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Neuroangiostrongyliasis in European Wildlife and Folks

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Introduction

Neuroangiostrongyliasis, also known as rat lungworm disease, is an emerging parasitic infection caused by the nematode Angiostrongylus cantonensis. While traditionally associated with tropical and subtropical regions, cases of neuroangiostrongyliasis have been reported in various parts of the world, including Europe. This parasitic infection affects both wildlife and humans, presenting a unique challenge to public health officials and researchers. This article explores the presence and impact of neuroangiostrongyliasis in European wildlife, as well as its potential consequences for human health [1].

Neuroangiostrongyliasis in European wildlife has been reported in several countries, including France, Spain, Portugal, and the United Kingdom. The primary hosts of *A. cantonensis* are rodents, particularly rats, which serve as reservoirs for the parasite. However, other mammals, such as hedgehogs and shrews, can also act as intermediate hosts. The life cycle of *A. cantonensis* involves multiple stages, with the adult worms residing in the pulmonary arteries of rats. These worms produce eggs, which are excreted in the rat's feces. After hatching, the larvae are ingested by snails or slugs, which serve as intermediate hosts. The parasite then undergoes further development, becoming infective to other animals, including humans, when these intermediate hosts are consumed. Accidental ingestion of infected intermediate hosts or their slime by humans or other animals can lead to neuroangiostrongyliasis [2].

Originally from Southeast Asia and the Pacific Islands, *A. cantonensis* has spread to other continents. It's also possible that increased awareness and accessibility of diagnostic capability contributed to the perception of expansion. Additionally, it is a food-borne illness that has been connected to travel. A rough estimate puts the total number of cases reported globally at 2800. NA is a rare infection worldwide, despite the possibility of serious CNS disease. The most severely impacted endemic regions to date have been Thailand and the Hawaiian Islands. However, recent years have seen a decline in the frequency of these events [3].

Descrption

Neuroangiostrongyliasis can have severe consequences for wildlife in Europe. Infected rodents may experience neurological symptoms, including impaired mobility and coordination, which can affect their survival and reproductive success. Additionally, infected rodents may serve as a reservoir for the parasite, increasing the risk of transmission to other animals in the ecosystem. This can disrupt the natural balance of wildlife populations and impact biodiversity. Several factors contribute to the spread of neuroangiostrongyliasis in European wildlife. Environmental changes, such as urbanization and habitat destruction, can alter the distribution and abundance of intermediate hosts and facilitate interactions between infected animals and humans. Climate change may also play a role, as warmer temperatures and altered rainfall patterns can affect the geographical range and behavior of both the parasite and its hosts. Increased international travel and trade can introduce infected animals or contaminated produce, further contributing to the spread of the disease [4].

Cerebrospinal fluid (CSF) examinations rarely find larvae, making it impossible to directly identify parasites to confirm a diagnosis. The evaluation of patients with suspected neuroangiostrongyliasis (NA) should therefore include the use of immunological and DNA detection techniques. Although DNA and antibody detection techniques have been standardised, there are currently only a few well-characterized biological reference samples from various geographical locations, making it difficult to assess these techniques as reliable detection tools. A highly sensitive and specific quantitative PCR method has been created more recently to support the NA diagnosis.

There may be a tendency for intentional or unintentional exposure behaviour in different transmission areas. For instance, intentional eating practises favour transmission in Thailand, whereas non-intentional consumption of contaminated food or water is more common in Hawaii. Due to the high burden of infection in terrestrial gastropods, Hawaii may have more severe cases due to a higher intake of larvae. There may be no clear exposure history. Since the incubation period (IP) for NA is typically between one and three weeks, although a one-year IP has been reported, the exact date of exposure is crucial to take into account [5].

Conclusion

Although neuroangiostrongyliasis is primarily a wildlife disease, human cases have been reported in Europe. Infection occurs when humans consume raw or undercooked intermediate hosts, such as snails, slugs, or contaminated produce. Accidental ingestion of larvae or contaminated slime can result in the migration of the parasite to the central nervous system, leading to neurologic symptoms. Neuroangiostrongyliasis can present with a wide range of symptoms, including severe headaches, neck stiffness, nausea, vomiting, visual disturbances, and in some cases, neurological deficits. Due to its non-specific symptoms, the disease can be challenging to diagnose. Cerebrospinal fluid analysis and serological tests are often employed to confirm the presence of *A. cantonensis* antibodies or larvae.

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Conflict of Interest

There is no conflict of interest by author.

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