

Simultaneous Breast and Liver Surgery in a Patient with Stage IV Triple Positive Breast Cancer – A Case Report

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Rezumat

Managementul chirurgical al unei paciente diagnosticate cu neoplasm mamar stadiul IV, triplu pozitiv - prezentare de caz

Introducere: În contextul actual al strategiilor oncologice multi-modale disponibile pacienților cu neoplazii în stadiu avansat, principiul clasic privind indicațiile limitate ale chirurgiei devine din ce în ce mai puțin valabil. Cu toate că în majoritatea cazurilor un tratament cu viziă curativă nu este posibil, totuși, unii pacienți cu boală sistemică limitată și cu o biologie a tumorii favorabilă ar putea să beneficieze de un tratament agresiv, combinat, citotoxic și chirurgical.

Prezentare de caz: Pacientă în vârstă de 48 de ani a fost diagnosticată cu carcinom mamar ducal invaziv cu imunohistochimie pozitivă pentru receptorii de estrogeni, progesteron și Her2 și trei metastaze hepatice. După nouă ședințe de chimioterapie s-a obiectivat un răspuns tumoral favorabil, atât la nivelul tumorii primare cât și la nivel hepatic, prin dispariția imagistică a două metastaze și scăderea în dimensiuni a celei de-a treia. Pacienta a fost operată în clinica noastră, în aceeași intervenție chirurgicală practicându-se sectorectomie mamară cu evidare ganglionară axilară și hepatectomie atipică segment V.

Concluzii: Un subgrup de pacienți cu neoplasm mamar stadiul IV, cu metastaze hepatice rezecabile și fără alte leziuni extrahepatice, ar putea să beneficieze de o strategie agresivă chimioterapică și chirurgicală, cu rezultate bune privind supraviețuirea.

Cuvinte cheie: neoplasm mamar, metastaze hepatice, rezecții hepatice

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Abstract

Introduction: In the modern context of multimodal treatment strategies for cancer patients with systemic disease, the dogma that surgery has a limited role is becoming less and less valid. Although a “curative” approach is not possible for the majority of the cases, however, some patients with limited systemic disease and favorable tumor biology could benefit from an aggressive combined cytotoxic and surgical strategy.

Case report: A 48-year-old patient was diagnosed with an invasive ductal carcinoma with the immunohistochemistry positive for estrogen and progesterone receptors, positive Her2 and three liver metastases. After nine cycles of chemotherapy, a favorable tumor response was identified at the level of the primary tumor as well as for the liver lesions: two of the metastases have disappeared, and the third one decreased in dimensions. The patient was operated in our unit, a lumpectomy together with a level II axillary lymph nodes dissection and a non-anatomic resection of the segment V of the liver was performed.

Conclusions: A subgroup of patients with stage IV breast cancer with limited liver metastases and no extrahepatic disease might benefit from an aggressive combined cytotoxic and surgical strategy regarding disease control and overall survival.

Key words: breast cancer, liver metastases, liver resection

Introduction

In the modern context of multimodal treatment strategies for cancer patients with systemic disease, the dogma that surgery has a limited role is becoming less and less valid. Although a “curative” approach is not possible for the majority of the cases, however, some patients with limited systemic disease and favorable tumor biology could benefit from an aggressive combined cytotoxic and surgical strategy (1).

The liver is the third most common metastatic site for breast cancer after the skeleton and lungs. The median survival time for patients with untreated breast cancer liver metastases is only 4 – 8 months (2). Liver metastases are present in 15% of the patients newly diagnosed with metastatic breast cancer, and in one-third of these patients, the liver is the only distant site of the disease (3,4).

Case report

A 48-year-old woman was diagnosed in December 2014 with stage IV breast cancer. The physical examination revealed a 2 cm palpable tumor in the upper outer quadrant of

the right breast and enlarged lymph nodes at the level of the right axillary region. A mammography was performed, and a BIRADS 5 lesion was detected (*Fig. 1 A*). The computed tomography (CT) confirmed the presence of the tumor in the right breast (*Fig. 1 B*). The tumor biopsy revealed an invasive ductal carcinoma with the immunohistochemistry positive for estrogen and progesterone receptors, positive Her2 and a Ki-67 index of 20%. The CA15-5 serum level was 69.5 U/ml (normal values: 0 – 5.8 U/ml).

The patient had no personal or familial history of breast cancer or other malignancies, and her major complaint was right breast pain.

A full body contrast enhanced CT scan was performed in January 2015 which revealed only three liver nodular masses highly suggestive for metastatic lesions (*Fig. 2*). The first lesion has had 13 mm in diameter, and it was located in segment II, the second lesion was located in segment V and has had 44 mm, and the last one was located in segment VIII and measured 11 mm in diameter. The CT scan confirmed the enlarged lymph nodes only at the level of the right axilla.

The medical oncologist decided a chemo-

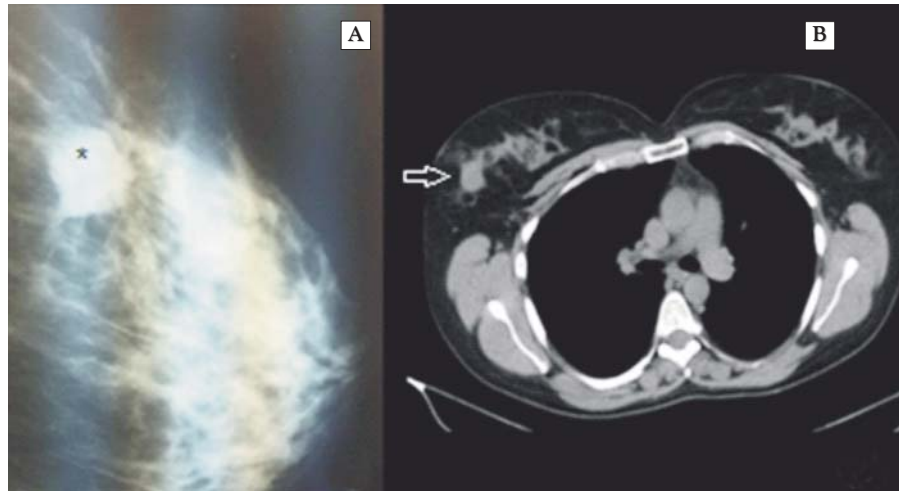


Figure 1. The breast tumor appearance at mammography (*) (A) and computed tomography (white arrow) (B)

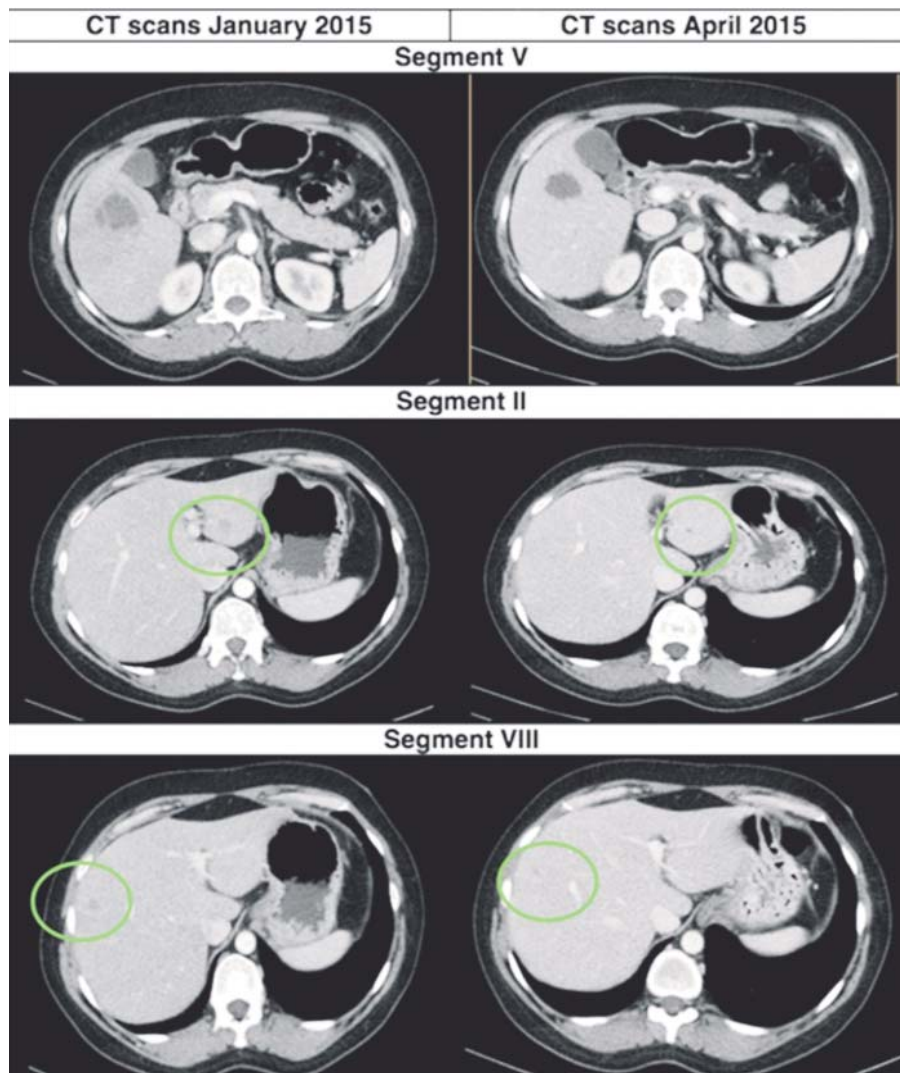


Figure 2. Liver metastases appearance before and after 4 cycles of chemotherapy.

therapy first approach based on docetaxel and epirubicin. Between January and July 2015 the patient received 9 cycles of chemotherapy with docetaxel and epirubicin. No major side effects occurred.

After 4 cycles of chemotherapy, a CT scan was performed. An important morphological response was noted regarding the metastatic liver lesions. The lesion from segment II decreased from 13 mm to 5 mm, the lesion from segment VIII decreased from 11 mm to 6 mm, and the largest mass from segment V decreased from 44 mm to 26 mm. A pseudocyst like transformation was also noted for the segment V metastases (*Fig. 2*).

After the 9 cycles of chemotherapy, a liver magnetic resonance imaging was performed describing only a single lesion, the one in segment V, measuring 14 mm (*Fig. 3*). The bone scan was negative for metastatic lesions.

The patient was referred to the Department of Surgery. Because of the relatively young age, the good response to chemotherapy and the single site (liver) metastasis, simultaneously breast and liver surgery was proposed. The patient was discussed in our institution multidisciplinary oncological board.

At presentation, the patient was in good health with normal laboratory tests except for a CA 15-3 serum level of 31.3 U/ml (normal values: 0 – 5.8 U/ml). The physical examination revealed no palpable tumor at the level of the upper outer right breast quadrant (where the tumor was initially described), most likely due to the tumor shrinkage under chemotherapy and the relatively large breast. To perform a breast conservative surgery, a mammography with metallic harpoon placement was necessary (*Fig. 4*).

Surgery was performed in August 2015: a right upper outer lumpectomy (guided by the metallic harpoon placed on the morning of the surgery) together with a level II axillary lymph nodes dissection. The liver surgery was performed through a subcostal incision; the intraoperative ultrasound confirmed the presence of a single lesion in segment V. The lesions from segment II and VIII were not detected. A non-anatomic (atypical) segment V



Figure 3. Magnetic resonance imaging after 9 cycles of chemotherapy showing only the metastasis of the segment V of the liver

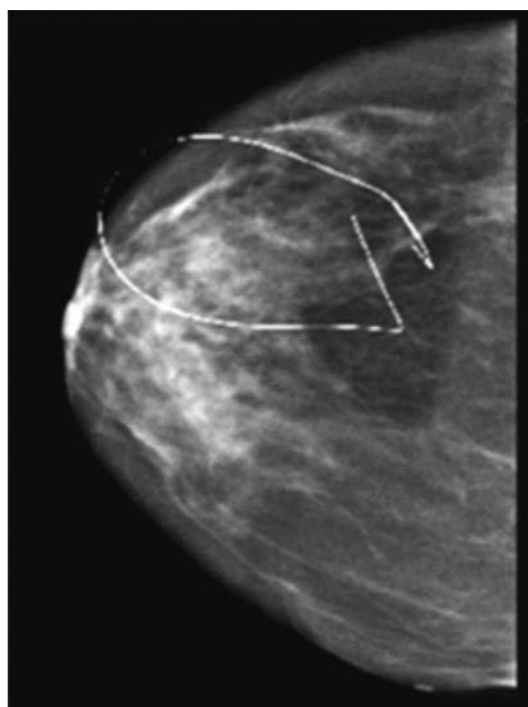


Figure 4. Preoperative metallic harpoon marking of the breast tumor

resection was performed under ultrasound guidance (*Fig. 5*). The postoperative course was uneventful.

The pathology report of the lumpectomy confirmed a 15/11/12 mm fibrotic bed with groups of residual invasive ductal carcinoma G1 cells, with a partial post-therapeutic histopathological response. Two of the total 26

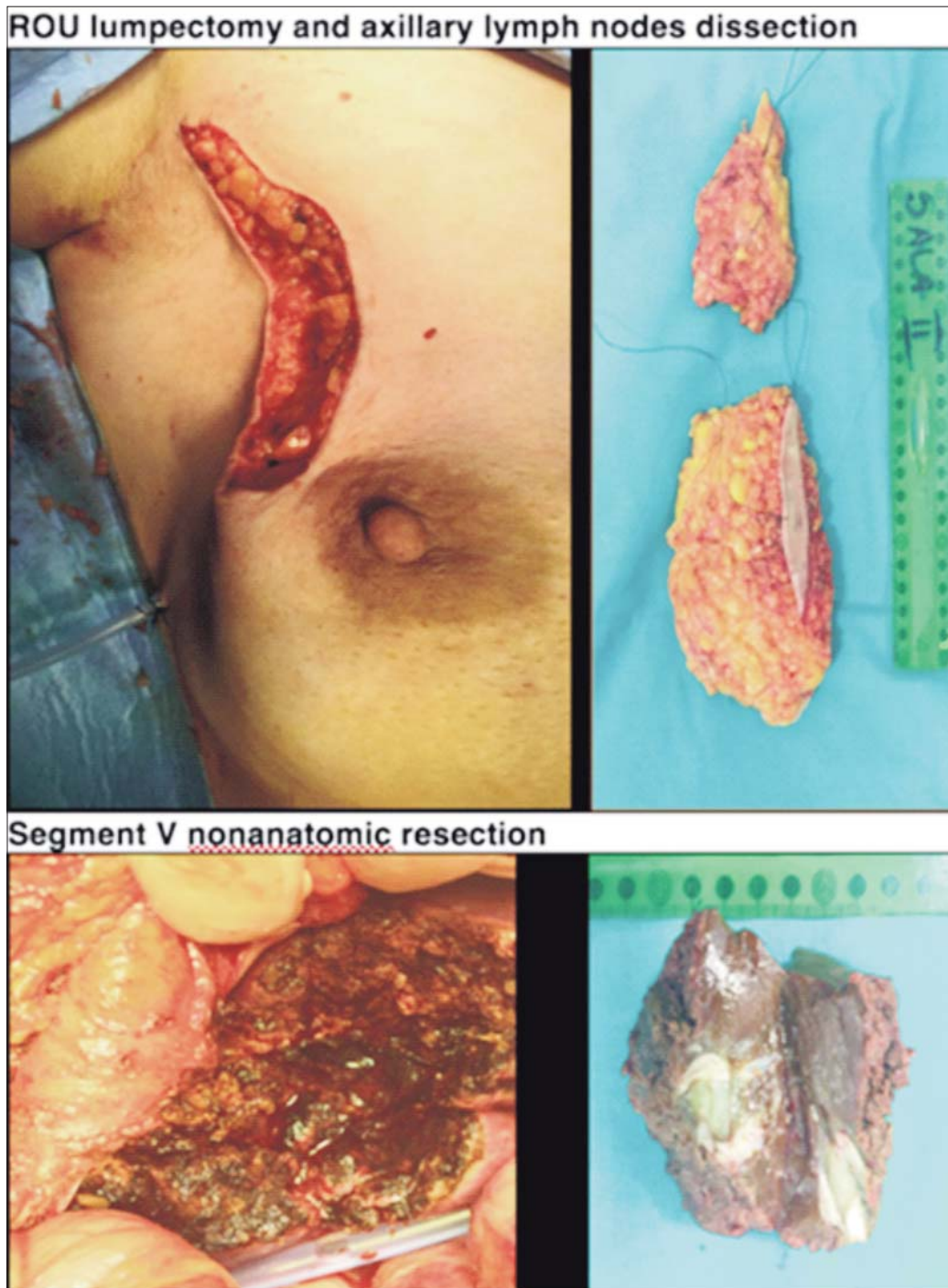


Figure 5. Surgical approach of the primary breast tumor and liver metastasis

axillary lymph nodes examined were positive. The resected liver parenchyma contained a 13 mm nodule with an important fibrotic stroma with metastatic breast tumor cells. (pT1cpN1a pM1-liver)

The patient was referred for further oncologic treatment and continued with endocrine therapy. The follow-up CT (*Fig. 6*) and bone scans performed in January 2017 were negative.

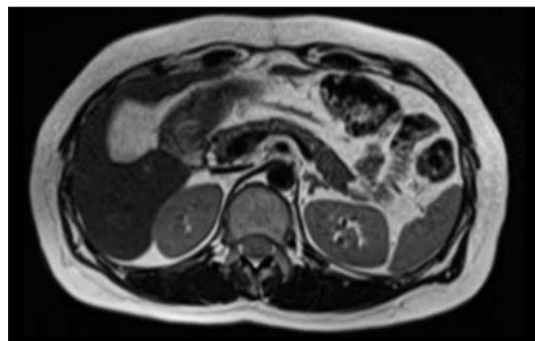


Figure 6. The magnetic resonance imaging of the liver performed in January 2017 did not identify any signs of recurrence

Discussions

Metastatic breast cancer is widely considered an incurable disease. The treatment of stage IV breast cancer is directed towards symptom control, prevention of complications and maintenance of the quality of life by minimizing toxicity. The natural history of stage IV breast cancer has been and continues to change, especially because the diagnosis is made when the disease burden is lower and better drugs translate into better survivals.

The better understanding of the molecular biology of the breast cancer has led to important improvements in overall survival and mortality rates. For example, in a 2016 US estimation of cancer-related deaths, pancreatic cancer mortality has moved from the fourth leading cause of cancer-related deaths to the third, surpassing breast cancer (5,6).

Because of the heterogeneous stage IV breast cancer population, no current guidelines offer the optimal management of these patients and it is emphasized the importance of centralization of patients in centers with high volume, experience, and important resources. Classically, surgery for stage IV disease was indicated only in the setting of palliation of symptoms. International consensus guidelines now recognize that surgery can be recommended in a subgroup of patients (7,8).

The advances made in the treatment of colorectal and neuroendocrine liver metastases led to the idea of identification of a subset of

patients with breast cancer and limited liver disease that might be considered candidates for an aggressive combined cytotoxic and surgical strategy (9).

Several centers have published their experience with breast cancer liver metastases resection (10). Promising results have emerged over the years, while identification of some prognostic factors that could influence survival appears to be the key to the effectiveness of surgery (11). An aggressive cytotoxic therapy and surgery were associated with median survival times of 15 – 91 months and 5-year survival rates of 11% – 61% (12).

“Disappearing” liver metastases are defined as a disappearance of liver metastases on cross-sectional imaging after administration of chemotherapy. The phenomenon was intensely reported for colorectal cancer liver metastases, and it occurs between 5 – 38% of the patients (13). Several authors recommend that in the case of preoperative administration of chemotherapy for respectable liver disease, chemotherapy should be given for a short fixed period to avoid overtreatment (13).

Data in the literature regarding disappearing breast cancer liver metastases are scares. If we extrapolate from the experience of colorectal liver metastases, complete clinical response following chemotherapy does not mean cure of the disease and complete pathological response (14). The complete pathological response was observed in only 4% of the patients with resected colorectal liver metastases and preoperative chemotherapy (15).

Initially, the reported patient has had 3 liver metastases. After 9 cycles of chemotherapy two of them disappeared; these liver lesions could not be objectified on the preoperative magnetic resonance or intraoperative ultrasound. An objective response could be seen only after 4 cycles of chemo. Although the scientific data regarding the timing of surgery is scarce, one might question if the same principle used for colorectal liver metastases treated with neoadjuvant chemotherapy can be applied for this subgroup of patients with breast cancer and resectable liver disease, to avoid the issue of disappearing liver metastases.

Conclusions

A subgroup of patients with stage IV breast cancer with limited liver metastases and no extrahepatic disease might benefit from an aggressive combined cytotoxic and surgical strategy regarding disease control and overall survival. Although many problems have not yet been answered, the indication of surgery should be done in the multidisciplinary context in hepato-biliary centers.

Conflict of interest

No funding and no conflict of interests.

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