

What are feline lungworms?

- Feline lungworm infestations in cats are often underdiagnosed.
- *Aelurostrongylus abstrusus* (Strongylida, Angiostrongylidae) is the most well-known feline lungworm worldwide and is regarded as the most prevalent in domestic cats.
- It is small (5-10 mm long, < 100 µm diameter) and is able to colonize respiratory bronchioles and alveolar ducts of cats.
- Prevalence rates are very variable and are linked to the cat's lifestyle and ecological factors.
- Other respiratory mollusc-borne metastrongyloids include *Oslerus rostratus*, *Capillaria aerophila* and *Troglostrongylus* spp.
- *Capillaria aerophila* has a zoonotic potential.
- Mixed infections are increasingly reported.

Life cycle and transmission

- *Aelurostrongylus abstrusus*, *O. rostratus* and *Troglostrongylus* spp. have all an indirect life cycle involving terrestrial molluscs (snails, slugs).
- *A. abstrusus* L3 larvae are also found in a wide range of paratenic hosts commonly predated by cats (rat, mouse, lizard, frog, birds).
- Vertical transmission through the placenta or via milk cannot be excluded (e.g. *Troglostrongylus*).
- Free-roaming cats are at higher risk of lungworm infestation.

Clinical signs

- Eggs, larvae and adults of *A. abstrusus* accumulate in alveoli and bronchioles inducing an inflammatory reaction in the lung. The severity of lesions depends on the worm species and burden.
- Kittens seem to develop a more severe disease.
- Lungworm infestations may be asymptomatic or lead to mild to very severe respiratory signs (bronchopneumonia, pleural effusion, pneumothorax):

- Productive cough is the main sign, associated with mucopurulent nasal discharge, tachypnoea, dyspnoea.
- In the more severe cases, respiratory failure may lead to cyanotic mucosae and respiratory acidosis.
- Pulmonary hypertension may be the consequence of lung disease; arteriolar and bronchial changes may persist after parasite death, mimicking those found in feline asthma.
- Bacterial complication is frequent and can be associated to pleural effusion.
- *O. rostratus* does not seem to be associated to severe pathologic changes.
- *C. aerophila* can cause chronic bronchitis.

Diagnosis

- The Baerman migration method is considered the enrichment technique of choice for metastrongyloid lungworms (live nematode larvae). It can provide quantitative information on the parasite burden.
- Cytology: Morphometric identification of larval species requires a specific training. Samples obtained by tracheal wash or bronchoalveolar lavage are less sensitive than those taken from faeces.
- PCR on pharyngeal swabs increases diagnostic specificity and sensitivity.
- X-ray examination of the thorax provides information on the severity of disease (diffuse bronchial, alveolar and interstitial patterns).

Disease management

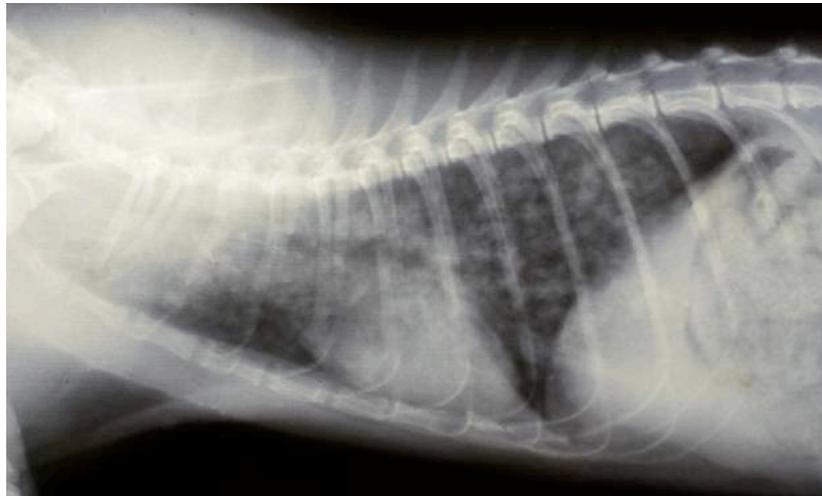
- In case of *A. abstrusus* infestation, a delay in the diagnosis and treatment may lead to lethal cardio-pulmonary lesions.
- Treatment against lungworm can be oral, e.g.:
 - Fenbendazole
 - Milbemycin oxime (4mg) / praziquantel (10 mg)
- Spot-on treatment also exists, e.g.
 - Imidacloprid 10% / moxidectin 1%
 - Emodepside 2.1% / praziquantel 8.6%
 - Fipronil 8.3% / (S)-methoprene 10% / eprinomectin 0.4% / praziquantel 8.3%
 - Selamectin
 - Abamectin

Disease management (cont.)

- Antimicrobials and corticosteroids should be provided in case of severe clinical signs.
- Intensive care (thoracocentesis, oxygen administration) is needed in severe cases.

Prevention

- There is no vaccine to protect cats from lungworm.
- Avoiding outdoor access (hunting behaviour) is the only preventive measure.



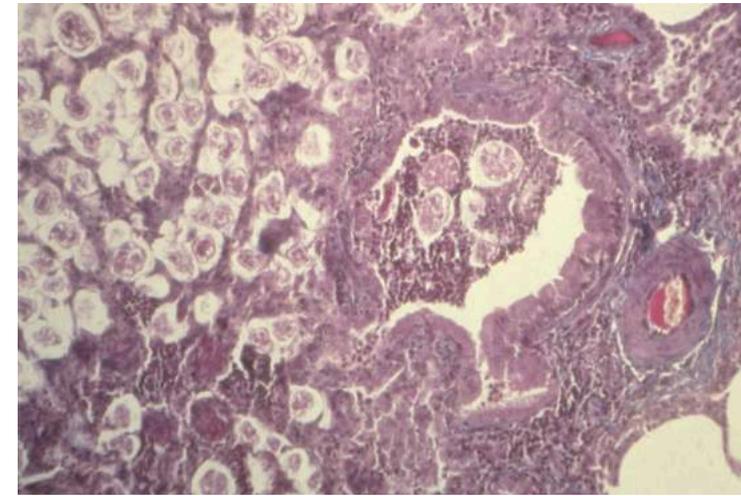
Courtesy of Maria Grazia Pennisi (Univ. of Messina).

- Right lateral thoracic radiograph of a kitten affected by severe aelurostrongylosis showing a diffuse focal alveolar pattern.



Courtesy of Maria Grazia Pennisi (Univ. of Messina).

- Multifocal subpleural nodules and haemorrhages in a severe case of aelurostrongylosis.



Courtesy of Maria Grazia Pennisi (Univ. of Messina).

- Alveolitis with larval accumulation, bronchiolitis and bronchiectasis in the lung of a cat affected by aelurostrongylosis (HE stain).