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Case Report

Breast Metastasis in a Patient with Primary Hepatocellular Carcinoma

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Abstract

Hepatocellular carcinoma is the most common primary carcinoma of the liver, that metastasises most commonly to lungs, lymph nodes, bones and adrenal glands. We report a case of a 70 years old female, with a left breast metastasis from hepatocellular carcinoma, along with hepatocellular carcinoma recurrence in the liver, that underwent a left mastectomy. The pathological report confirmed the metastasis. To the best of our knowledge, this is the second study reporting a breast metastasis from primary hepatocellular carcinoma.

Keywords: Hepatocellular carcinoma; Breast metastasis

Introduction

Hepatocellular carcinoma (HCC), is the 4th most common neoplasm in men and 9th most common neoplasm in women, making it one of the leading causes of cancer-related deaths (approximately 600.000 deaths/year worldwide) [1-12]. Its geographical distribution varies according to the prevalence of known aetiologic factors such as HBV, HCV infection, alcohol, cirrhosis [12]. Extrahepatic metastases occur in 14-37% of cases and are associated with poor prognosis (1 year survival<40%) [10,13] The most common extrahepatic HCC metastases sites are the lungs (49%), lymph nodes (41%), bone metastases (16%) and the adrenal glands (15%) Metastases occur via the portal vein system or via mediastinal nodes [2]. Breast Ca is the most commonly diagnosed cancer in the world, among women, and the second leading cause of cancer deaths, after lung cancer [14]. Breast metastases are extremely rare, according to worldwide literature. This is the second report of breast metastasis to a patient with primary hepatocellular carcinoma.

Case Report

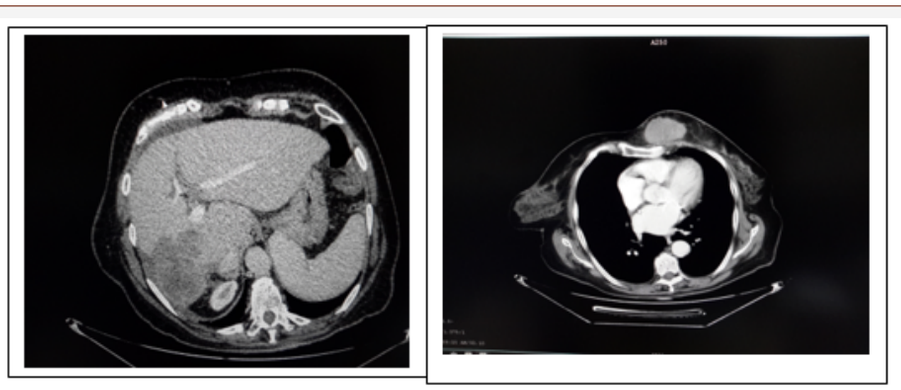

Figure 1: Chest and abdominal CT scan showing a left breast mass with irregular borders and a mass 7.9x8.3 cm on the VII liver segment, with enlarged hepatic lymph nodes and splenomegaly.

A 70 years old Caucasian female, with chronic HCV infection, presented on the outpatient clinic, during routine follow-up after right hepatectomy, complaining of mastalgia and a palpable mass on her left breast, discovered during self-palpation. The mass was rigid, tender about 5x4 cm in size. She had a previous surgical history of right hepatectomy 8 months ago, due to hepatocellular carcinoma in segments VI, VII of the liver, after an embolism of the right portal vein and counterbalancing hypertrophy of the left liver lobe. The biopsy had reported hepatocellular carcinoma with neuroendocrine differentiation, grade III-IV Edmondson-Steiner, CK8-, CK18+, CK7+, hepatocyte+, glypican-3+, AFP+, pCEA+, β-catenin+,s-100-, CHR moderately positive, SYN moderately positive, CD56-, Ki 67~80% . During surgical follow- up, the patient underwent CT scan of the abdomen, thorax and brain, which showed a left breast mass with irregular borders 5.9x4.5 cm and a mass 7.9x8.3 cm on the VII liver segment, with enlarged hepatic lymph nodes and splenomegaly (Figure1).

The mammogram showed a non-homogenous mass on the inner side of the left breast, below the papilla, with size 4x3x2.4 cm. with irregular borders (Figure 2). Afterwards, the patient underwent an FNA biopsy, which showed malignant cells, most probably originating from adenocarcinoma. Serum cancer biomarkers AFP, Ca125 and Ca 15-3 were increased. After an MDT discussion, the patient underwent a trans arterial chemoembolization of the HCC recurrence and afterwards, a left mastectomy. The pathologic examination of the left breast reported a neoplastic mass with characters of metastatic hepatocellular Ca with neuroendocrine differentiation, histological scale of III-IV Edmondson-Steiner, CK8/18(+), Hepatocyte(+), Glypican-3(+), aFP(+), Arginase-1(-),Synaptophysin(+) locally, Chromogranin(+) locally CD56(-), GATA-3(-),ER(-), PR(-), Ki67~88%. The patient was discharged home, the third postoperative day, in good clinical condition, but according to our follow-up, died from disease progression six months, after the mastectomy.

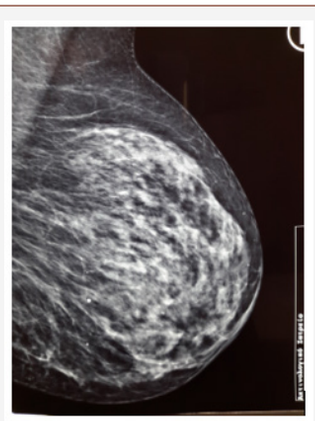

Figure 2: Mammogram of the left breast showing a non-homogenous mass on the inner side of the left breast, below the papilla, with irregular borders.

Discussion

The incidence of hepatocellular carcinoma varies among geographical areas, with greater incidence being found in Asia, Taiwan, Korea, China and Japan [1-7]. Advanced hepatocellular carcinoma is one of the most lethal diseases and includes metastases to various organs, such as lungs, lymph nodes, musculoskeletal structures, peritoneal surface, gastrointestinal tract, spleen and pancreas [7-10]. It has only few systematic therapeutic options, with Sorafenib, being the most important pos administered molecular drug, that increases overall survival by approximately 3 months (10.7 months) compared with placebo (7.7 months) [6].

To the best of our knowledge, this is the second case report of a breast metastasis from primary hepatocellular carcinoma. Lo et al, reported three cases of breast metastases in three patients with disseminated hepatocellular carcinoma. The only difference is the fact that our patient had only breast metastasis whereas Lo et al patients had disseminated disease [1]. Musculoskeletal metastases from hepatocellular carcinoma accounts for approximately 20% of metastatic lesions. Kim et al, reported scapular metastasis with intramuscular hematoma from primary hepatocellular carcinoma, in a patient with back pain [2]. Bachtiar et al, reported right mandible and coracoid process metastases, in a patient with newly diagnosed hepatocellular carcinoma, that had right lower tooth pain and swelling over the right mandible, as well as right shoulder pain, with no associated trauma [7]. Maharajan et al, reported a L3 vertebra solitary metastasis, from primary clear cell carcinoma of the liver, presenting as low back pain and Adnot et al, published a case report, describing a maxillary metastasis, presenting as a hemorrhagic mass of the oral cavity [8,9].

Al-Sharidah et al, reported a case of a 31 years old female patient, with chronic HBV infection, that presented to the outpatient clinic with 6 months mastalgia, and a palpable mass on the left breast. In contrast to our case, though, it was revealed through CT scan of the thorax, that the mass had origin on the 3rd rib of the left thorax and was bordering the ipsilateral major pectoralis muscle, invading the muscle and the soft tissue of the breast. The patient underwent an image-guided needle biopsy of the mass, that confirmed a metastatic epithelial tumor of hepatic origin [5]. Moreover, Patel et al, reported a cutaneous metastasis on the left lateral eyebrow, as the first clinical presentation of hepatocellular carcinoma, whereas, Greco et al, reported a cardiac metastasis in a patient with known hepatocellular carcinoma and hypertrophic cardiomyopathy, that presented in the emergency department, with syncope-like episode. MRI and CT scan, showed abnormal thickening of the interventricular septum, extending to the entire apex and the anterior and lower segments of the left ventricle. A biopsy was conducted, confirming the diagnosis of cardiac infiltration from hepatocellular carcinoma [3,4].

Harada et al, reported a case of asymptomatic oesophageal metastasis, found on routine basis, in a patient with hepatocellular carcinoma, that underwent an oesophagectomy with thoracotomy and the biopsy showed metastasis from hepatocellular carcinoma, whereas, Salimon et al, reported a case of symptomatic oesophageal metastasis in a patient with hepatocholangiocarcinoma and dysphagia. The patient was treated with chemotherapy, contrary

with the previous one [6,10]. Nugroho and Serra et al, reported cases of adrenal gland metastases from primary hepatocellular carcinoma, diagnosed with CT-guided biopsy, that were treated with chemotherapy [11,12] whereas, Zhigui Li et al, reported a case of a patient with multiple ectopic liver tissues along the pancreas, with development of hepatocellular carcinoma on these [15]. Furthermore, Yeh et al, reported a case of hepatocellular carcinoma metastasis to the left kidney, whereas Kanazawa et al, reported a case of jejunal metastases with primary hepatocellular carcinoma, that presented with melena and anaemia [16,17].

Qianhui Li et al, published a case of a 59 years old patient with cryptorchidism and a right inguinal mass along with a liver mass, who underwent a right orchidectomy whose biopsy, spoke of a metastasis from primary hepatocellular carcinoma [13] Finally, Morais et al, reported a case of sphenoid and cavernous sinuses metastases, in a patient with hepatocellular carcinoma, complaining of headache and photophobia and Yen et al, presented a case of mediastinal, lung and pleural metastases with associated hemothorax, in a patient with hepatocellular carcinoma, that entered the hospital for chemotherapy [18,19].

Conclusion

Breast metastases from hepatocellular carcinoma are extremely rare and to the best of our knowledge, this is the second case report worldwide, describing this clinical entity, that needs significant clinical suspicion to be diagnosed.

Acknowledgement

None.

Conflict of Interest

No conflict of interest.

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