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THE LIVER FLUKE *METORCHIS* BILIS – A NEW THREAT FOR THE WHITE-TAILED SEA EAGLE (*HALIAEETUS ALBICILLA*) IN MIDDLE EUROPE?

O. KRONE[1] AND R. SCHUSTER[2]

Affiliation:
1. Institute for Zoo- and Wildlife Research, P.O. 601103, 10252 Berlin, Germany
2. Free University Berlin, Institute for Parasitology and International Animal Health, Königsweg 67, 14163 Berlin, Germany

Extendet abstract:

The white-tailed sea eagle (*Haliaeetus albicilla*) an endangered species in Germany suffers a lot of threats in the highly civilised landscape. Amongst the main causes of death such as traumata due to interference with human structures, i.e. collisions with trains, wire, electrocution, and poisoning, parasites do also play an important role in the health status of these birds (1). Liver flukes belonging to the genus *Metorchis*, diagnosed at a prevalence of 51% (n=112) in the eagles, were thought to be responsible for frequently detected alterations of the liver bile duct system.
To identify flukes at species level and to understand the biology of this trematode the life cycle was established in the laboratory. As known from the genus *Metorchis* (2) the life cycle includes two intermediate hosts: a water snail as first and a cyprinid fish as second intermediate host. Parallel histological and toxicological examinations were performed to reveal the liver alterations and the cause of death in the eagles.
During routine post mortem examination of a white-tailed sea eagle which recently died, adult specimen of *Metorchis* sp. were collected from the gall bladder and the bile ducts. Following cleaning the still living trematodes were put into tap water and stored in a refrigerator (5-7°C) for two days where the parasites excreted fully developed eggs. These eggs were fed to *Bithynia tentaculata* (Prosobranchia) in which the miracidum hatches to undergo an asexual multiplication. Within 5 weeks p.i. rediae were found in the hepato-pankereas and two weeks later cercaria started to leaf the snail in search for the next intermediate host. The excretion of cercariae could be enhanced by exposing the water basin with the snails under a lamp. The pleurolopho cercariae with a membranous tail reacted positively photo- and chemotactic which helped them to find their next host the fish. Ids (*Leuciscus idus*) were used as second intermediate host. After putting snails into fish basins, cercariae penetrated the skin of the fish to become encysted metacercariae in the fins, muscle or even in the cornea. A reduced visual faculty may result in a higher possibility to fell victim of the definitive host, where the parasite maturates. The shape and measurements of the metacercaria revealed the species *Metorchis bilis*. Regardless the high prevalence and intensities (up to 908) only two sea eagles died due to infections with this liver fluke. Histological examinations showed hypertropia of the epithelium cells of the bile duct walls, partial or total obstruction of the bile ducts resulting in thickening of the bile and liver swelling. Very similar organ alterations consisting of stasis of the bile in the gall bladder and the bile ducts and liver swelling could be attributed to high lead levels in the liver (3), which was also often the cause of death (17%, n=112) in these birds. Other eagles which died due to traumata, e.g. territorial fight (n=10) showed liver alterations in four cases due to an infection with *Metorchis bilis* which make them more likely to be the loser.

Zusammenfassung (??)

Résumé (??)

Key words: white-tailed sea eagle, *Haliaeetus albicilla,* causes of death, trematode*,* liver fluke, *Metorchis bilis,* life cycle

References

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