

Occurrence of cat lungworm (*Aelurostrongylus abstrusus*) in Indian wild cat (*Felis silvestris ornata*)

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ABSTRACT

Metastrongyloid nematode *Aelurostrongylus abstrusus* is considered as one of the major lungworms in felids worldwide. During routine necropsy of wild cat lungs revealed small grey to white multifocal nodules. Parasitic examination revealed elongated larvae of *Aelurostrongylus abstrusus* dorsal kink. Histopathological examination of lungs tissue revealed sections of *Aelurostrongylus abstrusus* embedded in mucosa of bronchi and in the alveolar lumen. This case report described occurrence of lung worm infestation in Indian wild cat.

Keywords: *Aelurostrongylus abstrusus*, lungworm, wild cat.

Various nematodes, lungworms infect the respiratory system of domestic and wild felids. *Aelurostrongylus abstrusus* (cat lungworm), a metastrongyloid cause respiratory infection in domestic cat (*Felis catus*)¹. This nematode has also been reported in wild felids. Biological (e.g., expansion of intermediate hosts) and phenologic (e.g., global warming, environmental changes) modifications for lungworms and their wild hosts could nurture an apparent emergence of these nematodes in in wild felids². *Aelurostrongylus abstrusus* may be spill-over from domestic cat, and recognized ability to cause infection and lower respiratory tract disease in domestic cats. The female lay eggs in the alveoli and then the migrating larva causes pathological lesions in the lungs during its prepatent period, however the adult nematodes may still persist even after the end of patent period³. Subsequently, the respiratory tract of wild cats are affected, which leads to varying clinical manifestations that can range from poor body condition to coughing, dyspnoea, bronchopneumonia, and mucopurulent nasal discharges⁴. *A. abstrusus* have been reported among the European wildcat (*Felissilves trissilvestris*) with higher prevalence rates⁵. *A. abstrusus* is harboured mostly in the free ranging felids and is seen in both adult and young cats due to their hunting ability of prey. The present case described the occurrence of lungworm infestation in wild cat from Nagpur region of India.

A carcass of free range 5-year-old male Indian wild cat (*Felis silvestris ornata*) weighing about 10 kg was presented for routine post-mortem examination to Department of Pathology, Nagpur Veterinary college, Nagpur. Gross lesions were recorded and representative tissue samples of lungs, liver, heart, spleen, and kidneys were collected in 10% neutral buffered formalin for histopathology. Routine histopathological procedure was carried out as per standard method. The parasites in bronchi were collected and submitted to the Department of Parasitology for identification.

Grossly the lungs revealed small grey to white multifocal nodules on apical lobe of right lungs (Fig. 1). On squeezing, from cut surface of bronchi very thin white color thread like worms came out. Microscopic examination of parasite revealed elongated larvae having dorsal kink (Fig. 2). Section of lungs revealed

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adult worms in alveoli and mucosa of bronchi surrounded by infiltration of mononuclear cells (Fig. 3).

A. abstrutus is found in many parts of the world including USA, Europe and Australia. Geographic range of cat lungworm is expanding¹. It may infect all cats regardless of their habitat, lifestyle, sex and breed. Though *A. abstrutus* is mainly affecting the domestic cat, the knowledge of host range and distribution of lung worms needs to be improved for better understanding of the potential role of wild felids as a source of bridging infections with domestic cats. Result from present report shows that *A. abstrusus* can cause significant lesions in lungs of wild cats. Among wild cats this parasite has been reported in Cheetahs⁶, lions⁷, Amur leopard cat⁸, European wildcats⁵. These

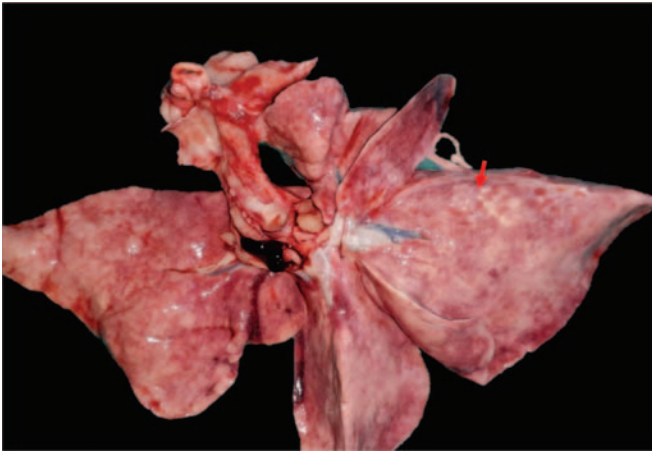


Fig. 1. Small grey to white multifocal nodules on apical lobes of right side of lungs

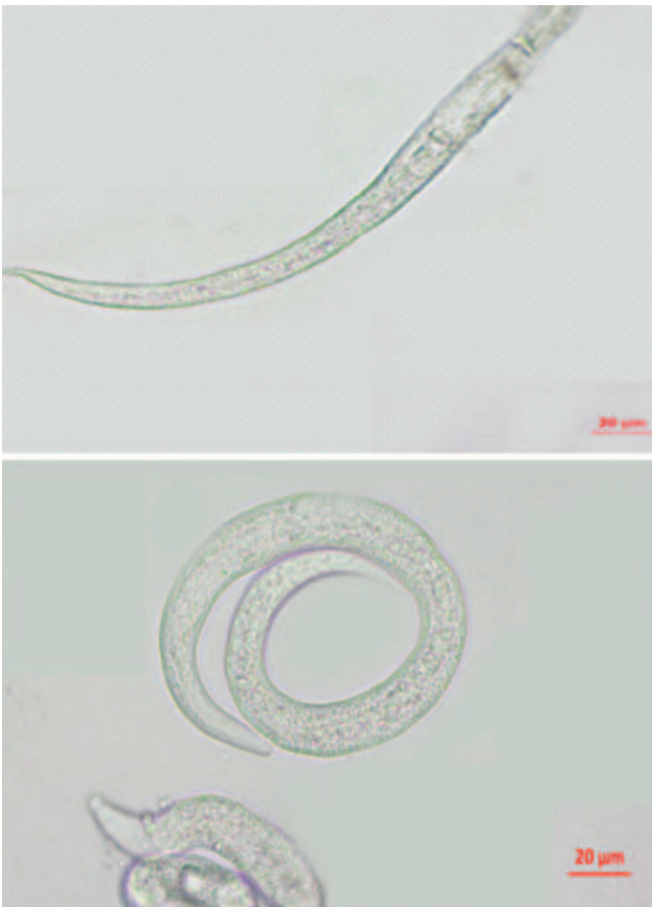


Fig. 2. Larva of *Aelurostrongylus abstrusus*. Inset showing dorsal kink at the posterior extremity (arrow)

reports indicate that this parasite have ability to infect wild felids. *Aelurostrongylus* spp. was detected in wild cats in Italy⁹ and Germany. Uncontrolled mixing of domestic and free ranging cats at peri urban settlements increases the potential sharing of disease-causing

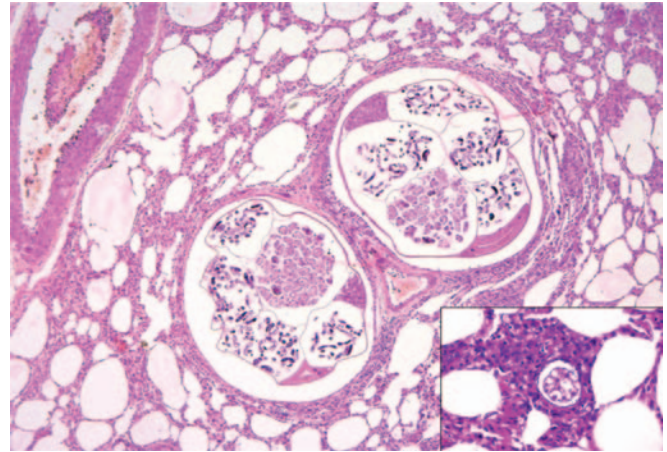


Fig. 3. Section of lungs showing *Aelurostrongylus abstrusus* in alveoli compressing the adjacent alveoli of lungs and surrounded by inflammatory cells (inset) H&E stain $\times 200$

pathogens¹⁰. Hypertrophic arteries with differing degrees of adventitial and intramural infiltrates consistent with vasculitis reported in earlier study⁵ with *Aelurostrongylus abstrusus* infection in wild cats was not present in present case this may be due to difference in worm burden and duration of infection. In wild cats lung worm infection with *Troglostrongylus brevior* has been reported most frequently than with *A. abstrusus*. In spite of the different anatomical localizations of the adult parasites (with *A. abstrusus* in the bronchioles, alveolar ducts and alveoli, and *T. brevior* in the upper respiratory tract), both species inhabit the lung airways¹¹, and share the same definitive hosts (i.e. domestic and wild cats, and lynxes). Microscopically there is structural difference in the larval tail of *Troglostrongylus*, dorsal kink is absent which can ultimately differentiate between the identification of *A. abstrusus* from *Troglostrongylus*¹². Undoubtedly, information on the host and distribution of these pathogens of felids needs to be updated and extended to geographical areas where the occurrence of these parasites has been rarely investigated. Though *A. abstrusus* is mainly affecting the domestic cat, the knowledge of host range and distribution of lung worms needs to be improved for better understanding of the potential role of wild felids as a source of bridging infections with domestic cats.

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