

# Concomitant Chylothorax and Chyloperitoneum with Newly Diagnosed: B-Cell Lymphoma: A Case Report

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## Abstract

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Chylothorax and Chyloperitoneum are an infrequent condition, characterized by the accumulation of chyle in the pleural and peritoneum cavity. We report an uncommon presentation of concomitant chylothorax and chyloperitoneum caused by diffuse B-cell Lymphoma. A 60-year woman was admitted with progressive shortness of breath, abdominal fullness, cough when lying down on one week duration. She also complains progressive non painful neck lump, night sweats, and weight loss. Chest radiograph showed right pleural effusion. CT scan abdomen with contrast revealed ascites with lobulated mass and multiple lymphadenopathy. Thoracocentesis and paracentesis were performed, revealed exudative with yellow and milky appearance and elevated triglyceride. Histopathologic confirmed diffuse large B-cell lymphoma. Chylothorax concomitant with chylous ascites is rarely encountered. Serous effusion occur often in malignant lymphomas. Management of chylothorax and chyloperitoneum is conservative measures and treat the aetiology. Effusion often becomes a chronic problem that persist although the lymphoma has been treated.

## Introduction

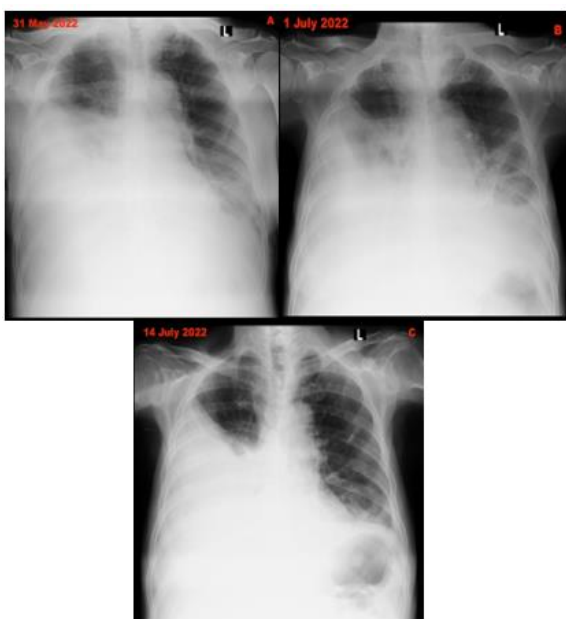
Chylothorax and Chyloperitoneum are an infrequent condition, characterized by the accumulation of chyle in the pleural and peritoneum cavity. Etiology of chylothorax and chyloperitoneum classified into traumatic and non-traumatic. Non traumatic chylothorax is primary caused by malignancy, such as lymphoma or metastatic carcinoma. We report a previous case with uncommon presentation of concomitant chylothorax and chyloperitoneum caused by diffuse large B-cell Lymphoma.

## Case Illustration

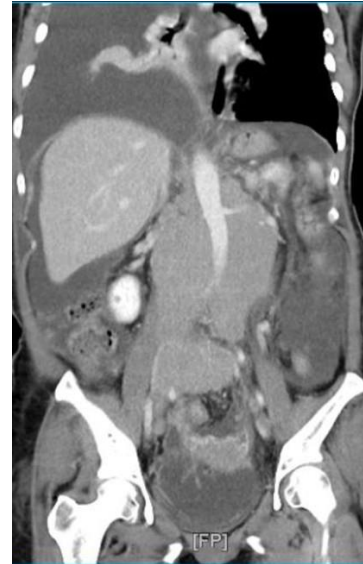
A 60-year woman with no significant past medical history was admitted with progressive shortness of breath, abdominal fullness, cough when lying down on one week duration. She also complains progressive non painful neck lump in the last two months, night sweats and weight loss in the last one year. On review system, she denied any fever and chills. Her medical history included previously diagnosed diabetes mellitus type 2 on medication and no history of tuberculosis.

On physical examination, she was underweight (BMI 15.8 kg/m<sup>2</sup>), respiratory rate 40 times per minute, oxygen saturation 92% on room air. Chest examination revealed dullness and decreased breath sound in the right hemithorax. Abdominal distension with fluid wave and shifting dullness was also noted. She had palpable lymph nodes in right submandibular, left supraclavicular region, and multiple in the left iliac and lumbar region.

Laboratory examination revealed thrombocytosis (Platelet 663K/ $\mu$ L). Hemoglobin, white cell count, liver function tests, and renal function tests were within normal limits. Chest radiograph posteroanterior (PA) view showed right pleural effusion and opacity in left lower lobe and serial chest radiograph was performed (**Figure 1**). CT scan abdomen with contrast revealed ascites with lobulated mass with contrast enhanced in para-aortic, pericaaval, common and internal para-iliac, mesentery, and liver hilum measuring 12.3 x 15.8 x 21.9 cm, multiple mesenteric lymphadenopathy (size 1,3 – 2,3 cm), and bilateral pleural effusion with mass in right hemithorax measuring 1.2 x 2.7 x 1.5 cm suspect right diaphragm lymphadenopathy (**Figure2**).



**Figure 1.** A. Posteroanterior chest radiograph on admission showed unilateral pleural opacity  
 B. Before chemotherapy showed bilateral pleural opacity  
 C. 10 days after chemotherapy showed unilateral pleural opacity which is slightly improved



**Figure 2.** CT scan whole abdomen with contrast showed lobulated mass, multiple lymphadenopathies, bilateral pleural effusion

Thoracocentesis and paracentesis were both performed. Pleural fluid was milky and yellowish-coloured, protein level 6.35 g/dL, lactate dehydrogenase 505 U/L, LDH ratio 0.89 consistent with exudate, triglyceride 323 mg/dL, and mononuclear cell were dominant. Peritoneal fluid was also yellow, milky appearance, and exudative. Pleural fluid cytology showed lymphocyte predominance, atypical cells with reactive mesothelial. Biopsy was performed for neck lymph node with result suspect diffuse large B-cell lymphoma. The result of immunohistochemistry:  
 CD20: positive with nodular dan diffuse pattern  
 CD 3, CD 5: negative  
 CD 10: positive in some cells  
 CD 21: positive in follicular dendritic cell  
 Mum-1: negative  
 Ki-67: positive  $\pm$  70%  
 Cyclin D1: negative/ non spesific  
 Conclusion: Follicular Lymphom, high grade with fiffuse large B-cell lymphoma.

She was consulted to oncologist for chemotherapy with regimen RCHOP (Cyclophosphamide 1000 mg, Doxorubicin 70 mg, Vincristine 2 mg, Prednison 100 mg/day). After one cycle of chemotherapy, the pleural effusion still re-occurred one week later and thoracocentesis was performed. Unfortunately, she went to her home at Kalimantan for next treatment.

## Discussion

Chyle is milky fluid that consist of lymph and lipid formed in small intestine and taken up by lymph vessels. Chyle is naturally alkaline, bacteriostatic, nonirritating that contains immunoglobulin, white blood cell, protein, and electrolytes. Chylothorax refers to the presence chyle to pleural cavity due to obstruction or leakage of thoracic duct. Chyloperitoneum or Chylous ascites is uncommon for ascites, defined as extravasation chyle to peritoneal cavity as a result of obstruction of injury lymphatic system. Chylothorax and chyloperitoneum are classified to traumatic and non-traumatic causes. As a cause of chylothorax and chyloperitoneum, multiple aetiologies have been described, and the underlying aetiology determines the ongoing evaluation and management. More than half of all chylothorax caused by with lymphoma accounting for the vast majority. The commonest etiology of chyloperitoneum are malignancy, cirrhosis, tuberculosis, and filariasis leading to lymphatic fluid stasis.<sup>1-4</sup>

Statistics show that in patients with non-Hodgkin's lymphoma (NHL) and Hodgkin's disease (HD), 20-30% will develop a pleural effusion, while pericardial and peritoneal effusions are uncommon. The main cause of pleural effusion in Hodgkin disease has been identified as thoracic duct obstruction. However in NHL, the primary consideration was shown to be direct pleural infiltration. Chylothorax concomitant with chyloperitoneum is rarely

encountered. The reported incidence of the concurrent of chylothorax and chylous peritoneum has varied from 9% to 55% of chylous effusion.<sup>1,5-8</sup>

The majority of patients with chylothorax present with dyspnea but the severity depend on the rate of chyle accumulation as well as the aetiology. Chylous effusions are always caused by an obstruction of the lymphatic trunks. Disruption of thoracic duct between T4 and T6 levels may produce bilateral chylothorax, while disruption above and below this point maylead to left and right chylothorax. In the present case, the pleural and abdominal effusions were identified to be chylous, strongly indicating that the effusions originated in the lymph trunks. Possible reasons for the effusions may be that the metastatic lymphoma cells blocked the lymph tunnels leading to obstruction and further impairment of these tunnels, and can occurs due to transdiaphragmatic fluid migration from chylous peritoneum. Another method to identify the source of chylothorax by injection of <sup>99m</sup>Tc-sulfur colloid into peritoneal space or lymphangiography, but we did not perform in our case.<sup>1,5-8</sup>

Thoracocentesis and paracentesis are necessary for diagnosis chyllus as it will reveal turbid, milky fluid and characterized by elevated triglycerides > 110 mg/dL or the presence of chylomicrons. Measurement of triglyceride and cholesterol levels in the pleural fluid should be the initial lipid tests performed in patients with suspected chylothorax. The chylous fluid is lymphocyte predominant exudative fluid. In our case, pleural and ascitic fluid reveal yellow and milky, exudative fluid with mononuclear cell dominance and elevated triglyceride, which fulfil chylous fluid. Moreover, the fluid that are collected from pleural and abdominal cavities may be used to relief symptoms and improve our understanding for aetiology such as infections and malignant cells.<sup>5</sup>

In our case, cytology showed lymphocyte predominance, atypical cells with reactive mesothelial and culture showed no growth of bacteria. CT scan abdomen was performed to evaluate abdominal lymphadenopathy, in our patient showed multiple lymphadenopathy that suggest lymphoma, ascites, and large lobulated mass and incidental finding of thorax revealed pleural effusion and lymphadenopathy in right hemithorax. In consequence of multiple lymphadenopathy in neck region, biopsy was performed in supraclavicular lymph nodes revealed diffuse large B-cell lymphoma, confirmed by IHC. Serous effusions in lymphoma are generally associated with a poor outcome. Management of chylothorax and chyloperitoneum is conservative measures and treat the aetiology. Effusion often becomes a chronic problem that persist although the lymphoma has been treated. Repeated peritoneal and pleural taps are often needed for symptomatic treatment. Pleural drainage such as chest tube, indwelling catheter, or pigtail catheter are recommended for massive pleural effusion to relieve symptom and to measure the accumulation of pleural fluid. But, in this case, the patient preferred to do thoracoscopy periodically, rather than insert the pigtail. Thoracentesis is a different strategy in patients who are not thought to have rapid fluid reaccumulation, patient preference, or poor prognosis.<sup>1,9-12</sup>

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She was referred to oncologist for chemotherapy RCHOP regimen. According to ESMO recommendation, she is high risk category based on International Prognostic Index.

## Conclusion

The combination of chyloperitoneum and chylothorax is infrequent complications of lymphoma, despite effusion in lymphoma are common. Lymphoma is the most common non traumatic aetiology for both Chylothorax and chyloperitoneum result from thoracic duct damage with chyle leakage to cavity. The diagnosis was made by fluid analysis. Management is mainly conservative along with treatment of underlying aetiology in order to disease's improvement.

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