LANGYA VIRUS: A NEW ZOONOTIC THREAT EMERGING FROM WILDLIFE

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INTRODUCTION

Emerging zoonotic viruses continue to challenge global public health, highlighting the importance of disease surveillance at the human-animal interface. One such recently identified pathogen is Langya henipavirus (LayV), first detected in eastern China in 2022. Although only a limited number of human infections have been reported and no evidence of sustained human-to-human transmission has been found, its close relationship with the highly pathogenic Nipah and Hendra viruses has raised scientific interest.

ETIOLOGY

Langya henipavirus (LayV) belongs to the Henipavirus genus of the Paramyxoviridae family. This group also includes Nipah and Hendra viruses, which are known to cause severe respiratory and neurological diseases in humans and animals. Unlike these viruses, Langya virus has so far caused relatively mild to moderate illness, and no deaths have been reported. Phylogenetic analysis shows that LayV is genetically distinct but closely related to Mojiang virus, another rodent-borne henipavirus, and shares moderate genetic identity with Nipah and Hendra viruses.

Taxonomic Classification

Family: Paramyxoviridae
Genus: Henipavirus
Virus: Langya henipavirus (LayV)
Genome Type: Negative-sense, single-stranded RNA (ssRNA)
Genome Length: ~18,000 nucleotides (18 kb)

RESERVOIR

Shrews particularly *Crocidura shantungensis* and *Crocidura lasiura* are the primary natural reservoir of Langya virus. Serological studies have also identified antibodies against the virus in a small proportion of goats and dogs, indicating that these animals may have been exposed to the virus in nature.

TRANSMISSION

Current evidence indicates that Langya virus spreads primarily from infected animals to humans. Most reported patients were farmers or rural residents with frequent exposure to animals and natural environments. Importantly, there is currently no confirmed evidence of human-to-human transmission. Investigations involving close family members and healthcare workers have not identified secondary infections. Nevertheless, experts continue to monitor the virus closely because many emerging viruses evolve over time.

OCCUPATIONAL RISK

Individuals with regular occupational exposure to wildlife, livestock, or rural environments appear to be at greater risk. These include farmers, animal handlers, veterinarians, wildlife professionals, forest workers. The emergence of Langya virus once again emphasizes the importance of the One Health approach, recognizing that human, animal, and environmental health are closely interconnected.

CLINICAL SIGNS

Most infected individuals develop flu-like symptoms, including: fever, fatigue, cough, muscle pain, headache, loss of appetite, nausea and vomiting. Some patients also show laboratory abnormalities such as

reduced white blood cell counts, decreased platelet counts, and mild liver dysfunction. Fortunately, all reported infections have recovered without major complications.

DIAGNOSIS

Early diagnosis relies mainly on real-time reverse transcription polymerase chain reaction (RT-PCR), which detects viral RNA in respiratory samples or blood. During the later stages of infection, antibody-based tests such as ELISA help identify previous exposure. Virus isolation remains the definitive laboratory method but requires high-containment biosafety laboratories.

PREVENTION AND CONTROL

Currently, there is no specific vaccine or antiviral treatment for Langya virus. Prevention therefore depends largely on reducing exposure to infected animals.

Simple preventive measures include: Avoid unnecessary contact with wild animals. Use protective gloves and masks while handling sick animals. Maintain good personal hygiene after animal contact. Report unusual illnesses in animals and humans promptly. Strengthen disease surveillance in wildlife and livestock populations.

ROLE OF ONE HEALTH AND PUBLIC HEALTH IMPORTANCE

Veterinarians play a critical role in the early detection of emerging zoonotic diseases. Monitoring wildlife health, investigating unusual disease outbreaks, educating livestock owners, and collaborating with public health authorities are essential components of preventing future epidemics. Langya virus serves as another reminder that many future public health threats may first emerge at the animal human interface. Early surveillance, rapid diagnosis, and coordinated One Health strategies remain our strongest defense against emerging zoonotic diseases. Although Langya virus currently appears less dangerous than Nipah or Hendra viruses, its discovery demonstrates how new pathogens continue to emerge from wildlife reservoirs. Continuous surveillance, ecological studies, and international collaboration are needed to understand its transmission dynamics and pandemic potential.

CONCLUSION

The story of Langya virus is not one of panic but of preparedness. Every newly discovered zoonotic virus reinforces an important lesson: protecting animal health, environmental health, and human health together is the foundation of global health security.

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