

ABSTRACT

Trichobilharzia regenti is a nasal avian schistosome which has during the initial phase of infection an affinity to the nervous system. Larvae migrate through the central nervous system to the nasal mucosa of waterfowl, where they mature and reproduce. Until now this infection phase has been described only marginally. Adults are located in the nasal mucosa approximately from 13th to 24th day post infection. During this life phase, they migrate through the vascularized connective tissue and lay eggs, the presence of which has been detected in the tissue only. Maturation and hatching of miracidia occur in the tissue (unlike human schistosomes). The parasite causes inflammation, and the tissue is infiltrated with immune cells. Lymphocytes, granulocytes, macrophages, plasma cells and giant multi-nuclear cells were described by histological methods. The thesis is focused on a more detailed description of cellular immune response and histopathological changes of the tissue by means of histological stains, and antibody/lectin probes.

The flukes were observed more frequently in the blood vessel lumen, together with a higher number of immune cells compared to the healthy duck. Infiltration by a high number of lymphocytes occurred in the tissue, the macrophages were frequently observed in clusters around the eggs, along with many necrotic areas with granulocytes. Clustered eggs were found not only in the tissue, but also in the lumen of blood vessels altered by reparation giving rise to new tissue rich in collagen fibers around the eggs; those blood vessels remained at least partly unobstructed. For immunohistochemical detection, the antibodies specific to immune cells of other hosts were tested, because commercial to the duck cells are unavailable. We observed many KUL01 positive cells with lobular nuclei, and CD4 positive T lymphocytes occurred under the basal membrane of the nasal epithelium. Lectin probes reacted non-specifically with the infiltrated cells.

The study confirmed that the parasite presence causes a destruction of blood vessels in the nasal mucosa, and the affected tissue is massively infiltrated by immune cells. The presence of several types of immune cells was confirmed, and some changes in their location around the parasite were observed during the infection. For the first time, the presence of eggs in the damaged blood vessels in the host tissue was described, as well as the presence of T lymphocytes and KUL01 positive cells.

Key words: *Trichobilharzia regenti*, avian schistosomes, blood flukes, definitive host, domestic duck, Anatidae, nasal mucosa, histology, immunohistochemistry, lectins.