



## Herpes zoster in breast cancer: a case report

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### Abstract

There is little information on herpes zoster infection in breast cancer patients as a complication during adjuvant chemotherapy. We report a case of herpes zoster in a 65-year-old woman presented with low grade fever and vital signs together with skin symptoms such as severe edema, irritation and itching in the left breast where there was wound drainage. PCR test revealed varicella zoster virus. To the best of our knowledge, the histologic features coupled with PCR led to a diagnosis of herpes zoster.

**Keywords:** herpes zoster, breast, diagnosis, PCR, treatment

### Introduction

Herpes zoster (shingles or zona) is a painful, contagious rash correlated with acute pain, which results when varicella-zoster virus is reactivated<sup>[1]</sup>. The distinctive prodromal pain is followed by eruption of rash. The clinical course of acute zoster can occur with a prodrome, headache, and photophobia, and infection can sometimes cause a malaise<sup>[2]</sup>. The cutaneous eruption is unilateral with dermatomal distribution<sup>[3]</sup>. Epidemiological studies indicated that about 20% to 30% of individuals will develop reactivation of latent herpes zoster during their lifetime<sup>[4]</sup>.

The risk of herpes zoster is increased by the loss of varicella zoster virus-specific cell-mediated immunity in old ages. This also is observed in immunocompromised patients including those with HIV/AIDS, chronic kidney disease, malignant disease, erythematosus, rheumatoid arthritis, systemic lupus, and Crohn's

disease. However, current evidence showed that herpes zoster is strongly related to a known diagnosis of cancer. It has been reported that the risk of Herpes zoster is 1.2 in patients with an established cancer diagnosis<sup>[5]</sup>.

Moreover, older adults and patients with impaired cell-mediated immunity are much more likely to have post-herpetic neuralgia, and can persist for years<sup>[6-8]</sup>. There have been reports of significantly increased risk of certain cancer among patients aged more than 65 years with herpes zoster<sup>[6]</sup>. Previous findings showed that radiation therapy and chemotherapy might affect the incidence of herpes zoster. A direct correlation between to the treatment site (location of the tumor) and zoster location has been reported by previous studies<sup>[7-8]</sup>.

### Case report

A 65-year-old female patient with breast pain, severe

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edema, irritation and itching in the left breast was admitted to the emergency department.

This patient had a history of breast cancer four years previously, which metastasized to the lungs and lymph nodes on her neck. This patient was treated with radiotherapy and chemotherapy and total mastectomy for several years. The breast often appeared swollen, erythematous and red, or inflamed. Furthermore, skin lesions were observed to localize in the areas of the left breast where there was wound drainage (*Fig. 1*).

Skin lesions were observed sporadically in the trunk and abdomen. In addition, the patient had a low grade fever and vital signs were stable within normal limits. The diagnosis was made from clinical appearance and history. The confirmatory test (polymerase chain reaction; PCR) was performed for varicella zoster virus. The results of her complete laboratory tests such as LFT and Cr were normal except for leukopenia, anemia, CRP (+++) and ESR (= 85). She was diagnosed with cellulitis and zona and treated with intravenous acyclovir, piperacillin-tazobactam and clindamycin. It is worth noting that prednisolone was prescribed for the patient within a week. In addition, she was treated with oral gabapentin, doxepin, nortriptyline, and cetirizine because of neuropathic pain. Breast skin was compressed with a solution of zinc/copper sulfate/camphor (Eau de Alibour; 1/1000) for 6 minutes every 6 hours (*Fig. 2*). All the lesions subsided gradually and in 8 days with no later symptoms, and the patient was discharged with oral treatment.



**Fig. 1** The gross appearance of the left breast before treatment. A 65-year-old woman presented with low grade fever and severe edema, irritation and itching in the left breast where there was wound drainage. PCR was performed for varicella zoster virus. She was diagnosed with cellulitis and zona (herpes zoster).



**Fig. 2** The gross appearance of the left breast 4 days after treatment. The patient received acyclovir, piperacillin-tazobactam and clindamycin and oral administration of gabapentin, doxepin, nortriptyline, cetirizine because of neuropathic pain and the lesions subsided gradually and in 8 days with no symptoms, and the patient was discharged with oral treatment.

## Discussion

To our knowledge, data has been conflicting regarding the risk of a cancer following the new onset of herpes zoster. However, it has been reported that herpes zoster can be generally related to immunosuppressive disorders such as HIV, certain cancers, and immunosuppressive therapies, especially for patients with hematological disorders. These factors can increase risk of herpes zoster compared with immunocompetent individuals<sup>[8]</sup>. Our case has shown that zona zoster as a complication in patients with breast cancer and chemotherapy/radiotherapy treatment. Our case was a 65-year-old woman with treatment of metastatic breast cancer in lungs and neck lymph nodes, who presented clinical manifestations of shingles. The clinical manifestations of herpes zoster such as vesicular rashes, erythematous papules, and crust, were observed in our patient. In the present case, we report presence of zoster in patients after radiotherapy. Herpes zoster has been reported in correlation with radiotherapy for breast cancer in some studies. However, it is not clear if radiotherapy or chemotherapy is associated with the risk of herpes zoster.

It has been also reported that the incidence of herpes infection can be increased after postoperative radiotherapy (3-5 times), indicating an immunosuppressive association of radiation treatment with disease<sup>[7]</sup>. Furthermore, in a retrospective study, the frequency of zoster has been reported to be 4% in the first 2 years

after completion of radiotherapy. Moreover, type of treatment (mastectomy vs. breast-preservation) was not associated with the frequency of herpes zoster<sup>[7-8]</sup>. The occurrence of zoster was not correlated with other clinical parameters such as age, menopausal status, stage of disease or the use of adjuvant chemotherapy. Previous findings showed that radiation therapy and chemotherapy treatment might affect the incidence of herpes. Radiation therapy has been shown to adversely affect lymphocyte function and result in abnormal lymphocyte response. Furthermore, it could be referred to responsiveness to varicella antigen for many years following treatment. There does appear to be a correlation with the radiation fields and zoster. Moreover, there was a relationship to the treatment site (location of the tumor) and zoster location<sup>[7-8]</sup>. In our case, the required drugs were admitted, with a dosing schedule as mentioned in the case presentation. Cancer patients with radiation therapy may have a severe course compared with a healthy adult and is associated with host immunity<sup>[7-8]</sup>. In our case, all the lesions subsided gradually and in 8 days with no symptoms, and the patient was discharged with oral treatment.

Our results suggest that adjuvant chemotherapy can facilitate reactivation of herpes infection, and it demonstrates that herpes zoster can be present in an immunosuppressed patient; rapid initiation of antiviral therapy can be vital in immunocompromised patients.

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