

Angiostrongylus cantonensis

Angiostrongylus cantonensis is not a mandatory reportable disease. But reporting is recommended to understand epidemiology and disease burden.

The principal etiologic agent of human eosinophilic meningitis, *Angiostrongylus cantonensis*, was first detected in rats in Canton, China in 1933. It was then described in the Western Pacific Region (Micronesia, Melanesia and Polynesia), and in Southeast Asia (Indonesia, Philippines, Taiwan, mainland China, Vietnam, Thailand, Cambodia, Japan, India). Beyond the Indopacific region, the worm has been found in rodents in Madagascar, Egypt, Cuba, Puerto Rico and New Orleans, Louisiana (1987).

Angiostrongylus cantonensis, a lung worm of rats, was first reported in the United States in 1985, with a probable introduction during the mid-1980s by infected rats from ships docking in New Orleans. (The first report of the parasite from North America was from Campbell BG and Little MD, 1988, Am J Trop Med Hyg. May;38(3):568-73). Twenty of ninety-four (21.4%) *Rattus norvegicus* trapped in New Orleans, Louisiana, between April, 1986 and February, 1987 were infected with *A. cantonensis* (3-62 worms per rat).

A carnivorous snail, *Euglandina rosea*, was found experimentally to be able to serve as both an intermediate and a paratenic host. Other locally occurring gastropods that were successfully infected experimentally included *Mesodon thyroidus*, *Anguispira alternata*, *Bradybaena similaris*, *Subulina octona*, *Polygyra triodontoides*, *Vaginulus ameghini*, *Philomycus carolinianus*, *Deroceras laeve*, *Limax flavus* and *Lehmannia poirieri*. Laboratory reared, four to five-week-old *M. thyroidus* and *D. laeve* were able to support the development of small numbers of larvae to the third stage.

The first stage larvae of *A. cantonensis* in the feces of experimentally infected rats were found not to migrate out of the fecal pellet; this behavior favors the infection of feces-consuming gastropods. Twenty heavily infected *L. flavus* were observed over a period of two months and the shedding of the third stage larvae of *A. cantonensis* was never seen. While factors support the spread of *A. cantonensis* in rats in the southern United States, the probability of human infection is uncertain since the parasite is transmitted primarily by ingestion of raw intermediate and paratenic hosts.

Since these 1988, *A. cantonensis* has been reported in a howler monkey (*Alouatta caraya*) at the Audubon Park and Zoological Gardens, New Orleans, who died twenty-one days after initial clinical symptoms. The monkey had access to free-ranging gastropods within the zoo. (Gardiner CH et al 1990 Am J Trop Med Hyg. Jan;42[1]:70-4)

A case of autochthonous *A. cantonensis* infection was reported in a child in New Orleans in 1993. The eleven year-old boy presented to Children's Hospital in New Orleans on June 24, 1993, with myalgia (which he had had for seven days), headache, low-grade fever, vomiting and a stiff

neck. The boy had always lived in Louisiana and had not traveled abroad. His CSF showed 215 leukocytes, with sixteen percent eosinophils. On specific questioning, the boy admitted that he had, on a dare, eaten a raw snail from the street some weeks earlier. A serologic test for *A. cantonensis* was positive by enzyme immunoassay (New D, Little MD, Cross J, 1995. New England J. Medicine 332 (16):1105)

A. Cantonensis was also reported in a horse from Picayune, Mississippi, (a distance of 87 km from New Orleans), in a lemur (*Varencia variegata rubra*) from New Iberia, Louisiana, (a distance of 222 km from New Orleans), and in a wood rat (*Neotomafloridanus*) and in four opossums (*Didelphis virginiana*) from Baton Rouge, Louisiana, (a distance of 124 km from New Orleans), (Kim DY et al 2002, J.Parasitol 88(5):1024).

In March 2006, a twenty-two year-old living in Lafourche Parish was hospitalized suspected of having meningitis for muscle, neck and back aches and hypersensitivity to touch. The CSF showed 304 WBC / μ L with thirty-six percent eosinophils, high protein and low glucose. He was diagnosed as having eosinophilic meningitis. None of the non-parasitic causes of eosinophilic meningitis were found. Nine days before the onset of symptoms, the patient had eaten, on a dare, two raw legs from a green tree frog.