



Recurrent Right Sided Pleural Effusion in a Cirrhotic Patient

Tan Kee Nam^{1*}, Qin Jian Low² and Lai Teck Gew¹

¹Department of Internal Medicine, Hospital Queen Elizabeth, 88100 Kota Kinabalu, Sabah, Malaysia

²Department of Internal Medicine, Hospital Sultanah Nora Ismail, 83000 BatuPahat, Johor, Malaysia

Abstract

Hepatic hydrothorax is an uncommon complication of chronic liver disease. It presents as transudative pleural effusion, in the absence of pleural or cardiopulmonary pathology. The occurrence of hepatic hydrothorax is mainly due to presence of defect at the diaphragm, which leads to passage of the ascitic fluid into pleural cavity via this pleural-peritoneal communication. Management of hepatic hydrothorax include conservative measures such as dietary salt restriction and diuretics; as well as surgical interventions such as Transjugular Intrahepatic Portal Systemic Shunt (TIPS), liver transplant, and surgical repair of the diaphragmatic defect by doing Videothoracoscopy (VATS). We illustrate a case of hepatic hydrothorax due to autoimmune hepatitis and its successful treatment by conservative measures.

Keywords: Hepatic hydrothorax; Liver cirrhosis; Pleural effusion; Ascites

Introduction

Hepatic hydrothorax presents with transudative pleural effusion, commonly with an effusion of more than 500 ml. It is associated with liver cirrhosis without any pleural or cardiopulmonary disease. It is a rare complication of liver cirrhosis due to portal hypertension with a prevalence of 4% to 12% among patients with liver cirrhosis [1]. Most of the hepatic hydrothorax located at right sided which is about 85% of the cases, rarely occurred at left sided which is about 13%, and the remaining 2% occur bilaterally [2]. Here, we illustrate a case of hepatic hydrothorax and our treatment experience.

Case Presentation

A 65-years-old lady presented with progressively worsening dyspnea and abdominal distention for 1 month. Clinically, she had a right sided pleural effusion and ascities. Chest radiography showed a right sided massive pleural effusion and diagnostic thoracentesis was performed. Pleural fluid analysis showed a transudative picture based on total protein of 20 g/L and LDH 87 U/L; and the peritoneal fluid analysis showed a Serum-Albumin-Ascites-Gradient (SAAG) of 1.6 g/dl. An abdomen ultrasound showed a cirrhotic liver with ascites. She had a Child-Pugh score B on her liver function test and clinical presentation. Her viral hepatitis screening was negative. Other chronic liver disease work-up had been sent to look for the etiology of her liver cirrhosis. Her serum Anti-Smooth Muscle Antibody was positive with a raised of Immunoglobulin G level 33.12 g/L. Her anti-mitochondrial antibody and anti-liver-kidney-muscle antibody were negative. Other workup such as serum ferritin, thyroid function test, Wilson disease screenings were normal. Computed tomography of thorax did not show any evidence of mediastinal or lung mass. Echocardiogram showed preserved left ventricle systolic function without any valvular abnormalities. An Oesophago-Gastro-Duodenoscopy (OGDS) done showed a grade 2 esophageal varices with no sign of recent hemorrhage. She had recurrent hospitalization due to her right sided pleural effusion and had multiple thoracentesis performed for symptomatic relief in three-month duration. Hence, right sided hepatic hydrothorax was suspected due to recurrent pleural fluid accumulation and the pleural fluid analysis persistently showed transudative picture. A peritoneal scintigraphy was arranged in order to confirm with our diagnosis. It was performed by injecting 5.03 mCi Technetium-99 labeled macro aggregated albumin (99mTc MAA) to the peritoneal cavity. The results showed there was an increased uptake of radio-tracer in her right lung within 5 min after the tracer injected into her peritoneal cavity and we concluded that there was a right sided pleuro-peritoneal communication. She had been managed with low salt diet and optimization of her diuretics. Steroid was not

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*Correspondence:

Tan Kee Nam, Department of Internal Medicine, Hospital Queen Elizabeth, 88100 Kota Kinabalu, Sabah, Malaysia, Tel: +6088-517555;

E-mail: tankeenam@gmail.com

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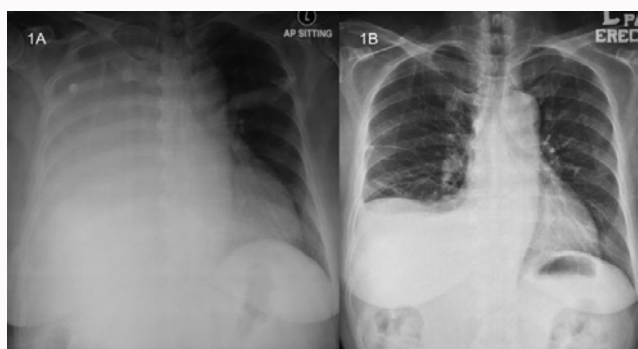


Figure 1: A - Chest radiography during first presentation showed massive right sided pleural effusion. B - Chest radiography showed resolving right sided pleural effusion during follow up.

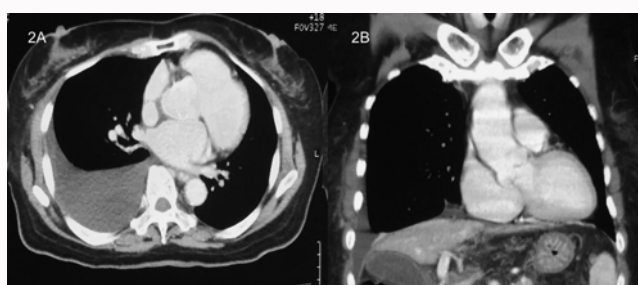


Figure 2A and 2B: Computed tomography of thorax showed right sided pleural effusion without any lung or mediastinal mass.

initiated in view of her imaging scan showed a cirrhotic liver and her aminotransferase level was within normal limit. Liver transplants option had been discussed with her, however she was not keen for it. Fortunately, she remains asymptomatic for the past 1 year and a recent chest radiography showed her right sided pleural effusion has improved (Figures 1-3).

Discussion

Hepatic hydrothorax is one of the rare complications occurs in liver cirrhosis. The exact mechanism of hepatic hydrothorax is unknown. However, it believes that presence of the defect at the diaphragmatic muscles causing the fluid travel across the diaphragm from peritoneal cavity to thoracic cavity. During inspiration, the intrapleural pressure will become negative and there will be increasing of intraabdominal pressure, causing the free fluid being 'sucked' into the pleural cavity [3]. Normally, patients with chronic liver disease who have ascites may remain asymptomatic as peritoneal cavity can contain up to 10 L of the fluid. In patient with hepatic hydrothorax, patient tends to become symptomatic such as dyspnea or pleuritic chest pain even the fluid is as minimal as 500 mls in the pleural cavity. Treatment of hepatic hydrothorax involves multidisciplinary approach. Restriction of salt in daily dietary intake and optimization of diuretics become the initial treatment of hepatic hydrothorax. The diuretic regimes consist of oral Frusemide 40 mg once a day with oral Spironolactone 100 mg once a day and titrate up accordingly. However, there are about 25% of the patients remain symptomatic with refractory pleural effusion despite optimal medical therapy given [4]. Hence, liver transplant should be considered as the next treatment option and it is

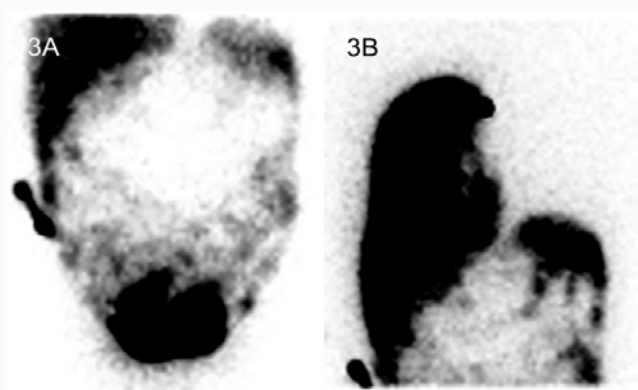


Figure 3A and 3B: Peritoneal scintigraphy showed there was an increased uptake of radio-tracer in her right lung within 5 min after the tracer injected into her peritoneal cavity, indicating presence of right sided pleuro-peritoneal communication.

the definitive treatment for hepatic hydrothorax. In reality, especially in Malaysia, liver transplantation is limited and most of the patients might not a suitable candidate to undergo this major operation. Next treatment modality will be Transjugular Intrahepatic Portal Systemic Shunt (TIPS). A study done by Rossle et al. [4] total of 60 patients with refractory hydrothorax were randomized to either TIPS or repeated thoracentesis. The follow up outcome showed that those who received TIPS procedure have a better survival rate [5]. Besides repeatedly large-volume thoracentesis, another alternative treatment is surgical repair by doing Videothoracoscopy (VATS) to close the defect in the diaphragm muscles. In a study done by Milanez et al. [5], there were 18 patients undergone VATS to repair the defect, the mean hospital stay was 15 days and the mortality rate was 30% within 3 months post procedure. Pleurodesis remains the last resort of the treatment for refractory hydrothorax. A total of 189 patients in 11 case series were subjected to pleurodesis, the overall success rate was only 50% with the mean chest tube drainage duration of 9 days [4].

Conclusion

Hepatic hydrothorax is a rare complication of liver cirrhosis where the treatment is similar to ascites treatment. In suitable candidates, liver transplantation should be offered.

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