Clinical observation on the effect of Hops extract compound ointment in the treatment of breast cancer patients

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Abstract. The purpose of this study is to investigate the therapeutic effect of hops extract compound ointment in treating skin flap necrosis after breast cancer surgery. 48 cases of after various types operation of breast cancer patients with postoperative skin flap necrosis were divided into two groups according to random number table, 24 cases of treatment group, 24 cases of the control group. In treatment group, there are 24 patients, among them, 20 cases show healed (83.33%), only 1 case shows invalid (4.17%). At the control group, there are 24 patients, among them, 12 cases show healed (50%), 5 case shows invalid (20.83 %). The treatment group compared with control group, with statistical significance($p<0.05$). Experiment results show that in the treatment group, the total efficiency was obviously higher than that of the Control group. And the time of the wound healing is significantly shorter than the control group. Visible, treating skin flap necrosis after breast cancer surgery with hops extract compound ointment could anti-inflammatory, promote skin lesions healing, analgesia, and reduce the exudation, which is worth in clinical application

1 Introduction

Breast cancer is the most common malignancy in women worldwide [1-3]. In recent years, studies have indicated that breast cancer is a systemic disease that requires surgery combined with chemotherapy, radiotherapy and endocrine therapy. The preferred method of treatment is surgical treatment, in the current clinical applications, the five most common surgical methods: breast cancer radical resection, extended radical mastectomy of breast cancer, modified radical mastectomy of breast cancer, breast cancer mastectomy, breast conserving surgery. Each operation method is still not completely avoiding the occurrence of postoperative complications, especially modified radical mastectomy wound area is relatively large, even if the bleeding wound thoroughly, but because of bleeding wounds or poor lymph circulation, skin flap necrosis of the breast one of the most common complications after surgery. Each action method still cannot completely avoid the occurrence of postoperative complications, especially breast modified radical operation wound area is relatively large, even if the wound bleeding completely, but due to wound ooze blood or lymph circulation is not smooth, skin flap necrosis is one of the most common complications after breast cancer. It not only

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delayed breast cancer patients with incision healing, it will also increase with the time of hospitalization, cost of hospitalization, it will also increase the patient's hospital stay, hospital costs, allowing patients to bear a greater economic and mental stress, more serious is delayed radiotherapy and chemotherapy time, thus affecting radical mastectomy the comprehensive treatment. However, the hops extract compound ointment has anti-inflammatory ointment to promote healing of skin lesions [4-6]. In recent years, the treatment of skin flap necrosis after breast cancer operation by using this new ointment has a good clinical effect, which greatly reduces the incidence of subcutaneous effusion and skin flap necrosis after breast cancer surgery. We will do the following summary on it.

2 Clinical data

2.1 General information

A total of 48 cases of skin flap necrosis after breast cancer surgery were collected. the patients we selected from October, 2010 to April 2016 in China-Japan Union Hospital of Jilin university. All patients were female. According to the principle of random divided into two groups,24 cases of treatment group, 24 cases of the control group. In the treatment group, the average age 42-70(56. 19 ±10. 21) years old, duration14-25 (19.95 ±4. 29) days the average wound area(20. 23 ± 19. 42) cm2. 18 patients are stage II, 6 patients with stage III; modified radical mastectomy of breast cancer is 21 cases, breast cancer radical resection is 3 cases; On the left side of the 17 cases of breast cancer, 5 cases on the right side; In the control group,the average age46-68(55.12±9. 15) years old, duration16-27 (22. 1 ±3. 17) days the average wound area(19. 81 ±20. 05) cm2. 19 patients is stage II,5 patients with stage III; modified radical mastectomy of breast cancer is 22 cases, breast cancer radical resection is 2 cases; On the left side of the16cases of breast cancer, 8 cases on the right side. After t test, the age, course of disease, wound area, disease, surgery and other aspects of the comparison, the difference was not statistically significant ($P > 0.05$), the two groups were comparable.

2.2 Inclusion criteria

1 The patient diagnosed with breast cancer by pathology examination.
2 The breast cancer patients have a postoperative wound skin flap necrosis not healing for a long time after operative treatment.

2.3 Exclusion criteria

1 Serious infection or autoimmune disease.
2 Allergic to hops extract compound ointment
3 Such basic disorders as severe liver, kidney, heart, cerebrovascular, etc.

3 Treatment

The treatment group required in strict accordance with the principles of surgical dressing, 2% povidone-iodine disinfection wound, cut off necrotic tissue, and the wound was rinsed with hydrogen peroxide, saline, sterile cotton ball dipped in dry wounds. coated 1g hops extract compound ointment, and covered with sterile gauze, and then provided the appropriate pressure bandage, which could facilitate the absorption of wound exudates and promote drug absorption. Dressing change once a day. It was observed the new born skin appearing and the healing time and wound healing time.

Patients in the control group were treated with the principles of surgical dressing, 2% povidone-iodine disinfection wound, cut off necrotic tissue, and the wound was rinsed with hydrogen peroxide, saline, sterile cotton ball dipped in dry wounds. Conventional alcohol gauze on the incision, and covered with sterile gauze, and then provided the appropriate pressure bandage, which could facilitate

the absorption of wound exudates and promote drug absorption. Dressing change once a day. It was observed the new born skin appearing and the wound healing time.

The patients need to dress timely if the dressing exudate. Then according to the future growth of the wound dressing exudation every other day or every 2d dressing.

3.1 Efficacy determination

Healed: The symptoms were completely relieved. The wound healed completely, and no scar or no scar was 1/2.

Improved: The symptoms were relieved. The wound was reduced by more than 25%, or a large number of scar formation

Invalid: The symptoms were not relieved, narrowing of less than 25% of the wound.

3.2 Statistical processing

Application SPSS17.0 statistical software, measuring data to X±S said, using t test analysis; Count data used chi-square test, $P < 0.05$ for the difference was statistically significant.

2.5 Observe the new born skin appearing and the healing time and wound healing time. Two groups would be observed curative effect after 4weeks.

4 Results

4.1 Comparison of clinical efficacy between the two groups

After we compare the two groups of patients' clinical curative effect after symptomatic treatment. In Table 1, the results show that: In treatment group, there are 24 patients, among them, 20 cases shows healed (83.33%), 3 case shows improved (12.50%), only 1 case shows invalid (4. 17%).At the control group, there are 24 patients, among them, 12 cases show healed (50.00%),7case shows improved (29.17%),5 case shows invalid (20.83%). The treatment group compared with control group, with statistical significance($p<0.05$).

Table 1. Comparison the two groups of patients' clinical curative effect after symptomatic treatment.

Group	Case number(n)	Healed		Improved		Invalid	
		n	Rate (%)	n	Rate (%)	n	Rate (%)
Treatment	24	20	83.33	3	12.50	1	4.17
Control	24	12	50.00	7	29.17	5	20.83

After we compare the two groups of patients' clinical curative effect after symptomatic treatment, we found that the treatment group compared with control group, with statistical significance ($p<0.05$).

4.2 Comparison of the new born skin appearing and wound healing time between the two groups

In Table 2, the new born skin averagely appeared after (5.03 ±1.05) days, and the healing of wound took (23. 92 ±4.01) d days. And at the control group, the new born skin averagely appeared after (8.61±2. 01) days, and the healing of wound took (31.90±7. 33) days. There were significant differences between the treatment group and the control group ($P <0. 05$).

Table 2. Comparison of the new born skin appearing and wound healing time between the two groups.

Group	Case number	the new born skin appearing time	the wound healing time
Treatment	24	5. 03 ±1.05	23. 92 ±4. 01
Control	24	8. 61 ± 2. 01	31. 90 ±7. 33

5 Discussion

5.1 Analysing the cause of skin flap necrosis after breast cancer surgery

Breast cancer incidence rate has jumped to the first place in female malignant tumor.4 Surgical operations in the treatment of breast cancer is particularly important, breast cancer surgical trauma is relatively large, easy to produce a variety of complications, especially of skin flap necrosis, long healing complications and sequelae of axillary scar caused, a serious impact on patients with work, study and life. After breast cancer surgery flap necros is over a long period of healing the pathogenesis is unclear, according to our clinical observation that has the following several reasons: unreasonable choice of surgical incision, tension, too thin flap trimming, electrosurgical coagulation excessive tissue ablation, drainage barrier free form hematoma, pressure tight bandage or uneven pressure, its low immunity and systemic malnutrition. Typical isolated flap surgery range of separation, lateral to the latissimus dorsa, inside to the midline of the sternum, to the clavicle, issued to the costal margin, even with reduced radical operation, scope of flap separation did not reduce, because the breast tissue often extends far edge [7]. Due to the extensive dissection especially axillary stripping are more likely to have potential of die cavity caused by liquid deposition, and chest wall movements, and breathing, shoulder movement generated shear and delay the healing of the skin flap.

5.2 Introduction of hops extract compound ointment

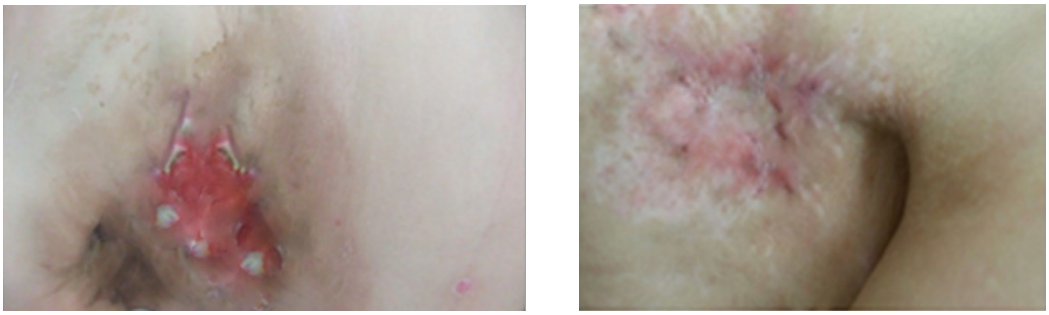
The main components of the ointment are extract, auxiliary ingredients have vitamin B12, gentamicin sulcate and the like. This ointment can inhibit microbial growth due to destruction of cellular transmembrane pH gradient [8]. Topical administrations have accelerated ulcer healing, and promote skin RNA synthesis, having itching and analgesic effect. Moreover, the ointment has anti-bacterial and anti-inflammatory, inhibit the growth of bacteria, improve microcirculation, promote capillary regeneration, wound supply epidermal cells proliferation, differentiation required nutrients, immunity and significantly improve local tissue regeneration, enhance local microcirculation and promote growth clumping factor, accelerate healing.

Hops extract compound ointment is an type of ointment formulations, can moist wound, so that the wounds will be in a moist environment, which would keep the wound lasting effect, prompt the drug would be easy to penetrate the skin, reduce the wound tissue, inflammatory exudate, effective drainage through the intact liquefaction timely rot discharge exudate, removal of metabolites is to promote the growth of granulation tissue that is the basis of myogenic, long leather flat muscle that is new epithelial crawling.

5.3 Hops extract compound ointment applied to breast cancer

As shown in Figure 1, flap necrosis is one of the most common complications after the breast cancer surgery, which will increase economic and mental pressure of patients. More serious is to delay radiotherapy and chemotherapy time, will affect the comprehensive treatment of breast cancer. Hops extract compound ointment has accelerated ulcer healing, analgesic antipruritic, antibacterial effect. The results of this study has be shown that the total effective, time of occurrence and the new epithelial healing time of the treatment group was better than those of the control group, indicating that the ointment can be applied to the treatment of breast cancer after skin flap necrosis. However,

this study focused primarily on the analysis of clinical cases, the mechanism still needs further research to explore.



A B

Figure 1. Photo A. 15 days after breast surgery. There is a 9.87×5.45cm2 skin flap necrosis appear on this patient left chest. Photo B. Photo C. 4 weeks after use drug treatment, the incision got healed.

References

1. Badar F, Faruqui ZS, Ashraf A and Uddin N: Third world issues in breast cancer detection. J Pak Med Assoc 57: 137-140, 2007.
2. Jamal S, Mamoon N, Moghal S, Mushtaq S and Luqman M: Carcinoma breast: A histopathological audit. J Coll Physicians Surg Pak 16: 117-119, 2006.
3. Jemal A, Bray F, Center MM, Ferlay J, Ward E and Forman D:Global cancer statistics. CA Cancer J Clin 61: 69-90, 2011.
4. Patel KM, Hill LM, Gatti ME, et al. Management of massive mastectomy skin flap necrosis following autologous breast reconstruction[J]. *Annals of Plastic Surgery*, 2012, **69**(2):139-144.
5. Pinell White, Ximena A, Kolegraff Keli, et al. Skin-Sparing Mastectomy and Immediate Tissue Expander Breast Reconstruction in Patients With Macromastia Using the Passot Breast Reduction Pattern[J]. *Annals of Plastic Surgery*, 2014, 72:158-164.
6. CJ Baldwin. The variation in breast density and its relationship to delayed wound healing: A prospective study of 40 reduction mammoplasties[J]. *Journal of plastic, reconstructive and aesthetic surgery*, 2010, **63**(4): 663-665.
7. Jarman JH, Etchells TA, Martin JD, et al. An integrated framework for risk profiling of reast cancer patients following surgery [J].*Artificial intelligence in Medicine*, 2008, **42**(3): 165-188.
8. Leite IR, Faria JR, Marquez L D S, et al. Evaluation of hopextract as a natural antibacterial agent in contaminated fuel ethanol fermentations [J]. *Fuel Process Technol*, 2013, **106**(2): 611-618.