

Letter to Editor

Which Test to Perform for Cystic hydatidic Diagnosis and When?

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Dear Editor-in-chief

Echinococcosis is one of the 17 neglected tropical diseases (NTDs) recognized by the World Health Organization. The two major species of medical importance are *Echinococcus granulosus* and *Echinococcus multilocularis*¹. Cystic hydatid disease is a widespread human infection caused by the larval stage of the taeniid tapeworm *Echinococcus granulosus* which affects over 1 million people and is responsible for over \$3 billion in expenses every year¹.

E. multilocularis is the cause of one of the most pathogenic of all human parasitic infections, appears to be spreading in parts of western Europe, USA, and Japan². Cystic hydatid disease continues to be a major public health problem in many countries despite being, in principle, preventable, treatable and eradicable.

The incubation period and the clinical presentation of CE are highly variable. The latter is dependent upon several features such as the involved organ, the location of the cyst within the organ, and its relation with surrounding structures, its size, and the integrity of the wall. Cystic echinococcosis is usually asymptomatic unless complications occur³.

There are many studies about diagnostic method of hydatidosis, but there is still the question that which test to perform and when. The remarkable development in the past 20 years or so of high

resolution imaging technologies, such as computerized tomography (CT) scan and ultrasound have enabled precision detection of taeniid larval cystic infection in humans. Cysts that are not accessible to ultrasound can be studied using other imaging modalities such as computed tomography (CT) or magnetic resonance imaging (MRI). MRI is better than CT at the structural, atage-defining features of cysts seen on ultrasound⁴.

Clinical laboratory analysis, including chemistry and hematology testing, is nonspecific in patients with cystic echinococcosis. For those with biliary obstruction, elevated levels of bilirubin, transaminases, and gamma-glutamyl transferase perhaps observed. In the setting of cyst leakage into the biliary tree or cyst rupture, significant elevation in gamma-glutamyl transferase and alkaline phosphatase may also be observed, together with eosinophilia, which is usually absent in intact cysts.

Immunodiagnosics play an ancillary role in diagnosis due to limitations in sensitivity and specificity. However, serology perhaps useful to support or confirm a diagnosis of cystic echinococcosis. World health organization/world organization for animal health recommendations include sequential testing based on a screening and confirmatory test model.

In cellular immunity tests, the interdermal Casoni test is well known which has low sensitivity and high result of false positive⁵. Also in humeral immunity, there are many serological techniques, which their sensitivities and specificities are depending on the antigens' quality.

Currently there are two common antigens are used for the serological diagnosis, whole parasite or organelles and soluble antigens^{6,7}.

Coupled with improvements in immunodiagnostic test sensitivity and antigen specificity, diagnosis of cestode zoonosis is now more accurate than ever before. Although further developments in immunodiagnostic are required, laboratory tests have provided improved capability for screening populations in both epidemiological and community studies.

In addition, there is significant cross reactivity is seen with other parasitic infection such as alveolar echinococcosis, cysticercoids, fascioliasis, as well as with other non-parasitic conditions like malignancy. Therefore in patients with reactive primary screening serology, should have another confirmatory test⁸.

In most of endemic countries, the diagnosis of cystic echinococcosis rests mainly on imaging. The world health organization informal working group on echinococcosis (WHO-IWGE) published in 2003⁹.

Based on the above data, diagnosis of hydatid disease relies on epidemiologic and clinical finding. In addition based on our knowledge, there are many helpful diagnostic methods for hydatid disease but false positive reactions or false negative reactions occurs in many cases. For example false positive results have been also described in some patients with tumors, but there is no explanation for that¹⁰. It should be mentioned that serology perhaps useful to support or confirm a diagnostic of cystic echinococcosis. Cystic echinococcosis is a complex infection, as a result comparison of epidemiological, biological and clinical data must be the rule in diagnostic of this infection¹¹. At the end, there are many unanswered questions and unresolved problems. There is also a clear need for research into developing of diagnosis

test, control and prevention programs which help social, political and economic situation of the affected communities¹².

Keywords: Echinococcosis, Cystic hydatid, Diagnosis

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