

# Gallbladder Metastasis from Breast Cancer: A Case Report

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**Abstract:-** Metastatic breast carcinoma to the gallbladder is uncommon. We report the case of a 50-year-old female woman whose history of the disease dates back to 2018 with diagnosis of right breast luminal B ductal carcinoma. The patient underwent a Patey then referred to the radiation oncology department for further management. A thoraco-abdominopelvic CT scan performed prior to adjuvant treatment revealed the presence of two secondary hepatic nodules. A hepatic MRI was performed revealing two nodular hepatic lesions in favor of angiomas. The RCP decision was made to begin adjuvant treatment with hepatic lesion monitoring. The patient ends her therapy in 2019, with the hepatic lesions disappearing on the surveillance CT scan, and was put on tamoxifen with close hepatic monitoring. An abdominal ultrasound in February 2020 revealed tiny sections of segment VI and domes and no worrisome focal lesions; an abdominal MRI scan was ordered, which revealed a liver with two nodular forms, segment VII and segment VI, as well as two millimetric nodules. The liver biopsy (PBF) demonstrated luminal B ductal carcinoma hepatic location congruent with mammary origin. A CT scan revealed a liver filled with lesions, a swollen gall bladder with two macrolithiasis lesions and osteocondensing lesions, CA 15.3 at 1132 U/ml, and bone scintigraphy showing hyperfixation of the base of the skull, vertebral, iliac, right femoral, and right tibial. The RCP considered the matter again and agreed to put the patient on first-line therapy antiCD4/6 with letrozole. Two months after the patient went to the emergency for acute cholecystitis a laparoscopic cholecystectomy was conducted.

**Anatomopathological examination of the specimen shows a perivesicular immune histochemical appearance of a poorly differentiated mammary carcinoma compatible with the luminal B ductal mammary carcinoma. In view of the progression, the patient was transferred to 2nd-line and a new extended work-up were sought, but she died seven days after the appointment.**

**Keywords:-** Breast cancer, ductal carcinoma, gallbladder, acute cholecystitis, laparoscopic cholecystectomy

## I. INTRODUCTION

Breast cancer is the most common cancer among women. According to the cancer registry of Casablanca region (RCCG), breast cancer accounts for 22% of all cancer cases, all sexes combined(1).

Metastatic breast cancer is diagnosed in less than 10% of cases(2). Breast cancer metastasis to the gallbladder is very rare, and only 23 cases have been reported in the literature(3).

Here we describe the case of a 50-year-old patient being treated for breast cancer who underwent cholecystectomy for acute cholecystitis with gallbladder metastasis from breast cancer.

## II. CASE PRESENTATION

We report the case of a 50-year-old female woman with no family history of neoplasia whose history of the disease dates back to 2018 with autopalpation of a right breast nodule associated with mastodynia. An initial echomammogram revealed a suspicious nodule at the junction of the two UOQ and UIQ of the right breast, classified as ACR4. The trucut

biopsy showed an infiltrating and well-differentiated luminal B ductal carcinoma associated with vascular emboli.

The patient underwent a Patey with an anathopathological examination revealing a 4.5\*3.5\*3 cm tumor facing the nipple, at a distance from the lateral resection limits, 1.5 cm from the deep limit, and from the deep border, suggesting luminal B-ductal carcinoma with intratumoral carcinomatous lymphangitis and 5N+/11N+ lymph node metastases. The patient was referred to the radiation oncology department for further management.

On initial workup before adjuvant chemotherapy, bone scintigraphy showed no secondary bone lesions, whereas a thoraco-abdominopelvic CT scan before adjuvant chemotherapy showed the presence of two hepatic nodules of secondary appearance given the context, 22 mm and 20 mm in segment VIII, with a CA15.3 level of 35. 14 U/ml, a hepatic MRI was performed to characterize the hepatic lesions, showing two nodular hepatic lesions 13\*14mm and 14\*16mm, with kinetics in favor of angiomas.

The case was discussed at the RCP, and the decision was to start adjuvant treatment, i.e., chemotherapy followed by radiotherapy to the wall, axillary, and supraclavicular lymph nodes, then hormone therapy with monitoring of the hepatic lesions. The patient completed her treatment in 2019, with the disappearance of the hepatic lesions at the surveillance CT scan, and was put on tamoxifen (20mg) with close hepatic monitoring.

In February 2020, at a follow-up visit, the patient brought back an hepatic ultrasound, which showed a lithiasis gallbladder with small areas of segment VI and domes with no suspicious focal lesions; an abdominal MRI scan was requested, showing a liver with two nodular formations, segment VII measuring 51\*45mm and segment VI measuring

12\*25mm, and two millimetric nodules; a liver biopsy (PBF) was performed, showing a luminal B ductal carcinoma hepatic localization compatible with a mammary origin.

In view of the hepatic progression, a new extension work-up was indicated, with a CT scan showing a liver riddled with lesions, the largest of which was located in segments V, VII, and VIII measuring 12. 6x10 cm, a distended gall bladder with two macrolithiasis lesions, osteocondensing lesions in the lumbar vertebrae L3 and L5 and both iliac wings with suspicious appearance, left pulmonary nodules to be monitored, with CA 15.3 at 1132 U/ml, and bone scintigraphy showing hyperfixation of the base of the skull, vertebral, iliac, right femoral, and right tibial.

As the patient was asymptomatic, and in the absence of visceral crisis, the RCP re-discussed the case and decided to put her on first-line antiCD 4/6 Palbociclib 125mg with Letrozole 2.5mg.

Two months after starting treatment, the patient presented to the emergency department with sudden abdominal pain in the right hypochondrium associated with nausea and vomiting, suggestive of acute cholecystitis. Clinical examination revealed localized defensiveness. Abdominal ultrasound revealed gallstones in the gallbladder, associated with 6 mm thickening of the gallbladder wall and a radiological Murphy's sign, laparoscopic cholecystectomy was performed.

Oncological follow-up one month after surgery showed on anathomopathological examination of cholecystectomy a perivesicular immunohistochemical appearance of a poorly differentiated carcinoma of mammary origin (Ac anti-CK7 +, Ac anti-GATA-3+, Ac anti-CK20 -, Estrogen receptor (ER) and progesterone receptor (PgR) were positive).

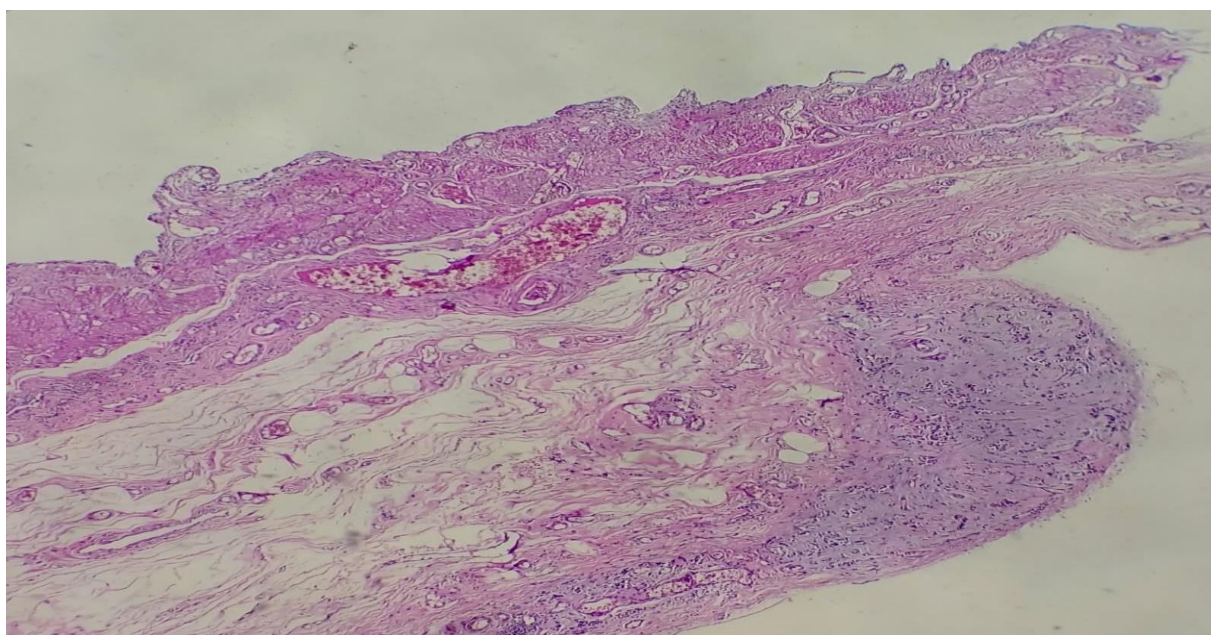


Fig. 1: A low-power photomicrograph shows malignant tumor cell colonies invading the gallbladder wall

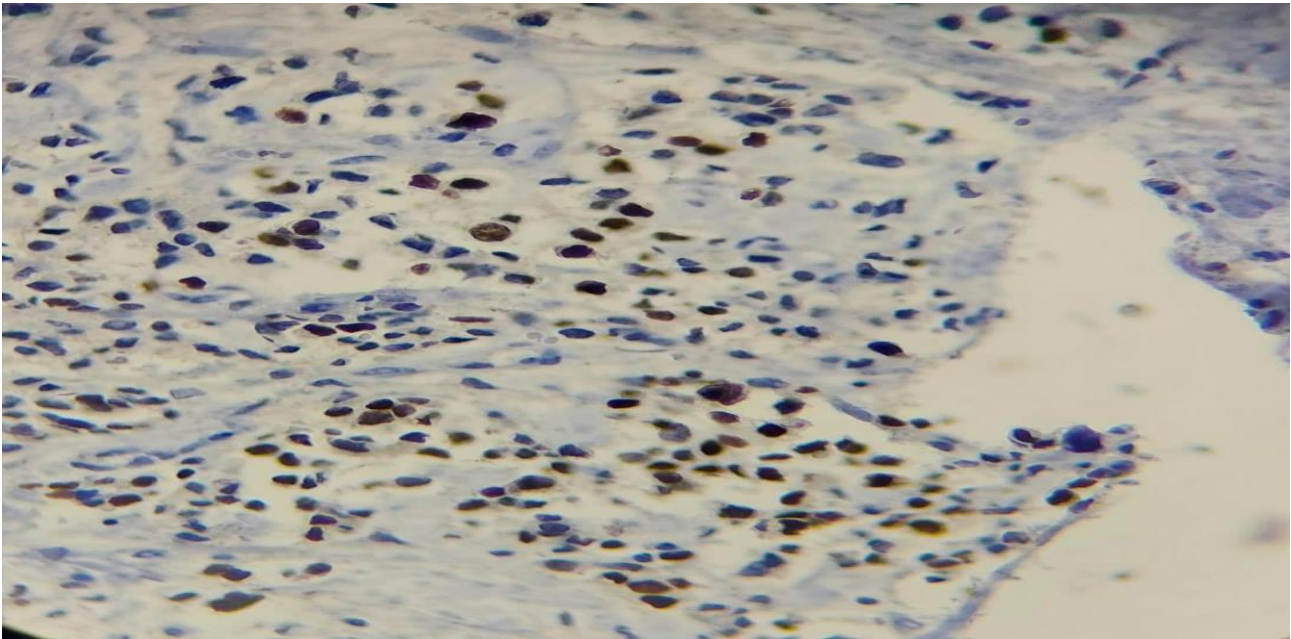


Fig. 2: A photomicrograph of gallbladder tumor cells that are positive for oestrogen receptors (ER)

In view of the clinical and radiological progression, with the appearance of vesicular metastases on anticdk4/6 letrozole, the patient was switched to 2nd-line Fulvestrant, and a new biological and extension work-up were requested, but she died seven days after the consultation.

### III. DISCUSSION

The majority of instances of breast cancer are discovered at an early stage, with only a few cases being confirmed as metastatic. Metastasis is frequently an event that occurs after treatment of stage I, II, or III of the disease, as in our case(4). Breast cancer usually spreads to the axillary lymph nodes, bones, lungs, liver, and soft tissues. It is quite uncommon for bladder dispersion to occur(5). There is only 23 cases about metastatic breast cancer to the gallbladder reported by literature(3).

Concerning the histological type it seems that lobular carcinoma has a tropism for the peritoneum and retroperitoneum leptomeninges, hollow viscera including the gallbladder compared to ductal carcinoma(6,7). The most common histological type, as shown by Missori et al in their case report, was lobular cancer in eleven cases, followed by ductal carcinoma in seven cases, then mixed, association of the two histological types in three cases, the type wasn't specified in two cases(3).

The clinical manifestations of this metastatic location vary from patient to another and can include diffuse stomach discomfort, biliary colic, acute cholecystitis, or an asymptomatic variant detected by coincidence(8).

Clinical and ultrasound examination are not very specific, only laparoscopic cholecystectomy with anatomopathological examination of the surgical specimen can confirm the diagnosis(9). To differentiate between primitive gallbladder carcinoma and metastatic breast carcinoma in the gallbladder, molecular biology and immunohistochemical assessment are frequently

required(10). Even in patients with lots of metastases, palliative laparoscopic cholecystectomy should be considered to ease cholecystitis symptoms and enhance prognosis and quality of life(11).

### IV. CONCLUSION

Metastatic breast cancer to the gallbladder is uncommon and is associated with a poor prognosis. Diffuse stomach pain, biliary colic, or acute cholecystitis may lead to a diagnosis following surgery. These symptoms in breast cancer patients should be taken seriously and treated as soon as possible with a combination of surgery and systemic medication, since they can improve the patients' terrible prognosis.

### ACKNOWLEDGMENT

Not applicable.

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