

Approach to hypersplenism due to splenic metastasis of breast cancer: A case report

Meme kanseri dalak metastazına bağlı gelişen hipersplenizme yaklaşım: Olgu sunumu

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Geliş Tarihi / Received: 06.08.2011, Kabul Tarihi / Accepted: 23.12.2011

ABSTRACT

The most common sites for breast cancer metastasis include the bones, lungs, liver, lymph nodes, and brain. However, splenic metastasis of breast cancer is extremely rare. Hypersplenism occurs as a cause of severe hemolytic anemia in carcinomas or with marked splenic enlargement related to splenic metastasis. We presented a rare case of breast cancer with splenic metastasis that was undergone splenectomy to correct cytopenia related to hypersplenism. In the light of this case, splenectomy can be beneficial in the patients with hypersplenism.

Key words: Breast cancer, hypersplenism, splenectomy.

ÖZET

Meme kanserinin en sık metastaz bölgeleri kemikler, akciğerler, karaciğer, lenf nodları ve beyindir. Meme kanserinin dalağa metastazı ise çok nadirdir. Hipersplenizm, karsinomalarda ciddi hemolitik aneminin bir nedeni olarak veya dalak metastazına bağlı aşırı dalak büyümesiyle ortaya çıkar. Hipersplenizme bağlı pansitopeninin tedavisinde splenektomi yararlı olabilmektedir. Biz hipersplenizm ile ilişkili sitopeniyi düzeltmek için splenektomi yapılan dalak metastazlı nadir bir meme kanseri olgusunu sunduk. Bu olgunun ışığında metastatik kanserli hastalarda dalak metastazına bağlı oluşan hipersplenizm tedavisinde splenektomi faydalı olabilmektedir.

Anahtar kelimeler: Meme kanseri, hipersplenizm, splenektomi.

INTRODUCTION

Metastatic tumors of the spleen are rare and usually occur in the presence of disseminated visceral metastases. The most common tumors causing splenic metastases are breast, lung, colorectal, and ovarian carcinoma and melanoma.¹ Hypersplenism represents the increased pooling and/or destruction of the corpuscular elements of the blood by the enlarged spleen. Hypersplenism is a condition which cytopenia develop due to splenomegaly and may be suspected as a cause of severe hemolytic anemia in advanced neoplasms.² Splenectomy can be performed as palliation with acceptable morbidity in patients

with symptomatic splenomegaly to improve the quality of life.¹ In cases of isolated splenic metastasis, especially in colon and breast cancer, splenectomy is beneficial because it has a low complication rate and potential long term survival is higher.^{2,3} In the literature, hypersplenism due to splenic metastasis of breast cancer is very rare. We report herein a rare case of a splenic metastasis due to breast cancer in a young patient who underwent splenectomy for the correction of cytopenia as a cause of hypersplenism.

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CASE REPORT

A 33-year old premenopausal patient presented with left breast mass. She was diagnosed with invasive ductal carcinoma by biopsy. On the first examination of the patient, ECOG performance score was 1 and breast examination revealed an 8×4 cm mass in the left breast. Abdominal examination revealed hepatomegaly. Other system examinations were normal. Hematological analysis was normal except anemia (hemoglobin: 10g/dl). Biochemical parameters including liver function tests and renal function tests were within normal limits.

Computed tomography of the abdomen and thorax revealed multiple hypodens lesions in the liver and a mass in the left breast. Additionally, bone sintigraphy of the patient presented bone metastasis. In these images, the spleen size was in normal range. The clinical and radiological TNM staging was T4N2M1. The pathological biopsy revealed estrogen and progesterone receptor (+), and cERB2 (-). Palliative chemotherapy was administered; three cycles of cyclophosphamide, doxorubicin, and bisphosphonate. Three months after the chemotherapy, thrombocytopenia (platelet range: 60.000-80.000) occurred. Since the platelet counts had not increased, bone marrow biopsy was performed. The bone marrow biopsy documented an increased cellularity and carcinoma infiltration. Although there was a thrombocytopenia, chemotherapy (weekly paclitaxel and capecitabine) was administered due to the disease progression.

Because of thrombocytopenia of the patient, lower doses of myelosuppressive adverse chemotherapeutics were administered as monotherapy. Firstly, paclitaxel was given to the patient every week during 6 months. When chemotherapy response decreased, oral capecitabine was administered nearly for 6 months. The disease was stable as clinically and radiologically nearly 16 months from the diagnosis. The patient exhibited a partial response to chemotherapy for nearly 16 months. In the course of this time, platelet count range was 20.000-60.000. Due to decrease platelet counts below 20.000, and gingival bleeding and conjunctival hemorrhage, the patient was hospitalized. Abdominal examination revealed hepatomegaly and a new occurrence of splenomegaly.

In the computary tomography, multiple metastasis and organomegali presented in the spleen and liver (Figure 1). The laboratory results were as follows; hemogram: White blood cell: 2940 K/UL, Neutrophil: 1620K/UL, Hemoglobin:8 gr/dl, Hematocrit:%24, and Platelets:17200K/UL. Additionally, the blood biochemical analysis was normal. Direct and indirect Coombs tests were negative. Although the patient was given steroid and medical therapy, platelet level was continued as 5.000-20.000. Because of the gingival and conjunctival bleeding due to thrombocytopenia, the patient was given frequent thrombocyte and erythrocyte transfusions once in two days for a month.

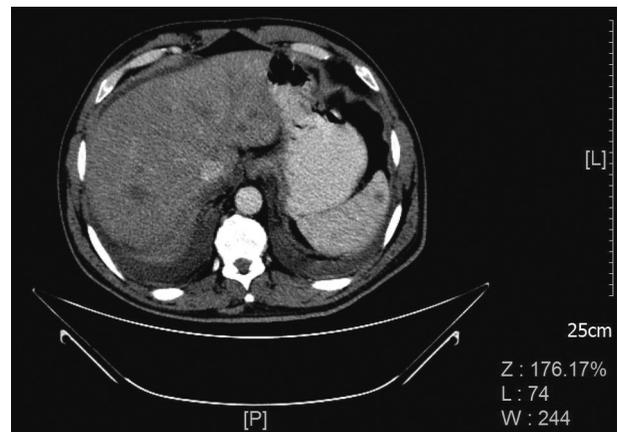


Figure 1. Multiple metastasis and organomegali presented in the spleen and liver In the computed tomography

Pancytopenia related to hypersplenism was considered because of the increased cellularity documented in bone marrow biopsy, and splenomegaly demonstrated in the ultrasonography. The patient was consulted to surgery for splenectomy because of thrombocyte was not improved with medical therapy. After preoperative preparation of the patient with platelet transfusions, splenectomy was performed. Two days after splenectomy, the platelet level of the patient increased to 182.000. Adenocarcinoma metastasis was reported after splenectomy material had been evaluated. The diagnosis report was as follows; Malignant Epithelial Tumor infiltration in a desmoplastic stroma in the spleen (Figure2, 3 H&EstainX100). In the examination of immunohistochemical, cERB2 was negative. After the splenectomy, the patient has been followed up with normal platelet level for nearly 9 months. Afterwards,

palliative chemotherapy was applied to the patient again. The disease of breast cancer of the patient has continued without any progression. Platelet count was 122.000 K/UL during the last chemotherapy. However, myelosuppression and hepatic toxicity developed after chemotherapy and unfortunately the patient passed away.

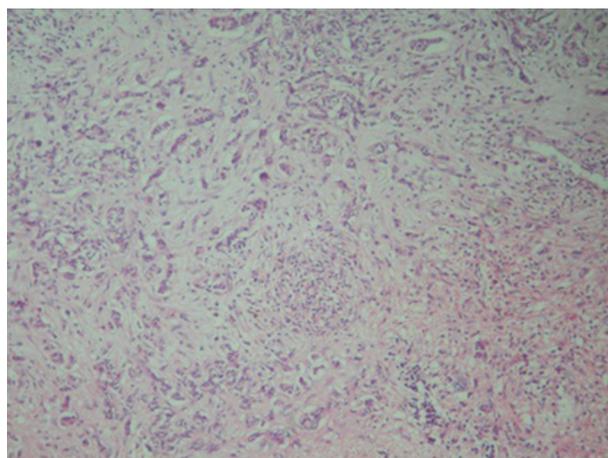


Figure 2. Malignant Epithelial Tumor infiltration in a desmoplastic stroma in the spleen. (H&EstainX100).

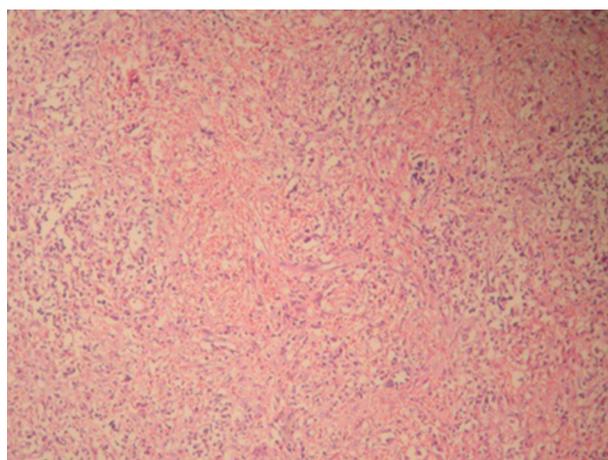


Figure 3. A parenchymal area adjacent to the tumor cells in the spleen. (H&EstainX100).

DISCUSSION

Metastatic tumors of the spleen are rare and usually occur in the presence of disseminated visceral metastases at terminal stage. The prevalence of splenic metastases in large populations with cancer was mainly obtained from autopsy series ranged between 2.3% and 7.1%.⁴ In a Japanese study, in

0.15% of the patients, splenic metastasis was detected by ultrasonography.⁵ The rarity of splenic metastases could be explained by anatomic factors and the inhibitory effect of the splenic microenvironment on the growth of metastatic cells. Several theories have been showed efforts to the resistance of spleen parenchyma against metastases. Some of these include the ability of the splenic capsule to form a physical barrier, angled and a corrugated anatomic feature of splenic artery and immunological defense of the spleen against neoplastic cells.⁶

Hypersplenism represents the increased pooling and/or destruction of the corpuscular elements of the blood by the enlarged spleen. Hypersplenism may be suspected as a cause of severe hemolytic anemia in advanced carcinoma. Hypersplenism was diagnosed in connection with splenomegaly, pancytopenia and increased cellularity documented in bone marrow biopsy. Immune mechanisms and splenomegaly are responsible for hypersplenism.^{7,8} For these reasons, our patient was given steroid and medical therapy. Since the response had not been achieved for the medical therapy, due to low thrombocyte count, splenectomy was performed. After splenectomy, the patient has been followed up with normal platelet level for nearly 9 months. The disease of breast cancer of the patient has continued without progression during these nine months of period. At the tenth months, the patient passed away because of the toxicity of chemotherapy in the 10th months.

In the literature, two cases have been reported that hypersplenism was corrected with splenectomy in patients with advanced breast cancer who did not response to medical therapy. Additionally, splenectomy which was performed to the patient with isolated splenic metastasis has improved overall survival. Splenic metastasis in ovarian carcinomas has been reported in the literature and splenectomy has been shown to be beneficial for these patients. Splenectomy is meaningful to the isolated spleen metastasis of the carcinomas. In the literature, it was reported that splenectomy was beneficial for the patients with over, colon and breast cancer with the spleen metastasis.^{2,9} Moreover, splenectomy can be performed with palliative purposes in patients with acceptable morbidity and symptomatic splenomegaly (cytopenia with hypersplenism).¹

We presented a rare case of breast cancer with splenic metastasis who underwent splenectomy to correct cytopenia related with hypersplenism. Additionally, in the lights of these cases with hypersplenism in the literature, splenectomy may be beneficial in patients with hipersplenism.

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