



## Research Article

# A Case of Using Wet Healing Theory for Wound Bed Preparation Care for A Patient with Breast Cancer Wounds

Deng Wenli, Sha Yaping, Xu Hongbo\*, Yang Ying\*

Renji Hospital, School of Medicine, Shanghai Jiaotong University, Shanghai, China

\***Corresponding Authors:** Xu Hongbo, Renji Hospital, School of Medicine, Shanghai Jiaotong University, Shanghai, China

Yang Ying, Renji Hospital, School of Medicine, Shanghai Jiaotong University, Shanghai, China

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### Abstract

**Objective:** To treat the breast cancer wound on the right breast surface by the theory of moist healing.

**Methods:** According to the wound evaluation, appropriate dressing was used to keep the wound moist and promote the dissolution of necrosis.

**Results:** Through dressing change, the wound was significantly reduced, the wound base was ruddy, and the wound bed preparation was completed.

**Conclusion:** The application of moist healing theory in nursing care of breast cancer wound is obvious.

**Keywords:** Wet healing; Chemotherapy; Breast cancer; Cancerous wounds; Nursing

### 1. Introduction

Currently, the highest incidence of malignant tumor in women is breast cancer. In recent years, with the incidence of malignant tumors rapidly rising, the incidence of cancerous wounds is also increasing, tumor wound incidence rate is about 5% to 10% , breast cancer

concurrent cancerous wounds accounted for 65% of tumorwounds. Cancerous wounds are tumor cells penetrate the epithelial tissue and disrupt its integrity, or inundate blood, lymph and skin to form depressions or cavities, mostly in the form of a cauliflower or ulcer type [1]. Cancerous wounds are characterized by exudate fluid, bleeding, severe pain, odor, etc. [2], difficult to heal, and have a great psychological trauma to the patient [3]. In 1995 British animal physiologist Winter proposed the "Wound Wet Healing Theory" [4], it refers to a comprehensive assessment of the wound, reasonable selection of the right dressing, reduced frequency of drug changes, effective control of infection, management of exudate fluid, reduction of bleeding, between the wound and the dressing to form a suitable wet environment [5]. Patients in this case were admitted to our dressing room from November 2, 2020 to March 15, 2021, as reported below.

### 1.1 Clinical data

Patient, Zhou, female, 56 years old, 2017 find a right breast lump, treatment with Chinese medicine, the lump gradually bigger and appeared skin festering. November 2, 2020 she went to our hospital. She had a history of double breast prosthesis implantation, multiple soft tissue lumps in the right breast (size 68mm × 35mm) accompanied by skin breakage, November 6, 2020 she had the bureau for right breast lesions removal biopsy, double-sided armpit lymph nodes live tissue puncture, the puncture pathology: "Right breast lump" in permeable cancer level III, tumor cell Ki67(30%), ER(-), PR(-), HER2(2+), E-Cadherin(+), P120 membranes (+), the tumor is deficient in P63, Calponin(+) of the epithelial cells. On November 9, 2020 FISH Results Diagnosis: Tumor Cell HER2 Gene Status: Negative, Right Breast Mass Invasive Cancer Level III, both Underarm

Lymph nodes can see cancer metastasis. The therapy was the chemotherapy regimen of Taxol 100mg plus DDP 40 mg weekly [6]. November 11, 2020, she admitted to the dressing room to care of the wound.

### 1.2 Nursing assessment

#### 1.2.1 Wound assessment

On November 11, 2020. Wound position: right breast, wound size: 9cm × 10cm × 3cm, wound substrate: 100% yellow, hard base, stinky, graded as a grade 0 according to the description of tumor wound odor by Grocott in 2001 [7]. According to the DA COSTA SANTOS exudate assessment method, the results are a large amount of exudate [8], impregnation of the surrounding skin, according to the Pain Digital Evaluation Scale (NRS) to assess the degree of pain is 7 points, multiple small nodules can be touched around the wound (Figure A).

#### 1.2.2 general assessment:

- **Obesity:** Patient Body Mass Index 29.3kg/m<sup>2</sup>.
- **Immune Status:** the patient had a decrease in leukocytes and granulocytes during cycle 4 chemotherapy, white blood cell counts  $2.39 \times 10^9/L$ , absolute value of neutrophils  $1.26 \times 10^9/L$ . January 26, 2021. During the 11th cycle of chemotherapy, fever occurs, with a body temperature of up to 39.2°C, accompanied by pain at the site of the right breast, blood culture positive: Gram-negative bacteria may be.
- **Medication:** Chemotherapy drugs can kill tumor cells, inhibit tumors from continuing to attack the skin or cause necrosis of tumor tissue, but the chemotherapy drugs can also inhibit the division and proliferation of cells in the bone marrow, reducing the

number of inflammatory cells and platelets, insufficient associated growth factors, and delaying wound healing.

- **Bleeding:** the endothelial growth factor of the wound is increased for the tumor stimulation, resulting in the formation of rich and fragile blood vessels around the wound, which is prone to bleeding and affects wound healing.
- **Psychological state:** The action of chemotherapy drugs leads to hair loss, changes the image of the patient, the wound is accompanied by an unobservable odor, causing the patient to have negative emotions such as pessimism, anxiety, and so on, bad emotions will also inhibit the body's immune function.

### 1.3 Care plan

Cancerous wounds are mainly characterized by a large amount of exudate, bleeding, unbearable pain, odor, etc., according to the time principle of wound care treatment, select appropriate dressings to control the amount of exudate, reduce the infection factor, prevention and control bleeding, reducing wound pain, relieving odor, preparation for surgery on the wound bed. At the same time, psychological interventions improve the patient's self-confidence in wound healing and promote the patient comfort [10-11].

## 2 Nursing of the Wound

### 2.1 Wound treatment

**2.1.1 Removal biofilms:** Physiological saline flush wound surface, chlorhexidine iodine disinfect surrounding skin, sterile gauze wet with Plandtl liquid cover the wound for 15 minutes, the purpose is to remove the wound biofilm. And then flush the wound with 0.5% Metronidazole, dry

the wound with sterile gauze, sterile gauze wet with 0.5% Metronidazole in half dry state to fill wound to relieve wound odor. Using lipid hydrocolloid dressing protect Wound edge to reduce bleeding. Outer dressing used sterile gauze and cotton mats with daily dressing changes. Advise the patient to wear comfortable clothes, use dry tea bags on the outer dressing to reduce odor.

**2.1.2 Removal of necrotic tissue:** wound necrosis tissue in the wound gradually softens and the odor decreases after 3 days dressing changes. Silver alginate ion dressing can quickly absorb a large number of exudate, continuous release of silver ions, inhibit microbial growth to remove biofilm, cut the dressing in appropriate size to fill in the wound depression, wound edge still used lipid colloid dressing, dressing changes every other day. During the dressing changes, appropriate use of conservative debridement of sharp instruments joint self-dissolving method to remove necrotic tissue, do it gently, reduce pain, avoid bleeding for the patient. After 3 weeks (December 9, 2020) the wound size is 8cm × 9.5cm × 2.3cm, the wound substrate color is 25% red, 75% yellow (Figure B); After 5 weeks (December 18, 2020) the wound shrinks to 6cm × 8cm × 2.3cm, substrate color is 50% yellow, 50% red, silver alginate ion dressing cut the appropriate size to fill in the wound depression, lipid colloidal dressing covering the entire wound surface, to avoid frictional bleeding, outer dressing using sterile gauze plus cotton mats, change the dressing 2 times a week.

**2.1.3 Maintaining the exudate balance:** Promotes the growth of granulation tissue after 8 weeks (January 1, 2021), the wound size 4.5cm × 6.5cm × 1.5cm, substrate color 25% yellow, 75% red, wound Exudate, pain, odor have been significantly improved. The inner dressing

change to use calcium alginate dressing, external dressing change to use Mepilex which can absorb a large amount of exudate, to keep the wound surface moist, the Mepilex surface has soft polysilicone, can avoid replacement caused damage which caused bleeding, meanwhile the patient can bathe. Change the dressing twice a week. On February 8, 2021, the wound size is 4cm × 6cm × 1.2cm, the substrate color is 75% red, 25% yellow, and the exudate, pain and odor are improved significantly (Figure C).

### **2.2 Increase nutritional intake**

Guide the patient to eat high-protein, high-calorie, vitamin-rich, digestible foods to improve immunity.

### **2.3 Psychological care**

Cancerous wounds healing slowly, odor, easy bleeding. Nursing experts in the dressing room change the dressing gently in solitude environment, communicate actively, listening to the patient, establish mutual trust between the patient and nurses, and actively cooperate with treatment.

### **2.4 Health guidance**

Guide patients to exercise properly, avoid weight-bearing exercise, improve blood circulation in the upper limbs, and

promote wound healing. Keep the skin around the wound clean and avoid infection.

## **3 Result**

The patient's original wound size: 10cm × 8cm × 3cm, base color 100% yellow, accompanied by odor, lots of fluid exudate, severe pain, for nearly 3 months of active treatment and care, the wound shrink to 6cm × 4cm × 1.2cm, the substrate color is 75% red and 25% yellow, and the exudate, pain and odor have all improved significantly. Wounds Bed had finish to operate (Figure D).

## **4 Conclusion**

Tumor patients lack of disease knowledge about cancerous wounds while active control of tumors, wound nursing experts should do early intervention. Cancerous wounds are difficult to heal, using wet healing therapy, using appropriate dressing, control infection, management of exudate, reduce bleeding and pain, control odor, can improve patient comfort, comprehensive nursing intervention, do a good job of patient psychological care and health education, strengthen patient compliance and confidence to overcome disease, work together to achieve satisfactory results.



Figure A



Figure B



Figure C



Figure D

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