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A Rare Case of Acalabrutinib Induced Pleural Effusion in a Patient with Chronic Lymphocytic Leukemia in Remission

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INTRODUCTION

Chronic Lymphocytic leukemia is one of the lymphoproliferative disorders and most prevalent in the adult population presenting most times as an incidental finding of lymphocytosis on a routine blood count. However, a minute amount of the population presents with unintentional weight loss, fevers of > 100.5 F, drenching night sweats without evidence of infection. Most Patients with Chronic Lymphocytic Leukemia do not require treatment as they have survival rates similar to the general population. Tyrosine kinase inhibitors have been at the fore front of treating CLL. Cases of tyrosine kinase inhibitor induced pleural effusion has been described in the literature but no case has been identified in patients with Chronic lymphocytic leukemia in remission. We hereby present a case of Acalabrutinib Induced Pleural Effusion in a Patient with CLL in remission.

CASE PRESENTATION

Patient is a 59-year-old male with a history of Chronic Lymphocytic Leukemia diagnosed about 5 years ago when he presented with white blood cell counts of about 200 X 109 /L, had drenching night sweats, fatigue, anemia, thrombocytopenia, splenomegaly and CT scan showing multiple areas of lymphadenopathy likely RAI stage 3. He was commenced on acalabrutinib with achievement of partial remission defined as resolution of symptoms, decrease in absolute lymphocyte count by at least 50 percent, reduction in previously enlarged lymph nodes and spleen by 50% with platelet count >100,000 and hemoglobin > 11g/dl.

In Index admission, he presented with shortness of breath of about 2 days duration. His White blood cell counts were within normal and Chest x-ray showed a large left sided pleural effusion. CT scan of the chest was unremarkable for masses or infiltrates. BNP and echocardiogram were unremarkable. Thoracentesis with 1.5L of bloody was aspirated. AFB smear for PTB, culture of pleural fluid and cytology was negative for malignant cells. Flow cytometry showed CD5+ monoclonal B cell population with lambda light chain restriction. Initially this was thought to be disease progression especially with a positive flow cytometry test. However, B-

lymphocytes are normal findings in body fluids and findings of monoclonal CD5+ cells in effusions does not necessarily signify relapse or disease progression (Figure 1).

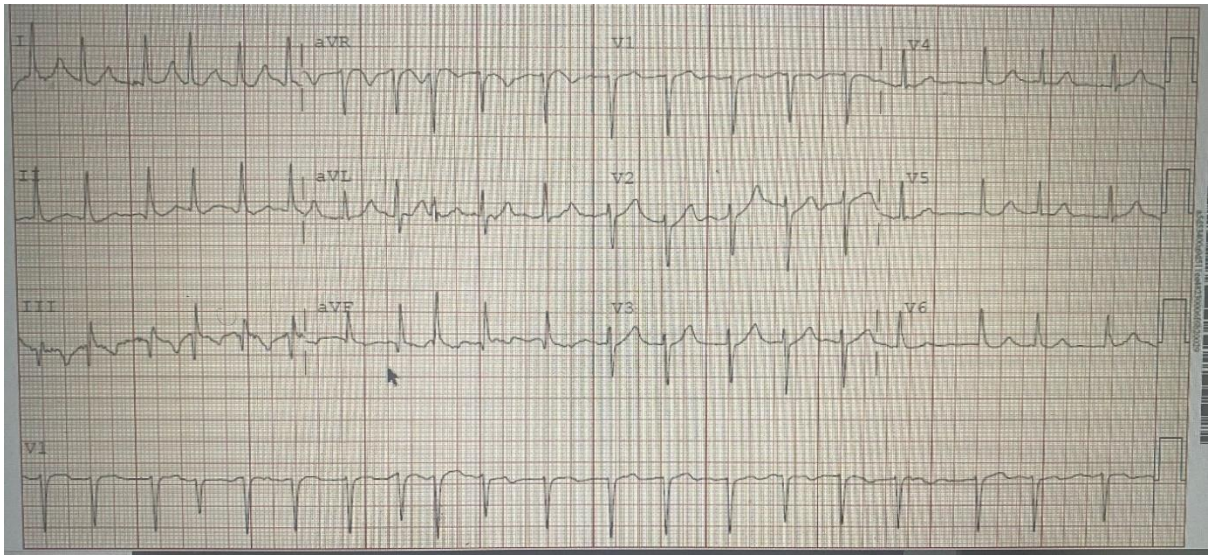

Figure 1: EKG showing Atrial Fibrillation with Rapid Ventricular Response.

DISCUSSION

Acalabrutinib is a Bruton tyrosine kinase inhibitor used in treating naïve or refractory Chronic Lymphocytic Leukemia. Its most common side effect is weight gain, headache and diarrhea. Cases of tyrosine kinase inhibitors acute pleural effusions have been documented in the literature in patients on dasatinib and bosutinib. While the precise mechanism remains unknown, agents such as dasatinib have been proposed to induce endothelial apoptosis and impair pulmonary vascular permeability by generating mitochondrial oxidative stress.

CONCLUSION

Early awareness and identification is the key in recognizing acute pleural effusions associated with acalabrutinib. Most common misdiagnosis is often attributed to disease progression such as Richter's transformation. The presence of normal white blood cell counts, resolution of initial presenting symptoms and lymphadenopathy are important clues in seeking an alternative diagnosis.

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