**Case Report**

**Coincidence of Echinococcus Granulosus and Echinococcus Multilocularis in the Same Patient: A Case Report**

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**ABSTRACT**

Echinococcosis is a zoonotic disease caused by the larval form of the *Echinococcus* spp. The species that most commonly cause infection in humans are *E. granulosus* and *E. multilocularis*. While *E. granulosus* causes cystic echinococcosis (CE) disease, *E. multilocularis* causes alveolar echinococcosis (AE) disease. Both forms of the disease are most common in the liver in humans. In areas where the disease is endemic, AE and CE are rarely seen together in the same patient. Living in rural areas and insufficient self-care due to mental retardation may cause an increased incidence of both forms of the disease. It is possible to make the differential diagnosis of AE and CE by examining the cysts during surgery and with imaging methods. Percutaneous treatment method and conservative surgical methods can be preferred in the treatment of CE. However, percutaneous treatment and conservative surgery have no place in AE. Resection should be performed in patients in the surgical treatment of AE.

**Keywords:** Echinococcosis, *Echinococcus granulosus*, *Echinococcus multilocularis*, Coincidence, Treatment

**INTRODUCTION**

Echinococcosis is a zoonotic disease caused by the larval form of the tapeworm called *Echinococcus* spp. There are four species within the genus *Echinococcus*, namely *Echinococcus granulosus*, *Echinococcus multilocularis*, *Echinococcus vogeli* and *Echinococcus oligarthrus* (1, 2). The species that most commonly cause infection in humans are *E. granulosus* and *E. multilocularis*. While *E. granulosus* causes cystic echinococcosis (CE) disease, *E. multilocularis* causes alveolar echinococcal (AE)
disease. *E. granulosus* is a common cause of human echinococcosis worldwide, and can be seen in many sages and societies. *E. multilocularis* is a relatively rare parasitic disease in humans and is mostly confined to the northern hemisphere. *E. multilocularis* and *E. granulosus* cause different clinical conditions. Their coincidence is very rare. We present here in our case of coincidence *E. multilocularis* and *E. granulosus* disease in same liver.

**CASE**

A 32 years old mentally retarded man admitted to our clinic with abdominal pain. His past medical history revealed nothing remarkable. He was living in a rural area in East Anatolian region. There were no laboratory abnormalities. Abdominal ultrasound exam showed cystic masses at his liver, so we performed a computed tomography (CT) scan. CT scan revealed several cystic lesions located both at the right and left lobe. The lesion located at the segments 5-6 was resembling alveolar echinococcus lesions because of irregular borders, internal calcifications and solid appearance. The other lesions appear cystic and resemble hydatid lesions. (Figure 1–2 CT scan images).

![Figure 1: Lesions with irregular margins and punctuate calcifications on CT are due to *E. multilocularis* is seen in the right lobe of the liver](image1)

A surgical operation was planned and the patient received albendazole 10 mg/kg/daily 15 day preoperatively. At the operation we observed that there were 6 lesions located at segments II (5 cm cystic), IVa (2 cm, cystic), IVb (2 cm cystic, 3 cm cystic), V-VI (12 cm, solid) and VII (5 cm, solid). All lesions were totally excised. Macroscopical appearance showed laminar membranes and daughter vesicles in two (Figures 2,3). Pathological examination revealed 5 alveolar and 2 hydatid lesions. Patients was well after the operation and discharged at day 8 with albendazole (10 mg/kg/daily).

![Figure 2: Abdominal CT shows a unilocular cystic lesion suggesting *E. granulosus* in the left lobe of the liver](image2)

![Figure 3: Macroscopical appearance showed laminar membranes and daughter vesicles in two](image3)
Figure 4: Appearance of the liver after lesions were resected

DISCUSSION

East Anatolian region is an endemic area for both alveolar echinococcosis disease (AE) and cystic echinococcosis disease (CE). Both diseases are mostly asymptomatic at presentation. Coincidence is rare. In 2004, Etlik et al reported a case from Turkey (3). They make the diagnosis by using CT scan. We also used CT scan. In endemic areas CT scan is useful for detecting and diagnosing alveolar and cystic echinococcosis disease (1, 4). Because they have specific appearance. A biopsy to confirm the diagnosis is commonly not necessary. Etlik et al reported also that the patient underwent a surgery but did not explain the extend or type of surgery. They also performed intraoperative biopsies and showed that the lesions were alveolar and hydatid lesions. We in our cases used albendazole preoperatively. Preoperative albendazole use is not necessary for alveolar lesions, in this case it was used for the hydatid lesions (5).

The macroscopic appearance of the echinococcal lesion is different in terms of the type of disease and its stage of development. In CE, single and multiple fluid-filled unilocular cysts are observed. In AE disease, there is a hard fibrotic spongy mass lesion consisting of many small millimetric vesicles with irregular borders and infiltrative growth to adjacent tissues (6, 7). Therefore, hepatic AE should be treated with operative principles established for malignant liver tumors. The only definitive treatment is surgical en-bloc resection with a clear margin. We excised all lesions in our case because resection was possible. Resection is also a feasible approach for hydatid lesions, but have to be done with caution. Conservative methods like cavity drainage are also useful for hydatid disease, but cannot be used for alveolar lesions (4, 6, 7). In this case all 6 lesions were small except the alveolar lesion located at segment V-VI and all were resectable. Postoperative albendazole administration was necessary in this case and because of the alveolar lesions, medical treatment should be done at least 2 years (5).

CONCLUSION

In areas where Echinococcosis disease is endemic AE and CE may be encountered in the same patient. It is possible to make the differential diagnosis of AE and CE by radiological methods. If this is not possible all lesions could be treated as AE.

Competing interests: No conflict of interest between authors under COPE and ICMJE guidelines.

Financial Disclosure: No financial support was received from any person or institution during the preparation of this article.

Ethical approval: Ethics committee approval was obtained in accordance with international agreements (World Medical Association Association of Helsinki “Ethical Principles for Medical Research Involving Human Subjects,” amended October 2013, www.wma.net).

Patient informed consent: Patient consent was obtained for the publication of this article.

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