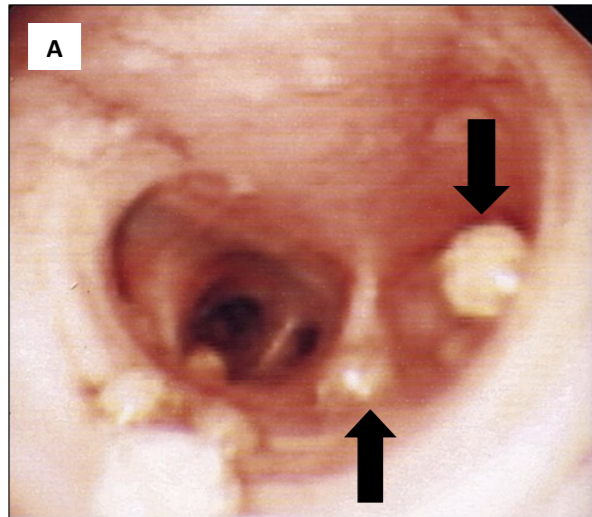
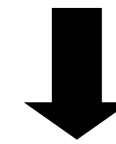


The Life cycle of *Oslerus* (= *Filaroides*)

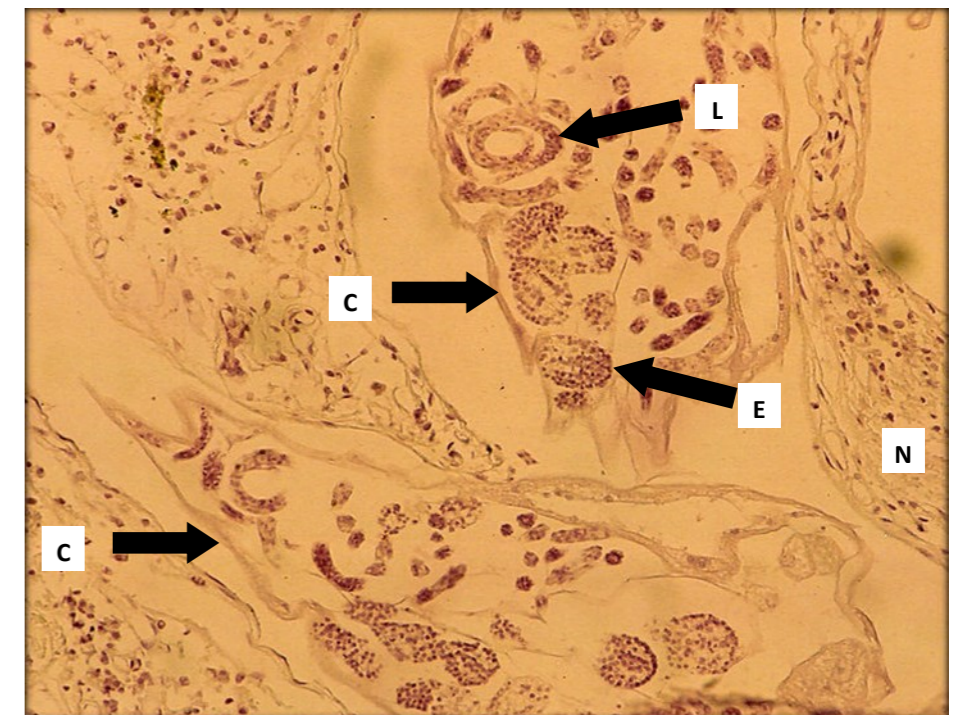
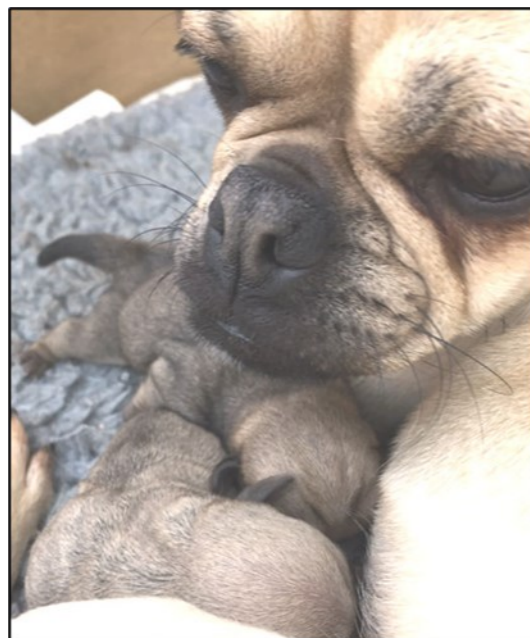
Exceptionally for lungworms in the superfamily metastrongyloidea, *Oslerus* and the closely related genus *Filaroides* have direct life cycles, and molluscs are therefore not involved. The first stage larva produced directly by the worm is immediately infective, and the main transmission route is from the infected bitch to the pup via sputum during grooming.



1. The above images are from a case referred to University of Liverpool School of Veterinary Science. Greyish white submucosal nodules (up to 1.5cm) were located distally in trachea tract or at the bronchi bifurcation. Image A shows these typical prominent nodules at bronchoscopy. Following biopsy, several female and male worms were tangled in fibrous tissue (image B) and when dissected from the tissue, the female worms were small, and white, up to 15mm long. The female worms produce eggs which hatch immediately in the trachea, having migrated from the nodule.



SIGNIFICANCE
Infections may not be clinically obvious and nodules are only be seen following bronchoscopy or incidentally at necropsy. Detection of L1 in faeces is difficult, and sedimentation techniques are unreliable as the larvae are sluggish. The most severe cases have been noted in young dogs 6-12 months old with respiratory distress and a dry cough



4. Ingested by the pup, the first larval moult occurs in the small intestine; this second stage (L2) travel to the lungs by the lymphatic-vascular route. Moulting and development from the L2 to the subadult L5 takes place in the lungs, after which the adult fifth stage worm finally settle in the trachea, eventually causing nodule formation.

3. Larvae are typically coiled and sluggish. They are coughed up, swallowed and then passed in the faeces. New Infections can occur following ingestion of faeces, but more commonly transmission takes place when an infected bitch licks the pup and transfers freshly hatched L1 present in the sputum.

2. This image is a stained histological section of a fibrous nodule: N denotes host fibrous tissue; C is the worm cuticle. Many longitudinal and transverse larval profiles can be seen within the worms (L) and developing eggs are present (E). Larvae migrate from the nodules into the airways.