

Application of Regenerative Medical Technology in Patients with Stage 4 Pressure Ulcers in the Sacral Tail and Buttocks: A Nursing Case Report

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1. Abstract

1.1. Objective: To summarize the treatment and nursing experience of a patient with stage 4 pressure ulcers in the sacrococcygeal region and buttocks. **Methods:** On April 9, 2023, a patient with stage 4 pressure sores on the tail and buttocks was admitted to the Burn, Plastic and Cosmetic Department of Baise People's Hospital as an example. The wound surface of the patient was treated with burn ointment gauze regenerative medical technology to remove decay and muscle. After 11 days of treatment, surgical debridement and polymer microporous dressing were used. After 16 days of continuous treatment, the wound shrank and the granulation tissue was basically flush with the wound. Chronic ulcer repair surgery and fascia tissue flap plasty were performed to seal the wound. After 12 days of surgery, the wound basically healed. **Conclusion:** The patient's wound basically healed and was discharged without any other complications. Continuing care will be provided in the future. Through the treatment and nursing experience of this case, it can provide certain reference and reference for clinical treatment.

Pressure Injury, also known as pressure ulcer, usually refers to the skin and (or) subcutaneous tissue caused by pressure or pressure combined with shear force, usually located at the protuberance, but may also be related to medical devices or other objects. The injury can present as intact or open ulceration of the skin surface, causing from strong and (or) prolonged pressure or combined shear force

[1]. Pressure ulcer is a common and difficult disease, which has a great impact on the health and quality of life of patients. Treatment care is an important part of pressure ulcer treatment, and a reasonable treatment care plan can effectively promote wound healing and improve the quality of life of patients [2-5]. Through the treatment and nursing experience of a kind of treatment method, in order to provide some reference and reference for clinical treatment.

2. Case Introduction

On April 9, 2023, a patient with stage 4 pressure ulcers on the sacrococcyx and buttocks was admitted to the Department of Burns, Plastic Surgery and Cosmetic Surgery of Baise City People's Hospital. The patient is a 46-year-old male who complained that he underwent surgical treatment in the operating room due to craniocerebral injury 3 months ago. After discharge, there was no coma, no nausea, vomiting, no rotation of objects, no limb twitching, no incontinence of urine and feces, and no pale complexion. , dyspnea, etc. In order to further solve the problem of postoperative skull loss and hospitalization, it is planned to transfer the "stage 4 pressure ulcer on the sacrococcyx and buttocks after craniocerebral injury" to the burn, plastic and cosmetic surgery department. Since the onset of the disease, the patient's energy, appetite, and sleep have been normal, his defecation and defecation have been normal, and his weight has not changed significantly. The patient was unable to take care of himself due to long-term bed rest, resulting in stage 4 pressure ulcers on the sacrococcyx and buttocks. A

large area of skin defect was visible in the sacrococcygeal area and buttocks, approximately 20cm × 18cm. There was a huge black scab on the wound surface, some muscle fibers were exposed, and a small amount of purulent secretion was visible on the wound surface. After comprehensive evaluation and examination, it was determined that the patient needed a variety of treatments, including burn ointment and oil gauze regenerative medical technology to remove saprophytic tissue, surgical debridement and polymer microporous dressings, chronic ulcer repair surgery and fascial tissue flap plasty. wait.

On April 9,2023, a patient with stage 4 pressure ulcers in the sacral tail and buttocks was admitted to the Burn and Plastic Surgery Department of Baise People's Hospital. The patient was male, aged 46 years old, complaining of surgical treatment in the operating room for craniocerebral injury before 3 months. After discharge, he had no coma, no nausea, vomiting, blind rotation, no limb convulsions, no incontinence, no pale complexion, dyspnea, etc. Now in order to further solve the postoperative skull missing admission, to "craniocerebral injury surgery, sacral tail, hip 4 pressure sores" into burn plastic surgery. Since the beginning of the disease, the patient's spirit, appetite, sleep, normal urine and feces, no significant change in weight. The patient could not take care of himself for a long time, resulting in 4-stage pressure ulcers in the sacral tail and buttocks. A large area of skin defects is visible on the sacral tail and buttocks, about 20cm 18cm. The wound has a huge black scab, some muscle fibers are exposed, and a small amount of purulent secretions can be seen on the wound. After comprehensive evaluation and examination, it was determined that the patient needed a variety of treatments, including deprophysis, surgical debridement and polymer microporous dressing, chronic ulcer repair surgery and fascial tissue annuloplasty.

3. Wound Assessment, Treatment, Nursing Measures and the Healing Process: April 9,2023 (First Assessment)

Wound site: sacral tail, buttocks

Wound size: 18cm×20cm, the wound has a huge black scab, some muscle fibers exposed

Wound color: 100% black

Exepage fluid: a small amount, no peculiar smell

Wound edge: smooth

Skin around the wound: slight redness and swelling

Pain: The patient was not conscious and not scored

Local wound treatment: iodophor and normal saline to clean the wound + remove loose scab skin, the remaining black scab to apply a large number of burn cream self-soluble scab + inner burn cream oil gauze + outer gauze pad dressing.

General body care: strengthen nutrition, turn over regularly to avoid further pressure; guide the patient's family to observe the

exudation of the outer dressing, change the dressing 2 days apart, and change the dressing in time (Figure 1 and 2).



Figure 1: Before debridement



Figure 2: After debridement

3.1. 13 April 2023 (Second Assessment)

Wound site: sacral tail, buttocks

Wound size: 17cm×19cm, the black scab of the wound surface has all melted away, and some muscle fibers are exposed

Wound color: 75% red and 25% yellow

Exate: medium amount, odor

Wound edge: smooth

Skin around the wound: no redness

Pain: The patient was not conscious and not scored

Local wound treatment: iodophor and normal saline clean the wound + inner layer burn cream gauze + outer layer gauze pad dressing

General body care: strengthen nutrition, turn over regularly and avoid further pressure; guide the family to observe the exudation of outer dressing, change the dressing for 3 days, and change the dressing in time (Figure 3).



Figure 3: Local wound treatment

3.2. 19 April 2023 (Third Assessment)

Wound site: sacral tail, buttocks

Wound size: 10cm 11cm, some muscle fibers exposed

Wound color: 75% red and 25% yellow

Exate: medium amount, odor

Wound edge: smooth

Skin around the wound: no redness

Pain: The patient was not conscious and not scored

Local treatment of wound; iodine and normal saline cleaning wound + inner burn paste gauze + outer gauze pad

General body care: strengthen nutrition, turn over regularly, avoid further pressure; guide the patient's family to observe the exudation of the outer dressing, change the dressing 2 days apart, and change the dressing in time (Figure 4).



Figure 4: General body care

3.3. 25 April 2023 (Fourth Assessment)

Wound site: sacral tail, buttocks

Wound size: 8cm 9cm, some muscle fibers exposed

Wound color: 75% red and 25% yellow

Exate: medium amount, odor

Wound edge: smooth

Skin around the wound: no redness

Pain: The patient was not conscious and not scored

Local wound treatment: iodophor and normal saline clean the wound + inner layer burn cream gauze + outer layer gauze pad dressing

General body care: strengthen nutrition, turn over regularly, and avoid further pressure; guide the patient's family to observe the exudation of the outer dressing. Due to the large amount of exudate, continue to change the dressing tomorrow, and change the dressing in time if there is abnormal (Figure 5).



Figure 5: General body care

3.4. 26 April 2023 (Fifth Assessment)

Wound site: sacral tail, buttocks

Wound size: 8cm 9cm, some muscle fibers exposed

Wound color: 75% red and 25% yellow

Exate: medium amount, odor

Wound edge: smooth

Skin around the wound: no redness

Pain: The patient was not conscious and not scored

Local wound treatment: iodophor and normal saline to clean the wound + surgical blade scraping off unhealthy granulation + inner polymer microporous dressing and burn paste gauze + outer gauze pad dressing

General body care: strengthen nutrition, turn over regularly to avoid further pressure; guide the patient's family to observe the exudation of the outer dressing, change the dressing 2 days apart, and change the dressing in time (Figure 6 and 7).



Figure 6: Before scalpel scraping for granulation



Figure 7: After scraping the granulation with the scalpel

3.5. May 3, 2023 (Sixth Assessment)

Wound site: sacral tail, buttocks

Penetration solution: no

Skin around the wound: no redness

Pain: The patient was not conscious and not scored

Local treatment of wound: chronic ulcer repair surgery + fascial tissue annuloplasty + external gauze pad dressing today. General body care: strengthen nutrition, turn over regularly, avoid further pressure; guide patient family to observe the exudation of outer dressing, strengthen pipeline care and record drainage, prevent prolapse, change dressing for 3-5 days apart, and change dressing in case of abnormality (Figure 8 and 9).



Figure 8: At the time of surgery



Figure 9: postop

3.6. 25 May 2023 (Seventh Assessment)

Wound site: sacral tail, buttocks

Wound size: 5cm×0.5cm

Wound color: 100% red

Penetration solution: a small amount

Wound edge: smooth

Skin around the wound: no redness

Pain: The patient was not conscious and not scored

Local wound treatment: iodophor and normal saline clean the wound + inner layer burn cream gauze + outer layer gauze pad dressing

General body care: strengthen nutrition, turn over regularly to avoid further pressure; guide the family to observe the exudation of outer dressing, change the dressing for 3 days, and change the dressing in time.

Discharge guidance: The patient was discharged from hospital today, guide the patient to eat a general diet, strengthen nutrition, balanced diet, keep the wound clean and dry, the local hospital continues to change the dressing, timely contact WeChat by phone, and timely return visit (Figure 10).

In the process of treatment, the regenerative medical technology of burn paste and oil yarn was first used to remove deprotic muscle, remove necrotic tissue and foreign bodies, and lay a foundation for subsequent treatment. Subsequently, surgical debridement and polymer microporous dressing were used to promote wound healing and granulation tissue growth. After 11 days of treatment, the patient's wound condition was significantly improved. After 16 days of continued treatment, the wound shrank and the granulation tissue was essentially flush with the wound. Finally, chronic ulcer repair surgery and fascial tissue annuloplasty were performed to

seal the wound surface. Twelve days after surgery, the patient's wound was basically healed and the wound was in good condition with no other complications. The patient's wound was basically healed and discharged, with continued care.



Figure 10: On the day of discharge

4. Discussion

A variety of treatment methods were adopted in this treatment, including the regeneration medical technology of deprophytic muscle, surgical debridement and polymer microporous dressing, chronic ulcer repair surgery and fascial tissue annuloplasty, etc. Each method of treatment has its own characteristics and advantages and disadvantages. These treatment methods will be discussed below.

4.1 Burn Ointment and Oil Yarn Regeneration Medical Technology to Remove Saprophytic Muscle

The regenerative medical technology of burn ointment and oil yarn is a new type of wound dressing, with the advantages of removing saprotic muscle and promoting wound healing, including [6]. The burn ointment is directly over the wound, which can effectively remove necrotic tissue and foreign bodies and promote wound healing. In this case, the regenerative medical technology was used to remove saprophytic muscle and provide the basis for subsequent treatment. The main ingredients of Mabel burn cream are iproazine oxychlorination and phenhydramine oxychlorination, both of which belong to antihistamines. Pharmacological studies show that the pharmacological mechanism of Mabel brand burn cream mainly includes anti-allergy, anti-inflammatory, anti-inflammatory and moisturizing effects. In this case, mebel burn cream effectively reduced the allergic and inflammatory reaction in the burn site of the patient, alleviated pain and itching, and showed no infection, secondary infection and water loss in the burn site. The skin repair speed after use was significantly faster than the natural repair time [7-12]. In general, the ingredients of Mabel brand burn cream have various effects, which can relieve the pain and itching in the burn site, promote wound

healing, prevent infection, etc., and are suitable for the treatment of mild burns. However, it should be noted that if the burn is more serious or the wound is infected, it should be treated in time and treated by the attending doctor and specialist nurse.

4.2. Surgical Debridement and High-Polymer Microporous Dressing

Polymer microporous dressing is a material with porous structure. Due to its pore structure and special physical and chemical properties, it has some special mechanisms, including moisturizing, air permeability, promoting angiogenesis, adsorbing harmful substances and relieving pain relief. In this case, with polymer microporous dressing, the wound surface remains moist and breathable, and can stimulate the growth, division and regeneration of vascular endothelial cells, accelerate wound healing, in addition, the liquid and bacteria secreted, keep the wound clean and clean, reduce the irritation and friction to avoid wound infection and relieve pain and discomfort in this case [13-15]. The porous structure and special properties of polymer microporous dressing make it have a variety of effects, which can keep the wound moist and clean, promote wound healing and angiogenesis, relieve pain and so on. Therefore, polymer microporous dressing has been widely used in wound dressing and burn dressing. Surgical debridement and polymer microporous dressings are a conventional wound treatment that can effectively promote wound healing and granulation tissue growth [16]. In this case, treatment with surgical debridement and polymer microporous dressing significantly improved the wound surface of [17].

4.3. Chronic Ulcer Repair Surgery and Fascial Tissue Valvuloplasty

Chronic ulcer refers that the wound does not heal for a long time, usually because the wound is affected by a variety of factors, such as poor blood circulation, infection, diabetes and so on. For the treatment of chronic ulcers, surgery is one of the effective treatments, which includes repair surgery and fascial tissue annuloplasty for [18].

Repair surgery: Repair surgery refers to the repair of the wound through surgery to promote healing. Repair surgery for chronic ulcers includes debridement, suture, skin transplantation and other methods. Surgery can remove the necrotic tissue and infection around the wound, promote wound healing, and reduce the occurrence of infection. Fascial tissue valvuloplasty: Fascial tissue valvuloplasty is the transfer of tissue from other parts of the body to the ulcer for repair. This method can solve the problem of tissue defects around the wound and promote wound healing. Furthermore, fascial tissue valvuloplasty can also improve blood circulation, increase oxygen and nutrient supply, and promote tissue regeneration and healing of [19,20]. Chronic ulcer repair surgery and fascial tissue annuloplasty is a more complex surgical treatment method, which requires a high technical level and

surgical experience. In this case, chronic ulcer repair surgery and fascial tissue valve plasty were used to close the wound, and the specialist nurse, the patient's wound was basically healed. Overall, both chronic ulcer repair surgery and fascial tissue annuloplasty can effectively promote the healing of chronic ulcers, reduce the occurrence of infection, improve blood circulation, and promote tissue regeneration and healing. However, it should be noted that the surgical operation needs to be carried out under the guidance of a professional physician, and appropriate postoperative care and rest are required to avoid infection and other complications.

5. Summary

Treatment care is an important part of pressure ulcer treatment, and the comprehensive application of various treatment methods can effectively promote wound healing and improve the quality of life of patients. This paper introduces the experience of the treatment and nursing of patients with pressure ulcers in sacral tail and buttocks, through the regeneration of deprotomous muscle, surgical debridement and polymer microporous dressing, chronic ulcer repair surgery and the comprehensive application of fascia tissue valloplasty, finally discharged the hospital after the wound healing. Later continuation care can better understand the patient changes and care needs and take timely measures to improve the quality of care; it can also reduce the hospitalization time and treatment cost of patients in the hospital, and reduce the medical cost without affecting the quality of care.

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