

CASE REPORTS

Hormonal Treatment for Symptomatic Bone Marrow Metastasis in Breast Cancer Patients

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ABSTRACT

Breast cancer is the most common cancer in females worldwide and also in Indonesia. Symptomatic bone marrow metastasis is an uncommon presentation of metastatic breast cancer patient. A retrospective study showed that, out of 12970 patients with breast cancer, only 0.17% had symptomatic bone marrow metastasis. Management of patients with bone marrow metastasis also creates dilemma for the clinician. Risk and benefit from treatment should be discussed and carefully considered.

We describe here a case report of a 58-year-old female patient with pancytopenia, who had a history of breast cancer four years before. A PET CT Scan showed multiple vertebrae bone metastasis. Bone marrow biopsy revealed marrow infiltration of metastasis breast cancer in bone marrow. This patient received hormonal treatment, which resulted in promising results for four months. Unfortunately, the patient did not come for control regularly and died due to hepatic failure caused by liver metastasis.

Keywords: breast cancer, bone marrow, metastasis, hormonal treatment.

INTRODUCTION

Breast cancer is the most common cancer in females worldwide and also in Indonesia, which is estimated to account for 21.4% of all female cancer patients. Each year, 48998 new cases of breast cancer are diagnosed in Indonesia (1). Symptomatic bone marrow metastasis is an uncommon presentation of metastatic breast cancer patient. A retrospective study showed that,

out of 12970 patients with breast cancer, only 0.17% had symptomatic bone marrow metastasis. Management of patients with bone marrow metastasis also creates dilemma for the clinician. It needs a cautious approach in cytotoxic treatment, since those patients have marrow failure (2, 3).

Our case describes an advanced breast cancer patient with symptomatic bone marrow metastasis receiving hormonal treatment.

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Case Illustration

A 58-year-old woman came to our hospital with fatigue. She had undergone multiple transfusions two months before admission. The patient was also complaining of multiple bruising in her skin and back pain for three months. Four years ago, she had been diagnosed with left breast cancer. At that time, the patient underwent radical mastectomy, radiation, and chemotherapy for six cycles. After that, she was lost to follow up, and had no complaint. She looked pale with multiple petechiae on her skin. There was no organomegaly and lymphadenopathy. At tumor bed there were no palpable mass.

Laboratory tests showed pancytopenia with Hb 9.0 g/dL, leucocyte 3.500/ μ L, platelet 28.000/ μ L. Bone marrow aspiration and biopsy was performed. Positron Emission Tomography–Computed Tomography highlighted multiple metastasis in the vertebrae. In the bone marrow biopsy we found abnormal cells caused by metastasis of breast cancer. Immunohistochemistry evaluation showed positive estrogen receptor, progesterone receptor, and negative Her2 neu expression. Unfortunately, the histopathological report from previous treatment was unavailable to retrieve for comparison with current results.

The patient then underwent palliative bone radiation, bisphosphonate, and aromatase inhibitor treatment. During radiation, she tolerated treatment moderately, with several time red blood cell transfusion, platelet transfusions, and G-CSF injections. After second months of treatment with aromatase inhibitor, the bone marrow steadily recovered and no transfusion was further needed. For four months she had a good treatment tolerance. She was lost to follow up for three months, and then came back to hospital, but her condition had been deteriorated. She looked jaundice, with hepatomegaly. She died due to hepatic failure after seven months, being diagnosed with bone marrow metastasis of breast cancer.

DISCUSSIONS

Bone marrow is an uncommon place for metastasis site in solid tumors. Cancer cells infiltration in bone marrow will result in the disturbances of hematopoiesis that would lead to cytopenia. In several cases, tumor cell

infiltration would lead to total marrow failure or pancytopenia (4). In this case, bone marrow was suspicious from the peripheral blood finding that showed pancytopenia. Peripheral blood smear found leukoerythroblastic. Leukoerythroblastic was identified in the blood smear, indicating suspicious infiltration from cancer cell in bone marrow (2). Then, bone marrow biopsy was performed to confirm diagnosis. In this case, four years after the patient received the diagnosis of breast cancer, bone marrow metastasis was confirmed. These finding was also similar with the report of Kopp *et al*, who have also found symptomatic bone marrow metastasis within less than five years from first time diagnosis as a breast cancer (2).

The treatment of a patient with total marrow failure needs a cautious approach. There are limited data and evidence supporting which is the best way to manage those cases. Contradictive results have been reported. Sasada *et al* showed that a patient with total marrow failure caused by breast cancer metastasis died four months after treatment with weekly paclitaxel (5). Pahouja *et al* reported that continuous low dose doxorubicine, followed by hormonal treatment in a patient with total marrow failure could reach until 44 months (4). Kopp *et al* reported that 22 cases with symptomatic bone marrow metastasis had a median overall survival of 19 months, with most subjects receiving a cytotoxic regimen; however, in their report, there were no patients with total marrow failure. The most common complication of bone marrow metastasis was anemia and thrombocytopenia (2).

In this case, since this patient had bone pain caused by metastasis, we also gave palliative radiation and monthly bisphosphonate. Symptomatic bone marrow involvement in a metastatic breast cancer patient was always found together with bone metastasis (2). G-CSF support and platelet transfusions were needed for several times during the radiation course. After discussing the risk and benefit with the patient, and also considering her preference, we decided to give only hormonal treatment with aromatase inhibitor. The patient's condition improved and no further transfusion was needed. These findings were similar to those from the case series described by Freyer *et al*, who had treated five patient with concomitant hormonal treatment, bisphosphonate, and low dose

chemotherapy give satisfied outcome, with overall survival ranging between 12 and 38 months (3).

Unfortunately, in this case the patient had poor compliance, so she did not come for control regularly. After loss to follow up for almost three

months, she was re-admitted with hepatic encephalopathy. She died seven months after bone marrow involvement was confirmed. □

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