



A Review on Tomato Flu in India

Bhandari Nikita, Awati Aishwarya, Jadhav Amol, Surwase Avinash, Mahadik Pritam and Pawar Bandu

Department of Microbiology, Yashwantrao Chavan Institute of Science (Autonomous), Satara, Maharashtra, India-415001

**Corresponding authors: - Pawar Bandu (Email Id- pawarbs1801@gmail.com)*

ABSTRACT

An unknown virus is the source of the contagious illness known as tomato flu. The term "tomato flu" refers to the principal symptoms of the virus, which are tomato-shaped blisters that appear all over the body and enlarge to the size of a tomato. The most vulnerable age group is children under five. The "hand, foot, and mouth disease" category includes tomato flu. In most situations, clinical symptoms are not severe. It is a self-limiting infection that goes away on its own after 7–10 days. Particularly in regions where there are eruptions, the diagnosis is based on clinical history and physical examination. There is now a significant study being done to learn more about the infectious agents of this disease, therapeutic options, and vaccines. Repurposing medications and vaccines are equivalent to attempting to contain them in the present situation. Covid-19 has provided us with lessons in emergency preparedness and case management. In children, tomato flu is not a virus-based illness, but it can develop as a consequence of dengue or chikungunya fever. A novel strain of the prevalent infectious disease hand, foot, and mouth disease, which primarily affects youngsters and those with compromised immune systems, may be represented by the virus. Immunodeficient youngsters may occasionally have the syndrome as a result of the virus becoming reactivated. The "tomato flu" illness clears up on its own and has no negative long-term repercussions. No particular medication is available to treat it.

Keywords: *Tomato Flu, hand foot & mouth. disease (HFMD), coxsackievirus A16*

Received 18.10.2022

Revised 23.11.2022

Accepted 13.12.2022

INTRODUCTION

A mystery pathogenic virus caused tomato flu, a contagious disease, in Kerala, India in May 2022. Young children under the age of five are most affected. Adults had significant immunity to the virus, which would explain the low number of tomato flu cases. Adults, however, can spread the disease while interacting with children. Because of the red bullous welts that appear on the bodies of persons who are ill and resemble tomatoes, the illness is also known as "tomato flu" or "tomato fever." The affected communities of Mudakayam, Varzur, and Kanirapally in the districts of Kottayam and Pathinamtitla at the time had several of illnesses. The tomato flu and hand, foot, and mouth disease are identical. It is mostly caused by Coxsackie Virus A16, which is also responsible for enterovirus and coxsackie A16. The first one starts moderate and spreads gradually. This infection spreads from one person to another through exposure to the contagious virus, which is found in the saliva, blister fluid, nasal and throat secretions, and feces of infected individuals. The virus frequently spreads through contact with contaminated surfaces, microorganisms, and human hands. No doubt Infected people may not show any symptoms for the first week of their illness, yet this is the time when they are most contagious[1].

Outbreak

India witnessed a brand-new virus called COVID-19 Tomato fever, also referred to as tomato flu, initially surfaced in Kerala, in children younger than five. Although a rare viral infection is infrequent and generally considered harmless, careful management and further avoidance are wanted in light of the catastrophic COVID-19 Epidemic experience. Kerala's Kollam district made the first tomato flu case report on May 6, 2022. At the local government hospitals as of July 26, 2022, there were over 82 cases of sickness among children under the age of five. In Kerala, Aanchal, Aryankavu, and Neduvathur were some of the other areas that are impacted. It has been made known that this viral infection is endemic in the neighboring states of Tamil Nadu and Karnataka. The Odisha Regional Medical Research Center in Bhubaneswar had a high prevalence of this illness, hence 26 children (ages 1 to 9) were also included. Only Kerala, Tamilnadu, Karnataka, and Odisha were particularly vulnerable to the tomato flu virus.

However, **The Kerala Health Department** took preventative steps to stop the infection from spreading [2,4,6,8]

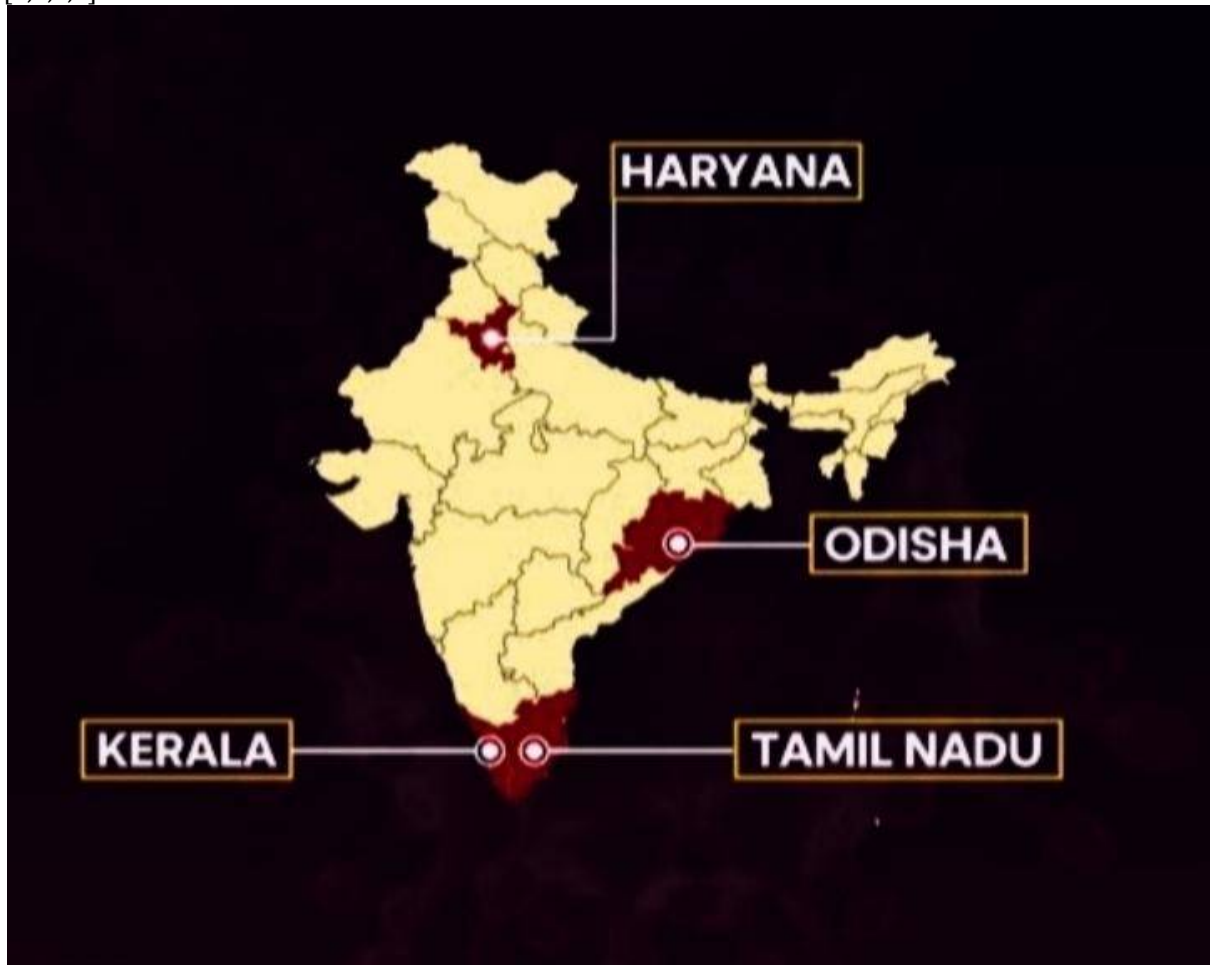


Fig.1- Outbreaks of tomato flu in India [4]

Governmental measures

The central government has come up with some preventive schemes for this disease. They issued an advisory on the tomato virus, here are some important points to follow [1].

Precautionary measures:

1. People should observe proper hygiene.
2. Children need to know the symptoms and signs of the disease.
3. To stop the spread of the flu from kids sharing toys, clothes, food, or other items, every area needs to be cleaned. Infected children should be isolated for 5-7 days from the first symptoms.
4. This disease can also occur in adults[5].

Symptoms

Infants and kids under the age of five are particularly susceptible to hand, foot, and mouth illnesses. Most kids only have minor symptoms for 7 to 10 days. 3 to 5 days after contracting the virus, children frequently experience fever and added fever-like indications, such as a sore throat, vomiting, eating less, or drinking less. Children can get painful mouth ulcers. Generally begins as tiny red mark that blisters and can be painful, these sores are frequently on the tongue and interior of the mouth. The soles of the child's tootsie and the palms of their hands may develop a skin eruption. The buttocks, legs, and arms may also exhibit hives. Routinely not tingling, the rash seems as a bit elevated red speck-like dot and on rare occasions, blisters with a red region at the base. An infectious particle that genesis this disease can be found in both the fluid inside the blister and the off cut develops in the wake of red vesicle cure[5].



Fig.2 Blisters on the foot, mouth, hand [5,10]

Transmission

It is a contagious disease because an infected person can pass the virus to others. Typically, the first week of an illness is when people talk about their disease the most. Even after their symptoms have disappeared, people can still infect others for days or even weeks through drool, nasal mucus, and other throat and nasal secretions, as well as any fluid from wounds or blisters. When feces come into contact with respiratory droplets that contain virus particles, the feces can become contagious. Members of the enterovirus family of viruses cause disease. Coxsackievirus A7, Coxsackievirus 71, and Coxsackie A6 are the third (EV-A71). The symptoms of HFMD and the tomato virus are similar. The same strain of coxsackievirus was discovered after the identification of the ill people. Coxsackievirus A16 was found by Frist in South Africa in 1951. It belongs to the enterovirus genus Picornaviridia CA16 and is a tiny (diameter 30 nm), non-enveloped, icosahedral member of the human enterovirus A (HEV-A) species. The particle has a single-stranded, positive-sense, polyadenylated viral RNA genome with a genome size of 7.4. The genome contains a large polyprotein ancestor that encoded a reading frame adequate for the structural protein P1 and the nonstructural proteins P2 and P3. P1 can be made by a virus containing proteinase coding and the viral capsid subunit proteins VP0, VP1, and VP3. Divide VP0 to get VP2 and VP4 by doing so. While VP1, VP2, and VP3 are outside the capsid, VP4 is inside. On VP1, the primary epitopes have a neutralizing impact. This area is surrounded by the 5' and 3' non-coding areas[9].

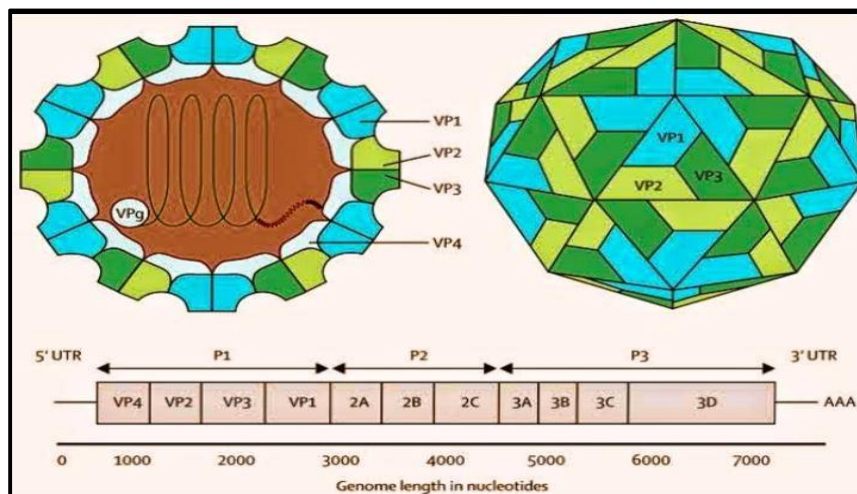


Fig.3 Structure and genome of Enterovirus 71 [9].

DIAGNOSIS AND PREVENTIVE MEASURES

Patients presenting with the symptoms undergo molecular and serological tests to diagnose Zika virus, chikungunya, and dengue.

According to experts, the mortality rate of this disease is not high and it can be easily treated. Drink plenty of water, juices, and fluids. Try to drink more boiled water. It is better not to touch the blisters – Maintain good personal hygiene. Keep physical distance from suspected cases. Get enough rest to avoid the long-lasting effects of tomato flu[6].

Immunization under trails

There are presently no antiviral drugs or vaccinations available for the treatment or prevention of tomato flu [1].

CONCLUSION

Cases of tomato flu were reported at a time when monkey pox was on the rise across the country. In spite of the fact that it is spreading quickly prompt steps taken by the government with regards to prevention and treatment has limited the disease spread to a broad expanse [1].

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CITATION OF THIS ARTICLE

Bhandari Nikita, Awati Aishwarya, Jadhav Amol, SurwaseAvinash, Mahadik Pritamand Pawar Bandu: A Review On Tomato Flu In India. Bull. Env.Pharmacol. Life Sci., Spl Issue [1]: 2023:11-14.