



## Secondary Breast Cancer after Hodgkin's Lymphoma

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### Abstract

Secondary malignancies after treatment in Hodgkin's Lymphoma (HL) patients are a well-known clinical condition. Chemotherapy is associated with the development of blood cancer; while radiotherapy is associated with solid organ cancer in the treated area.

Especially in women, radiotherapy is closely related to breast cancer. A good understanding of the relationship between radiotherapy and solid organ cancer provided some changes.

Therefore, the current approach of radiotherapy treatment at a lower dose and only to the region affected by the lymphoma. In this case, metastatic breast cancer was diagnosed 27 years after the diagnosis of HL.

**Keywords:** Hodgkin lymphoma; Secondary cancer; Breast cancer

### Introduction

As a result of modern treatments, 5-years survival was significantly improved in HL patients [1,2]. Patients treated after diagnosis of HL are confronted with many late complications, including the emergence of secondary cancers, which are still a difficult issue in clinical oncology [3].

Breast cancer is the most common solid organ cancer in women after HL treatment [4].

In this article, we report a case of metastatic breast cancer that developed 27 years after the diagnosis of HL. The patient was diagnosed with HL when she was 16 years old, received 3 cycles of MOPP/ABVD chemotherapy followed by 25 sessions of mantle radiotherapy.

### Case Presentation

Patient; at the age of 16, she presented to the hospital with a constantly growing mass in the left supraclavicular region. As a result of biopsy performed from the supraclavicular lesion. The patient was diagnosed as Hodgkin Lymphoma nodular sclerosing type. After screening, it was classified as Stage 2A. MOPP/ABVD chemotherapy was planned as 3 cycles. She received 25 sessions of Mantle radiotherapy after chemotherapy.

At regular intervals, the patient continued her follow-ups at the hematology clinic. She was admitted to the hospital with complaints of growing fatigue and abdominal pain for several months. As a result of abdominal ultrasonography; multiple solid lesions were detected in the liver. In Addition; CA 15-3 was significantly higher. Breast ultrasonography and mammography were planned. In the patient's mammography; Asymmetric density increases in the lower middle quadrant of the right breast and multiple super imposed segmental calcifications were detected on this area. (Brads V). PET/CT was planned. PET/CT showed multiple metastases in the liver and wide spread lithic lesions in the entire skeletal system. Breast and liver lesions were biopsied. The biopsy specimen of the patient revealed invasive breast cancer, ER (+), PR (-), cerbB2 (score +1) and Ki-67 25% to 30%. Biopsy result of the liver of the patient; invasive breast cancer metastasis; ER (+), PR (-), cerbB2 (score +2). FISH study was planned and the FISH result was reported as negative.

The patient was diagnosed as metastatic breast cancer and started on weekly paclitaxel-carboplatin.

### Discussion

Patients receiving HL treatment; it is well known that the risk of developing breast cancer increases compared to the general population [3-11]. According to the results of a retrospective study by Veit-Rubin et al. HL patients are 2.4 times more likely to have a higher risk of developing breast cancer [6]. The age of the diagnosis of lymphoma and radiotherapy are directly related to this risk. When compared with primary breast cancer, patients with breast cancer who developed after HL;

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was diagnosed younger and earliest age. Hormone receptor positivity was found less, external quadrant placement was more frequent and radiotherapy was used less frequently. It was also associated with a more aggressive course and higher mortality [6].

As mentioned in previous publications, it is observed that this risk started to increase in 5-9 years after treatment, reached its peak after 15-19 years and continued for up to 40 years [3,8].

It has been reported that secondary breast cancers are frequently bilateral, 11 are more frequent in the border of radiotherapy area and more frequently in the outer quadrant [4,10].

According to the study by De Bruin et al. [9] especially large-area radiotherapy has been shown to be an important risk factor for the development of secondary breast cancer. In this study, mantle irradiation was associated with a 2,7 times increased relative risk compared to mediastinal irradiation.

In our case; she was diagnosed with HL at the age of 16 years and was followed up in remission after chemoradiotherapy. 27 years later she developed metastatic breast cancer.

HL patient receiving high dose radiotherapy should be closely monitored for secondary cancers. Especially in female patients; screening programs for breast cancer should be started earlier. We must be more attentive to these patients, because of the continued risk of secondary cancer even years after HL treatment.

Especially, patients receiving high doses of radiotherapy should be followed up very closely.

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