

The Coexistence of Cerebral and Hepatic Hydatid Cysts: A Case Report

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Abstract: Hydatid cyst, a parasitic disease caused by *Echinococcus larvae*, is endemic in the Mediterranean, South America, the Middle East and Australia. Diagnosis is based on clinical, serologic and imaging (USG, AT, MRI) methods; however, the main treatment approach is surgery. In this article, we present a case with both cerebral and hepatic hydatid cysts presenting distinctive clinical findings along with imaging methods.

Keywords: *Echinococcus larvae*, Hydatid cyst, serologic, hepatic hydatid cysts

INTRODUCTION

Hydatid cyst, a parasitic disease caused by *Echinococcus larvae*, is endemic in the Mediterranean, South America, the Middle East and Australia [1-3]. It usually occurs when the larvae passing through the hepatic and pulmonary filtration reach the brain via systemic circulation, although isolated brain localization is rare [4-6]. Cysts may be single or multiple, unilocular or multilocular, thin or thick-walled [3]. Imaging as well as serological methods are of great importance in patients with cranial involvement during diagnosis. We present an adult patient with clinically significant liver and intracranial localization using imaging findings.

CASE REPORT

Our 76-year-old male patient applied to our hospital with the complaints of appetite, headache, dizziness, and weight loss. It was learned from his medical history that he had been suffering from the complaints for 2 months, had a dog, and consumed vegetables and fruits that he had farmed. Routine laboratory tests were normal. Cranial magnetic resonance imaging (MRI) revealed a total of 3 intraaxial cystic mass, the largest of which was 18 mm in size and some of them were multilocular, in the right parietal, left parietal and left occipital. A total of 3 cystic lesion walls were found to thicken, accompanied with contrast retention, and edema in their surroundings (Figures. 1A, 1B, 1C).

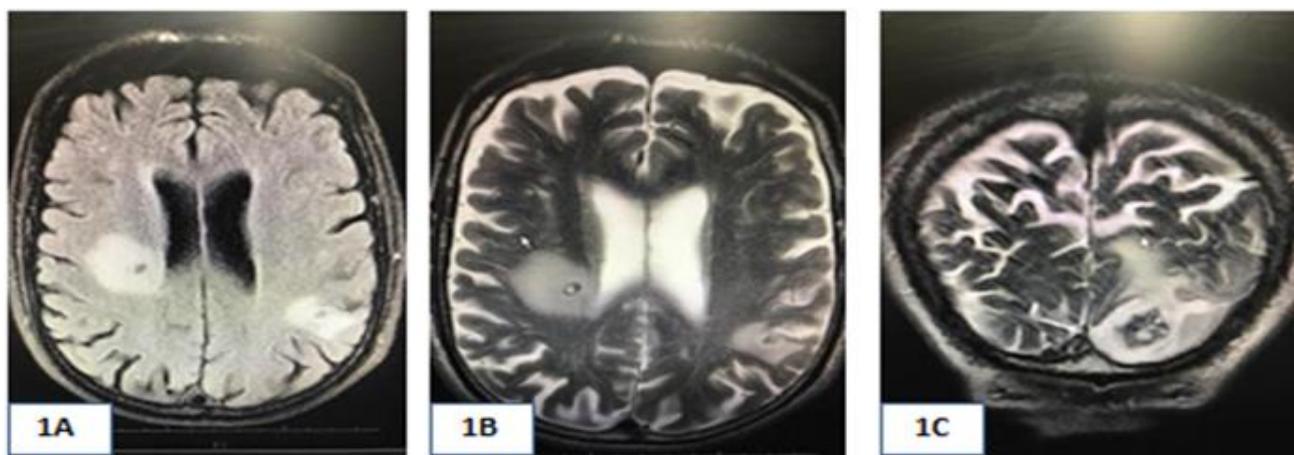


Fig-1A, 1B, 1C: Cranial magnetic resonance imaging (MRI) revealed a total of 3 intraaxial cystic mass

Lesions with contrast enhancement of walls and peripheral edema were assumed to be infected, and compatible with intracranial hydatid cysts. The hemagglutination test for hydatid cyst was positive at 1/1640. As the abdominal tomography revealed 2

hydatid cyst lesions (Figure 2A, 2B), the largest of which was 62x45 mm, in both the right lobe and left lobe of the liver, the patient was diagnosed with hepatic and cerebral hydatid cysts.

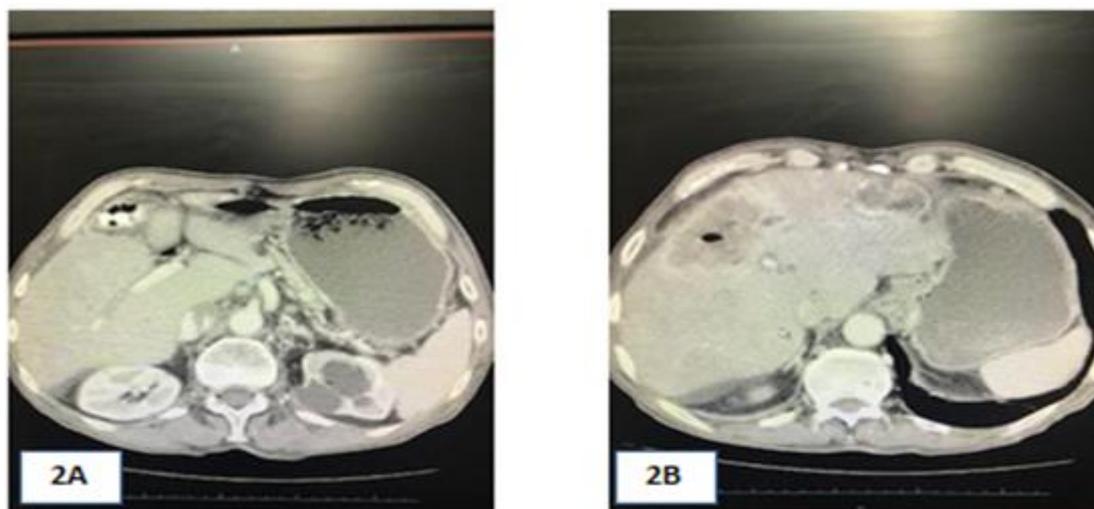


Fig-2: A, 2B: As the abdominal tomography revealed 2 hydatid cyst lesions

Albendazole therapy (10 mg/kg/day) was initiated. Brain MR imaging after 1 month showed a significant decrease of lesions during follow-up (the largest of which was found 5.5 mm). There was a significant improvement in the complaints of the patient during his 3 month follow-ups.

DISCUSSION

Hydatid cyst is a parasitic disease caused by *Echinococcus larvae*. In humans, the disease is often caused by *Echinococcus granulosus*, and less frequently by *Echinococcus multilocularis* [3]. Most common, the definitive hosts are dogs whereas the intermediate hosts are sheep and cows. Humans are accidental intermediate hosts [4, 7, 9]. Humans are infected either by ingestion of parasite egg-contaminated foods or animal contacts [1, 4]. Ingested eggs reach to the gastrointestinal tract, where embryos spread throughout the body. Embryos mature into a cystic larva (hydatid cyst) (10). The patient had a history of close association with a companion dog. The liver is the most common site of involvement (%60-%75), with the lung (%15-%30) being the second [9]. 75% of intracranial hydatid cysts occur in children [4, 11]. Cysts do not induce clinical symptoms until they have reached large size. Clinical symptoms depend on the location and size of the lesion in the central nervous system [4]. Headache and vomiting are the most common symptoms [3, 11]. The symptoms progress slowly, and neurological deficits are usually seen later due to increased intracranial pressure [4, 9]. While papilloma is frequently seen in children, focal findings such as hemiparesis, speech impairment, hemianopsia and epileptic seizures are common in adults due to the location of cyst [1]. In our case, headache was the initial symptom as well. Clinical diagnosis is based on epidemiologic findings, history, clinical findings, ultrasonography (US), computed tomography (CT) and morphological lesions detected by MRI, and serological tests. Serologic tests are still important in the diagnosis

of hydatid cyst; however, improvement in imaging techniques has reduced their importance [8]. In computed tomography, cysts appeared as round, smooth and thin-walled lesions, the content of which was equivalent or close to cerebrospinal fluid (CSF), and they have been reported not to cause any peripheral edema unless being infected [2, 4-6]. Magnetic resonance imaging is superior to CT in terms of its ability to demonstrate cyst wall and peripheral edema [1, 4]. In case of inflammatory reaction, contrast involvement and peripheral edema occur around the cyst [9]. Cerebral hydatid cysts are reported to have rarely exposed to degeneration as they are well preserved with good vascularization; therefore, resulting in calcification less than 1% [12]. Differential diagnosis of a cerebral hydatid cyst should be made with arachnoid cysts, porencephalic cysts, cystic tumors, and cerebral abscess [1, 3, 9, 13]. Surgery is the primary treatment approach [8]. The purpose of surgical approach is to remove the cyst without any rupture [4, 5, 8]. Any rupture or leakage of the cyst leads to an inflammatory reaction and recurrence [5]. The most curative surgical method requires the resection of a cyst without causing any rupture using Dowling technique, and washing the cavity with hypertonic sodium chloride [2, 4]. Washing the resection cavity with hypertonic sodium chloride also reduces recurrence [1, 9]. Drug treatment is required to shrink cysts in the preoperative period, and to prevent recurrence in the postoperative period [1, 7]. Only medication can be administered in the treatment of asymptomatic, small calcific cysts in elderly patients [7]. Albendazole or mebendazole may be used for medical treatment [5]. It is known that these drugs can pass through the blood brain barrier and cyst hydatid membrane [2]. Penetration of the drug may vary, depending on the thickness of hydatid cyst membrane and the presence of calcification. Thin membranes and the absence of calcification indicates a good response to treatment [2]. Albendazole is used at a

dose of 10-15 mg/kg/day, blocking the use of glucose thus acting as a parasiticide [5].

As the patient was old and refused surgical treatment, positive results were obtained over a 3-month-follow-up with medical treatment alone; therefore, the case is worthy of being presented here in light of the literature.

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