

Unusual clinical expression of *Echinococcus multilocularis* infection in a Polish population – why does the disease occur in younger patients?

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Human alveolar echinococcosis (AE) is a severe parasitic disease which, while endemic in the northern hemisphere, has begun an emerging in Poland. Human AE is usually asymptomatic for a longer period of time than the animal form. It can be characterized by a progressive tumor-like growth of the parasite with a tendency for invasive infiltration of neighboring tissues or organs and the formation of distant metastases with a potentially fatal prognosis. As metacestode development is asymptomatic for a long period, the final diagnosis of AE is usually established when clinical symptoms develop, usually when the patient is over 40 years old, and is this associated with disease severity. AE patients often present with an unspecific pain located in the right upper quadrant of the abdomen. Interestingly, the Polish AE population is characterized by patients below 30 years old with more advanced stages of infection and severe liver lesions not documented in other European areas.

The study presents a series of five unusual cases of human AE. The group comprises four males and one female, all aged 19 to 31 years old, which is probably the youngest AE population described thus far. The patients live in forested areas of the Podlaskie, Warmińsko-Mazurskie, Zachodnio-Pomorskie, Mazowieckie Voivodeships of Poland, and were frequently exposed to potential risk factors: living in a rural area, hunting, gathering brushwood, having close contact with red foxes or domestic animals, and picking mushrooms or berries. After a final confirmation of AE using histopathological analysis and Western blotting, four cases received long-term chemotherapy with albendazole for inoperable or advanced metastatic lesions. Only one patient underwent a radical surgical resection of the parasitic mass in the liver.

Alveolar echinococcosis can be developed in young patients more commonly than previously expected, and is not associated with a less severe clinical outcome. Patients from AE endemic regions should therefore be professionally diagnosed and treated for *E. multilocularis* infection as early as possible. The more invasive development and shorter time for the formation of irreversible sequela, together with distant metastases observed at a younger age, in the examined Polish population is very disquieting. The differences in virulence, pathogenicity and invasiveness of *E. multilocularis* strains isolated from Polish patients require further analysis.