

Persistent Pleural Effusion after Open Heart Surgery: Giant Hydatid Cyst of the Liver and its Demonstrative Images. A Case Report

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ABSTRACT

Background: In approximately 50% of the patients who have undergone coronary artery bypass surgery (CABG), pleural fluid collection occurs at the early postoperative period and resolves spontaneously.

Case Report: CABG was performed on a 54-year-old man. In the early postoperative period, the chest roentgenogram revealed right pleural collection. The preoperative and the postoperative hepatic function tests were normal. MR scanning revealed a giant hydatid cyst at the apex of the liver. The cyst was excised through thoracotomy transphrenically and primary capitonage was applied.

Conclusions: In the persistent right pleural effusion that occurs after open heart surgery hydatid cyst of the liver should be remembered, especially in the endemic regions.

INTRODUCTION

The pleural collection is frequently seen in the left pleural space (Hurlbut 1990, Rolla 1994). However, in some other cases large amounts of symptomatic pleural collections may be seen [Hurlbut 1990, Cohen 1994]. Hemothorax, cardiac failure, infection, and post pericardiotomy syndrome are among the reasons for postoperative pleural effusions. The disorders of other organs, although they do not cause pleural collections in the preoperative period, may be important etiologic factors when the internal mammarian artery grafts are harvested. Such concomitant organ pathologies that go along with cardiac disease may cause a decrease in the resorption of pleural fluid collection and hemothorax.

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CASE REPORT

CABG was performed in a 54-year-old male Caucasian patient under cardiopulmonary bypass because of coronary artery heart disease. There were no other pathological symptoms or signs other than coronary heart disease on the preoperative evaluation. Preoperative evaluation of hepatic functions and x-ray chest roentgenogram were normal (see Table). On the 5th postoperative day, dyspnea occurred and the x-ray chest roentgenogram revealed right pleural fluid collection. About 2500 cc hemorrhagic fluid was drained with multiple thoracenteses. The hemorrhagic fluid turned out to be transuda later on. The blood and pleural fluid samples drawn simultaneously had no abnormal property. The fluid culture was negative. There was no pericardial collection or any cardiac pathology on the echocardiographic examination. The patient was discharged at postoperative 10th day and readmitted to the hospital 2 weeks later because of recurrent dyspnea. The recurrence of the pleural effusion was investigated. A total amount of 3000 cc of collection was drained by thoracenteses. The lungs and the upper abdomen were reevaluated by MR scanning. MR scanning revealed that, at the apex of the right lobe of the liver, there was a cyst hydatidicus 20 × 15 × 10 cm in size, with daughter cysts neighboring the diaphragm (see Figure). The visceral pleura were partially thickened, and this condition probably caused right inferior lobe atelectasia due to compression in the lung. No other pathology was found. The ultrasonographic and magnetic resonance studies of the abdomen revealed no hydatid cyst in any other organ. The patient was operated on with the diagnosis of liver hydatid cyst. Decortication of the lung and excision of the liver hydatid cyst were performed via right posterolateral thoracotomy. With a diaphragm incision the cyst and its constituents were totally evacuated. No complication was observed in the postoperative period. The albendazole treatment (10 mg/kg/day) was begun and continued for 3 weeks. The treatment was repeated for 3 cures.

DISCUSSION

The rate of pleural collection following CABG operations is reported to be between 42% and 89% [Hurlbut 1990, Vargas 1994, Daganou 1998]. Most of these effusions do

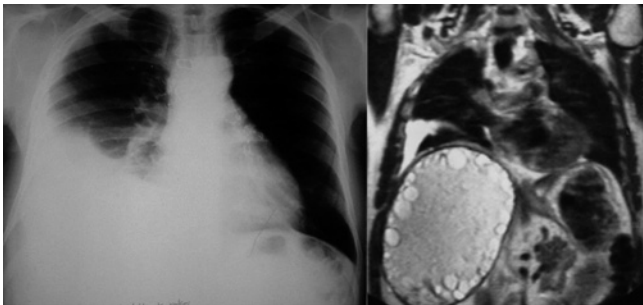
Preoperative and Postoperative Hepatic Function Tests

	Preoperative	Postoperative (5th day)
AST	21 U/L	22 U/L
ALT	28 U/L	34 U/L
T. Billirubin	.82 mg/dL	1.0 mg/dL
D. Billirubin	.4 mg/dL	.5 mg/dL

mainly resolve spontaneously. The mechanisms for the formation of postoperative pleural collections could be explained with congestive cardiac failure, postoperative infection, surgical trauma, and immunological disruption.

In our case, in addition to the precedent mechanisms, the interruption of the resorption of the pleural fluid was inevitable because of the pressure applied on the diaphragm by a giant hydatid cyst located at the liver. The reactional increment of the pleural fluid collection due to hypersensitivity and the trauma after CABG could be held responsible for the formation of the pleural effusion. The hydatid cyst located at the liver can enlarge due to the postoperative lung atelectasia and immune suppression. Especially in the early postoperative period, the cases in which there is elevation of the diaphragm due to hepatic hydatid cysts can be misinterpreted because of the concomitant diaphragm elevation due to broad atelectasia.

For the treatment of the pleural effusions, thoracentesis is usually sufficient, but in persistent cases tube thoracostomy, thoracoscopy, and debridement of the pleura and pleurodesis



X-ray chest roentgenogram on the left showing the pleural effusion, MR investigation on the right showing the hydatid cyst with daughter cysts and pleural effusion.

may be needed [Light 1999]. The transphrenic approach through right thoracotomy is the choice of surgical approach in the presence of the liver cysts with pleural effusion, pleural thickening, and pulmonary pathologies. This approach supplies easy access to the apex of the liver and causes minimal postoperative complications [Kurul 2002, Topcu 2003].

In the etiology of the persistent pleural effusions following open heart surgery, visceral pathologies such as hepatic hydatid cyst should be kept in mind, especially in endemic countries like ours.

It should be known that the liver hydatid cyst may be asymptomatic even if it is a huge one, and as in our case, liver function tests usually are in their normal range in most of the cases of liver hydatid cyst. We would like to emphasize that liver hydatid cysts should be kept in mind in differential diagnosis of pleural effusions and that thoracotomy instead of laparotomy is the most appropriate way to treat dome hydatid cysts.

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