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Case Report

Metastatic Breast Cancer Presenting as Acute Liver Failure

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ABSTRACT

Acute liver failure (ALF) is a rare clinical syndrome, with up to 20% of cases having no known etiology. Of the many causes, initial presentation of metastatic carcinoma is rare, with malignant infiltration of the liver usually diagnosed postmortem. We present a case of fulminant liver failure caused by a new diagnosis of metastatic breast cancer. A 55-year-old female with no significant medical history presented with fatigue and jaundice for one month and one week of pruritus and lower extremity edema. On presentation, she had a MELD-Na of 38 with confusion, therefore prompting rapid liver transplant evaluation. An abdominal ultrasound revealed cirrhotic morphology of the liver, ascites, and marked hepatic echogenicity. An abdominal MRI needed for listing revealed an enlarged liver that was replaced by innumerable ring-enhancing lesions concerning for metastasis. A liver biopsy was performed and revealed metastatic carcinoma consistent with breast primary with no underlying cirrhosis. Transplant workup was terminated, and the patient was referred to Oncology and Palliative Care for further management. We report a clinical lesson regarding the importance of confirming prior liver disease prior to transplant listing. Rare presentations such as this argue towards liver biopsy prior to listing ALF patients of unknown etiology.

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Introduction

Acute liver failure is a life-threatening condition and an infrequent indication for liver transplantation. There are many causes of ALF, and up to 20% of cases have no known etiology [1, 2]. Of the many causes, initial presentation of metastatic carcinoma is rare, with malignant infiltration of the liver usually diagnosed postmortem [2, 3]. Pseudocirrhosis refers to a condition in which changes in the hepatic contour mimic cirrhosis on imaging and has been found to occur in cases of extensive hepatic metastases as well as fulminant liver failure [4-6]. The exact prevalence of pseudocirrhosis is not known [5]. We present a case of fulminant liver failure caused by a new diagnosis of metastatic breast cancer with infiltration of the liver.

Case Presentation

A 55-year-old African American female with no significant medical history presented to an outside hospital with fatigue and jaundice for one

month and one week of pruritus and lower extremity edema. Labs initially were notable for Na 123, Cr 2.6, total bilirubin 29, and INR 2 corresponding to a MELD-Na of 38, AST 478, ALT 144, hemoglobin 12.3, platelets 396. She was transferred to our hospital for hepatology evaluation. Labs upon arrival were notable for Na 129, Cr 3.06 corresponding to a new MELD-Na of 40. Given the concern for mild hepatic encephalopathy on presentation, a rapid inpatient liver transplant evaluation for ALF was initiated.

Physical exam revealed an obese female in no distress, a distended but soft abdomen with hepatomegaly, scleral icterus, and pitting edema of bilateral lower extremities. Further history regarding medications and family history was unrevealing other than having immigrated from Liberia in 2000, a history of a positive PPD with negative chest x-ray follow up, and she was not up to date on cancer screening. Lab markers for viral and autoimmune hepatitis were negative.

Evaluation initially consisted of an abdominal ultrasound which was read as cirrhotic morphology of the liver, ascites, and marked hepatic

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echogenicity. Due to concern for unknown cause of her acute decompensation, she went for a non-targeted liver biopsy. Additionally, she required placement of a temporary dialysis catheter given her acute renal failure, and a diagnostic paracentesis. Results of the paracentesis were negative for SBP with a SAAG of 2.5 and fluid protein < 1.0. There was no growth on ascitic fluid cultures or cytology. Upon completion of these procedures, she was transferred to the intensive care unit for the remainder of her transplant workup, and she was initiated on dialysis.

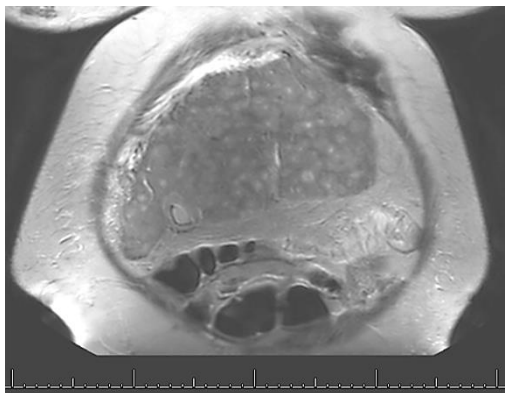


Figure 1: Abdominal magnetic resonance imaging (MRI) showing an enlarged liver with innumerable ring-enhancing lesions concerning for metastasis.

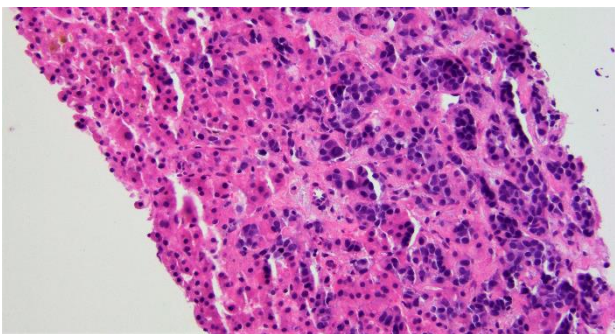


Figure 2: H&E: liver with metastatic tumor cells.

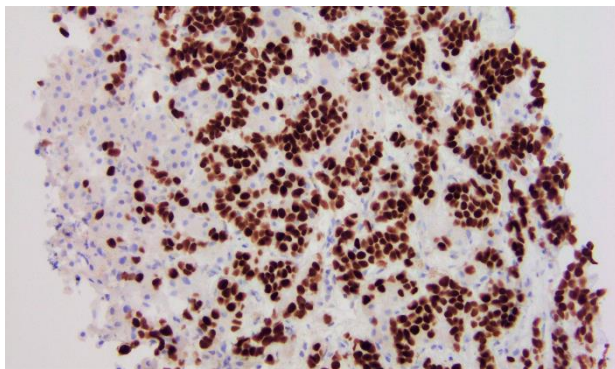


Figure 3: GATA-3 immunohistochemical stain (IHC) shows nuclear positivity of tumor cells (specific to breast primary).

Additional imaging with an abdominal MRI needed for listing revealed an enlarged liver that was replaced by innumerable ring-enhancing lesions concerning for metastasis (Figure 1). Pathology returned from the liver biopsy and revealed metastatic carcinoma consistent with breast primary with no underlying cirrhosis (Figures 2 & 3). Transplant workup was terminated, and the patient was referred to Oncology and Palliative

Care for further management. She was transitioned to comfort care during the remainder of her admission and was discharged to hospice.

Discussion

Diffuse metastatic breast cancer causing ALF is rare. Though it has been seen, most cases reported are usually in patients with a previous history of known and treated breast cancer [4-6]. Like most patients with ALF, our patient had a rapid decline with symptoms specific to hepatic failure only. The lack of B symptoms or prior cancer history along with the acute presentation within one month left malignancy initially lower on the differential for causes of her ALF.

Diffuse surface nodularity of the liver or signs of portal hypertension on imaging usually reflect underlying cirrhosis; however, noncirrhotic causes of these findings exist and include fulminant liver failure and malignant infiltration of the liver. These diagnoses which mimic cirrhosis radiographically are supported by studies showing that explants of ALF patients are not cirrhotic [7, 8]. In addition to breast cancer, cirrhotic morphology has also been reported in cases of malignant infiltration from pancreatic, esophageal, thyroid, and small-cell lung cancers, though less frequently [5]. It is important to understand this phenomenon called pseudocirrhosis, because an erroneous diagnosis can drastically alter treatment options and liver transplant evaluation [5, 7]. Although diagnostic workup of our patient revealed pseudocirrhosis, this finding was due to metastatic breast cancer to the liver causing ALF.

Although our patient had reasons for a cirrhotic appearing liver on imaging, it was the hepatomegaly, obesity, and signs of portal hypertension which prompted concern for pre-existing liver disease and led to a liver biopsy. In the setting of rapid liver transplant evaluation, confirming prior liver disease is of paramount importance prior to listing which is why a non-targeted biopsy was obtained in our patient prior to receiving the MRI results. This new diagnosis of breast cancer presenting as ALF in our patient was surprising given the acute presentation and lack of prior cancer history or suspicious symptoms. Rare presentations such as this argue towards liver biopsy prior to listing all fulminant liver patients of unknown etiology, which is currently not required.

Data Availability

Not available.

Conflicts of Interest

None.

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