Sebekia mississippiensis (Pentastomida) from Juvenile American Alligators in North Central Florida

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ABSTRACT: The pentastome Sebekia mississippiensis was found in the lungs of 16 of 60 (27%) juvenile American alligators (Alligator mississippiensis) from Orange Lake, Alachua County, Florida. Hatchlings (<40 cm in total length) were not infected. Prevalences (and mean intensities) for alligators 41–60 cm in length and 61–80 cm in length were 20% (1.5) and 60% (2.4), respectively. It was concluded from these data that sebekiosis in wild alligator hatchlings such as reported previously for captive animals is probably rare in Florida.

KEY WORDS: pentastomes, Sebekia mississippiensis, survey, prevalence, intensity, American alligators, Alligator mississippiensis, Florida.

The American alligator frequently serves as a definitive host of a pentastome, Sebekia mississippiensis (Cherry and Ager, 1982; Boyce, 1985; Overstreet et al., 1985). Adults of this parasite are found in the respiratory system of alligators and produce eggs which are passed in the hosts’ feces (Deakins, 1971). Developmental stages have been found in various tissues of crocodilians, snakes, turtles, fishes, and mammals (Boyce, 1985). Sebekiosis has been described as a clinical disease in captive alligator hatchlings (Boyce et al., 1984) manifesting as weight loss, anorexia, respiratory distress, and death. At necropsy pentastomes were found in the lungs at a mean intensity of 7.0 (SD = 2.3). Lesions in respiratory and hepatic tissues have been noted also from wild alligators (Shotts et al., 1972; Hazen et al., 1978). Previous surveys for Sebekia in northern Florida conducted by Boyce (1985) examined subadult (1.2–1.8 m, total length [TL]) and adult (>1.8 m) alligators. His sample did not include alligators <1.2 m. In order to assess the impact of sebekiosis as a disease in wild populations of alligators, we present data on prevalence and intensity of Sebekia in juvenile alligators (<1.2 m TL) from a lake in northern Florida.

Materials and Methods

Sixty alligators, ranging in TL from 28.6 to 88 cm (0.5 to 1.6 kg), were collected during September 1986 from Orange Lake, Alachua County, Florida. Alligators were separated into 3 size categories of 20 animals each. These included individuals <40 cm (hatchlings), 41–60 cm (approximately 1 yr old), and 61–80 cm TL (more than 1 yr of age). Carcasses were frozen and livers and lungs subsequently examined after thawing. Techniques for recovery of parasites were those described by Forrester et al. (1974). Pentastomes were fixed in Roudabush’s AFA solution, cleared, and mounted in lactophenol. Examination and measurements were completed with a light microscope and a micro-projector. Representative specimens have been deposited in the U.S. National Parasite Collection (Beltsville, Maryland) as USNM Helm. Coll. No. 80287. Terms such as prevalence, intensity, and abundance are used as defined by Margolis et al. (1982). Confidence intervals were determined for data on prevalence assuming a binomial distribution (Snedecor and Cochran, 1967) and for intensity assuming a Poisson distribution (Hogg and Craig, 1970).

Results and Discussion

Prevalences and intensities are given in Table 1. Alligators <40 cm TL were free of pentastomes. For other size categories, the abundance of Sebekia mississippiensis increased linearly with TL of the alligators. This trend was similar to that reported by Boyce (1985) who examined larger alligators from the same lake in 1983 and found a prevalence of 90% and a mean intensity of 14.

All pentastomes recovered in this study were obtained from lungs; none was found in hepatic tissues. All except 2 specimens were adults. One alligator, a 59-cm male, was infected with 2 nymphs. Delany and Moore (unpubl. data) found that the non-insect portion of juvenile alligator diets from Orange Lake increased with the total length of the alligator. The mosquito fish (Gambusia affinis), an intermediate host of S. mississippiensis in Florida (Boyce et al., 1984), was present in the stomachs of 4 of the 60 alligators examined in the present study (Delany and Moore, unpubl. data). It is likely that the increase

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Table 1. Prevalence and intensity of the pentastome (Sebekia mississippiensis) in the lungs of American alligators from Orange Lake, Florida (September 1986).

<table>
<thead>
<tr>
<th>Total length of alligators (cm)</th>
<th>Prevalence</th>
<th>Intensity*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number examined</td>
<td>Number positive (%)</td>
</tr>
<tr>
<td>&lt;40</td>
<td>20</td>
<td>0 (0)</td>
</tr>
<tr>
<td>41–60</td>
<td>20</td>
<td>4 (20)</td>
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<tr>
<td>61–80</td>
<td>20</td>
<td>12 (60)</td>
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* Number pentastomes per infected alligator.

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Literature Cited


