Occult Breast Cancer Metastasis Presenting as Acute Liver Failure

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Abstract

• Isolated liver metastases from breast cancer is rare and only seen in 5-12% of breast cancer patients.
• We report a rare case of metastatic triple-negative invasive ductal carcinoma presenting as isolated post-surgical acute liver failure in a patient previously in remission.
• Prior studies have demonstrated good prognosis in patients with isolated liver involvement if they have had prolonged disease-free interval, hormone positive cancer, and normal liver function.
• Our patient presents a challenging case in which liver function and performance were poor prior to diagnosis of metastasis. Helical CT also demonstrated a unique presentation of cirrhotic liver with vastly diffused metastatic lesions, with no circumscribed mass seen.

Case Description

A 45-year-old female with history of stage IA ER, PR, HER2 negative moderately differentiated ductal carcinoma of the right breast (≥pN0 dux Chemotherapy, lumpectomy, and adjuvant therapy) presented with abdominal pain, distension, jaundice, and scleral icterus three weeks after laparoscopic cholecystectomy.

Intraoperatively, her liver appeared cirrhotic which prompted an intraoperative biopsy. This demonstrated fragments of benign liver cyst with granulomatous inflammation, attributed to a subcapsular sample.

During a postoperative office visit, total bilirubin was elevated (2.6 on admission, 10.6 on discharge).

On presentation she showed signs of acute liver failure and coagulopathy with a white blood cell of 11.2, INR 3.45, and AST/ALT 182 and 115 respectively. Clinically she continued to have increased abdominal pain and distension, jaundice, and scleral icterus.

Causes of acute liver failure including post-surgical complications, viral, autoimmune, and granulomatous disease were excluded.

During her hospital course she continued to display worsening liver function with elevated AST/ALT, total bilirubin, alkaline phosphatase, and INR. Further evaluation with transjugular liver biopsy was done due to limited diagnostic value of biopsy from outside hospital. Immunohistochemical staining was positive for GATA-3 immunostain and CK-7 stain, revealing adenocarcinoma consistent with primary breast carcinoma.

Clinical Images

Laparoscopic Cholecystectomy for acute cholecystitis; liver appeared cirrhotic.

Intraoperative biopsy taken. Presentation at Henry Ford ED s/p 3 weeks from laparoscopic cholecystectomy with total bilirubin = 10.2; concern for intra-operative bile duct injury.

Biopsy:
• Patient’s functional status
• Patient’s systemic chemotherapy
• Goals of care

Case discussed with hematology/oncology. Patient’s functional status and liver failure were incompatible with systemic chemotherapy. She was not a transplant candidate due to metastatic disease. Goals of care discussed with patient and family; hospice initiated.

• Various techniques used to determine the exact cause of liver failure due to metastatic breast cancer.

Discussion

• Acute Liver Failure (ALF) is defined as sudden liver dysfunction manifesting as coagulopathy and any degree of encephalopathy in a patient without preexisting cirrhosis with illness lasting less than 26 weeks’ duration.
• As much as 20-40% of ALF is due to unclear causes.
• In the case of breast cancer metastases, the liver is considered to among the common sites of metastasis, along with lungs and bone. However, most metastases present in the form of a discrete mass.
• In a large retrospective study, Rowbotham and associates analyzed 4,020 ALF cases over an 18-year period and attributed only 0.44% of these cases to malignant hepatic infiltration.
• Our patient’s breast cancer was grade 2 triple negative infiltrating ductal carcinoma, which was adequately treated with neoadjuvant chemotherapy, right partial mastectomy, right axillary sentinel node biopsy, and postoperative adjuvant radiation therapy.

• Diffuse liver metastasis is very rare and difficult to diagnose as they are not identifiable on routine radiographic diagnostic studies. There are multiple case reports of occult metastatic breast cancer in the liver presenting with acute liver failure, in patients with a history of breast cancer.

In few reported cases, early diagnosis and treatment resulted in some improvement beyond the 18-24 months expected prognosis in metastatic breast cancer, but most cases were fatal within 2-9 months of diagnosis.

Conclusions

• Our patient presents a challenging case in which metastatic breast cancer presented with acute liver failure.
• Helical CT demonstrated severe cirrhosis with no distinct lesions concerning for metastasis, which led to a delay in diagnosis.
• Suspicion for malignant causes should remain high even in breast cancer patients who have completed treatment and have negative image-based screening for metastasis.
• The findings of this case support the importance of liver biopsy as a definitive diagnostic tool, as late discovery of metastasis results in a poor prognosis.

References