Multiple Myeloma (MM) is a neoplastic plasma cell disorder characterized by anemia, hypercalcemia and renal injury. Pleural effusions are infrequent and seen in only about 6% of cases. Even more uncommon are Myelomatous effusions; neoplastic infiltration of the pleura and pleural fluid, seen with <1% of new cases. Herein we discuss a patient presenting with chest pain and dyspnea, found to have a pleural effusion on initial work-up, ultimately diagnosed with MM with Myelomatous effusion. A 64-year-old female with history of coronary artery disease, hypertension and hyperlipidemia presented to our institution with two-week history of chest pain with a pleuritic component, progressive exertional dyspnea and non-productive cough. She also endorsed fatigue, loss of appetite, arthralgia’s and weight loss for several months. On presentation, her vital signs were normal with oxygen saturation of 94% on room air. Physical exam revealed diminished breath sounds in the right lower lung field and unremarkable cardiac exam. ECG was unremarkable and troponin was not elevated. Initial blood work was significant for Cr 1.3mg/dL, corrected total calcium 10.8mg/dL, hemoglobin of 8.6g/dL, albumin 1.6g/dL and total protein 12.4g/dL. Anion gap was 0 (6 corrected for hypoalbuminemia). A CT angiogram of the chest revealed moderate right-sided pleural effusion with adjacent consolidated lung. Infectious work-up was ordered and patient was started on ceftriaxone and azithromycin. Diagnostic thoracentesis was performed. Pleural fluid was pale yellow with 1621 nucleated cells of which were 99% mononuclear cells, glucose 97mg/dL, total protein 7.3g/dL, LDH 127U/L, Amylase 25U/L and pH of 8.0. Cytology was unrevealing. Serum protein electrophoresis and immunofixation revealed significantly elevated monoclonal protein spike identified as IgG type lambda and free lambda light chains. Subsequent bone marrow biopsy revealed 85-90% involvement of neoplastic plasma cells confirming MM. PET/CT demonstrated moderately-intense diffuse uptake in the bone marrow and uptake within the right pleural effusion (see image). She was started on dexamethasone and bortezomib. Infectious work-up was ultimately negative and antibiotics discontinued. She was discharged home with close follow-up with oncology team. While our patient’s pleural fluid cytology was unrevealing, the pleural fluid protein was greater than 7g/dL with 99% mononuclear cells highly suggestive of an effusion associated with a plasma cell dyscrasia. Additionally, PET/CT results demonstrated increased metabolic activity within the effusion itself. While definitive diagnosis of Myelomatous effusion generally involves positive cytology and/or pleural biopsy our patient’s imaging and pleural fluid studies obviated the need for additional invasive diagnosis studies.