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Brief Communication

Emerging threat of Oropouche virus in Brazil: an urgent call for enhanced surveillance and response

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Dear Editor,

Oropouche Virus (OROV) is an arbovirus belonging to the Orthobunyavirus genus, typically transmitted by female *Culicoides paraensis* midges.¹ The first isolation of the virus was in 1955 in Trinidad and Tobago.² Since then, it has been responsible for several outbreaks in Central and South America, particularly in the Amazon region.¹

In Brazil, the first outbreak of Oropouche fever was described in 1961 in Belém, with 11,000 cases reported.³ Since then, several self-limited outbreaks of OROV or sporadic cases have been reported in Amazon regions.⁴ More recently, OROV has been identified in other regions in Brazil, highlighting the potential for the spread of the virus in non-endemic areas.^{5,6}

In 2023, OROV molecular diagnosis was decentralized to the country's Central Public Health Laboratories (LACEN), with 831 samples positive for OROV by RT-PCR identified. In 2024, an increase in the number of detected cases was reported, with 6976 positive samples up to epidemiological week 26. Most cases have been reported in the Amazon region. However, positive samples were also detected in the states of Bahia, Pernambuco, Piauí, Maranhão, Espírito Santo,

Minas Gerais, Rio de Janeiro, Mato Grosso, and Santa Catarina.⁷

The disease typically presents with headache, arthralgia, myalgia, nausea, vomiting, chills, and photophobia.^{8,9} The overlapping symptomatology with other arboviral infections imposes a challenge on the diagnosis and management, potentially leading to misdiagnosis.⁹

Although OROV infections are typically self-limiting, a few severe cases have been reported, such as hemorrhagic abnormalities, meningitis, and encephalitis, which necessitate hospitalization and intensive medical intervention.^{8,10} Despite the description of epidemics since the 1960s, no fatal case of OROV infection had been described until June 2024, when the Bahia Health Department confirmed the association of two deaths with the OROV infection.¹¹

Furthermore, the recent identification of two possible cases of vertical transmission of OROV is a significant concern. A pregnant woman from Pernambuco presented with febrile illness in 30th gestational weeks that evolved to fetal death a few days later. The OROV genetic material was detected in Placenta, umbilical cord blood, and fetus organ tissues. The second reported case was a pregnant woman in the 6th gestational week who presented with acute OROV

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infection confirmed by RT-PCR in a blood sample. She evolved with uterine hemorrhage and miscarriage.¹²

Considering the prevailing trends and the socio-environmental factors, OROV outbreaks will likely continue to increase in Brazil.⁸ To mitigate the impact of this virus, it is imperative to strengthen vector control strategies, improve diagnostic capabilities, and increase public awareness of preventive measures.⁸ Collaboration between healthcare providers, researchers, and policymakers is essential to address this emerging threat. Strengthening surveillance, improving diagnostic accuracy, and implementing effective public health interventions will facilitate more effective management and mitigation of the impact of OROV on affected populations.

Conflicts of interest

The authors declare no conflicts of interest.

REFERENCES

1. Sakkas H, Bozidis P, Franks A, Papadopoulou C. Oropouche fever: a review. *Viruses*. 2018;10:175.
2. Anderson CR, Spence L, Downs WG, Aitken THG. Oropouche virus: a new human disease agent from Trinidad, West Indies. *Am J Trop Med Hyg*. 1961;10:574–8.
3. Pinheiro F, Pinheiro M, Bensabath G, Causey OR, Shope RE. Epidemia de vírus Oropouche em Belém. *Rev Serv Especial Saúde Públ*. 1962;12:13–23.
4. Baisley KJ, Watts DM, Munstermann LE, Wilson ML. Epidemiology of endemic Oropouche virus transmission in upper Amazonian Peru. *Am J Trop Med Hyg*. 1998;59:710–6.
5. Nunes MR, Martins LC, Rodrigues SG, Chiang JO, Azevedo Rdo S, da Rosa AP, Vasconcelos PF. Oropouche virus isolation, southeast Brazil. *Emerg Infect Dis*. 2005;11:1610–3.
6. Fonseca LMDS, Carvalho RH, Bandeira AC, Sardi SI, Campos GS. Oropouche virus detection in febrile patients' saliva and urine samples in Salvador, Bahia, Brazil. *Jpn J Infect Dis*. 2020;73:164–5.
7. Brazil. Monitoramento Das Arboviroses e Balanço De Encerramento Do Comitê de Operações de Emergência (COE) Dengue e Outras Arboviroses 2024. Vol 54.; 2024.
8. Wesselmann KM, Postigo-Hidalgo I, Pezzi L, Oliveira-Filho EF, Fischer C, Lamballerie X, et al. Emergence of Oropouche fever in Latin America: a narrative review. *Lancet Infect Dis*. 2024;24:e439–52.
9. Rodríguez-Morales AJ, Paniz-Mondolfi AE, Villamil-Gómez WE, Navarro JC. Mayaro, Oropouche and Venezuelan equine encephalitis viruses: following in the footsteps of Zika? *Travel Med Infect Dis*. 2017;15:72–3.
10. Pinheiro FP, Rocha AG, Freitas RB, et al. Meningite associada as infecções por vírus Oropouche. *Rev Inst Med Trop São Paulo*. 1982;24:246–51.
11. Ministério Da Saúde confirma Dois óbitos por Oropouche no País. Brasil: Ministério da Saúde; 2024. 25/07/Available at <https://www.gov.br/saude/pt-br/canais-de-atendimento/sala-de-imprensa/notas-a-imprensa/2024/ministerio-da-saude-confirma-dois-obitos-por-oropouche-no-pais>.
12. Organização Pan-americana da Saúde/Organização Mundial da Saúde. Alerta Epidemiológico: Oropouche na Região das Américas: Evento De Transmissão Vertical Sob Investigação No Brasil. 17 De Julho De 2024. Washington, D.C: OPS/OMS; 2024. Available at <https://www.paho.org/pt/documentos/alerta-epidemiologico-oropouche-na-regiao-das-americas-evento-transmissao-vertical-sob>.