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EUSTRONGYLIDOSIS' OCCURENCE IN FRESHWATER FISH FROM THE DANUBIAN DELTA AREA

INCIDENŢA EUSTRONGILIDOZEI LA SPECIILE DE PEŞTI DULCICOLI DIN REGIUNEA DELTA DUNĂRII

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The groups of nemathodes who infect fish has been studyied since it has been noticed that these parasites infect a large variety of organisms, being widespread all over the world, in both freshwater and marine species. The aim of this study was to investigate the infections with Eustrongylides sp. in perch, pike, pikeperch, sheat fish, and sun perch, fished into the natural Romanian's lakes, around the Danubian Delta. Our study started on October 2005 and ended on March 2008. The fish have been clinically, pathologically and parasitologically examinated. Following these exams, we have identified the Eustrongylides sp. larvae in muscles, cavity of body and gut in perch, sheat fish and pike; in liver, mesentery and body cavity in pikeperch; into the cavity of body in sun perch. We have also noticed unspecific lesions in these structures, pointing out the presence of circulatory disturbances (congestion and hemorrhage). In perch we have observed the multiparasiting phenomenon, in which Eustrongylides sp. has been found associated with Myxobolus sp., Triaenophorus sp. and Piscicola sp. into the same host.

Key words: *Eustrongylides* sp., pike (*Esox lucius*), pikeperch (*Sander lucioperca*), sheat fish (*Silurus glanis*), sun perch (*Lepomis eupomotis gibbosus*), perch (*Perca fluviatilis*), multiparasitism

Introduction

Parasitic nemathodes having a pathogenic effect on fish are the most recently studied groups of helmints. Some authors (2, 3) believe that most of them infect fish as adults, but more often the young larval stages are likely to infect their hosts. *Eustrongylides* sp. is pathogenic to fish in its final stages of development. In Romania, the larvae have been found frequently in freshwater fish around the Black Sea (4) and in North-East (1).

The pathogenity of *Eustrongylides* sp. has been studied for the first time on sturgeons in Russia (2), occasion on which it has been established that the larvae are responsable of producing serious outbreaks diseases in fisheries. Reimchen,

cited by T. A. Dick. et all. (5), mentioned that the infection results also in pelvic asymmetry, this aspect being an external indicator of the disease. Paperna, cited by Molnar et all. (2), has studied the infection with *Eustrongylides* sp. larvae in some African freshwater fish such as *Clarias*, *Haplochromis* and *Bagrus* groups. He mentioned the presence of a high specificity of the larvae to the mesentery and internal organs of the host and their pathogenic effect on the musculature.

Kennedy and Lie, cited by Molnar et all. (2) mention that the encapsuled larvae seldom harm their hosts, while free larvae are responsible for the haemorrhagic lesions and other simmilar effects that represents the clinic and morpho-pathologic pattern of the disease.

Materials and Methods

The study was made between October 2005 and March 2008, on a total of 192 fish from 5 species as follows: pike (*Esox lucius*), pikeperch (*Sander lucioperca*), sheat fish (*Silurus glanis*), sun perch (*Lepomis eupomotis gibbosus*) and perch (*Perca fluviatilis*). We split the total in 8 groups according to the time and place of provenance. The first group was constituted of 20 pikeperche, gathered in October 2005 from Sf. Gheorghe branch; the second group – 30 sun perches, gathered in October 2005 from Murighiol lake; the third group – 16 perches gathered in March 2006 from Murighiol lake; the fourth group - 14 perches gathered in October 2006 from Murighiol lake and its afferent canals; the fifth group – 17 sheat fish gathered in March 2007 from Sulina canal; the sixth group – 25 pikes gathered in March 2007 from Fortuna and Tataru lakes; the seventh group – 20 perches gathered in March 2007 from Fortuna and Tataru lakes; the eigth group – 50 perches gathered in March 2008 from the Razem- Sinoe lagoonar complex.

The biological matherial was examined clinically, anatomopathologically and parasitologically.

Results and Discussions

Frequency of the infection was in all the studied cases below the limit of an invasion, which explained the lake of clinical signs. In perch, sheat fish and pike the larvae have been found in musculature, into the body cavity and guts (figs. 1-4, 6).

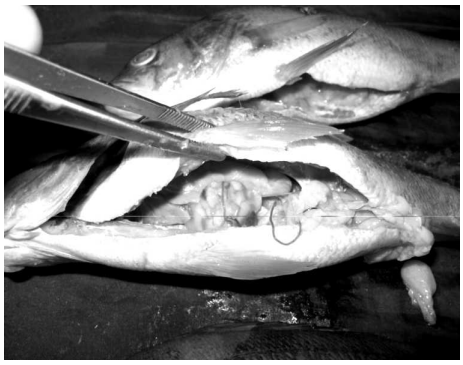


Fig. 1 – *Eustrongylides* sp. larvae in body cavity, in perch

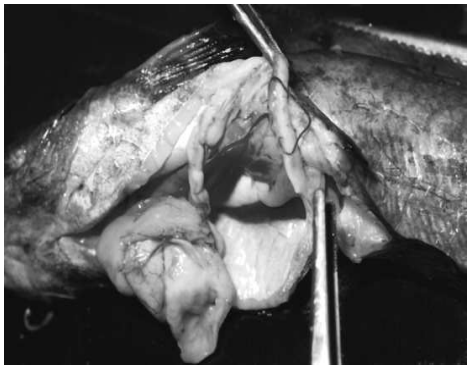
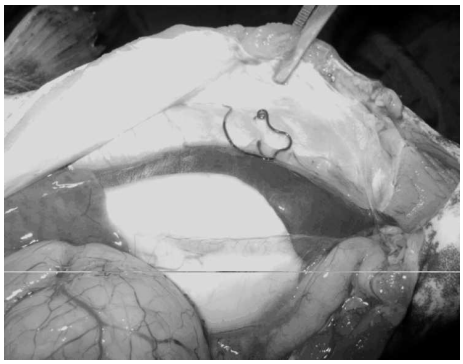


Fig. 2 - *Eustrongylides* sp. larvae in guts, in sheat fish



Figs. 3, 4 – *Eustrongylides* sp. larvae in musculature and body cavity, and gut mucosa congestion in sheat fish

Eustrongylides sp. larvae have been found also in pikeperch in liver, on mesentery and into the body cavity (figs. 7, 8). In sun perch the larvae were found only into the body cavity (fig. 5).

Following the microscopic examination of the cysts, it has been examined the specific morphology of *H. psorospermica* (figs. 1-4). The spore had an eliptic shape and the two piriform capsules were present at its apical pole (figs. 1, 2). At the basal pole, the spore wore a pair of symmetric caudally apendixes (figs. 1-3).

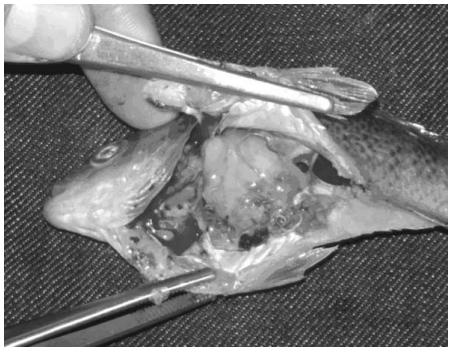
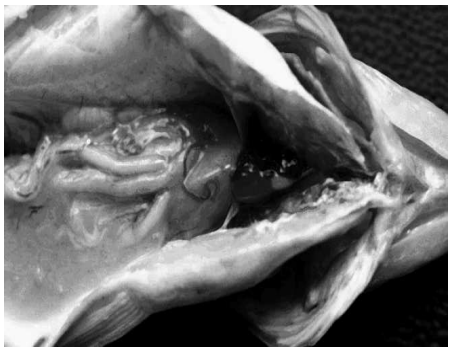


Fig. 5 - *Eustrongylides* sp. larvae into the body cavity in sun perch

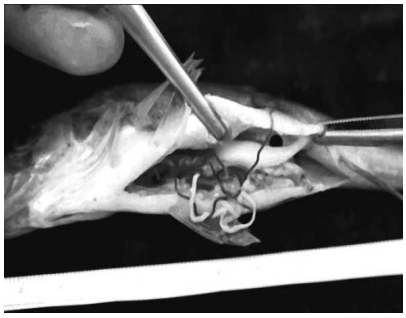
Fig. 6 – Free larvae into body cavity and encapsuled larvae in musculature, in pike

In connection with the larval migration of the free larvae, there has been noticed haemmorhagic and congestive lesions on digestive tractus, especially in gut, peritoneum and stomach (figs 3, 4), liver (figs 7, 8), and somatic muscles (fig. 6).



Figs. 7, 8 – Free and encapsuled larvae in mesentery and liver, in pike perch

On the same host, it has been noticed the presence of both free and encapsuled larvae. In a small number of cases, in each group of the studied perches, it has been noticed the poliparasiting phenomenon, in which *Eustrongylides* sp. were constantly found on the same host with *Myxobolus* sp., *Triaenophorus* sp. and *Piscicola* sp. (figs. 9, 10).



Figs. 9, 10 – Poliparasiting phenomenon in perch (*Eustongylides* sp. larvae joining *Myxobolus* sp. and *Triaenophorus* sp. respectively)

Conclusions

1. The studied species of fish have showed a low level of infection, most of the cases being subclinical.

2. *Eustrongylides* sp. larvae were found in musculature, into the body cavity and guts in perch, sheat fish and pike; in liver, mesentery and body cavity in pikeperch; into the cavity of body in sun perch.

3. Following the anatomo-pathological examination, there have been noticed circulatory disorders of congestive and haemmorhagic types, in digestive tractus, liver, peritoneum and somatic musculature.

4. On the same host it has been noticed the presence of both free (into the body cavity) and encapsuled larvae (in liver, mesentery and somatic musculature).

5. In each group of the studied perches, it has been noticed the poliparasiting phenomenon, in which *Eustrongylides* sp. were constantly found on the same host with *Myxobolus* sp., *Triaenophorus* sp. and *Piscicola* sp.

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