Crenosoma vulpis, the fox lungworm, in a dog in Ireland

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Crenosoma vulpis is a metastrongylid parasite of worldwide distribution, which inhabits the trachea, bronchi and bronchioles of many Canidae. The pathogenesis of crenosomiasis in the dog has been described by Stockdale and Hulland (1970). They note that transmission of infection is effected by ingestion of land snails or slugs harbouring the infective third-stage larvae, and that larval migration to the lungs is via the portal circulation and the liver. Since the first report in a domestic dog in the UK (Cobb and Fisher 1992) there have been very few cases of crenosomiasis in dogs recorded in the literature. This short communication reports what the authors believe is the first case in a dog in Ireland.

A one-year-old cavalier King Charles spaniel from Northern Ireland was examined after a failure to respond to amoxyccillin and clavulanic acid (Synulox; Pfizer) at a dose of 12.5 mg/kg bodyweight twice daily, for a suspected infectious tracheobronchitis of several days duration. The dog had a productive cough and dribbled saliva, which was occasionally mucopurulent in character. Its respiratory rate was elevated (35/minute) and it was slightly hyperpnoeic. On examination, both tonsils were markedly enlarged, and a soft moist cough was elicited by tracheal palpation. On auscultation, the dog had increased lung sounds over the entire lung fields. Routine blood examination revealed a mild non-regenerative anaemia, with a packed-cell volume of 29.7 per cent (normal range 37 to 55 per cent) and haemoglobin concentration of 10.7 g/dl (normal range 12.0 to 18.0 g/dl), and a hyperglobulinaemia of 53 g/litre (normal range 0.5 to 1.5 g/litre). The dose of fenbendazole was reduced to 20 mg/kg once daily, for the next seven days, and prednisolone at a dose of 1 mg/kg bodyweight once daily, was given concurrently. The dog made a rapid recovery, with resolution of all symptoms within two weeks. Repeat thoracic radiographs at this stage showed that the radiographic lung changes visible on presentation were no longer evident (Fig 2).

Crenosomiosis in domestic dogs may be more widespread than the literature reports suggest. In this case, definitive diagnosis was only possible on the recovery of parasites from the lungs themselves, since faecal examination for larvae had proved negative. Table 1 summarises the reports in the literature detailing successful cures. The choice of therapeutic agent and the dosing regimen used may, however, depend on individual clinical circumstances. In animals severely affected by lung parasites, a sudden exacerbation of symptoms can occur (Armour 1989) which it is suggested might have an immunological basis. In this case, the presence of hyperglobulinaemia before therapy, and the rise in eosinophil count consequent to therapy, may be evidence that hypersensitivity to the parasite played an important role, explaining the initial adverse response to the higher fenbendazole dose. Thus, controlling the rate of parasite kill, and the host immune reaction to that kill, may both be important factors influencing the choice of therapeutic regimen.

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**TABLE 1: Reported regimens for therapy of canine crenosomiasis**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levamisole (Ivermectin)</td>
<td>8 mg/kg orally</td>
<td>Stockdale and Smart (1975)</td>
</tr>
<tr>
<td>Fenbendazole (Panacur; Hoescht)</td>
<td>20 mg/kg orally for 14 days</td>
<td>Hoff (1993)</td>
</tr>
<tr>
<td>Fenbendazole (Panacur; Hoescht), prednisolone</td>
<td>50 mg/kg orally for three days, then 0.5 mg/kg every 48 hours for eight days 1 tablet/10 kg orally for seven days</td>
<td>McGarry and others (1995) Peterson and others (1993)</td>
</tr>
<tr>
<td>Praziquantel (50 mg), pyrantel embonate (144 mg), febantel (150 mg)(Orienta Plus Tablets; Bayer UK)</td>
<td></td>
<td>Cobb and Fisher (1992)</td>
</tr>
</tbody>
</table>

**FIG 1:** Lateral thoracic radiograph showing ill-defined patchy infiltrates in the diaphragmatic lobes

**FIG 2:** Lateral thoracic radiograph taken after treatment, showing the resolution of radiographic abnormalities

The Veterinary Record, June 24, 2000
Although there has been an apparent increase in metastastrongyle parasite infections in dogs in England in recent years (Martin 1998), *C. vulpis* remains a rare parasite of domestic dogs in the UK. This case, however, demonstrates its presence in Ireland. Perhaps canine crenosomiosis will be increasingly diagnosed in the future, paralleling the apparent increase in canine sarcoptic mange, another disease increasingly implicated through contact with foxes.

References


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Veterinary Record 2000 146: 764-765
doi: 10.1136/vr.146.26.764

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