

**Case Report**

**A RARE CASE OF ACUTE MYELOID LEUKAEMIA COMPLICATED AS LEFT SIDED PLEURAL EFFUSION**

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**ABSTRACT**

An extremely unusual complication of Acute Myeloid Leukaemia in 26 year old young Muslim female, as left sided moderate pleural effusion, presenting with fever, chest pain and dyspnoea, referred to our institute for the treatment of Tuberculosis.

**Key Words:** Malignant, Lung, Effusion

**INTRODUCTION**

Pleural effusion has many causes like Tuberculosis, pneumonia, malignancy, cardiac failure, uraemia, nephrotic syndrome etc (Ferrer and Roldan, 2000). The common causes of malignant pleural effusion are lung carcinoma, Lymphoma, breast carcinoma, ovarian carcinoma (Bertolaccini *et al.*, 2007). Hematologic malignancy especially leukaemia rarely develop pleural effusion, less than 1% of patients present with prominent extramedullary diseases (Raina *et al.*, 2008; Nieves-Nieves *et al.*, 2012) We are reporting a young female patient with left sided moderate pleural effusion having acute myeloid leukaemia.

**CASES**

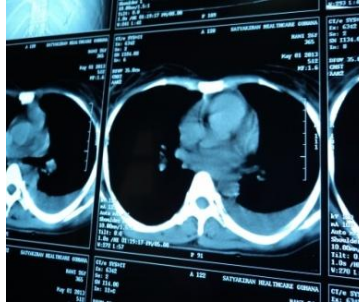
A 26 year old Muslim female admitted with the chief complaints of fever, chest pain over left side non radiating ,increased by coughing and dyspnoea on exertion for last 15 days, she was brought to our institute for the management of tuberculosis, but on examination it was found that she was having right cervical and inguinal lymphnode enlarged, on systemic examination trachea was shifted slightly towards right side, with decreased air entry over left hemithorax and percussion note was also stony dull over lower axillary as well as infra scapular region. Skiagram of chest in PA view shows homogenous opacity over left lower zone with obliteration of costophrenic angle (Figure 1).



**Figure 1: Skiagram of chest in PA view shows obliteration of left costophrenic angle**

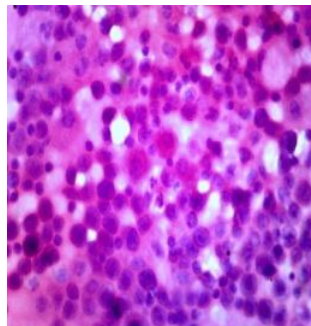
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USG thorax and abdomen reveal that moderate amount of pleural effusion was present over left side with splenomegaly size > 16 cm with hepatomegaly size >17.1 cm. CECT Thorax clearly depict the presence of effusion in left pleural space (Figure 2).



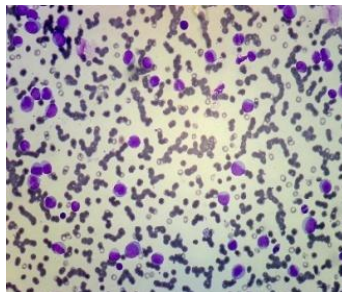
**Figure 2: CECT Thorax shows left sided pleural effusion**

Peripheral smear of blood shows TLC 90,000/dl, Blast >90%, Lymphocyte 8%, Polymorph 2%, Microcytic hypochromic picture with reduced platelets (Figure 3).



**Figure 3 Peripheral blood smear shows blast cells**

Sputum for AFB was negative. FNAC smear study from cervical and inguinal lymph node show infiltration of myeloid blasts with in lymphoid tissue. Diagnostic pleural fluid report shows infiltration of myeloid blasts (Figure 4)



**Figure 4: Pleural fluid shows infiltration of Myeloid Blast**

with increased protein > 4.0 g%. All the investigations indicating towards the diagnosis of acute myeloid leukaemia as more than 20% blast cells in peripheral smear consider as significant<sup>4</sup> and no need to take bone marrow biopsy for further confirmation.

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### **DISCUSSION**

Acute myeloid leukaemia (AML) is a group of haematogenous neoplasm characterised by a clonal proliferation of myeloid precursor with a reduced capacity to differentiate in to more mature cellular elements (Jaffe *et al.*, 2001), resultantly accumulation of leukemic blasts or immature forms in the bone marrow with a spill over in to peripheral blood and occasionally to other tissue.

Chromosomal translocation in Acute Myeloid Leukaemia is responsible for pathogenesis and also available evidence indicate that activating mutation in the haematopoietic tyrosine kinase FLT3 and c-KIT, N-RAS, K-RAS, confer proliferative advantage to haematopoietic progenitors and cooperate with loss of function mutations in haematopoietic transcription factors to cause an acute leukaemia phenotype characterised by proliferation and impaired differentiation (Murati *et al.*, 2012). In present case Pleural effusion indicates the presence of diseases which may be pulmonary, pleural or extra pulmonary. Pleural effusion caused by several mechanism including increased permeability of the pleural membrane, increased pulmonary capillary pressure, decreased negative intra pleural pressure, decreased oncotic pressure or obstructed lymphatic flow, generally in exudative pleural effusion local capillary permeability are altered (Maskell *et al.*, 2003), in malignant pleural effusion like leukaemia possible suggested patho genetic mechanism are an extra medullar proliferation of an occult leukaemia clone with subsequent metastasis to the bone marrow or a subclinical marrow relapse with consequent seeding to extra medullar site like pleura responsible for effusion (Dix *et al.*, 1997). Although the involvement of pleura is very rare especially in acute myeloid leukaemia as in present case report.

Pleural effusion is quite common problem of lung in our country and definitely Tuberculosis is the most common cause of it (Agrawal *et al.*, 1999). Physician some time start treatment without confirming the diagnosis may be troublesome in rare case of pleural effusion. Present case clearly indicates to do diagnostic thoracentesis and confirm the diagnosis before starting of treatment in all the cases of pleural effusion.

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