**Clinical History:**

A 27-year-old male patient presented with fever and cough. He was treated with antibiotics with no improvement. The chest CT revealed innumerable bilateral pulmonary nodules, thoracoabdominal lymphadenopathy, and splenomegaly. His work up was negative for a haematological malignancy. He had absent IgM, IgA and low level of IgG2.

**Imaging Findings:**

The chest radiograph showed subtle bilateral ill-defined ground glass nodules in mid and lower lungs. The chest CT showed innumerable bilateral pulmonary nodules and nodular ground glass opacities scattered throughout both lungs, mediastinal, bilateral hilar, upper abdominal lymphadenopathy, and splenomegaly.

**Discussion:**

Common variable immunodeficiency (CVID) is the most frequent diagnosis in cases of symptomatic primary immunodeficiency in adults with estimated prevalence of 1 in 10,000 to 30,000. This condition is characterized by a deficit in the production of all major classes of antibodies. The condition is generally diagnosed in patients with low or absent serum immunoglobulin levels and recurrent infections. Males and females are affected in equal numbers. The onset of symptoms may occur in early or late childhood or adulthood. [1] Although infectious complications of lungs occur quite frequently in patients with CVID, some non-infectious complications such as systemic granulomatosis and lymphoid hyperplasia can also occur in these patients. The term granulomatous-lymphocytic interstitial lung disease (GLILD) has been created to describe these non-infectious, diffuse lung disease complications that develop in CVID patients. They exhibit both granulomatous and lymphoproliferative histologic patterns, consisting of lymphocytic interstitial pneumonia, follicular bronchitis, and lymphoid hyperplasia. The GLILD has been reported to occur in 5-10% of CVID patients. [2]

Radiologically, the patient with CVID with recurrent infections usually presents with consolidation, bronchiectasis, atelectasis and air trapping. On the other hand, GLILD has different distinct imaging features than CVID and presents with soft tissue density and ground glass micronodules and thoracoabdominal lymphadenopathy. The nodules have mid and lower zone predominance which is a helpful feature to distinguish this entity from sarcoid. Patients with GLILD also usually have splenomegaly. Bronchiectasis is typically less common in GLILD than in CVID. Low or absent immunoglobulins help in differentiating this condition from lymphoma. [1, 2]

There is currently no established guideline for treatment of subgroup of CVID patients afflicted with GLILD. Most
commonly, corticosteroids have been used to treat these patients, with general improvement in clinical symptoms as well as resolution of radiological abnormalities, however; relapse is not uncommon following cessation of therapy. Recently, combination chemotherapy with rituximab and azathioprine has been reported to improve pulmonary function and decrease radiographic abnormalities in patients with CVID and GLILD. [3, 4]

Non-infectious complication such as GLILD should be strongly suspected in known CVID patients who present with pulmonary soft tissue density or ground glass nodules, thoracoabdominal lymphadenopathy and splenomegaly.

**Differential Diagnosis List:** Granulomatous-lymphocytic interstitial lung disease, Sarcoid, Lymphoma

**Final Diagnosis:** Granulomatous-lymphocytic interstitial lung disease

**References:**


Description: The frontal chest radiograph shows ill-defined subtle ground glass opacities in both mid and lower lungs. Origin: Dallas VA Medical Center
Figure 2

Description: CT chest at mid lung level shows multiple bilateral solid as well as ground glass nodules.

Origin: Dallas VA Medical Center
Description: CT chest at lower level shows multiple bilateral solid as well as ground glass nodules.

Origin: Dallas VA Medical Center
Description: CT chest at mid chest level shows mediastinal lymphadenopathy (arrowheads).

Origin: Dallas VA Medical Center
Description: CT chest at slightly lower level than prior figure shows hilar and posterior mediastinal lymphadenopathy. Origin: Dallas VA Medical Center
Description: CT abdomen shows enlarged spleen. Origin: Dallas VA Medical Center