



Simultaneous Operation of Hydatid Cyst of the Heart and Liver: A Case Report

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ABSTRACT

Primary echinococcosis of the heart is exceptionally uncommon and is reported 0.5% to 2% of all hydatid cyst sites in comparison with liver (70%) or lung (20%) involvement. Hydatid disease of the heart is caused by the cestode tapeworm echinococcosis granulosis or alveolaris. We present a 29-year-old female with hydatid disease of the liver and heart. She only complained of abdominal pain and palpitation. Echocardiography and multi-slice computed tomography (MSCT) showed a 120×101 mm cyst in the liver and 64 mm in the right ventricular free wall. Both cysts were excised within one procedure successfully.

Case Report

A 29-year-old woman was admitted to the cardiology unit with a progressive abdominal pain and occasional brief episodes of palpitations. Multi-Slice computed tomography (MSCT) showed a 120×101 mm hydatid cyst in the left lobe of the liver and a 64 mm cyst in the free wall of the right ventricle; later, TEE study confirmed diagnosis. Further surgical consultation suggested a simultaneous operation on both cysts. Initially, general surgeon team made a sub costal incision to approach the liver. A huge cyst was found at the left lobe that was punctured and its content aspirated. Then warm hypertonic saline (5%) was instilled into the cyst and after 3-4 minutes it was opened and containers (daughter cysts) were evacuated. Subsequently, open heart surgery was performed via median sternotomy.

The cyst area was distinguished from surrounding to prevent rupture. Cold hypertonic saline (5%) was instilled into the cyst and after 3-4 minutes, infected cyst was opened and evacuated which produced a large cavity (60 ml) at site which was sutured afterward.

Discussion

Cardiac involvement of hydatid cyst is rare and usually with minimal symptoms always overlooked by the patient as well as physicians.

Human echinococcosis is caused most commonly by *echinococcus granulosus*.¹ The reported prevalence is about 0.5-2%. Human beings are only incidental hosts by contamination from contact with animals.² Chitinous eggs are lysed in the proximal digestive tract releasing six

larvae which would ultimately reach the liver via portal venous system and rarely the heart via thoracic lymphatic duct.³ In the liver, larvae can pass through sinusoids, suprahepatic veins and right chambers of the heart and eventually reside the lungs.⁴ In the parenchyma of the liver and the lungs, the larvae could growth and produce hydatid cysts.⁵ After infection, the embryo usually reaches the myocardium via coronary circulation from the left side of the heart.⁶ The cyst is then formed within a period of 1 to 5 years.⁷ Myocardial reaction consists of a fibrous adventitial pericyst layer surrounding the laminated membrane.⁸ The left ventricular and interventricular septum free walls are the most common locations of the cysts in the myocardial region right-sided cysts have a tendency to expand intracavitarily and subendocardially, whereas the left-sided cysts tend to grow sub-epicardially.⁹ This may be due to the thicker and denser myocardium of the left than the right heart.¹⁰ It has been reported that most of the cysts locate in the left ventricular wall because of the rich vascular supply of the left ventricle.¹⁰ Cardiac hydatid cysts produce a large variety of symptoms via any of four mechanisms.¹¹ They can obstruct blood flow or cause valve dysfunction. They can lead to arrhythmias or pericardial effusion with tamponade by local invasion. Rupture of the cyst causes embolization leading to systemic reaction when the cysts are on the left side of the heart, or pulmonary embolism when the cysts are on the right side.¹² Moreover, some cardiac hydatid cysts may stay asymptomatic for many years so that the diagnosis of cardiac echinococcosis can be difficult and must be suspected in any patient from endemic or sheep

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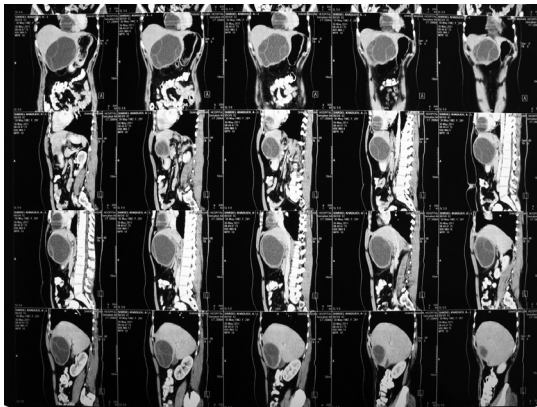


Figure 1. Multi-slice computed tomography

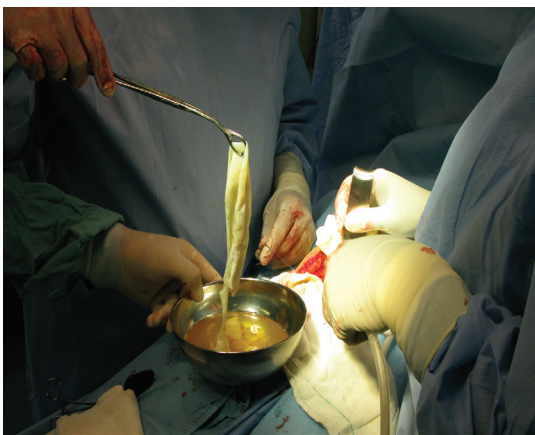


Figure 2. Removed cyst from left lobe of liver

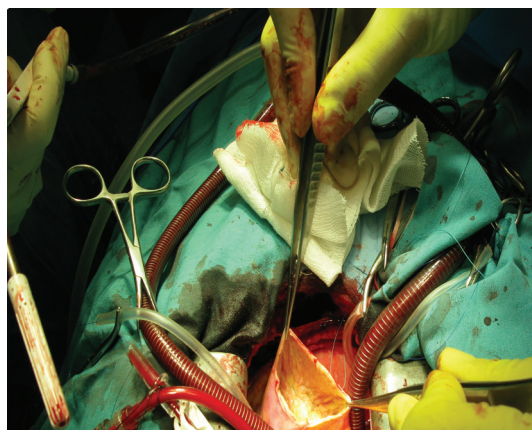


Figure 3. Hydatid cyst at free wall of right ventricle

farming areas especially with a cystic tumor of other infected organs such as liver.¹³ 2D echocardiography, computed tomography scan or MRI may be helpful but trans-esophageal echocardiography is the gold standard in detecting intracardiac echinococcosis.¹⁰ In conclusion, the treatment of hydatid cyst is surgical and should not be delayed. Extirpation of the lesion is recommended under cardiopulmonary bypass. Serologic and echocardiographic controls are recommended for 5 years after extirpation to detect recurrences after surgical manipulation or cysts that were not discovered at operation (Figures 1-3).

Ethical issues: This study was reviewed and confirmed by the ethics committee of Tabriz University of Medical Sciences.

Conflict of interests: The authors declare no conflicts of interest.

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