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Case Report

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T-Cell Lymphoblastic Lymphoma Presenting with Pleural Effusion- A Case Report on Diagnostic Utility of Medical Thoracoscopy

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ABSTRACT

Aggressive as its name T cell lymphoblastic lymphoma is the uncommon type of non-Hodgkin lymphoma that commonly presents as lymphadenopathy but a rare population may show up with pleural effusions. We report an 27-year-old female with pleural effusion and a normal hemogram. The cytology of the pleural effusion initially was lymphocytic exudative. For definitive diagnosis a medical thoracoscopy was done. The pleura showed extensive nodularity. It was picked and immunophenotyped and the patient was finally diagnosed with T-LBL. She is being treated with chemotherapy and is on regular follow up with resolution of effusion. The case highlights the point that medical thoracoscopy is a safe and accurate diagnostic procedure for pleural diseases, and partial pleura biopsy yielded the correct diagnosis.

Keywords: Pleural Effusion; T-Cell; Lymphoma

Introduction

Pleural effusion, a common entity represents a large spectrum of diseases ranging from pneumonia to malignancy. In nearly 10% of patients with undiagnosed pleural effusion, a lymphoma is finally diagnosed and out of this proportion majority belongs to Hodgkin lymphoma when compared to non-Hodgkin lymphomas. Lymphoblastic lymphoma (LBL) is a rare malignancy accounting for less than 2% of nonHodgkin's lymphoma that can take B or T cell origin.[1,2] Tcell lymphoblastic lymphoma (T-LBL) has been occurring more frequently than B cell and accounts for approximately 90% of all with male and young age group predominance.[1]

Since the Commonest presentation of the lymphomas and TLBLs in particular is mediastinal lymphadenopathy and the diagnosis is challenging in clinic because of the low positivity of exfoliative cytology in pleural fluid due to similarity to reactive lymphoid cells.[3] In these real life scenarios medical thoracoscopy comes into play so that the pleural biopsies can be taken under direct visualization with enhanced diagnostic yield that has 90% success rate.[4]In this write up we describe a case with pleural effusions, which was diagnosed as T-cell lymphoblastic lymphoma by pleural biopsy from medical thoracoscopy. Up to now, there are very few reports about a diagnosis of T-LBL by medical thoracoscopy.[5]

Case Report

A 30 years old female presented to our outpatient department with shortness of breath on exertion, fever and weight loss over the period of 3 months. She also had decreased appetite for the previous two months. She denied any productive cough, chest pain, haemoptysis, arthralgias or myalgias. She was wasted and emaciated.

Her respiratory examination revealed decreased air entry and reduced chest expansion on the left side. the percussion notes were dull on the same side and the breath sounds were absent in the left lung bases. No lymphadenopathy was found while the rest of the exam was unremarkable.

She was investigated with her baseline investigations revealing Total Leucocyte Count of 9900 and Haemoglobin of 15 g/dl. The liver functions were reported normal with SBR of 0.4 mg/dL, ALT of 45 U/L and ALP of 67 U/L.

Renal functions were within the normal range and so were serum electrolytes. CRP was raised up to 2 and serum LDH was 523.CXR demonstrated left sided pleural effusion. Ultrasound chest was suggestive of anechoic pleural effusion of 1500 ml on left side with underlying collapse and CT chest was reported with findings of Left sided moderate pleural effusion with collapsed left lower lobe. Echo done was found normal with preserved ejection fraction. Image guided thoracentesis was performed with pleural fluid RE suggestive of Exudative lymphocytic impression. Plan of pleural biopsy was made and medical thoracoscopy performed under local anaesthesia in thoracoscopy suite under cardiorespiratory monitoring. The inspection of pleura by direct visualization showed extensive nodularity with involvement of both mediastinal and parietal sides with straw colour fluid. Almost 3.5L of fluid was aspirated and 10 biopsies Specimen were picked from different sites and sent for histopathology. Patient was observed after procedure and chest radiograph was repeat on the following day with reported improvement. Pleural biopsy was followed which was reported as T cell lymphoblastic lymphoma. Immune histochemistry revealed positive markers of LCA, CD-3, CD-10, TdT and C-myc was positive in 30 percent tumour cells with proliferation index of 95 percent. Intercostal tube was removed and the patient was referred to Haematology and Oncology unit for further treatment where she was initiated on

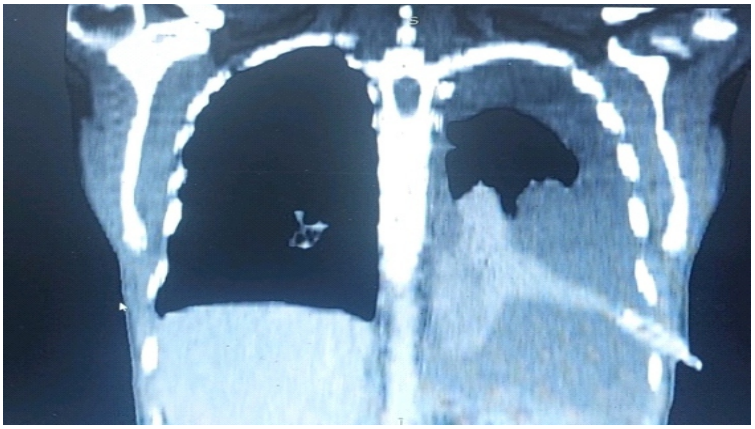

Figure 1. CT chest showing right sided moderate pleural effusion

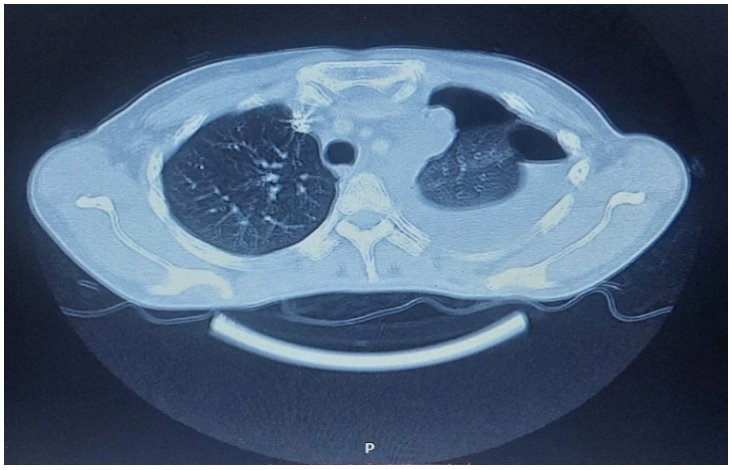

Figure 2. CT chest showing right sided moderate pleural effusion

chemotherapy as per protocol. Whole body positron emission tomography (PET) scan could not be performed due to financial restrains.

Treatment

The patient was transferred under Haematology and Oncology unit for further treatment after extubating.

Outcome and follow up

The patient is booked for follow up.

Discussion

T cell lymphoblastic lymphoma takes its origin from the diverse group of NHLs that affects young adults presenting with mediastinal masses, effusions and B symptoms.[6] Just like in this case being reported, Medical thoracoscopy has been known to be of good use in diagnosing pleural lymphomas in many other cases.[7]. The patient on presentation had a low suspicion of lymphoma based on medical history, physical examination, routine blood work and CXR. Bedside thoracic ultrasound showed moderate anechoic effusion with underlying collapsed lung. Shkolnik et al. reported that anechoic effusion are commonly exudative effusions. We also found the effusion to be exudative lymphocytic once thoracentesis was done in the said patient.[8] Many mechanisms are described in literature to explain the existence of pleural effusion in lymphomas with emphasis on impaired lymphatic drainage owing to mediastinal lymph nodes or thoracic duct obstruction or there can be pleural or pulmonary infiltration by tumour. Apart this there is role of venous obstruction, pulmonary infection, or radiation therapy. Moreover, it is difficult to distinguish lymphomatous cells from reactive lymphocytes in pleural fluid routine exam so the diagnosis is difficult if alone the routine examination is to be relied upon unless the cytogenetic analysis is done its nearly impossible to distinguish the two populations of lymphocytes.[9,10.]

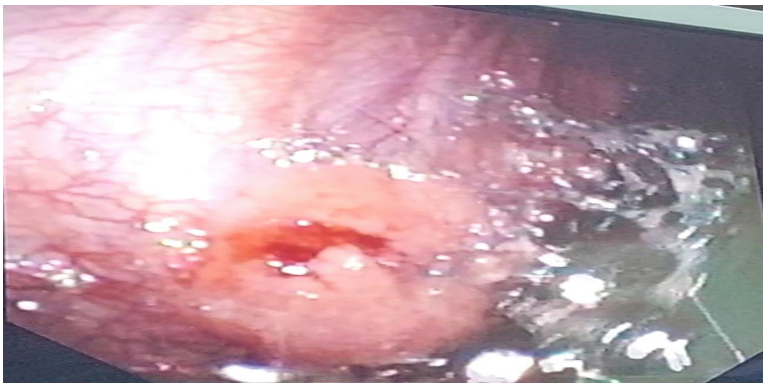

Figure 3. Thoracoscopy image showing nodularity of parietal pleura

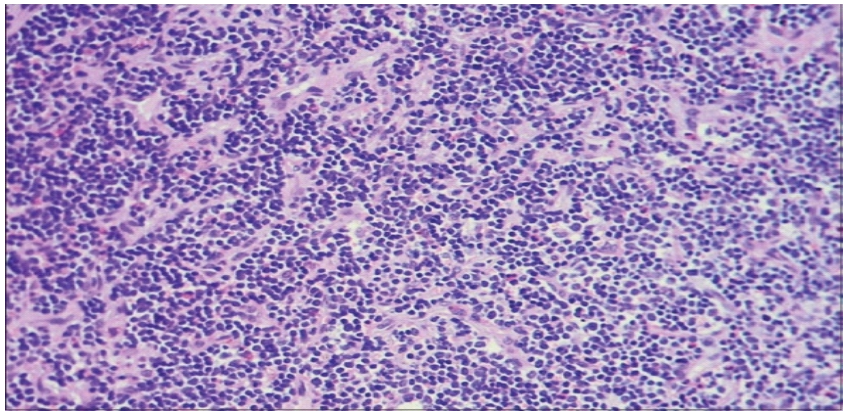

Figure 4. Histopathological examination of the parietal pleural biopsies after medical Thoracoscopy showing parietal pleura infiltrated by monotonous small lymphoid cells with scanty cytoplasm and slightly irregular, round oval nuclei

Medical thoracoscopy has been a practice for patients with exudative pleural effusion who remain undiagnosed by clinical, radiologic, laboratory or cytological investigation.[11] A study reported that extensive infiltration of pleura indicates that the major mechanism for the development of effusion can be the direct involvement of the pleura by lymphoma rather than obstruction to lymphatic flow as seen in present case.[12]

Here we report a 27-year-old woman with pleural effusion where the initial cytologic examination of pleural fluid revealed predominant lymphocytes with background of fever with loss of weight and appetite with normal complete blood count and ultimately the medical thoracoscopy aided biopsy led to the diagnosis of TCLL and hence the referral of patient well in time where it played a core diagnostic role.[11] It is done under local anaesthesia with improved accuracy, good tolerance, minimal invasiveness, more safety and lesser cost than VATS .

Conclusion

In conclusion, T-cell lymphoma should be considered in the differential diagnosis of pleural effusions. When encountered in clinical practice, particularly in cases where the etiology of the effusion is unclear, medical thoracoscopy emerges as a valuable diagnostic tool. Its ability to provide direct visualization and obtain tissue samples enhances the diagnostic accuracy, leading to timely and appropriate management decisions for patients with T-cell lymphoma presenting with pleural effusion.

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