Hidden in Plain Sight: An Atypical Presentation of Metastatic Breast Cancer as Acute Decompensated "Pseudocirrhosis"

Marina M. Sprague, MD, MS[1]; Devin Patel, MD[1]; Camille Soroudi, MD[1], Steven D. Hart, MD[1], Monica Tincopa, MD, MSc[1]
[1]University of California Los Angeles, David Geffen School of Medicine

Introduction

Liver metastases are found in over 50% of metastatic breast cancer cases and are typically identified radiographically. Rarely, metastatic breast cancer can present as hepatic decompensation with radiographically occult infiltrative metastases without focal lesions on imaging.

Learning Objectives

- Distinguish cirrhosis from "pseudocirrhosis"
- Recognize uncommon hepatic presentations of metastatic breast cancer
- Understand the important role of early liver biopsy in the diagnostic evaluation of new hepatic synthetic dysfunction without clear etiology

Case Description

A 65-year-old woman with a remote history of grade IIIa ER+/PR-/HER2- invasive ductal carcinoma of the right breast, believed to be in remission status post lumpectomy, chemotherapy, and local radiation therapy, was referred to hepatology clinic for one month of progressive weight loss and abdominal pain.

Outpatient Presentation:
She had new liver chemistry abnormalities: ALT 143 U/L, AST 144 U/L, total bilirubin 5.2 mg/dL, conjugated bilirubin 3.7 mg/dL, alkaline phosphatase 652 U/L. She denied use of alcohol, illicit substances, new medications, or supplements. Physical exam demonstrated no stigmata of chronic liver disease. Serologic workup was unrevealing but several tumor markers were elevated (Table 1). PET CT and MRCP were read as cirrhotic liver morphology with evidence of portal hypertension and extensive intraabdominal lymphadenopathy, but no masses (Figure 1).

Inpatient Presentation:
Due to rapid progressive functional decline, abdominal distension, and jaundice she was referred to the ED. Admission labs were notable for: total bilirubin 14.8 mg/dL (conjugated bilirubin 12.2 mg/dL), Na 124 mmol/L), and Cr 2.29 mg/dL with MELD-Na 31 and CLIF-C ACLF 46. Paracentesis demonstrated SAAG 1.6 with ascites protein 1.8 g/dL. Transjugular liver biopsy measured hepatic venous pressure gradient of 12mm Hg. Liver biopsy pathology showed metastatic carcinoma consistent with breast primary with pericellular and periportal fibrosis most consistent with "pseudocirrhosis" (Figure 2).

She was started on fulvestrant (ER-antagonist) and abemaciclib (CDK inhibitor). Despite aggressive treatment, she developed progressive multiorgan failure and with Palliative Care assistance, the decision was made to transition to home hospice.

Table 1: Diagnostic Workup

Autoimmune Markers	
Antinuclear Antibody (ANA)	**Positive (1:320, speckled)**
Anti-Mitochondrial Antibody (AMA)	<1:20
Smooth Muscle Antibody (SMA)	<20
Infectious Studies	
Hepatitis A Antibody (Total, IgM)	Nonreactive
Hepatitis B Core Antibody	Nonreactive
Hepatitis B Surface Antigen	Nonreactive
Hepatitis C Antibody	Nonreactive
Tumor Markers	
Alpha Fetoprotein (AFP)	4.2 ng/mL
Carcinoembryonic Antigen (CEA)	**Prior 84 ng/mL, increased to peak 3042 ng/mL**
Cancer Antigen 19-9 (CA 19-9)	930 U/mL
Cancer Antigen 27.29 (CA 27.29)	1166 U/mL
Cancer Antigen 125 (CA 125)	**Peak 7450.1 U/mL**
Other Causes of Liver Disease	
Alpha-1- Antitrypsin (A1AT) Level	**238 mg/dL**
Ceruloplasmin	**63 mg/dL**
Immunoglobulin G (IgG)	1,210 mg/dL
Iron Studies: % Saturation Ferritin	 39 **2352 ng/mL, increased to peak 7789 ng/mL**
Phosphatidylethanol (Peth)	<10
Serum and Protein Electrophoresis (SPEP/UPEP)	No monoclonal bands observed

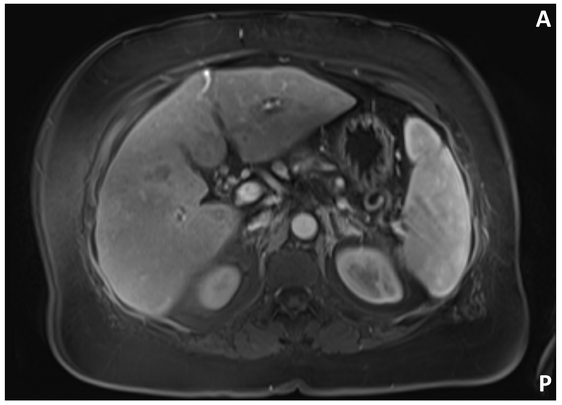

Figure 1. MRCP with/without contrast read as cirrhotic liver morphology with periportal edema, splenomegaly, and chronic appearing occlusive and non-occlusive portal vasculature thrombi. No masses were visualized.

Liver Biopsy Pathology

Metastatic carcinoma involving the sinusoidal and vascular spaces with background liver macrovesicular steatosis (10%) and pericelluar and periportal fibrosis (Figure 2), but no bridging fibrosis, consistent with "pseudocirrhosis." Breast biomarkers noted ER+, PR-, HER2/neu equivocal staining, and Ki-67 80-90%, consistent with breast primary.

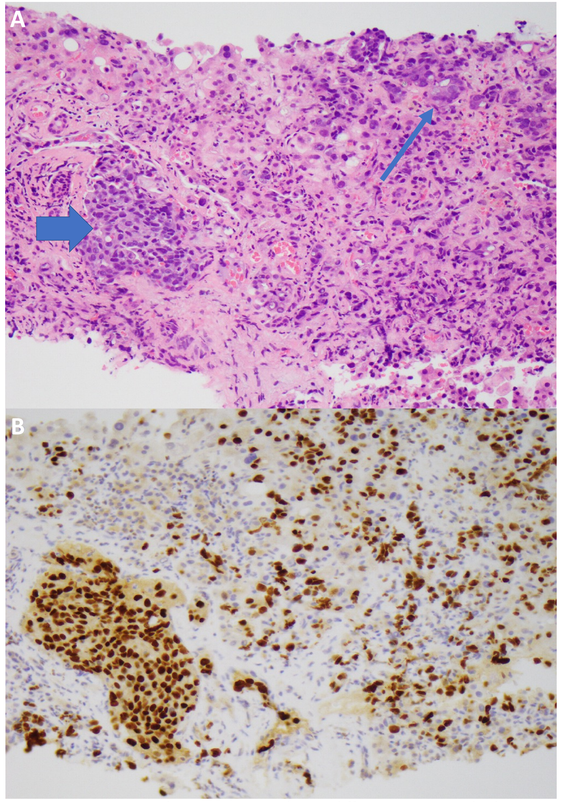

Figure 2A & 2B. Liver biopsy tissue with two different stains applied
A) H&E Staining 200X: Portal area containing a portal vein occluded by tumor (Thick arrow). Scattered throughout the liver parenchyma are single cells and clusters of tumor within sinusoidal spaces (Thin arrow).
B) GATA3 200X: Immunohistochemistry for GATA3, a marker of breast carcinoma, highlights the portal vein tumor and the sinusoidal involvement of the parenchyma (brown nuclear stain)

Discussion

Hepatic involvement in metastatic breast cancer is common and typically presents with focal hypervascular lesions or can atypically present as "pseudocirrhosis" with diffuse hepatic nodularity and capsular retraction caused by systemic chemotherapy. Rarely, metastatic breast cancer can present with diffuse, intra-sinusoidal metastases that are radiographically occult.

This case highlights the importance of maintaining a high index of suspicion for metastatic disease in patients with a history of malignancy presenting with new features of hepatic decompensation, regardless of prior oncologic treatment course and in the absence of typical radiographic findings. In such cases, liver biopsy may be required to make the definitive diagnosis.

Conclusions

- "Pseudocirrhosis" may include portal hypertension and hepatic failure and is characterized by radiologic features of cirrhosis in the absence of bridging fibrosis on pathology
- Hepatic involvement in metastatic breast cancer can rarely present as new onset pseudocirrhosis with intra-sinusoidal metastases and no discrete masses
- Liver biopsy should be strongly considered in the evaluation of new hepatic decompensation of undetermined etiology if the diagnosis remains unclear despite broad initial non-invasive workup
- The involvement of Palliative Care is an underutilized intervention in severe liver disease and can improve patient experience by aligning clinical care with patient and family values

Contact Information

Marina "Molly" Sprague, MD, MS — MSprague@mednet.ucla.edu
UCLA Hospice and Palliative Medicine

Devin Patel, MD — DPatel@mednet.ucla.edu
UCLA Gastroenterology

Camille Soroudi, MD — CSoroudi@mednet.ucla.edu
UCLA Gastroenterology

Steven D. Hart, MD — SHart@mednet.ucla.edu
UCLA Anatomic Pathology, Clinical and Laboratory Pathology

Monica Tincopa, MD, MSc — MTincopa@mednet.ucla.edu
UCLA Gastroenterology, Transplant Hepatology