



Oropouche Virus: An Emerging Arboviral Threat in Cuba and the Need for Active Surveillance

El virus Oropouche: una amenaza arboviral emergente en Cuba y la necesidad de vigilancia activa

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ABSTRACT

Oropouche virus (OROV) is an arboviral pathogen historically confined to the Amazon basin that has undergone an unprecedented geographic expansion across Latin America and the Caribbean since 2023, driven by a novel reassortant lineage with enhanced replicative fitness. Between January and August 2024, more than 8,000 laboratory-confirmed cases were reported in Bolivia, Brazil, Colombia, and Peru, and for the first time in Cuba, where autochthonous transmission was confirmed in May 2024 and subsequently spread to several provinces. Beyond its classically self-limited febrile presentation, accumulating evidence has linked OROV infection during pregnancy to miscarriage, stillbirth, and congenital microcephaly through vertical transmission, echoing the pattern previously observed with Zika virus. Recent seroprevalence data from Havana further suggest substantial underdetection of infections relative to molecular surveillance, with concurrent circulation of dengue virus. This brief communication reviews the recent epidemiology, clinical spectrum, and emerging maternal-fetal risks of Oropouche fever, with emphasis on its introduction and spread in Cuba, and discusses the implications for community-based epidemiological surveillance, vector control, and the clinical differential diagnosis with dengue and other arboviruses circulating in the region. Strengthening integrated surveillance systems and clinician awareness is essential to detect early transmission, protect pregnant populations, and prevent Oropouche fever from becoming a silently underrecognized public health threat in Cuba and the wider Caribbean.

Keywords: Oropouche virus; Arbovirus Infections; Vector Borne Diseases; Epidemiological Monitoring; Cuba.

RESUMEN

El virus Oropouche (OROV) es un patógeno arboviral históricamente confinado a la cuenca amazónica que ha experimentado una expansión geográfica sin precedentes en América Latina y el Caribe desde 2023, impulsada por un linaje recombinante con mayor aptitud replicativa. Entre enero y agosto de 2024 se notificaron más de 8000 casos confirmados por laboratorio en Bolivia, Brasil, Colombia y Perú, y por primera vez en Cuba, donde se confirmó transmisión autóctona en mayo de 2024 con posterior diseminación a varias provincias. Más allá de su cuadro febril clásicamente autolimitado, evidencia creciente ha vinculado la infección por OROV durante el embarazo con abortos espontáneos, mortinatos y microcefalia congénita por transmisión vertical, en un patrón que recuerda al descrito previamente para el virus Zika. Datos recientes de seroprevalencia en La Habana sugieren, además, una subdetección considerable de infecciones respecto a la vigilancia molecular, con cocirculación simultánea del virus del dengue. Esta comunicación breve revisa la epidemiología reciente, el espectro clínico y los riesgos materno-fetales emergentes de la fiebre de Oropouche, con énfasis en su introducción y diseminación en Cuba, y analiza sus implicaciones para la vigilancia epidemiológica de base comunitaria, el control vectorial y el diagnóstico diferencial clínico con el dengue y otras arbovirosis circulantes en la región. Fortalecer los sistemas de vigilancia integrada y la sospecha clínica es esencial para detectar tempranamente la transmisión, proteger a la población gestante y evitar que la fiebre de Oropouche se convierta en una amenaza de salud pública silenciosamente subestimada en Cuba y el Caribe.

Palabras clave: Virus Oropouche; Infecciones por Arbovirus; Enfermedades Transmitidas por Vectores; Vigilancia Epidemiológica; Cuba.

INTRODUCTION

Oropouche virus (OROV) is an arbovirus in the genus *Orthobunyavirus*, family *Peribunyaviridae*. It was first described in Trinidad and Tobago in 1955 and is transmitted mainly by the biting midge *Culicoides paraensis*, with a secondary role attributed to the mosquito *Culex quinquefasciatus*.⁽¹⁾ For decades, Oropouche fever remained confined almost exclusively to the Amazon basin; however, between 2023 and 2024, an unprecedented reemergence was documented that extended the virus beyond its historical limits, with expansion into non-Amazonian regions of Brazil and into countries where autochthonous transmission had never before been detected, including Cuba.^(1,2) This epidemiological change has been linked to the dispersal of a recombinant viral lineage with greater replicative efficiency than historically circulating strains.^(3,4)

Clinically, Oropouche fever usually presents as a self-limited acute febrile illness that is practically indistinguishable from dengue, chikungunya, or Zika, favoring its underdiagnosis in surveillance systems focused on classic arboviral diseases. However, since July 2024, reports of previously undescribed complications associated with this virus have accumulated, including vertical transmission with adverse obstetric and neonatal outcomes, prompting regional health agencies to classify OROV as an emerging threat requiring active surveillance.⁽²⁾ The objective of this communication is to synthesize recent evidence on the epidemiology, clinical spectrum, and maternal-fetal implications of Oropouche fever, with particular emphasis on its introduction and dissemination in Cuba, and to discuss its repercussions for epidemiological surveillance and community health care.

DEVELOPMENT

Epidemiology and recent geographic expansion

Between January 1 and August 10, 2024, Brazil reported 8639 of the 10,557 confirmed cases of Oropouche fever recorded since 2015, a figure 58.8 times higher than the historical annual median, with 77.5% of cases concentrated in the Amazon region, although with autochthonous transmission documented in all the country's federal units.⁽³⁾ Genomic studies identified that this rebound coincides with the dispersal of a recombinant lineage—called OROV BR-2015-2024—originated by rearrangement between genomic segments of circulating strains in the eastern Amazon and in Peru, Colombia, and Ecuador.⁽⁴⁾

In May 2024, Cuba's Ministry of Public Health reported the first autochthonous outbreak of Oropouche fever in the country, initially in the provinces of Matanzas, Mayabeque, and Villa Clara.⁽⁵⁾ Phylogenetic analysis showed that the Cuban strain was closely related to those circulating in Brazil during 2023, and viral RNA was detected in *Ceratopogonidae* gnats and *Culex quinquefasciatus* mosquitoes, suggesting the participation of local vectors in transmission.⁽⁵⁾ The genomic characterization of a case imported to Europe from Cuba also confirmed that the Cuban strain corresponds to a recombinant lineage related to the Brazilian strains of 2022-2024.⁽⁶⁾ Subsequent entomological studies identified *Culex quinquefasciatus* and *Aedes aegypti*, as well as *Ceratopogonidae* gnats, as potential additional vectors involved in local transmission.⁽⁷⁾ The magnitude of this regional dispersion—also documented in Bolivia, Colombia, and Peru, among other countries—motivated the Pan American Health Organization to issue successive epidemiological alerts for the region of the Americas (Table 1).⁽⁸⁾

Clinical manifestations and emerging maternal-fetal complications

The classic clinical picture of Oropouche fever is characterized by fever, headache, myalgia, arthralgia, and general malaise, with a symptom frequency virtually indistinguishable from that of dengue, except for a higher proportion ofodynophagia and abdominal pain in the former.⁽⁹⁾ A living systematic review that included 23 studies with 3648 patients reported fever in 97% and headache in 86% of Oropouche cases, with no significant differences versus dengue for either symptom.⁽⁹⁾ Neuroinvasive and hemorrhagic forms have also been described, although less frequently.

The most relevant finding of the 2023-2024 outbreak has been the evidence of vertical transmission. In July 2024, Brazil notified PAHO/WHO of the first presumptive case of maternal-fetal transmission, after OROV RNA was detected in the umbilical cord, placenta, and fetal organs of a fetal death occurring at 30 weeks of gestation, in addition to specific IgM antibodies in the cerebrospinal fluid of four newborns with microcephaly.⁽⁸⁾ An expanded case series, which evaluated 68 neonates with microcephaly of unknown cause, detected positive IgM for OROV in 6 of them, with confirmation of viral RNA and antigen in brain tissue of a deceased infant.⁽¹⁰⁾

Table 1. Confirmed cases of Oropouche fever in the Region of the Americas, cumulative as of 30 July 2024.

Country	Confirmed cases	Proportion of total (%)
Bolivia	356	4,4
Brazil	7284	90,2
Colombia	74	0,9
Cuba	74	0,9
Peru	290	3,6

Source: Pan American Health Organization/World Health Organization.(8)

Although the causal relationship remains under investigation, these findings reproduce a pattern of congenital damage similar to that previously described for Zika virus and warrant considering OROV in the differential diagnosis of microcephaly and pregnancy loss in areas with active transmission.(10)

Implications for Cuba and community health surveillance

Recent seroprevalence studies conducted in Havana documented an increase in specific IgG against OROV from 0.9% in samples prior to the outbreak (2020-2021) to 13.4% in samples after (2025), with an age-adjusted seroprevalence estimated at 16.7% and evidence of underreporting greater than 2000 times relative to that detected by molecular surveillance.(11)In the same cohorts, sustained cocirculation of dengue was observed, with IgG seroprevalence between 63.3% and 78.5%, creating a scenario of multiple arboviral diseases that are difficult to differentiate clinically without laboratory support.(11)

These findings have direct implications for primary and community care in Cuba. First, it is necessary to incorporate OROV into the diagnostic algorithm for all acute febrile syndromes without an apparent focus, particularly in pregnant women, given the potential risk of vertical transmission. Second, entomological surveillance must be expanded beyond the classic dengue vectors to include Ceratopogonidae biting midges and Culex quinquefasciatus as possible local vectors of OROV. Finally, it is essential to ensure the availability of molecular tests that enable differentiation of OROV from other arboviral diseases with overlapping clinical manifestations, thereby avoiding the systematic underdiagnosis that has historically characterized this disease.

CONCLUSIONS

Oropouche virus has transitioned from an arboviral disease regionally confined to the Amazon to an emerging threat of continental scope, with confirmed introduction and sustained autochthonous transmission in Cuba since 2024. The emerging association with adverse obstetric and neonatal outcomes due to vertical transmission, together with evidence of substantial underdetection in the Cuban population, requires integrating OROV into epidemiological surveillance protocols and the clinical differential diagnosis of acute febrile syndromes, particularly in pregnant women. Strengthening community-based surveillance, vector control, and molecular diagnostic capacity is essential to prevent Oropouche fever from continuing to circulate silently in the country.

REFERENCES

1. Wesselmann KM, Postigo-Hidalgo I, Pezzi L, de Oliveira-Filho EF, Fischer C, de Lamballerie X, et al. Emergence of Oropouche fever in Latin America: a narrative review. *Lancet Infect Dis.* 2024;24(7):e439-52. doi: [https://doi.org/10.1016/S1473-3099\(23\)00740-5](https://doi.org/10.1016/S1473-3099(23)00740-5)
2. Rodríguez-Morales AJ, Drexler JF. Re-emergence of Oropouche virus in Brazil and Latin America. *Lancet Infect Dis.* 2025;25(2):137-9. doi: [https://doi.org/10.1016/S1473-3099\(24\)00672-8](https://doi.org/10.1016/S1473-3099(24)00672-8)
3. Scachetti GC, Forato J, Claro IM, Hua X, Salgado BB, Vieira A, et al. Re-emergence of Oropouche virus between 2023 and 2024 in Brazil: an observational epidemiological study. *Lancet Infect Dis.* 2025;25(2):166-75. doi: [https://doi.org/10.1016/S1473-3099\(24\)00619-4](https://doi.org/10.1016/S1473-3099(24)00619-4)
4. Naveca FG, de Almeida TAP, Souza V, Nascimento V, Silva D, Nascimento F, et al. Human outbreaks of a novel reassortant Oropouche virus in the Brazilian Amazon region. *Nat Med.* 2024;30(12):3509-21. doi: <https://doi.org/10.1038/s41591-024-03300-3>
5. Benitez AJ, Alvarez M, Perez L, Gravier R, Serrano S, Hernandez DM, et al. Oropouche fever, Cuba, May 2024. *Emerg Infect Dis.* 2024;30(10):2155-9. doi: <https://doi.org/10.3201/eid3010.240900>
6. Deiana M, Malagò S, Mori A, Accordini S, Matucci A, Passarelli Mantovani R, et al. Full genome characterization of the first Oropouche virus isolate imported in Europe from Cuba. *Viruses.* 2024;16(10):1586. doi: <https://doi.org/10.3390/v16101586>
7. Sánchez González M, Companioni A, Camacho E, Serrano S, Álvarez M, Rodríguez-Potrony H, et al. Potential vectors associated to Oropouche virus transmission in Cuba, 2024. *Gigabyte.* 2025;2025:gigabyte169. doi: <https://doi.org/10.46471/gigabyte.169>
8. Pan American Health Organization/World Health Organization. Epidemiological alert: Oropouche in the Region of the Americas, 3 August 2024 [Internet]. Washington, D.C.: PAHO/WHO; 2024 [citado 15 sep 2026]. Disponible en: <https://reliefweb.int/report/brazil/epidemiological-alert-oropouche-region-americas-3-august-2024>
9. Tortosa F, Gutiérrez Castillo G, Izcovich A, Luz K, Dos Santos T, Gonzalez-Escobar G, et al. Revisión sistemática viva de las manifestaciones clínicas de la fiebre de Oropouche: claves para diferenciarla del dengue y otras arbovirosis. *Rev Panam Salud Publica.* 2024;48:e136. doi: <https://doi.org/10.26633/RPSP.2024.136>
10. das Neves Martins FE, Chiang JO, Nunes BTD, Ribeiro BFR, Martins LC, Casseb LMN, et al. Newborns with microcephaly in Brazil and potential vertical transmission of Oropouche virus: a case series. *Lancet Infect Dis.* 2025;25(2):155-65. doi: [https://doi.org/10.1016/S1473-3099\(24\)00617-0](https://doi.org/10.1016/S1473-3099(24)00617-0)
11. García-Rivera D, Fischer C, López León L, Olk N, Piche-Ovares M, Rodríguez-Noda L, et al. Seroprevalence of Oropouche virus following the 2024-2025 outbreak in Cuba. *Nat Health.* 2026 Jun 1. doi: <https://doi.org/10.1038/s44360-026-00138-6>

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CONFLICT OF INTEREST

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