Rare Case of Plasma Cell Infiltration-Induced Cirrhosis

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Introduction

Multiple myeloma (MM) is a type of malignancy that arises from the unorganized replication of plasma cells within the bone marrow. The overproduction of these cells damages systems throughout the body leading to early asymptomatic symptoms that can rapidly progress to systemic signs of disease[1,2]. Liver involvement with MM is less common and generally occurs through plasma cell infiltration, light chain/amyloid deposition, and biliary obstruction. Though it can occur, the probability of it presenting near the time of diagnosis of MM is very rare and associated with poorer outcomes[1,2,3].

Case

A 59-year-old male presented with generalized weakness, shortness of breath and weight gain. Physical exam showed signs of ascites and hepatomegaly. PMH was significant for esophageal cancer and a recent diagnosis of MM. No history of acute or chronic liver disease or cirrhosis risk factors. CT scan showed cardiomegaly, bilateral pleural effusions, pulmonary edema, and cirrhosis with abdominal ascites. Labs were unremarkable other than normocytic anemia. An echocardiogram showed mild reduced ejection fraction (47%) with speckle tracking suggestive of cardiac amyloidosis. Abdominal ultrasound confirmed appearance of cirrhosis, ascites, and right pleural effusion. Cirrhosis work up revealed negative hepatitis panel and normal alpha-1 antitrypsin. EGD was performed and ruled out extracellular vesicles (EV) but noted type I isolated gastric varices. Liver biopsy confirmed cirrhosis and showed portal tract damage with severe extensive plasma cell infiltration. Additionally, fragments of hepatic parenchymal showed disrupted lobular architecture by septal fibrosis and nodular formation. Immunohistochemistry was positive for CD3, CD20, CD5, BCL2, CD79a, and CD138 as well as increased lambda light chain compared to free kappa light chain.

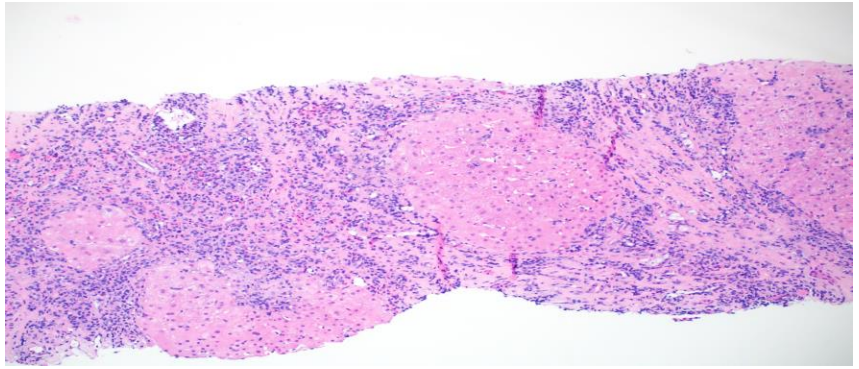

Figure 1: Cirrhosis with plasma cell infiltrate

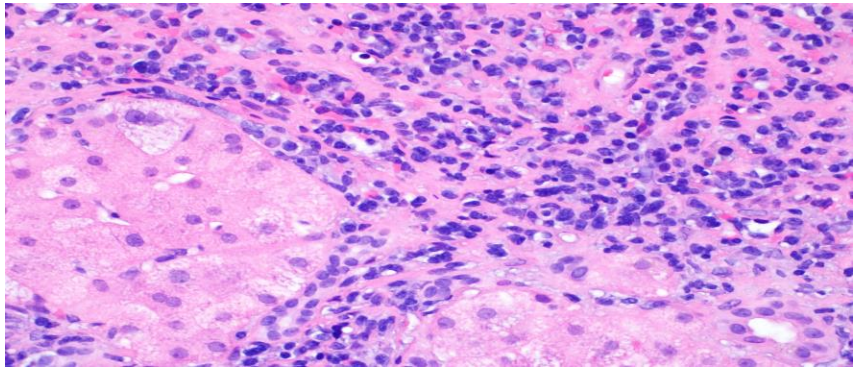

Figure 2: Cirrhosis with plasma cell infiltration

Table 1: Cirrhosis Associated Lab Values Including Endoscopic Ultrasound of Liver Results

Total Protein	5.0 g/dL
SAAG	1.9 g/dL
Left Hepatic Vein Pressure	25 Hg
Left Portal Vein Pressure	29 Hg
Portosystemic Pressure Gradient	5 Hg
EUS Guided Elastography of Liver	27 kPa

Clinical Course

After three weeks of inpatient hospital stay, patient was discharged to follow up in outpatient clinics with each subspecialty. A month following, patient returned for repeat CT thoracentesis before being admitted 10 days later for anasarca. Despite extensive treatment to remove fluid, including numerous thoracentesis and paracentesis with volume removal reaching 1850 mL in one procedure, patient continues to have decompensating liver cirrhosis with new onset pneumoperitoneum consistent for possible perforation complicated by *Escherichia coli* SBP with elevated ascitic fluid amylase levels.

Discussion

- Case of decompensated cirrhosis secondary to multiple myeloma
- Hepatic involvement in MM is rare and approximately 40% have shown plasma cell infiltration of the liver but rarely have led to cirrhosis
- Scarcity of recorded cases has limited the prognostic capability and treatment options available for this progression of the disease
- Outcomes associated with liver involvement in MM are poor and usually have a life expectancy of 18-29 months following diagnosis[4,5]
- Chemotherapeutic agents usually indicated but severe liver dysfunction reduce treatment ability
- For future disease management of MM involving the liver, a larger population needs to be studied to understand hepatic role in MM while also studying treatment options that do not require hepatic metabolism[2,5,6].