

Japanese Encephalities in Pig

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Japanese encephalitis (JE), a zoonotically important mosquitoes born viral disease caused by JE virus which is a member of the family Flaviviridae, genus Flavivirus. In India, the disease was first identified in Tamil Nadu in the year 1955 and since then the virus has spread across various states becoming a continuous threat to public health (Rajkhowa et al, 2025). JEV causes reproductive losses and encephalitis in susceptible animal species. Horses are the primary dead end host of JEV.

The naturally amplifying hosts of JEV are domestic and feral pigs, as well as ardeid wading birds like egrets and herons. Swine can maintain high levels of viremia allowing for prolonged vector borne transmission in the environment (Ricklin et al., 2016).

JEV can cause abortions, stillbirths or mummified fetuses in pregnant sows. There is report of reduced number and motility of sperm in affected boars. Affected piglets often show neurologic signs such as tremors and convulsions followed by death. However, mortality rate is negligible in adult swine (WOAH, 2019).

The disease can be diagnosed by PCR testing, virus isolation and serological test to detect antibodies. As there is limited treatment strategies, prevention is vital. Vaccination of pigs, especially breeding females, is one of the most efficient approaches to reducing JE. Controlling mosquito populations through sanitation, pesticides, and minimising stagnant water also lowers the spread (Brown & Carter, 2020).

References

1. Brown, C. C., & Carter, G. R. (2020). A textbook of veterinary microbiology. Wiley-Blackwell.
2. Ricklin, M. E., García-Nicolás, O., Brechbühl, D., Python, S., Zumkehr, B., Nougairede, A., et al. (2016a). Vector-free transmission and persistence of Japanese encephalitis virus in pigs. *Nat. Commun.* 7:10832. doi: 10.1038/ncomms10832.
3. Rajkhowa, S.; Sonowal, J.; Pegu, S.R.; Deb, R.; Gupta, V.K. Epidemiology and Emerging Trends of Zoonotic Viral Diseases of Pigs in India. *Viruses* 2025, 17, 381. <https://doi.org/10.3390/v17030381>.
4. World Organisation for Animal Health (2019). Japanese Encephalitis: Aetiology Epidemiology Diagnosis Prevention and Control References.