THE DIAGNOSIS OF BILATERAL PERITONEO-PLEURAL COMMUNICATION ON HEPATIC HYDROTHORAX WITH A TC-99M MAA ASCITES SCAN: A RARE CASE REPORT

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Hepatic hydrothorax is an infrequent but well-recognized complication in patients with liver cirrhosis. It is usually found on the right side and sometimes on the left side. Only about 2% of patients with hepatic hydrothorax were found with it on both sides. We reported a rare case of hepatic hydrothorax with bilateral peritoneo-pleural communication demonstrated by a Tc-99m MAA ascites scan, but only right pleural effusion was noted in the chest X-ray. This finding supports the contention that Tc-99m MAA ascites scan is a sensitive, simple and safe method to demonstrate peritoneo-pleural communication in patients with hepatic hydrothorax.

Key words: **hepatic hydrothorax, peritoneopleural communication, Tc-99m macro-agggregated albumin ascites scan**

Hepatic hydrothorax is defined as a pleural effusion in a patient with cirrhosis of the liver and no cardiopulmonary disease. This debilitating complication occurs in up to 10% patients with liver cirrhosis [1-3]. A defect in the diaphragm in a patient with cirrhosis and hydrothorax was first described in 1955 and proposed as the cause of hepatic hydrothorax [4]. It is usually found on the right side, an incidence on both sides has rarely been reported [5,6]. We reported a rare case of hepatic hydrothorax with bilateral peritoneo-pleural communication demonstrated by a Tc-99m MAA ascites scan, but only right pleural effusion was noted on the chest X-ray.

CASE REPORT

The 50-year-old male patient was a HBV carrier with marked cirrhotic ascites.

He was hospitalized due to right chest pain for several days. A chest X-ray revealed pleural effusion on the right side and no other abnormalities (Fig. 1).

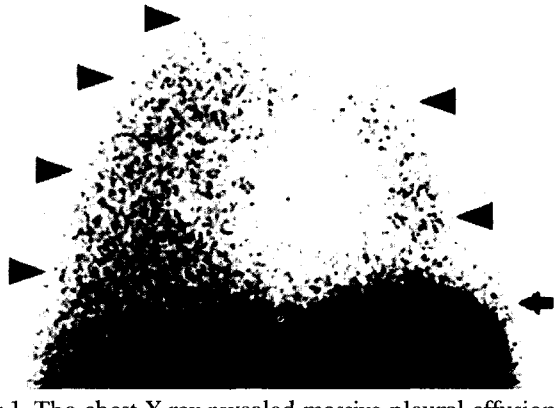

Fig 1. The chest X-ray revealed massive pleural effusion on the right side and no definite abnormality on the left side.

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The laboratory data were as follows: GOT: 46 U/L, GPT: 18 U/L, DBIL: 0.5mg/dl, TBIL: 1.2mg /dl, ALKP: 259 U/L, AFP: 4.05 ng/ml. An abdominal sonography showed liver cirrhosis, splenomegaly, marked ascites and massive right pleural effusion. A radionuclide peritoneoscintigrapy was also performed for evaluation of possible diaphragmatic defects. Series static views in the anterior aspect of the chest and abdomen were obtained after intraperitoneal injection of 3 mCi of Tc-99m macroagggregated albumin (Tc-99m MAA) under echo guidance. The scintigraphic images showed abnormal tracer distribution in the bilateral lung fields since the 10-min image, indicating bilateral peritoneopleural communication (Fig. 2).

CONCLUSION

Pleural effusion in the presence of cirrhosis and ascites is well recognized. When associated with pleural effusion it can also increase respiratory distress. Hepatic hydrothorax has been observed in up to 10% patients with liver cirrhosis [1-3]. Hepatic hydrothorax are usually found on the right side (85%) and sometimes on the left side (13%), for reasons that are not clearly understood. Only about 2% of patients with hepatic hydrothorax have had it found on both sides [6]. Two possible mechanisms have been proposed as to why peritoneal fluid enters the pleural cavity: either because of overloaded lymphatics or a structural defect between the peritoneal and chest cavities [7]. A transfer of a large volume of fluid from the abdomen to the pleural space via defects in the diaphragm is thought to be the most likely cause [8].

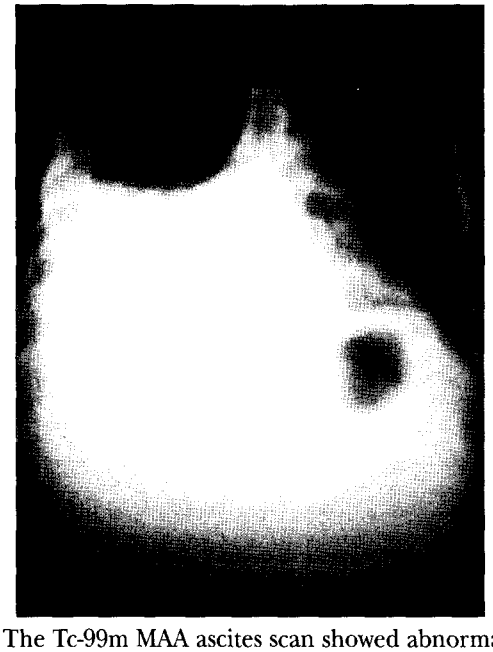

Fig 2. The Tc-99m MAA ascites scan showed abnormal tracer distribution in the bilateral lung fields since the 10-min image, indicating bilateral peritoneopleural communication.

Demonstration of the presence of peritoneopleural communication is important in the treatment approach to patients with hepatic hydrothroax. Fluid analysis is usually the first step toward identifying the cause of pleural effusion in patients with cirrhosis and ascites. However, biochemical analysis of ascitic and pleural fluid provides only indirect information about the nature and origin of the effusion. Ackerman et al. reported that pleural fluid analysis has limited diagnostic efficacy in patients with cirrhosis [9]. Data collected by other methods should assist in arriving at the correct diagnosis.

Radionuclide ascites scan is a useful method to confirm the presence of peritoneo-pleural communication in patients with cirrhosis of the liver and pleural effusion with or without ascites [10-16]. Verreault et al reported that the radioisotope migration speed may be a clue for differentiating these mechanisms of peritoneo-pleural communication, being more rapid in the presence of a diaphragmatic defect [7]. Tc-99m sulfur colloid is the most widely used agent to evaluate peritoneopleural communication in patients of hepatic hydrothorax [10-14]. Tc-99m MAA had also been used to perform the peritoneoscintigrapy [15,16].

In this reported case, Tc-99m MAA ascites scan showed bilateral peritoneo-pleural communication, but only right pleural effusion was noted on the chest X-ray. No side effects were observed during or after the scan. The finding supports the contention that

Tc-99m MAA ascites scan is a simple, safe, relatively non-invasive and sensitive method to demonstrate peritoneo-pleural communication in patients with hepatic hydrothorax.

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以Tc-99c MAA腹水掃描診斷肝源性肋膜腔積水併發兩側腹肋膜腔交通：一少見病例報告

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肝硬化病患併發肋膜腔積水是已知但不常見之併發症，通常發生在右側，有時發生在左側。只有大約2%的肝源性肋膜腔積水同時發生於兩側。我們報告一有肝硬化合併腹水患者，以Tc-99m MAA腹水掃描檢查發現少見的兩側腹肋膜腔交通的情形，但胸部X光僅發現右側肋膜腔積水。此篇報告再度證實Tc-99m MAA腹膜閃爍攝影是一種靈敏、簡單又安全的腹肋膜腔交通之診斷方法。

關鍵詞：肝源性肋膜腔積水、腹肋膜腔交通、Tc-99m MAA腹水掃描