

Aberrant Mesenteric Migration of *Spirocerca lupi* Larvae

We would like to draw the attention of veterinarians in Israel to a newly emerged disease of dogs, which unless recognized and treated by surgery in a timely manner is invariably fatal. This condition is caused by aberrant intestinal migration of *Spirocerca lupi* larvae leading to mesenteric arteritis, thrombosis, intestinal infarction, perforation and septic peritonitis. The first case we diagnosed was in October 2013 and to

date >40 dogs have been affected*. The clinical signs were non-specific and typically consisted of 3-4 days of anorexia, weakness and in some cases vomiting and/or diarrhea. This

* A publication describing the clinical and pathologic findings in 32 dogs is available online at this link: <https://journals.sagepub.com/doi/10.1177/0300985819887531>. The data and descriptions in this letter are based on this publication.

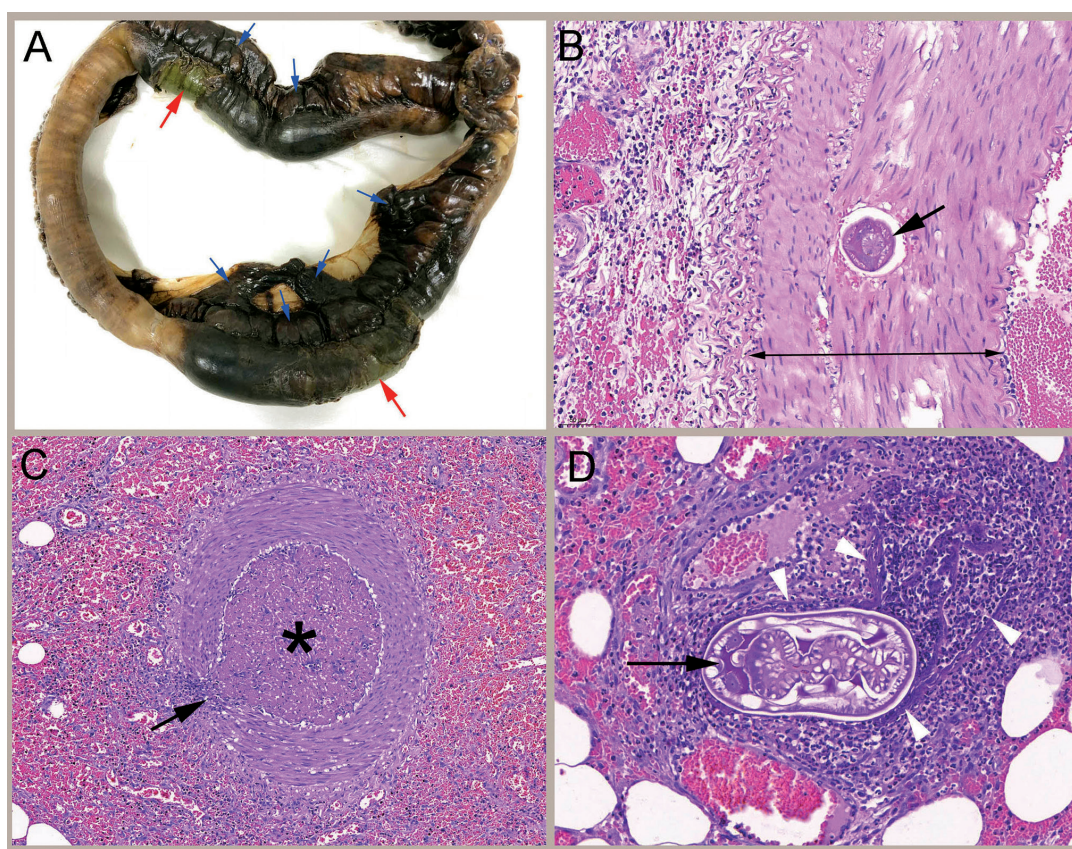


Figure A: Small intestine (formalin-fixed specimen). Typical gross findings. There are 2 well demarcated segments which have undergone hemorrhagic necrosis and partial perforation (red arrows), accompanied by congestion and hemorrhage of the mesentery (blue arrows).

Figure B: Mesenteric artery. A larva (arrow) surrounded by a small hemorrhage is found in the arterial wall (spanned by a double-headed arrow). There is hemorrhage and eosinophilic infiltration in the connective tissue on the left.

Figure C: Mesenteric artery. Focal damage of the wall (arrow) and thrombosis (asterisk). There is widespread hemorrhage in the connective tissue surrounding the artery.

Figure D: Mesenteric artery. A larva (black arrow) surrounded by eosinophils is found in the lumen of a fully necrotic blood vessel which has collapsed on itself. White arrow heads mark the remains of the vascular wall, which are surrounded by eosinophils. (This type of severe damage appears to be due to eosinophils).

was followed by acute deterioration characterized by collapse, continuous vomiting and melena. The laboratory findings were also non-specific. In dogs with abdominal effusion, abdominocentesis may show eosinophils, but neutrophils predominate in cases which have undergone perforation. In emergency exploratory laparotomy one or more intestinal segments with well demarcated hemorrhagic necrosis accompanied by congestion and hemorrhage of the relevant mesentery were identified. The small intestine was involved in 75% of cases and the large intestine in the remaining cases. The survival rate for cases which underwent timely resection and anastomosis was high (17/20 for which the data was available), despite the fact that most cases had septic peritonitis.

This condition occurred in both pure bred and mixed breed dogs of both genders and all ages (6m-14.5year-old) which weighed ≥ 25 kg. Most cases were from the Gush Dan area but some were from outside this region (from Karkur to Omer). The majority (>80%) of cases presented in the dry

season between April and October. Importantly, >50% of dogs with this condition received routine prophylaxis against spirocercosis (doramectin 200 mg/kg subcutaneously every 3 months), indicating that this regimen is ineffective in preventing this manifestation of spirocercosis.

Based on microscopic findings, it appears that the infection is recent and that the damage is caused by aberrant migration of L3 larvae, the infective stage, in intestinal and mesenteric arteries. In the normal migration, L3 larvae migrate in the walls of gastric arteries, where their presence is subclinical. We hypothesize that the different consequences of gastric vs. intestinal migration are due to the poor collateral blood supply of the latter. L3 larvae were identified microscopically in approximately 1/3 of the cases and their identification as *S. lupi* was confirmed by PCR in 4 cases.

Finally, we wish to emphasize that dogs on prophylaxis are not protected and that without surgical intervention, the condition is fatal.

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