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Echinococcosis mimicking liver malignancy: A case report

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ABSTRACT

INTRODUCTION: Human Alveolar Echinococcosis – Alveolar Hydatid disease (AE) is an omitted zoonotic infection presenting with focal liver lesions. Cause of AE is a larval stage of *Echinococcus multilocularis* tapeworms.
CASE PRESENTATION: In this report an extraordinary case of a 38 year-old female examined due to 2 liver tumors and 2 pulmonary nodules is described. The patient underwent pulmonary and liver surgery for suspected advanced cholangiocellular carcinoma and surprisingly AE was found.
DISCUSSION: Distinguishing intrahepatic AE from other focal liver lesion can be complicated and in many cases is diagnosed incorrectly as intrahepatic cholangiocarcinoma or other liver malignancy.
CONCLUSION: AE is a rare but potentially fatal parasitic infection primarily affecting liver, although it can metastasise to lung, brain and other organs. The diagnosis and treatment can be difficult and clinical misinterpretation as malignancy is not rare. The principal treatment of AE is surgery accompanied with chemotherapy.

1. Introduction

Echinococcosis is a heterogenic group of zoonotic parasitic diseases caused by the cestode tapeworm *Echinococcus granulosus* or less frequently by *Echinococcus multilocularis*. Humans are an accidental intermediate host [1]. The Czech Republic, unlike our neighboring countries, is not an endemic area of echinococcosis and hydatid disease is rare and mostly imported infection [2]. According to the SCARE criteria [3], we report an extraordinary case of a 38 year-old female who was examined and underwent surgery for suspected advanced cholangiocellular carcinoma with surprising final diagnosis of Human Alveolar Echinococcosis (AE).

2. Case presentation

A 38 year-old female was examined in regional hospital in June and July 2015 due to accidental US finding of 2 liver tumors. In consequent abdominal MRI and CT were found 2 atypical voluminous tumors in the right liver lobe. Imaging methods identified large tumors in segment S7/8 measuring 135 × 95 mm and in segment S5/6 measuring 114 × 75 mm suspected to be a malignancy. Another finding was a mass of focal nodular hyperplasia 45 × 32 mm between the tumors. (Fig. 1) Both tumors were biopsied with CT navigation, and histopathology was interpreted as suspected cholangiocellular carcinoma. In August 2015, the patient was presented to our surgery department. The patient's laboratory results demonstrated no abnormality. Additional CT of thorax showed 2 lung nodules measuring 12 respectively 8 mm in the right lower lobe suspected to be metastasis (Fig. 2).

A decision of primary resection of pulmonary nodules was made, and in September 2015 patient underwent VATS non-anatomical resection of both nodules. Histopathologic examination showed necrotic tissue and nonspecific granulation tissue with no finding of malignancy. The decision of multidisciplinary team in the aspect of the excellent performance status and particularly young age of the patient were to provide a right hepatic lobectomy, and the patient underwent surgery in October 2015 (Fig. 3).

Pathologic findings described two solid tumors with light gray-brown color with diameter 125 × 144 × 90 mm and 125 × 76 × 82 mm. Histopathologic findings were identical in both tumor and showed an extensive necrosis of liver tissue that was lined with nonspecific granulation tissue. In the necrosis there were multiple optically empty spaces with various sizes. This material was positive to PAS dyeing, and to Grocott silver staining (Fig. 4). Additional pathological examinations were performed, and in several cavities the presence of parasitic structures, subse-

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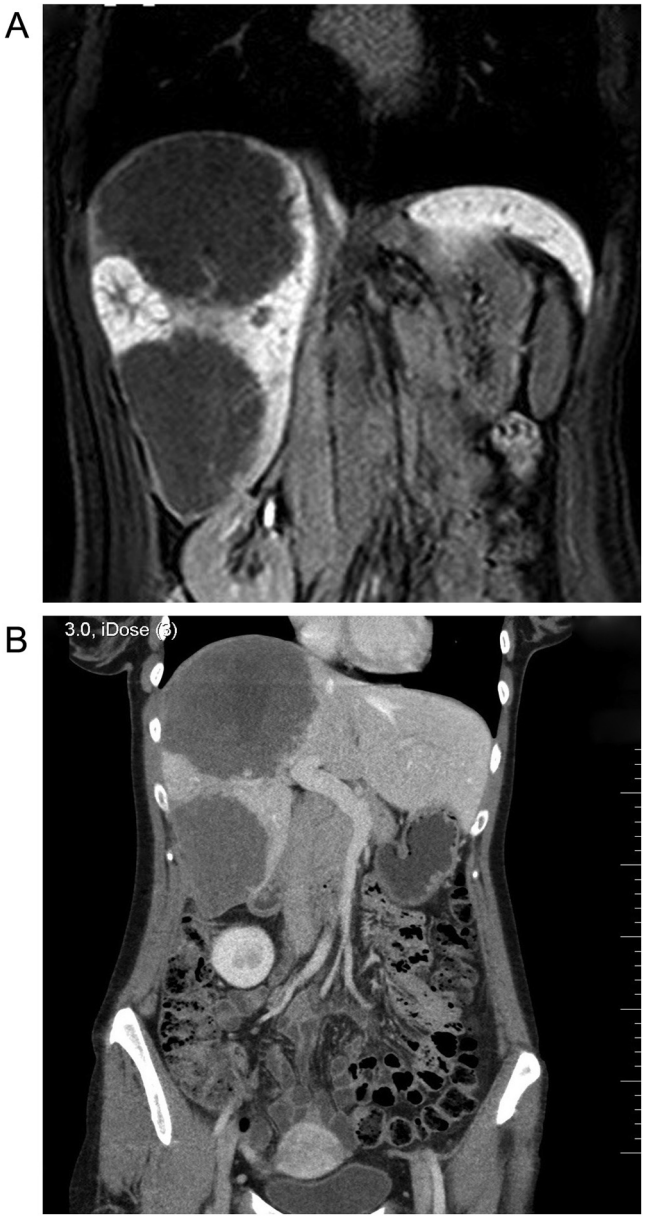

Fig. 1. (a) MRI scan – 2 tumors in the right liver lobe and a mass of focal nodular hyperplasia between the tumors. (b) CT scan – 2 atypical voluminous tumors in the right liver lobe.

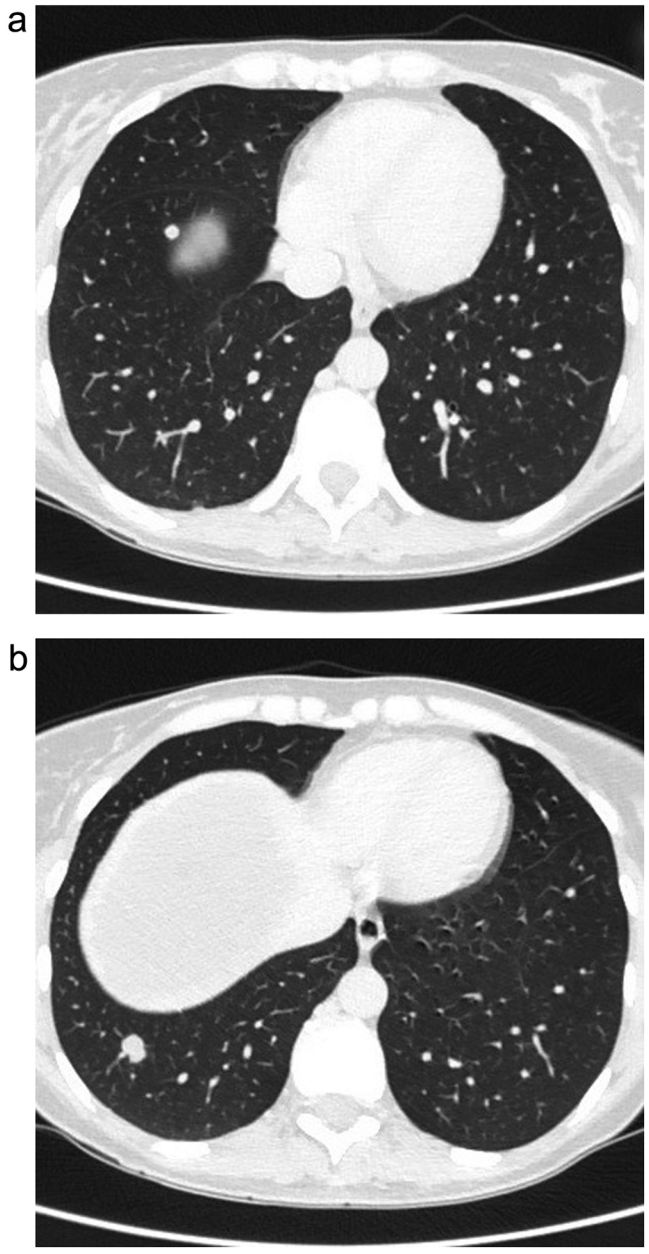

Fig. 2. a,b: CT scan – 2 lung nodules in the right lower lobe.

quently identified as the larval stage of *Echinococcus multilocularis* was found.

The patient recovered from the surgery, and following serological examination confirmed the presence of *Echinococcus multilocularis* infection. Antiparasitic chemotherapy with albendazol was implemented. 15 months after surgery the patient is in good condition without any signs of persistent infection.

3. Discussion

Hydatid disease (echinococcosis) is a zoonotic parasitic infection affecting human and mammal viscera caused by larval stage of tapeworms genus *Echinococcus*. *Echinococcus* which is spread worldwide. The most occurring specie is *Echinococcus granulosus*, which causes cystic hydatidosis. In the Northern hemisphere (Central and Northern Europe, Asia and North America) there is a related specie *Echinococcus multilocularis*, causing AE. The Czech Republic is not an endemic area of *Echinococcus multilocularis.* It was first reported in by Bartos [4] in 1928. Only 20 cases of human AE were reported during 199–2014 [1,2,4].

Echinococcus multilocularis lives in the small intestines of carnivores, firstly dogs, cats and foxes. Intermediate hosts are small mammals, primarily rodents. A person can become infected by ingesting eggs occasionally, or by direct contact with dogs or cats and that can run around freely in nature and catch infection from the rodent [5,6,7].

Symptomatology of AE depends on the affected organ, cyst size and location of the cyst expanding interaction with adjacent organs.

AE most often affects the liver (98% of all cases), and infection is usually clinically silent for many years. The clinical symptoms usually develop after a long incubation period (5–15 years) causing considerable diagnostic and therapeutic difficulties [7,8]. Large cysts resemble invasively growing tumor and may cause abdominal pain, the development of jaundice, liver vein, trombosis or portal hypertension. AE can infect lung, brain and other organs [9–11].