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# Chandipura virus outbreak in India: A tropical nightmare

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## ABSTRACT

### Background

Chandipura virus (CHPV) is currently implicated in outbreaks of viral encephalitis in rural India. The current outbreak in India has grown to 59 cases, 51 of which have been reported from Gujarat and the remaining from Rajasthan. It is of the utmost importance that all relevant health authorities carefully monitor the ongoing situation to bolster and protect international health security and ensure it is not compromised.

Chandipura virus causes febrile disease. After the febrile phase, patients begin to present with neurological symptoms, as the virus is neurotropic in nature and results in encephalitis. No specific treatment for CHPV is available, and the management of cases is chiefly by symptomatic treatment.

The Chandipura virus may have global implications. It is of global importance that the relevant authorities handle Chandipura and prevent further transmission.

**Keywords**

Disease outbreaks, mortality, public health, India, signs and symptoms

## Background

Chandipura virus (CHPV) is a tropical viral pathogen incriminated in ongoing outbreaks in rural India and Nepal. CHPV cases in India have reportedly grown to 59 cases, with 51 recorded in Gujarat and the remaining reported from Rajasthan [1]. Nepal has similarly reported the likelihood of the presence of the virus, but no official figures have been released. Nepal faces the challenge of a possible outbreak due to major commuting routes between the two countries. It is of the utmost importance that all relevant health authorities carefully monitor the ongoing situation in India and Nepal to bolster and protect international health security and ensure it is not compromised. [2].

### Virology

CHPV is a Rhabdoviridae. It is of the Vesiculovirus genus. CHPV is a single-stranded RNA virus and, like all members of the Rhabdoviridae family, has a bullet-shaped structure. Transmission of CHPV occurs through insect vectors, the Phlebotomus sandlfy (*Phlebotomus papatasi)* being chiefly incriminated. Mosquitoes are now also being noted as vectors with the Aedes aegypti and Culex tritaeniorhynchus species also being implicated in the spread of CHPV. Chandipura is a neurotropic virus and causes encephalitic symptoms. [3,4].

### History

The earliest literature on the CHPV dates back to 1965. CHPV was first isolated and designated its unique name after being found in the blood of two patients from Chandipura village in rural India [5]. CHPV was thereafter detected in the 1980's in the blood samples of an encephalitic patient from Madhya Pradesh, India. Madhya Pradesh, Maharashtra, and Andhra Pradesh have all played host to CHPV since its isolation in the 1960's. CHPV is not solely isolated to the orient and has been detected in the female phlebotomine sand fly in the continent of Africa in both Senegal and Nigeria [6].

### Signs and symptoms

CHPV causes a febrile disease; after the febrile phase, patients present neurological symptoms as the virus is neurotropic, resulting in encephalitis. The symptoms are varied but are along those of the encephalitic strata, with patients suffering from an altered mental status, a decreased Glasgow Coma Scale (GCS) score, convulsions, nuchal rigidity, nausea, vomiting, cranial nerve palsies, and photophobia. The above symptoms can progress in severity to an ultimate death due to respiratory or cardiac arrest. The pathophysiology behind the sudden death remains under investigation. Theories span between vasospasm and vasculitis in the neurovascular complex [7].

### Current situation in India

India has a total of 59 cases, with 51 thereof occurring in Gujarat and the remaining in Rajasthan. 159 viral encephalitis cases have been reported in the country. Thirty-eight children have reportedly succumbed to the virus to date. The current outbreak appears to be affecting younger populations, with teenagers and paediatric age groups being the most impacted. The total death toll is reported to be 71 [1, 2].

### Treatment and prevention

The best way to handle CHPV is through prevention. Prevention is achieved by eradicating or decreasing the sand fly population and reducing human exposure. Using mosquito nets and long-sleeved clothing helps reduce the likelihood of exposure. Additionally, the use of insect repellents can decrease the number of bites. There is no specific antiviral treatment for the virus, but symptomatic treatment through early hospitalization, rehydration, and administering antipyretics and anticonvulsants can help manage the condition [8].

## Conclusion

CHPV is a tropical disease of concern, and the current situation in India is of international significance. The outbreak and how authorities handle the virus and prevent further transmission are globally important. International collaboration and aid should unify efforts to minimize human exposure to the vector, as no specific treatment is available.

## Abbreviation

Chandipura virus (CHPV), Glasgow Coma Scale (GCS)

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## Authors' contribution

a. Study planning: IB, JR
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