

Oropouche virus could emerge as a serious public health problem, researcher says

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Vector is no longer confined to villages in the Amazon but is spreading to major cities throughout Brazil, researcher warns . Credit: Elton Alisson / Agência FAPESP

Due to the Zika epidemic, which began in 2015, and the outbreak of yellow fever early in 2017, Brazil runs a serious risk of being afflicted by Oropouche, another virus that is widely distributed throughout South and Central America and the Caribbean. Oropouche has adapted to urban environments and is spreading ever closer to Brazil's major cities. An arbovirus transmitted by a mosquito, like Zika and yellow fever, Oropouche causes acute fever and may lead to meningitis and meningoencephalitis (inflammation of the brain and meninges).

"Oropouche is a [virus](#) that could potentially emerge at any moment and cause a serious public health problem in Brazil," said Luiz Tadeu Moraes Figueiredo, a professor at the University of São Paulo's Ribeirão Preto Medical School (FMRP-USP). Figueiredo studies emerging zoonotic viroses.

According to him, about 500,000 cases of Oropouche fever have been reported in Brazil in recent decades, but that the number of cases will likely grow, because the virus, transmitted by the midge *Culicoides paraensis*, is now found beyond Amazonian villages and is spreading to the big cities.

"*C. paraensis* is distributed throughout the Americas, and Oropouche virus therefore has considerable emergence potential," he said. "The virus may well spread from the Amazon region and central plateau to the most densely populated regions of the country."

The incidence of Oropouche fever is also rising in urban areas of Peru and Caribbean countries. In Brazil, the virus has been isolated from birds in Rio Grande do Sul state and from a marmoset in Minas Gerais state. The presence of neutralizing antibodies (which bind to the virus, tell the immune system to destroy it, and prevent it from infecting the organism) has been detected in primates in the city of Goiânia.

"We recently diagnosed a patient from Ilhéus [city in the northeastern state of Bahia] with Oropouche fever, in partnership with Eurico Arruda [a professor in FMRP-USP's Department of Cellular Biology]. This shows the virus is circulating around Brazil," Figueiredo said.

In 2002, researchers at FMRP-USP diagnosed 128 people infected by Oropouche virus in Manaus, Amazonas state's capital city. They presented with typical symptoms of the infection, such as acute fever, joint pain, headache and pain behind the eyes. Three also developed a

central nervous system infection. "The virus was found in these patients' cerebrospinal fluid," Figueiredo said.

The researchers noted that one of these three patients had neurocysticercosis, an infection of the central nervous system caused by the pork tapeworm *Taenia solium*, and another had AIDS. "This shows that some immunodepressive diseases can facilitate penetration of the central nervous system by the virus. Hardly anyone thinks of this when treating an arbovirus infection, but the possibility must be considered," Figueiredo said.

The 128 patients with Oropouche in Manaus had been clinically diagnosed with [dengue fever](#). The Oropouche and dengue viruses produce similar symptoms. For this reason, researchers at FMRP-USP and other institutions such as Fundação Oswaldo Cruz have begun to warn that many suspected cases of dengue in Brazil may be cases of infection by Oropouche.

Provided by FAPESP

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