] The very 1st case of the monkeypox virus was a pox-like disease outburst in 1959 in monkeys kept at a research center in Copenhagen, Denmark.^[3] When smallpox had been eradicated in 1968, the 1st human MPXV case was identified on September 1, 1970, when a 9-month-old baby was taken to the Basankusu Hospital in the Democratic Republic of the Congo

The MPXV-like virus was isolated from the baby boy who had a smallpox-like disease^[4-9]. The first monkeypox epidemic outside of Africa occurred in the Americas in 2003 and interacted with domestic prairie dogs that carried the disease. These animals had been kept with dormice and pouched rats that were brought from Ghana. Over 70 incidences of monkeypox were brought on by this pandemic in the US.^[4, 10, 11] Fig.1 shows the test tubes containing samples of the monkeypox virus.

Symptoms and signs of monkeypox: Monkeypox virus typically takes 6 to 13 days to develop as shown in Table 1, although it can take between about 5 to 21 days for symptoms to appear.^[11-12] (Fig. 2)

MATERIALS

The rising of monkeypox cases throughout the world has at its peak, and it starts spreading slowly in India also. People got threatened due to this new pandemic which is caused by the MPXV virus. Due to the COVID-19 pandemic which has not yet ended, the Indian government has ready for this type of situation, government has taken various preventive measures against monkeypox also. According to data obtained from various national and foreign agencies monkeypox virus comes from non-endemic countries mainly U.A.E, Britain, and America. The Indian government has kept its eyes on foreign returnees following proper guidelines against monkeypox to prevent the spread of the virus throughout the country but till now the country



Figure 1. Sample test tube of Monkeypox virus

So, we decided to study the following ten cases and other suspected cases to provide awareness in society about their symptoms, preventive measures, and any vaccination or medications are available in the market against the monkeypox virus. Due to both COVID AND MPXV pandemic, we don't want to conduct an offline survey; we decided to collect the data through an online survey country from 15th August to 10th September 2022 amongst various hospitals that have been listed by the government for quarantine patients all over the country. To study the following cases, a survey form has generated named "PATIENT ENQUIRY FORM (PEF)" and circulated this form on the selected hospital's websites and even on various social media platforms available in the country. The feedback had kept confidential to avoid the leak of any data throughout the survey. The reason for this mass survey is to generate accurate data on the patients as possible, even patients self-fill out this form another objectives is to create awareness amongst the people to prevent monkeypox virus transmission.

METHODOLOGY

The survey is based upon various questions related to all 10 patients. The PEF form consists of two parts: PART 1 and PART 2 both parts carry different information. Part 1 contains personal details of monkeypox patients like Name, Age, Gender, any travel history (country name if known), Symptoms, Medicine prescribed, and Recovery status whereas Part 2 contains a total of 10 knowledgeable questions in which 5 (1-5) regarding the virus transmission and 5 questions (6-10) regarding the safety or preventive measures has taken during this situation. The answer to each question was optioned as "YES" or "NO" along with the "UNKNOWN" option.



Figure 2. Diagrammatic representation of symptoms of monkeypox virus

QUESTIONARY

PART 1: It contains the patient personal details

- Name of the patient-
- Age-
- Gender-
- ate -
- Symptoms-
- Recovery date-
- Travel history (if any)-
- Medicines prescribed-

PART 2: This part carries questions related to the monkeypox virus.

1. Direct exposure to infected animals, blood, and body fluids would transmit the infection.

- Yes
- No
- Unknown

2. Can Coughing, and sneezing of an infected person causes monkeypox infection?

- Yes
- No
- Unknown

3. Eating uncooked meat and animals products can transmit this infection.

- Yes
- No
- Unknown

4. Is sexual transmission possible in the case of the monkeypox virus.

- Yes
- No
- Unknown

5. Newborn babies, pregnant women, and small children are susceptible to the monkeypox infection.

- Yes
- No
- Unknown

6. If someone is infected with the monkeypox virus should be quarantined for 10-15 days.

- Yes
- No
- Unknown

7. To prevent the infection of this virus masks and face shields should be compulsory or not

- Yes
- No
- Unknown

8. Regular hand sanitization and bathing with soaps are essential to prevent the monkeypox infection.

- Yes
- No
- Unknown

9. Social gatherings during festivals, functions, and going to any crowded place should be avoided.

- Yes
- No
- Unknown

10. Consult physicians, if any symptoms like fever, or rashes are shown on the body of an individual.

- Yes
- No
- Unknown

RESULT AND DISCUSSION

Result

According to data collected from the online survey, India is the first country in the WHO South-East Asian Region to record a monkeypox virus case from Kerala's Kollam district on July 14, 2022; the patient was released from the hospital a week later. The patient returned from UAE on July 18, the second confirmed case of the virus was reported in the Kannur district, and on July 22, the third confirmed case was recorded in the nearby Malappuram district. In the middle of July and at the end of the month, Kerala state received reports of all three incidents as shown in Table 2.

until seeking treatment for acute exhaustion and a cerebral fever at a private hospital on July 27. However, contacts of all these infected patients have tested negative. When the virus genomes were collected from the infected patients in Kerala, a new strain of monkeypox A.2 strain found in 2 cases in India had returned from the UAE that is different from the strain causing the worrying outbreak of monkeypox cases in Europe. A.2 strain belongs to the hMPXV-1 lineage of Clade 3 (West African Clade). There is 2 Strain of monkeypox i.e. The West African and Central African (Congo Basin) are known. The Congo basin strain causes acute illness has a fatality rate of 0–11% and is more contagious. The genomes which are responsible for the excessive outbreak of monkeypox cases in Europe and the rest of the world belong to B.1 lineage.

Table 1. Symptom of monkeypox virus

S. No.	Infection Period	Duration	Symptoms
1.	Invasion period	Between 0-5 days	Identified by mild to high fever, Lymphadenopathy (lymph node swelling), muscle pain (myalgia), and lethargy. Swelling of lymph nodes is a peculiar feature of monkeypox.
2.	Incubation period	Begins from 5-21 days	Eruption on the skin starts to begin within 1-3 days, rashes mainly occur on the face (in 95% incidence), in the palms and hands, the foot soles (in 75% incidence), genital organ (30%), and mouth and throat ulcer.

Table 2. Case Report of Patients Infected with monkeypox Virus in India 2022

Cases	Travel History	Age & Gender	Reporting Date	Native (State)	Symptoms	Recovery Status
First Case	Returned from UAE	35-year- Old & Male	14 th July 2022	Indian Kollam, Kerala,	Low-grade fever and myalgia.	Recovered
Second Case	Returned from DUBAI	31- Year- Old & Male	18 th July 2022	Indian Kannur, Kerala	Dysuria and genital swelling.	Recovered
Third Case	Returned from UAE	35- Year- Old & Male	22 nd July 2022	Indian Malappuram Kerala	Mild to high fever, extreme headache, back pain, myalgia (muscle aches), high weakness (lack of energy), and lymphadenopathy (swelling of the lymph nodes).	Recovered
Fourth Case	Returned from UAE	22- Year- Old & Male	26 th July 2022	Indian, Trissur, Kerala	Cerebral fever, difficulty in breathing, death due to encephalitis.	Died on 30 th July 2022
Fifth Case	No travel history	34- Year- Old & Male	24 th July 2022	Indian, Delhi	Fever, swollen lymph nodes, and a rash.	Recovered
Sixth Case	Returned from UAE	30-Year- Old & Male	27 th July 2022	Indian Malappuram Kerala	Lesions on the skin, Vesicular rashes in the oral cavity and lips.	Recovered
Seventh Case	No travel history	31-Year-Old & Male	1 st August 2022	Nigerian. Case Recorded in Delhi	History of fever, skin eruption & rashes on different parts of the body.	Recovered
Eighth Case	No travel history	35-year- Old & Male	2 nd August 2022	Indian, Delhi	Fever, headache, muscle and back pain, swelling in lymph nodes, shivering, fatigue, problem in respiratory problems, rashes in an area or near the genital organs (penis, testicles, labia, and vagina) or anus (butthole).	Recovered
Ninth Case	No travel history	31-Year-Old & Female	3 rd August 2022	Nigerian, but Case Recorded in Delhi	Skin eruption, rashes on the face, hands, and feet.	Recovered
Tenth Case	No travel history	22- Year- Old & Female	12 th August 2022	Indian, Delhi	Low-grade fever, swollen lymph nodes, rashes on the body	Recovered
*Suspected Case	Returned from the U. K	7- Year- Old & Male	7 th August 2022	Indian, Kerala	Development of a rash that can last for two to three weeks.	Negative Test Report

15 diagnostic and research centers around the nation were trained by the Indian Council of Medical Research to detect the virus with ease. To perform the diagnostic tests for monkeypox, the Viral Research and Diagnostic Laboratories (VRDLs) received training from the ICMR-National Institute of Virology, a nodal center for testing and coordinating with its headquarters in Pune. A man from Kerala who had tested positive for monkeypox in another nation died in Thrissur on July 30 after contracting the disease for four days. The man had returned from the high-risk UAE on July 21 and stayed with his family

DISCUSSION

According to our knowledge, this survey is based on the monkeypox questionnaire was a great deal of experience among the Indian people. We found an overall 84% of accuracy on the knowledgeable questionnaire about monkeypox virus. It means a huge population has aware about MPXV virus. Additionally, the majority of participants had an upbeat outlook means they are cheerful and hopeful about this situation. 90% of participants had confident that spread of monkeypox

(MPXV) in India has finally managed. Considering this, Indian people maintained extreme caution, avoiding congested places in almost all cases and wearing masks or cover faces before leaving the house due to the rapid growth of the Monkeypox outbreak. With the help of survey, it comes to know that people want to know about this new pandemic and kept themselves protected against it after COVID. Due to a lack of internet availability in rural areas older generation have low knowledge about this outbreak. We got positive responses from various hospitals regarding patients' data, hospitals have informed about the medications that have prescribed to patients till the recovery, and it comes to know that out of 10 persons who were infected, five were from New Delhi, and five were from Kerala. It is well known that monkeypox has some similarity to smallpox, so smallpox vaccines up to 80-85% are effective against monkeypox also.

- TECOVIRIMAT (Tpoxx) an antiviral medicine has prescribed for monkeypox treatment.
- BRINCIDOFOVIR (Tembexa) prescribed in monkeypox cases.
- JYNNEOS vaccine is also given to the patient for quick recovery. It is also a smallpox vaccine.

CONCLUSION

This virus pandemic has put the world's economic, medical, and public health systems under strain. However, breakthroughs in the design of antiviral medications and vaccines against other developing illnesses will aid in the development of suitable treatment agents against monkeypox in a short time. To stop this disease from spreading and becoming a pandemic at that time, we must rely solely on a variety of control and preventative measures, the most crucial of which is raising public awareness of their understanding of the disease's facts and prevention.

CONFLICT OF INTEREST: None

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KEYPOINTS

- Monkeypox is an illness caused by the MPXV virus.
- This paper has added information regarding the spread of the virus in India in 2022.
- It includes the vaccination and medications against the monkeypox virus that prescribed in India.

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