PREVALENCE OF ACANTHOCEPHALANS IN BIRDS OF PREY FROM THE MIDDLE EAST AND REPORT OF TWO CLINICAL CASES

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Sir,
Acanthocephalan (“spiny-headed”) worms are enteroparasites of birds characterised by a retractile proboscis armed with rows of thorns (Lacina & Bird, 2000). They penetrate the intestinal mucosa with the proboscis causing inflammation and nodules (Heidenreich, 1997). An arthropod (insect or mollusk) becomes the first intermediate host ingesting acanthocephalan eggs that contain the larvae (acanthor). Small vertebrates, such as the common and pigmy shrews (Sorex araneus and S. minutus) act as paratenic hosts that cumulate encysted larval stages in their bodies, eventually passing the infestation to the definitive host, the bird of prey, when ingested (Cooper, 2005). Several species, including Centrorhynchus globocaudatus in the peregrine falcon (Heidenreich, 1997), have been described in birds of prey. However, little is known about the pathogenicity of thorny-headed worms (Cooper, 2005) and their prevalence in raptors from the Middle East.

Microscopic examination of 3,988 fresh fecal samples from captive falcons from Kuwait (n = 1,706) and Dubai (n = 2,282) was performed between 2003 and 2006. Only two cases (0.05 %) of infestation due to acanthocephalans were recorded, one in Kuwait and one in Dubai, both in saker falcons (Falco cherrug) showing compatible clinical signs (Table I) and high number of acanthocephalan eggs (Fig. 1), 52-60 × 20-30 µm in size, easily distinguishable due to their dark pigmentation. Eggs contain a small larva complete with hooked proboscis.

Although Acanthocephala are generally considered to have the lowest prevalence amongst the endoparasites of birds of prey (Cooper, 2005), as confirmed in the present report (0.05 %) from the Middle East, 15 % of Falconiformes investigated in Spain were found infested with acanthocephalans (Illescas et al., 1993). In Catalonia alone, 6.7 % of raptors (one Buteo buteo, two Circus gallicus and five Falco tinnunculus) harboured acanthocephalans (Ferrer et al., 2004). But in Galicia (northwest Spain), only one bird out of 285 was infested (Sanmartin et al., 2004). In raptors from Poland a high prevalence (4.1 %) was reported as well (Furmaga, 1957) while only 1.1 % of Falconiformes were found infested in Germany (Krone, 2000).

Apparently, the parasite prevalence greatly varies in different regions and countries. A possible explanation could be the fact that intermediate hosts, such as grasshoppers, and paratenic hosts such as lizards and snakes, are more abundant in some areas, i.e. the Mediterranean (Cooper, 2005). Moreover, it seems that there is a direct link between the percentage of shrews (paratenic hosts) in the diet of a raptor species and the incidence of infestation (Michalek, 1984).

The record of compatible clinical signs (Table I) indicates that intestinal symptoms are usually associated with the parasitosis. In some studies, acanthocephalans were present in extremely high numbers without any apparent incidence on the mortality rate (Lacina & Bird, 2000). However, these worms were reported in 57 % of wild falcons in Louisiana (Keymer, 1972) and in 20 % of raptors in Azerbaijan, associated with signs such as diarrhea and weight loss (Heidenreich, 1997). Moreover, the death of a Lanner falcon (F. biarmicus) had been attributed to the acanthocephalan worm Polymorphus boschadis (Keymer, 1972).

A specific therapy has not been established yet, although other avian species have been treated with fenbendazole at a dose of 20 mg/kg for five days (Heidenreich, 1997). Treatment with ivermectin (Ivomec®, Merial) at a dose of 2 mg/kg is apparently safe (Lierz, 2001) and highly effective in raptors. In these two Saker falcons, concomitant remission of clinical signs and disappearance of eggs from fecal samples soon after administration of an eligible therapy are indirectly diagnostic for the presence of parasitic eggs.
for the elimination of adult stages and seem to confirm the pathogenicity of acanthocephalans when occurring as sole infesting agents.

REFERENCES


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