Introduction:

Pulmonary infections are an important cause of morbidity and mortality in cancer patients on chemotherapy. These patients are immunosuppressed due to the underlying malignancy itself or due to the therapy. We present a challenging case of a 35-year-old immunocompromised patient presenting with multifocal pneumonia.

Case description:

35-year-old female with a history of right breast carcinoma stage IB post partial mastectomy on adjuvant dose-dense paclitaxel chemotherapy was admitted with worsening fevers and cough and was found to have sepsis secondary to multifocal pneumonia. COVID/RSV/influenza testing was negative. Lab studies were significant for CRP of 5.75 (normal <1) mg/dl, and white blood cell count of 4.8 (Normal: 4.8-10.8) 10E3/ uL, without evidence of neutropenia. Left-sided port appeared clean. She was initiated on broad-spectrum antibiotics including atypical coverage. She continued to spike fevers with a maximum temperature of 102.9^{o} Fahrenheit. Additional studies including HIV, galactomannan, and beta D glucan for Pneumocystis Jerovecii pneumonia (PJP) were ordered. She developed acute respiratory failure with hypoxemia requiring 4L of oxygen. Differential diagnosis was broadened to include chemotherapy-induced pneumonitis. She underwent bronchoscopy significant for 51% (Normal: 0-50%) lymphocytes, and Pneumocystis Jerovecii PCR and fungal cultures were sent. Beta D glucan returned positive, and treatment for presumed PJP with 21 days of IV trimethoprim-sulfamethoxazole (TMP-SMX) along with a prednisone taper was initiated. Rapid improvement was noted within 24 hours of therapy. She was discharged with oral TMP-SMX and prednisone. Ultimately, her PJP PCR testing returned positive.

Discussion:

There is evidence in the literature about PJP pneumonia occurring after dose-dense neoadjuvant chemotherapy. It is challenging to diagnose this condition as the presentation is similar to bacterial pneumonia, viral pneumonia in an immunocompromised host, and chemotherapy-induced interstitial pneumonitis. Interstitial pneumonitis presents similarly with low-grade fever, cough, tachypnea, and bilateral ground glass infiltrates. It is diagnosed through clinical history and the exclusion of other causes as it can be a relative contraindication to continued chemotherapy. In our case, it was challenging to identify interstitial pneumonitis versus PJP until confirmatory results. Lastly, since the onset of PJP can be life-threatening, careful consideration of prophylaxis for PJP is required.