Tomato Flu in India: A Rapid Review

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Abstract

The unidentified virus that causes tomato flu is an infectious disease. The infection is known as "Tomato flu" because its primary symptom is the development of tomato-shaped blisters all over the body that expands to resemble a tomato. Primarily impacts young children under the age of five. A "Hand, Foot, and Mouth disease" is tomato flu. Children frequently contract the febrile rash condition known as hand, foot, and mouth disease (HFMD), which is given on by the enteroviruses (EV) Coxsackie A16 (CA16), EV A71, Coxsackie A6, Coxsackie B, and Echo viruses. The main signs and symptoms of tomato flu in children are high fever, rashes, and severe joint pain, which are also characteristics of chikungunya. In most situations, the clinical presentation is minimal. The infection is self-limiting and will go away on its own in 7–10 days. Tomato flu may not actually be a viral infection in children, but rather a complication of dengue or chikungunya fever. In areas where there are outbreaks, the diagnosis is established on the clinical history and physical examination.

The etiological agent of this infectious disease, its course of therapy, and vaccine are still unknown, and this is an important topic of research right now. The tomato flu virus exhibits symptoms resembling COVID-19. Tamil Nadu, Haryana, and Karnataka, three nearby states, were alerted to this pandemic viral infection. Since the recent advent of tomato flu, an uncommon viral disease, no specific medications are now available to treat this virus. Because to the lack of disease-specific medication, only the symptoms are treated with the appropriate antipyretics and analgesics, just like with any other flu. Given how prevalent this infection is, it is crucial to take specific precautions to stop it from spreading further.

Key words: COVID-19, Hand, Foot, and Mouth disease, and outbreak readiness

Introduction:

The infectious sickness known as is caused by an unknown viral organism. In May 2022, the "tomato flu" virus was first identified in Kerala, India. The infection was known as the "tomato flu" because of its main symptom, tomato-shaped blisters that appeared all over the body. The names "Tomato flu" and "Tomato blister" refer to the initial reddish tiny blisters that appear as a symptom and later develop to resemble a tomato "Tomato fever." The main target audience is children under the age of five. Adults may have significant immunity to the virus, which would explain the low number of tomato flu cases. Those who engage with youngsters, however, run the risk of becoming virus carriers and dispersing the illness. One of the "Hand, Foot, and mouth diseases" is tomato flu (HEMD). The most common viral infection, according to epidemiologist and state nodal officer for Kerala Dr. Amal S. Fettle, is "Hand, Foot, and Mouth disease" (HFMD). The cause of HFMD is the enterovirus genus, which includes the poliovirus, coxsackievirus, echovirus, and other enteroviruses. Coxsackievirus A16 is the most frequent cause of HFMD. Only a moderate form of the illness was brought on in HEMD by coxsackievirus A16 infection. About many patients recover in 7 to 10 days even without medical attention. It is frequently mistaken for the sickness known as foot-and-mouth disease, or for the ailment known as hand-and-mouth, which can affect cattle, sheep, and swine. However, the two illnesses are unrelated because they are brought on by different viruses. The only way for infection to spread from one person to another is by direct contact with the infectious virus, which is present in the saliva, blister fluid, nose and throat secretions, and stool of infected individuals. The virus is most frequently transmitted by contact with infected surfaces, fomites, and human hands. Even while infected individuals typically show no symptoms during the first week of the illness, this is the period during which they are most contagious.

Few clinical signs are expressed by the majority of patients. Given that enteroviruses are so prevalent, adults and older children are presumably immune to them. Respiratory droplets, coming in contact with blister fluids, and coming into contact with contaminated excrement are the three main ways that enterovirus spreads. By practicing good personal hygiene and avoiding contact with sick people, transmission risks can be reduced. Adults, particularly pregnant women, are more exposed to contracting these viruses if they have not been exposed to the antibodies that protect against them. Most enterovirus infections in pregnant women result in mild illness or no symptoms at all. The link between maternal enterovirus infection and severe pregnancy outcomes such as abortion, stillbirth, or congenital abnormalities is not yet proven beyond a reasonable doubt. Mothers who get the virus right before giving birth, however, might pass it on to the baby. If the mother has an enterovirus infection at the time of birth, the newborn's risk of infection rises. Most neonates with enterovirus infections only have a moderate sickness, but in rare cases, the infection can progress and spread to the heart or liver, among other vital organs, and cause death. Nonetheless, researchers are still working to identify the precise etiological factor causing this illness.
History of Tomato Flu virus (Coxsackievirus A16):

In 1951, CA16 was initially isolated in South Africa. It belongs to the Human Enterovirus A (HEV-A) species of the Picornaviridae family of viruses.\[^{[90]}\] The viral RNA genome of CA16 is a single-stranded, positive-sense, non-enveloped, icosahedral particle with a diameter of less than 30 nm and a genome size of roughly 7.4 kb. One reading frame in the genome codes for a big polypeptide precursor that is later converted into the structural protein P1 and the non-structural proteins P2 and P3. A virus-encoded protease can break down P1 to produce the viral capsid subunit proteins VP0, VP1, and VP3.\[^{[90]}\] VP0 can be further broken down to produce VP2 and VP4. The outer portion of the capsid contains VP1, VP2, and VP3, while the inner portion contains VP4. On VP1, the neutralising epitopes are primarily found. The 5' and 3' non-coding regions surround the coding area. The internal ribosome entrance site and other sequences that regulate genome replication and translation can be found in the 5'-non-coding region, which is made up of about 740 nucleotides (IRES). A poly-A tail located in the 3' non-coding region is crucial for virus infectivity. The main infections causing HFMD are CA16 and EV71.

How to Spread:

Coxsackieviruses spread easily. They can be spread from one person to another on unclean hands and surfaces that have been in contact with faces. Also, when someone sneezes or coughs, fluid droplets are released into the air and can transmit the coxsackievirus. Children under the age of five are more at risk for coxsackievirus infection when a community is affected by an outbreak. In communal settings like schools, daycare centers, and summer camps, coxsackievirus can easily spread. The first week of illness is when people are the most contagious. Outbreaks often occur in the summer and fall in temperate temperatures, but tropical regions of the world experience them year-round. The suggested isolation duration is between five and seven days due to the high contagiousness of tomato flu. Additional measures to stop the virus's transmission include washing your hands frequently and avoiding sharing toys, food, or clothing with sick people. According to the Lancet, the virus can also spread when people come into contact with dirty diapers or unclean surfaces, or when kids put contaminated objects in their mouths.
Epidemiology of Tomato Flu:

In Kerala, India, a strange virus known as tomato flu has been found in youngsters under the age of five. This is in response to the fourth wave of COVID-19's arrival. Watchful management is favored to prevent new outbreaks of the rare viral infection, which is in an endemic condition and is not believed to be life-threatening, due to the terrible COVID-19 pandemic. Following an alarming rise in cases in India, the first incidence of tomato flu was recorded in the Kollam district of Kerala on May 6, 2022. Since then, 82 children have been affected as part of new outbreaks that started in Kollam, Kerala. The blisters, which start as little red blisters and enlarge to resemble tomatoes, are known as tomato fever or tomato flu. There is currently no known treatment for the flu, which is a self-limiting illness. The word "tomato flu" refers to blisters in the shape of tomatoes that can appear on different body parts.

The infectious disease rarely affects adults since their immune systems can frequently fight them against the infection. Intestinal viruses are the cause. The prevalent infectious condition, which may also be a unique variation of hand, foot, and mouth disease, primarily affects children between the ages of one and five, as well as immunocompromised adults, according to a study published in the Lancet Respiratory Journal. There is no specific drug for the treatment of tomato flu because it is a self-limiting condition.

Manifestation of Tomato Flu:

The enteroviruses (EV) Coxsackie A16 (CA16), EV A71, Coxsackie A6, Coxsackie B, and Echo viruses are responsible for the common febrile rash condition known as hand, foot, and mouth disease (HFMD). In recent media reports from the Indian state of Kerala, incidences of "tomato flu"—a febrile rash sickness with round, red skin lesions that resemble tomatoes—in young children have been emphasized. Here, we discuss a "tomato flu" case that was reported to us by the patient's family physician. In May 2022, a family vacation to Kerala lasted one month, during which they visited friends and family in numerous locations. One week after their return, a 13-month-old girl and her older 5-year-old brother began to get rashes on their hands and legs. The local media in Kerala was covering a mysterious sickness in youngsters known as "tomato fever" during the time of their visit. Although they had played with another youngster who had recently recovered from "tomato flu" a week before coming to the UK, they insisted they had no interaction with sick children. Both kids experienced a vesicular rash a week after arriving in the UK, with the girl’s being more severe (Fig. A, B). Fever and any other systemic signs were absent in both children. Even though the boy's lesions had already begun to heal, the girl experienced painful mouth lesions two days later that resulted in frequent drooling.

The 13-month-old girl has fleshy vesicular lesions on her arms, legs, palms, and soles that are 3-5 mm in diameter (day 4 of the lesions) (A, B). Day 16 of the rash, healing lesions, minimal to no scarring (C, D). The viral swabs of the lesions were collected from both kids when they were in the pediatric emergency room for PCR testing. Clinically, they were stable enough to confine themselves to their homes in the interim. A test for EV was performed on both kids. A national reference laboratory also examined the girl's samples for monkeypox because of the rash's fleshy vesicular look.
(Proton Down, Salisbury, UK). While the monkeypox PCR was negative for the girl, the EV PCR was positive for both kids. Another national reference lab (UKHSA-Colindale, London, UK), which had Coxackie A16, carried out EV typing by sequencing. By Day 6 for the boy and Day 16 for the newborn, the lesions had almost completely disappeared with no scarring as the two children's wounds continued to heal (Fig. C,D). The incomplete CA16 sequences from the "Kerala tomato flu" shared a most recent common ancestor with a clade from China, according to phylogenetic analyses. These kids had the "Kerala tomato flu," which was brought on by CA16 and CA6, two of the most typical Viral causes of HFMD in India.\(^\text{[9,33]}\) The infant's odd rash pattern first led us to believe that CA6 was the most likely culprit, but monkeypox was also a potential given the ongoing global epidemics. 2103 cases with laboratory confirmation had been reported to the WHO as of June 15, 2022, from 42 member states in 5 WHO regions.\(^\text{[33]}\) Many cases of monkeypox in the worst-affected nations now report no travel history to endemic areas and no contact with known monkeypox cases due to growing local community transmission. In their everyday practice, frontline pediatricians now need to be aware of these diverse viral rash differentials.

**Tomato flu outbreak in India:**

A new virus known as tomato flu, or tomato fever, has developed in India in the state of Kerala in children under the age of five, at the same time as we are dealing with the potential emergence of the fourth wave of COVID-19.\(^\text{[11]}\) However, given the horrific COVID-19 pandemic experience, cautious management is preferred to stop new epidemics.\(^\text{[12]}\) Although the symptoms of the tomato flu virus resemble those of COVID-19 (both are initially characterized by fever, drowsiness, and body pains, and some COVID-19 patients also report skin rashes), the virus is unrelated to SARS-CoV-2. Tomato flu may not actually be a viral infection in children, but rather a complication of dengue or chikungunya fever.\(^\text{[13,14]}\) The virus may also represent a novel strain of the viral hand, foot, and mouth disease, a prevalent infectious disease that primarily affects children and adults with impaired immune systems. In certain case studies, immune-competent individuals have also been seen to have the condition.\(^\text{[15]}\) As tomato flu is a self-limiting condition, no specific medication is available to treat it.

On May 6, 2022, the Kollam district of Kerala reported the first case of tomato flu; as of July 26, 2022, the local government hospitals had documented the infection in more than 82 children under the age of five.

16 Anchal, Aryanakovu, and Neduvathur are the other Kerala regions that have been impacted. An alert was sent to the neighboring states of Tamil Nadu and Karnataka due to this endemic viral infection. The Regional Medical Research Centre in Blhubaneswar also revealed that 26 youngsters (aged 1 to 9 years) in the state of Odisha had the illness. Other than Kerala, Tamil Nadu, and Odisha, no other parts of India have experienced the virus's effects as of yet. To monitor the viral infections spread and stop it from spreading to other regions of India, the Kerala Health Department is taking precautions.

![Fig.No.05: Tomato Flu Outbreak in India](image)

The main signs and symptoms of tomato flu in children are high fever, rashes, and painful joint pain, which are also characteristics of chikungunya.\(^\text{[17]}\) The red, painful blisters that appear all over the body and grow over time until they resemble tomatoes gave the illness its name. These blisters mimic those that young people who have the monkeypox virus experience.\(^\text{[18,19]}\) With tomato flu, rashes also develop on the skin and cause skin discomfort. Other signs and symptoms of dengue are similar to those of other viral illnesses, such as fatigue, nausea, vomiting, diarrhea, fever, dehydration, swelling of the joints, and body aches.\(^\text{[20]}\) For the diagnosis of dengue, chikungunya, zika virus, varicella-zoster virus, and herpes in children with these symptoms, molecular and serological testing is performed.\(^\text{[21]}\) Once these viral illnesses are ruled out, tomato virus infection is established. Tomato flu treatment is similar to that for chikungunya, dengue, and hand, foot, and mouth disease because these illnesses have similarities with each other. This includes isolation, rest, drinking lots of fluids, and using a hot water sponge to relieve itching and rashes. Other symptomatic therapies, such as paracetamol supportive therapy for fever and body aches, are necessary. Since viral infections are widespread in children this age and propagation is most probable through close contact, children are more likely to be exposed to tomato flu. Little children can catch this virus by touching dirty surfaces, using diapers, and putting objects directly in their mouths. Given the similarity to hand, foot, and mouth illness, the transmission of tomato flu could have major repercussions by spreading to adults if the outbreak in children is not contained and stopped. Like other influenza strains, tomato flu is extremely contagious. Therefore, it is essential to carefully isolate confirmed or suspected cases and take additional preventative measures to stop the tomato flu virus from spreading from Kerala to other regions of India. To stop the virus from spreading to other children or adults, isolation should be practiced for 5-7 days after the onset of symptoms. The greatest method of prevention is maintaining good hygiene, sanitizing the immediate area, and keeping the infected child from sharing toys,
clothes, food, or other objects with other children who are not ill. The most effective and economical methods for protecting the public from viral infections, particularly in children, the elderly, immunocompromised individuals, and those with underlying medical conditions, are drug repurposing and immunization. Tomato flu cannot yet be treated or prevented with antiviral medications or vaccinations. To better understand the need for prospective treatments, additional follow-up and monitoring for significant outcomes and sequelae are required.

**Causes of Tomato Flu:**

![Hand, Foot, and Mouth Disease](image)

Fig. No.06: Hand, Foot, and Mouth Disease

The specific reason for the outbreak of the tomato virus is still a mystery. To learn more about the virus that causes tomato fever, scientists and medical professionals are conducting additional research. The medical term for "tomato flu" is "Hand Foot Mouth disease," according to Dr. Archana M, Consultant – Pediatric Infectious Disease, Manipal Hospital, Old Airport Road. She continued, "Viruses from the enterovirus genus, most frequently the coxsackievirus, are the culprits. The majority of the time, it affects kids under five years old. The doctor claims that tomato flu is a very contagious illness that can spread by air and close touch. Thus, practicing seclusion is advised. This virus can be spread to young children by contact with unclean surfaces, diaper use, and direct object ingestion.

**TRANSMISSION**

![Disease Transmission of HFMD](image)

Fig. No.07: Disease Transmission of HFMD

By touching one’s hands, nose, or mouth after coming into contact with numerous infected items, the HFMD virus is easily disseminated and illness can result. Contact with any of the following could lead to the spread.

- Respiratory droplets, saliva, mucus, and drool from coughing and sneezing.
- With an infected person’s feces (faeces); e.g., when changing diapers.
- Direct touch between people Contact with fluid from open sores or scabs Touching and rubbing against contaminated objects and surfaces like counters, toys, and clothing
- Even though it’s uncommon, people are typically more contagious during the first week of symptoms after ingesting pool water or other polluted, untreated water. Infection risk if contaminated with faces.
- When symptoms go away, some people can still be contagious (able to infect others) for days or even weeks. Others, however, might infect others even when they show no signs of external sickness.\(^{[3]}\)

**Clinical Feature:**

The symptoms of tomato flu and chikungunya or dengue are similar, however, there is no evidence to support this association at this time.\(^{[3]}\)
The following are the typical presenting symptoms that have been determined thus far:

- High fever
- Spherical, crimson blisters on various body regions
- A high-grade fever
- Dehydration
- A rash and irritation of the skin and myalgia
- Inflamed and uncomfortable joints

Additional unusual signs include:

- Nausea and vomiting, a runny nose,
- Sneezing, frequent coughing,
- Patches and discoloration on various body regions, such as the hands, buttocks, and knees, and cramping and pain in the abdomen.
- Fatigue and a sense of fatigue
- There are no significant illnesses brought on by the tomato flu. Complications from the condition are uncommon.

Treatment:

There are now no specific medications available to treat the tomato flu virus because it is a rare viral disease that has only recently emerged. Due to the lack of disease-specific medication, only the symptoms are treated, using the appropriate antipyretics and analgesics, just like with any other flu.

According to the Lancet report, tomato flu is a self-limiting illness for which no specific medication is available. The treatment method for tomato fever is identical to that for dengue or chikungunya because the symptoms are the same. The remedy for tomato flu contains

1. Isolation, Rest
2. Plenty of fluids
3. Avoiding spicy and salty food helps in preventing mouth soreness.
4. Warm saline gargles may also help with the blisters inside the mouth.
5. Hot water sponge for the relief of irritation and rashes.
6. Ibuprofen or Acetaminophen can be used to treat the fever. Antibiotics are of no use unless the skin blisters become purulent.
7. A lot of fluid intake in the form of water, juice, or milk is encouraged as dehydration is commonly seen.
8. Bed rest is recommended along with proper hygiene and sanitation should be maintained.\textsuperscript{[10]}
9. Dielofenac use for the pain relief.
10. Cetirizine syrup (30ml) is used to treat children who have hay fever and itchiness of the skin, running nose, and sneezing.
11. ORS (Oral Rehydration Solutions) is used to treat dehydration.
12. Affected children should be isolated for five to seven days.\textsuperscript{[15]}
13. Also, one should be careful not to scratch or rub on the blisters and burst them. Instead, allow the blisters to subside on their own.
14. Bathe the child in warm water to relieve the skin irritation. Applying a skin-soothing lotion may help too.
15. As of today, no antiviral drugs or vaccines are available for the treatment or prevention of tomato flu. Further research and investigations are needed to better understand the need for potential treatments.\textsuperscript{[10]}

**Dose Regimen:**

<table>
<thead>
<tr>
<th>Age</th>
<th>Ibuprofen Drops (80mg/1.25ml)</th>
<th>Suspension Liquids (100mg/5ml)</th>
<th>Ibuprofen</th>
<th>Ibuprofen Chewable Tablets (80mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 TO 23 MONTHS</td>
<td>1.875ml</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2 TO 3 YEARS</td>
<td>2.5ml</td>
<td>5ml</td>
<td>2 Tab</td>
<td></td>
</tr>
<tr>
<td>4 TO 5 YEARS</td>
<td>3.75ml</td>
<td>7.5ml</td>
<td>3 Tab</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2: Acetaminophen Dosing in Children’s**

<table>
<thead>
<tr>
<th>Age</th>
<th>Acetaminophen Drops (160mg/5ml)</th>
<th>Suspension Liquids (160mg/5ml)</th>
<th>Acetaminophen</th>
<th>Acetaminophen Chewable Tablets (80mg each)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 TO 23 MONTHS</td>
<td>0.75 tsp (3.75ml)</td>
<td>0.75 tsp (3.75ml)</td>
<td>1.5 Tab</td>
<td></td>
</tr>
<tr>
<td>2 TO 3 YEARS</td>
<td>1 tsp (5ml)</td>
<td>1 tsp (5ml)</td>
<td>2 Tab</td>
<td></td>
</tr>
<tr>
<td>4 TO 5 YEARS</td>
<td>1.5 tsp (7.5ml)</td>
<td>1.5 tsp (7.5ml)</td>
<td>3 Tab</td>
<td></td>
</tr>
</tbody>
</table>

- Can give Ibuprofen every 6-8 hours if needed.
- Can give Acetaminophen every 4-6 hours if needed.

**Table 3: Difference between Chikungunya, Dengue & Tomato Flu**\textsuperscript{[41,42]}

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Chikungunya</th>
<th>Dengue</th>
<th>Tomato Flu</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>A mosquito-borne virus that causes a type of arthritis</td>
<td>A mosquito-borne virus that causes pain &amp; Bleeding</td>
<td>The infections caused by coxsackievirus A16</td>
</tr>
<tr>
<td><strong>Causative Agent</strong></td>
<td>Alphavirus</td>
<td>Flavivirus</td>
<td>Enterovirus</td>
</tr>
<tr>
<td><strong>Incubation Time</strong></td>
<td>Between 3 days to 1 week</td>
<td>Between 4 days to 1 week</td>
<td>5-7 days</td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td>A molecular test looking for the RNA &amp; antibodies of the chikungunya virus</td>
<td>A molecular test looking for the RNA &amp; antibodies of the dengue virus</td>
<td>There is currently no specific diagnostic test than enable detection of the tomato flu virus</td>
</tr>
<tr>
<td>Distribution</td>
<td>Asia, Africa, central &amp; south America, Florida &amp; Texas.</td>
<td>Tropical &amp; Subtropical regions of the world.</td>
<td>Kerala, Odisha, Tamil Nadu, Haryana.</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Pain in joints &amp; muscle, fever</td>
<td>Pain in joints muscle, fever, vomiting haemorrhage.</td>
<td>High fever, Dehydration, Skin rash &amp; irritation, Myalgia, Swollen and painful joints</td>
</tr>
<tr>
<td>Treatment</td>
<td>Aspirin, NSAIDs Acetaminophen can be given.</td>
<td>Aspirin, NSAIDs can’t be given but Acetaminophen can be given.</td>
<td>Analgesic &amp; antipyretic can be given like paracetamol, ibuprofen, diclofenac.</td>
</tr>
</tbody>
</table>

Prevention Techniques for Tomato Flu:
When an unknown virus suddenly breaks out, prevention is essential. An outbreak’s effects can be readily managed if everyone properly adheres to preventive measures. Compliance with preventive measures is dubious, nevertheless, as Tomato flu frequently strikes children under the age of five. Their guardians must use caution when there are disease outbreaks.\(^2\)\(^7\)

These are some precautions to take in order to avoid contracting this flu:

- Keep your distance from the infected person.
- Your children should learn about this illness and how it affects the body.
- Inform them of the symptoms of tomato fever so they can keep a safe distance from anyone exhibiting or experiencing those signs.
- Instruct them to avoid shaking hands with, playing with, or hugging any kids exhibiting tomato fever symptoms.
- Urge kids to practice good hygiene and refrain from actions that involve bodily fluids, such as thumb-sucking or nose-picking.
- In order to prevent the disease from spreading, advise them to cover their mouth and nose with a hankkerchief when sneezing or coughing.
- Stop the infected child from giving non-infected kids his or her toys, clothes, food, or other belongings.
- Remind them not to massage or scratch the blister and to wash their hands after touching one.
- To keep them hydrated, encourage your kids to drink lots of water, milk, juice, etc.
- If your child exhibits tomato fever symptoms, isolate them.
- Often wash and sanitize all of your children's clothing, toys, and other belongings.
- It is advised to bathe or clean your child's skin with warm water.
- Incorporate immune-stimulating foods and nutrient-dense foods in your child's diet.

Precaution:
Given how prevalent this infection is, it is crucial to take specific precautions to stop it from spreading further.\(^2\)\(^8\)

You can take a few preventative and protective actions, such as the following:

- If you notice the beginning of symptoms, consult a doctor straight once.
- Keep good hygiene and sanitize the surroundings and the things around you.
- Ensure that a child who is infected does not share any toys, food, clothing, or other belongings with children who are not infected.
- Individuals who are infected need to be kept apart for 5-7 days.\(^3\)\(^4\)

![Image: Stay Safe, Stay at Home](image_url)

Although not lethal, tomato flu is extremely contagious. Consequently, controlling the transmission can be accomplished by being aware of the symptoms and implementing the appropriate safety measures. Moreover, after seeing any symptoms, speak with a doctor to conduct additional research.
Drug and Vaccine Under Trials:

It’s a recently emerging infectious disease, tomato flu, and medications and vaccines for its treatment have not yet been created or put through clinical trials.

Actions the government has taken:

The neighboring state of Tamil Nadu has enhanced border surveillance in response to cases of tomato flu being found in Kerala. The Kerala government launched initiatives in each Anganwadi and medical facility to treat the affected people. In Coimbatore, Anganwadi centers are apparently checking for diseases, and 24 mobile teams with medical personnel have reportedly been sent out. To keep an eye out for anyone with a fever and rashes, three teams made up of tax inspectors, health inspectors, and police have been deployed in shifts. Since Kerala accounts for the majority of cases, the surrounding areas are closely monitored. The hospitals in the neighboring states have received orders to report any patients exhibiting tomato flu symptoms.

Conclusion

Though it is a contagious disease it is not lethal and life-threatening, children are mainly affected by tomato flu due to weak immunity. As the immune system of children is not well developed so immunomodulators agents are not recommended, specific analgesic and antipyretic drugs like (Ibuprofen, Acetaminophen, and ORS) can be given to patients as a preventive line of treatment, and can also isolate the patient to avoid spreading of tomato flu.

References:

19. Clavda VP, Apostol Poulos V Rare monkeypox: is it really a threat to the elderly?
22. Maturitas. 2022; 163: 90-91
29. Kerala Tomato Flu Outbreak [Internet]. 2022 May [cited 2022 June 14]. Available from: Kerala Tomato Flu Outbreak - Read the latest current affairs facts here – GK Today
30. Tomato Flu – All You Need to Know [Internet]. 2022 May [cited 2022 June 14]. Available from: Tomato Flu – All You Need to Know - Apollo Hospitals Blog (askapollo.com).
31. https://www.thelancet.com/journals/lancet/article/PIIS2213-2600(22)00300-9/fulltext By Apollo 24/7, Published on-06 October 2022, Updated on - 19 October 2022
40. Udaya Vani. High alert in border districts to prevent tomato flu spread: Minister Dr Sudhakar [Internet]. 2022 May [cited 2022 June 14]. Available from: High alert in border districts to prevent tomato flu spread: Minister Dr Sudhakar | Udaya Vani.