

Occurrence of *Diectophyme renale* (Goeze, 1782) in road-killed canids of Iran and its public health implication

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ABSTRACT

Diectophyme renale, is the largest of parasitic nematodes, which infects different species of fish-eating carnivores worldwide. The northern provinces of Iran (Guilan and Mazandaran) located in south of the Caspian Sea are suitable for parasitic infections due to the mild and humid climatic conditions. From separate surveys of road-killed canids in various parts of the Caspian Sea littoral area in Iran, 70 carcasses were collected along the roads of Guilan and Mazandaran from 2015 to 2017. *Diectophyme renale* detected by direct observation and molecular methods based on Cytochrome c oxidase subunit 1 (COX1 gene) sequencing analysis. Molecular investigation was also performed to validate prevalence and reduce false negative concerns. *Diectophyme renale* was found in eight of 70 carnivores, mostly in the right kidneys, as well as two cases in the abdominal cavity of a dog and a golden jackal. More carcasses on the roads were seen with lacerated internal organs. Given the frequent number of giant kidney worms in canids in the region, the transmission of this zoonotic helminth to humans seems possible, since the area is a tourism hub in the country. The infection burden of this helminth should be investigated using DNA analysis of kidney tissue of road-killed carnivores in Iran.

Keywords: Giant kidney worm, COX1, gene Carnivores, Conventional PCR, One health