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DIAGNOSIS OF *ECHINOCOCCUS MULTILOCULARIS* INFECTION IN DEFINITIVE HOST BY DETECTION OF COPROANTIGENS

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Diagnosis of *Echinococcus multilocularis* infection in the definitive host by detection of coproantigens was performed in dogs using a sandwich enzyme-linked immunosorbent assay (ELISA). Both polyclonal antibodies, from rabbits hyperimmunized with excretory/secretory antigens (ES antigens) derived from *E. multilocularis* maintained *in vitro,* and murine hybridoma-derived monoclonal antibodies (designated as EmA1-EmA11) raised against the *E. multilocularis* adult worm, were used. Monoclonal antibody specificity in the sandwich ELISA was first determined by cross-reactivity tests with other parasite-infected feces, followed by a sensitivity test against the ES antigens. EmA9 was selected as the most specific and sensitive monoclonal antibody for subsequent tests. Detection of coproantigens in feces of experimentally infected dogs was carried out almost daily until autopsy at 3 weeks postinfection (PI). Coproantigens were detected as early as 3-5 days PI and increased steadily until autopsy. However, coproantigens were not detected in an experimentaly infected dog after treatment with praziquantel. Higher optical density ($0D_{492nm}$) in the ELISA was observed for feces of an individual dog with a large parasite burden. Freezing and subsequent heating of the feces as a safety precaution did not affect the sensitivity of the ELISA. Examination of circulating antibodies performed in parallel with the coproantigen test showed false positive, and there was a delay in antibody response to the infection.

It is concluded that the detection of coproantigens is a more effective diagnostic method than detection of circulating antibodies or fecal examination for this parasite because of possible diagnosis during the early stages of infection, providing a good estimate of the parasite burden in the host and reducing the biohazard involved in routine diagnosis.