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WOUND REPAIR IN A PATIENT WITH PEMPHIGUS VULGARIS: A CASE REPORT

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ABSTRACT
Pemphigus vulgaris is a rare autoimmune disease with a prevalence of 0.1-0.5 per 100,000 people that characterized by blisters and acantholysis. Wounds in this disease tend to be extensive and wet, causing skin integrity problems. Research on local therapeutic interventions in pemphigus vulgaris is still limited. The purpose of this report is to determine the patient's response to a combination of wound care interventions with 0.9% NaCl compresses, MEBO ointment, and antibiotic tulle. This report method is a case report with primary and secondary data sources. Primary data is obtained through direct observation of the patient's objective condition, anamnesis, and physical examination. Secondary data was obtained from statements from the patient's family who had provided written consent (informed consent) and the patient's electronic medical records. The patient is a 36-year-old man with a wound scale according to the Pemphigus Disease Area Index 97/120. The patient's wound improved, where the wet wound dried and re-epithelialization occurred after 4 days of treatment with MEBO ointment and antibiotic tulle. In the dry wound, the wound appeared clean of dead skin tissue and soft hemorrhagic crusts after 0.9% NaCl compresses.

Keywords: antibiotic tulle; autoimmune; mebo; NaCl 0.9%; pemphigus vulgaris; wound care

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INTRODUCTION

Pemphigus vulgaris (PV) is a rare autoimmune disease that causes blisters on the skin and mucous (Curtis et al., 2024). Epidemiological data on pemphigus vulgaris in Indonesia is still limited to case reports from hospitals. However, none of the reported cases of pemphigus vulgaris include data on the percentage or extent of pemphigus lesions in patients. The exact cause of pemphigus vulgaris remains unknown. Environmental factors, diet, viral infections, medications, ultraviolet radiation, radiation therapy, and pesticide exposure can cause immune dysregulation, triggering pemphigus vulgaris (Curtis et al., 2024). Pemphigus vulgaris arises from an autoimmune process involving IgG that attacks desmoglein (Dsg) 1 cells, which function as adhesion in the epidermis, and Dsg 3 in the mucosa, resulting in acantholysis. The clinical manifestations of pemphigus vulgaris include blisters on the skin that subsequently develop into erythematous blisters, eventually rupture and cause erosions, commonly followed by crusting and pain (Made et al., 2019).

Pemphigus wounds are generally limited to the epidermal but tend to be extensive and wet due to easily ruptured blisters, increasing the risk of infection. Wound care is a crucial step in the management of pemphigus vulgaris. In such condition, nurses play an important role in wound care, starting from wound observation, preventing infection by maintaining wound hygiene, and selecting appropriate dressings for the wound's condition. Nurses also need to educate patients and their families about proper patient care as a step towards promoting patient independence.

Wound care must be tailored to the condition of the wound. If the wound is wet, the dressing must be able to absorb excess exudate. If the wound is dry, the dressing must be able to provide moisture. The four main objectives of wound care are to prevent infection, maintaining surrounding moisture, protecting the wound, and minimizing scar formation (Grada et al, 2024).

According to Fathilla et al (2022), a 0.9% NaCl compress for 10 to 15 minutes can remove crusts and accelerate skin regeneration. Research by Pramuningtyas et al (2020) reported that treating pemphigus vulgaris wounds with a 0.9% NaCl compress resulted in a good wound response. Wounds can be treated with intravenous, oral, or topical antibiotics (Amalia et al, 2024). According to Yolanda et al (2021), MEBO can be used as a topical alternative in wound healing. The combination of ingredients in MEBO facilitates the exfoliation of dead tissue and stimulates the regeneration process (Saputri et al, 2017). Local wound care also requires attention to the dressing used to protect the wound. The use of antibiotic tulle in wound care is effective in maintaining wound moisture and controlling local infection by creating a clean environment (Widhiastuti et al, 2025). Based on the above explanation, this study aims to identify wound repair in patients with pemphigus vulgaris with a combination of 0.9% NaCl compress as a wound cleansing method, the use of Moist Exposed Burn Ointment (MEBO) ointment to maintain wound moisture and aid re-epithelialization, and antibiotic tulle to prevent infection and help maintain wound moisture. The aim of this study was to determine the patient's response to the combination of interventions.

METHOD

This study used a case report design . In this study, the authors reported on an intervention for impaired skin integrity with the aim of wound repair in patients with pemphigus vulgaris. The intervention was carried out by compressing the wound area with 0.9% NaCl for 10 minutes, five times, so that the total time for each intervention was 50 minutes. Compresses were applied twice a day to wounds that had dried or formed crusts. The compression were applied once during the dressing change schedule and once independently by the patient's family at 6:00 PM. MEBO ointment and antibiotic tulle were applied during dressing changes schedule. Dressing changes were carried out at 1:00 PM on the first and second days and at 10:00 AM on the third and fourth days. MEBO ointment was applied to wounds that still appeared red or were wet. After cleaning and applying MEBO ointment, the wet wounds were covered with antibiotic tulle.

Data collection focused on integumentary system complaints. Data collection techniques included primary and secondary data. Prior to data collection, informed consent was obtained from the patient and family, and the approval of the hospital. The Pemphigus Disease Area Index (PDAI) was used to assess wound extent. Data analysis was conducted narratively to interpret the collected data. The subject of this study was Mr. I, 36 years old. The patient works as a cook in a restaurant. The patient was brought to the hospital complaining of blisters on almost his entire body. The wounds started as small blisters three months ago. The patient stated that his condition had worsened since one week before admission. The small blisters grew larger and several blisters merged into one large blister. Then the blisters began to burst, causing a burning sensation. Three days before admission, the patient was unable to move and was bedridden at home. The wounds on his back burst, causing his skin to stick to the carpet. To prevent his skin from sticking to the bed and the fabric, the family covered his skin with banana leaves.

In addition to wound care, the patient was given pharmacological therapy with the corticosteroid dexamethasone (IV) 20 mg with a dose of 10 mg-0-10 mg. This study used a case report design . In this study, the authors reported on an intervention for impaired skin integrity with the aim of wound repair in patients with pemphigus vulgaris. The intervention was carried out by compressing the wound area with 0.9% NaCl for 10 minutes, five times, so that the total time for each intervention was 50 minutes. Compresses were applied twice a day to wounds that had dried or formed crusts. The compression were applied once during the dressing change schedule and once independently by

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RESULT

After wound care intervention with NaCl compresses, the wound showed improvement in the characteristics of pemphigus wounds. On the first day, the wound appeared red, wet, and dirty due to the presence of dead skin cells that were not cleaned on the wound that had begun to dry. Wound care on the back area began on the second day due to the patient's condition being unable to withstand the pain after treatment on the head, face, neck, armpits, neck, stomach, and legs on the first day. When the wound was treated on the first day, a burn-like odor was smelled. After wound care, the wound appeared to change by starting to dry and the odor decreased.

Table 1.
Development of Pemphigus Vulgaris Wounds

Date	Wound Score	Location	Wound Condition	Information
3/10 2025	Activity Score: 97/120 Damage Score: 12/13	Arm		The wound looks reddish, dirty with dead skin tissue, and dry at the edges of the wound.
		Head and face		Dry wounds appear crusted with a reddish wound base.

		Neck and chest		The wound on neck is red and starting to dry. The wound on the crease of the neck and lower chin area is sticky. The wound base appears dark red. The wound appears dirty with dead skin tissue. There're also crusts. The wound edges appear dry. The wound is sticky with the cloth and banana leaves used to. After the cloth was removed, the wound appears reddish and dirty, similar to the one on the arm.
		Foot, thighs, and scrotum		The wounds appear to be drying. There are several (>6) small drying wounds. The drying wounds appear dirty with dead skin tissue. The wound base is reddish. Most of the wounds appeared dry and dirty with dead skin tissue. However, some redness remained in some areas of the scrotum and anogenital area.
		Stomach and chest		The wound has healed. The abdominal wound appears to be drying, there is no exudate and no new blisters. Dead skin tissue was removed with a NaCl compress before applying Mebo ointment, antibiotic tulle, and covering with gauze.
4/10/2025	Activity Score: 97/120 Damage Score: 12/13	Back		Treatment for the back wound began on the second day due to the patient's condition not allowing for treatment on the first day. On the first day, the wound was stuck to the patient's mat. Unruptured blisters were still visible. On the second day, the rug was removed from the patient's body. There was a large wound on the lower back with several small wounds. The wound appeared wet with a reddish base. There was fluid on the rug from ruptured blisters.
		Arm		The wound healed was improved. The wet wound begins to dry. The redness decreases. Dead skin tissue is removed with a 0.9% NaCl compress.

6/10/2025	Activity Score: 97/120 Damage Score: 12/13	Stomach		The wound showed improvement. We can see epithelialization in the chest and abdominal wounds. The redness of the wound has improved from dark red to bright red. The wound is moist.

Based on the table above, there was a change in the wound condition over the four days of treatment. The patient's wound appeared to be improving but had not fully recovered.

DISCUSSION

Pemphigus vulgaris is a chronic autoimmune disease of the skin and mucosa, characterized by easily ruptured blisters or bullae. Triggers that can cause or worsen pemphigus include medication, vaccines, infections, pregnancy, radiation, stress, pesticide exposure, and physical trauma (Moro et al., 2023). The presence of bullae and erosions resulting from this autoimmune process compromises skin integrity and increases the risk of infection if not treated properly.

During the assessment, wounds were observed on the upper and lower arms, armpits, abdomen, scrotum, legs, upper head, face, and neck. The patient reported a wound inside his mouth. The patient complained of pain throughout his body. The pain was intense and described as burning, with a pain scale of 10/10, and the pain was continuous. Pain was also exacerbated by the patient's inability to change sleeping positions. Some wounds appeared to be drying. In the folds of the skin, such as the neck and armpits, the wounds had begun to dry and caused the skin to stick together. The patient avoided mobilization because the pain worsened when the wounds on the attached areas reopened. The results of a routine blood test were abnormal, with platelets 503000 cells/µL (high). Body temperature at the time of the assessment was 39.1°C.

In patients with impaired skin integrity, large areas of ruptured blisters are seen. The extent of the lesions is measured using the Pemphigus Disease Area Index (PDAI), with a total score of 97/120, indicating extensive pemphigus lesions. Initially, the wet lesions are reddish, oozing, and contain flaking skin. Some areas appear to have dried out, forming thick, dirty-looking crusts. Patients complain of pain and a burning sensation.

The patient's pemphigus wound improved, with the wound drying or crusting, appearing clean. The wet wound began to dry and form new epithelium without forming a hard crust. There was no longer any discharge or pus discharge, a sign of infection, from the wound. The base of the wound appeared pink, with a new layer of epithelialization appearing on top. No new blisters or redness were found around the wound. The patient reported a decrease in pain, but not significantly.

Wound cleansing is the first priority in pemphigus wound care (Grada et al., 2019). The patient should have had debridement performed to clean the wound, but it was postponed due to the patient's unstable condition. The purpose of a 0.9% NaCl compress intervention is to remove dead skin cells from the wound erosion that adhere to the skin. The 0.9% NaCl solution is non-toxic, non-irritant, and physiological, making its osmolality safe for wound care (Nurman, 2015). Wound care using a NaCl compress can cleanse the wound of dead tissue (Amin et al, 2016). The NaCl compress also aims to reduce the sensation of pain or heat in the wound (Widhiastuti et al, 2025). In

this case, when given a 0.9% NaCl compress, the patient responded by saying that the pain felt less when the 0.9% NaCl compress was applied.

The application of MEBO ointment to a patient's open wounds resulted in new epithelial growth. MEBO is a topical medication containing herbal ingredients such as sesame oil, beta-sitosterol, beeswax, and other herbal ingredients (Tang et al., 2014). This combination of ingredients facilitates the exfoliation of dead tissue, stimulates the regeneration process, and nourishes for the wound healing process (Saputri et al., 2017). MEBO has anti-inflammatory effects from beta-sitosterol and antibacterial effects from berberine (Prasetyo et al., 2013). In patients, epithelial formation was seen after wound treatment with MEBO ointment. The most noticeable skin layer growth in patients was on the abdomen and arms. According to research by Zhang et al. (2005) in Prasetyo (2016), MEBO provides better healing effects than dry exposure treatment. Humidity and the type of dressing affect the wound healing process. Applying ointment maintains wound moisture and aids epithelialization (Grada et al., 2019). According to Yolanda et al. (2021), MEBO increases Vascular Endothelial Growth Factor (VEGF) and Basic Fibroblast Growth Factor (BFGF). In pemphigus vulgaris wounds, VEGF and BFGF accelerate healing by increasing angiogenesis, fibroblast proliferation, and epithelialization. These two factors synergistically repair tissue damaged by autoimmune processes.

Antibiotic tulle is used in wound care to maintain wound moisture (moist wound healing), which is important for accelerating the wound tissue regeneration process (Widhiastuti et al., 2025). Antibiotic tulle such as framycetin tulle, daryant tulle, or cuticell tulle is a sterile gauze dressing coated with paraffin and containing a topical antibiotic. The non-adhesive nature of antibiotic tulle prevents direct adhesion of the dressing to the wound surface, thereby reducing pain when the dressing is changed. In patients, antibiotic tulle is used on wounds that appear wet or reddish after MEBO ointment is applied. The use of antibiotic tulle also affects wound healing by controlling local infection and creating a clean environment. Without proper wound care, the risk of complications such as secondary infection and poor scar tissue formation can occur, prolonging the length of stay and reducing the quality of patient care.

Wound healing goes through sequential stages: hemostasis, inflammation, proliferation, and remodeling (Yolanda et al., 2021). After wound care, the patient's wound appeared clean and moist after applying a 0.9% NaCl compress. The wound color changed from dark red to pink, indicating the proliferation phase with tissue epithelialization. On the fourth day of treatment, new epithelial tissue was observed to have formed. This indicates the effect of MEBO ointment, which aids skin tissue regeneration. The use of antibiotic tulle also helped maintain wound moisture and cleanliness. This is consistent with the patient's condition, which showed no signs of infection.

Factors supporting wound healing in this patient were maintaining a moist and aseptic wound condition and consistent pharmacological therapy. The patient was given the corticosteroid dexamethasone. Corticosteroids are the primary therapy used in pemphigus vulgaris. In a study by Suniti et al. (2018), pemphigus patients experienced significant lesion improvement after being given dexamethasone therapy. Corticosteroid administration in pemphigus vulgaris patients plays a role in managing inflammation and acting as an immunosuppressant. The patient was also given ceftriaxone to prevent secondary infection due to the extensive erosive wounds.

Along with therapeutic interventions, education is provided to the patient and family. Families are taught how to apply compresses with 0.9% NaCl as a step toward encouraging family independence in caring and maintaining the continuity of the healing process. Families are also advised to immediately report any new blisters or fevers, which are signs of infection.

CONCLUSION

Based on the results of the case study evaluation of the application of 0.9% NaCl compresses, Moist Exposed Burn Ointment (MEBO), and antibiotic tulle in the treatment of pemphigus vulgaris wounds, there was an improvement in wound condition. In wet wounds, redness improved from dark red to pink, the wound dried out and there was no exudate, and new epithelium appeared on the wound bed. In dry wounds, there was no dead skin tissue. Hard crusts also became moist after the 0.9% NaCl compresses. The use of MEBO ointment on wounds can help accelerate skin tissue epithelialization and maintain wound moisture. There were no new blisters around the wound or in other areas, nor were there any signs of secondary infection. Nurses also played a role in providing education on how to apply 0.9% NaCl compresses to families so they can carry out self-care.

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