An Idea Nursing Journal
ISSN (Online) 2961-8592
Volume 4, Issue 2, 2025

Effectiveness of Metcovasin Modern Dressing on Grade II Diabetic Ulcers: A Case Study

[1*]Ribi Ananda, [1]Haeril Amir, [1]Wa Ode Sri Asnaniar, [1]NurWahidah
[1]Program Studi Pendidikan Ners, Fakultas Kesehatan Masyarakat, Universitas Muslim Indonesia, Indonesia

Korespondensi: ribiananda7@gmail.com

Received : 20-12-2024 Revised : 10-07-2025 Accepted : 10-09-2025

Abstract: Diabetic foot ulcers are among the most common complications experienced by individuals with diabetes mellitus, primarily caused by neuropathy (nerve cell damage). This study aimed to evaluate the effectiveness of modern alginate Metcovasin dressing in managing Grade 2 diabetic foot ulcers with impaired skin integrity. A case study design was employed. The intervention involved the application of modern alginate Metcovasin dressing for wound care in a patient with a Grade 2 diabetic ulcer at the ETN Centre Clinic in Makassar. The study was conducted on a single respondent. After establishing the nursing diagnosis, a wound care plan using modern alginate Metcovasin dressing was implemented once a week. Following the first week of treatment, notable improvements were observed, including reduced exudate (approximately 10%) and increased pink epithelial tissue (55%). By the second visit, the wound showed further improvement, with no exudate present and approximately 75% epithelialization. Based on the findings and nursing care provided, this study concludes that the use of modern alginate Metcovasin dressing is effective in promoting the healing process of diabetic foot ulcers.

Keywords: Post-Cesarean Section, Wound Care, Moist Wound Healing

INTRODUCTION

Diabetes mellitus is a chronic condition characterized by insufficient insulin production by the pancreas or the body's inability to use insulin effectively, resulting in inadequate energy production to meet physiological needs (1). Wounds caused by diabetes are notoriously difficult to heal, increasing the risk of infection, amputation, and even death. The International Diabetes Federation (IDF) (2) projects that the number of people with diabetes aged 20–78 years will continue to rise globally, and has identified the ten countries with the highest numbers of diabetes cases. China, India, and the United States occupy the top three positions with 116.4 million, 77 million, and 31 million people with diabetes, respectively, while Indonesia ranks seventh with approximately 10.7 million cases (2).Diabetic ulcers are one of the major complications associated with the increasing number of diabetes mellitus cases. About 15% of people with diabetes develop diabetic ulcers, which carry a 30% risk of amputation and a 32% risk of death. In Indonesia, approximately 80% of hospital-based care is related to diabetic ulcers, with about 13% of patients receiving inpatient care and around 26% receiving outpatient care for diabetic wounds (3).

Diabetic ulcers are complications of diabetes caused by neuropathy and peripheral arterial disease that may lead to infection, ulceration, and tissue damage of the feet in diabetic patients (4). Other sources state that diabetic ulcers are a form of impaired skin integrity caused by various factors, including neuropathy, trauma, foot deformities, excessive pressure on the soles, and vascular disease, which result in tissue necrosis and gangrene (5). Damage to tissue integrity can also occur due to frequent exposure to extreme temperatures or trauma, which is marked by damage to the dermis, epidermis, mucous membranes, cornea, muscles, tendons, cartilage, joint capsules, and ligaments (6).Metcovasin is a topical therapy formulated from zinc, chitosan, and other compounds. Clinically, it has been shown to accelerate

the wound healing process. Metcovasin is available in ointment or cream form, usually white or slightly yellow, and has antibacterial and antifungal properties. It maintains wound moisture to create an optimal moist wound-healing environment. Metcovasin can be used as a primary dressing (directly applied to the wound) or applied first to gauze before placement (7).Several studies have shown that modern dressing techniques in the management of type 2 diabetic ulcers are more effective than conventional dressings. Modern dressing techniques create a moist wound environment, accelerating healing time and reducing the overall duration of wound care (8). While both conventional and modern dressings aim to maintain wound moisture, conventional dressings are less effective because saline solution evaporates quickly. This causes the wound to dry out, the gauze to adhere to the wound surface, and can trigger new trauma during dressing changes. Maintaining wound moisture helps promote optimal new cell growth and supports collagen synthesis within a healthy tissue matrix (8).

Case Presentation

The patient, Mrs. S, is a 53-year-old female residing in Sudiang, Makassar City, who presented to the ETN Centre Wound Care Clinic. During the initial assessment on 14 October 2024 at 11:00 a.m. (WIB), the patient reported that the diabetic ulcer on her left foot initially appeared as a small, purulent lesion but progressively worsened and expanded over the past year. She has been undergoing diabetic foot ulcer treatment for approximately one year. The patient has a 10-year history of diabetes mellitus, with worsening glycemic control over the past two years. According to her family, several relatives also have diabetes, and two of her siblings died from complications related to the disease.Upon assessment of the chief complaint and medical history, vital signs were measured and showed: blood pressure 131/80 mmHg, respiratory rate 22 breaths/min, pulse 80 beats/min, and body temperature 36.9 °C. Physical examination focused on the left dorsal foot. Inspection revealed a Grade 2 diabetic ulcer on the dorsal aspect of the left foot, characterized by a red wound bed, approximately 10% moist exudate on the dressing, 55% granulation tissue, no necrotic tissue, improving skin turgor, wound size of 5 cm (length) × 3 cm (width), and no odor.On the second visit (21 October 2024), the wound showed marked improvement. The ulcer on the dorsal left foot appeared red with no exudate, 75% granulation tissue, no necrotic tissue, improving skin turgor, classified as Grade 2, and had reduced in size to approximately 0.8 cm (length) × 2 cm (width) with no odor detected.

METHODS

This study employed a descriptive quantitative case study design with a comprehensive nursing care approach. The subject was a single patient, Mrs. S, a 53-year-old female with a 10-year history of diabetes mellitus who presented with impaired tissue integrity due to a Grade 2 diabetic foot ulcer.The wound care intervention consisted of modern dressing using Metcovasin, applied once weekly between 11:00 and 12:00 a.m. (WIB) from 14 to 21 October 2024. The dressing was applied routinely at the ETN Centre Wound Care Clinic in Makassar as part of the patient's nursing care plan.Data collection was carried out in three stages: (1) observation**,** to assess the wound's physical characteristics before and after the intervention; (2) interviews**,** to explore the patient's subjective experiences and history of diabetes and wound progression; and (3) documentation**,** which involved capturing wound photographs using an Android camera to compare the first and second visits.For the quantitative evaluation, the Bates-Jensen Wound Assessment Tool (BWAT) was used as an indicator to measure wound healing progress. Decreases in BWAT scores between the first and second visits were interpreted as evidence of wound improvement following the modern dressing intervention.

RESULT AND DISCUSSION

Result

Based on Table 01, the Wound Status Continuum score (Bates-Jensen Wound Assessment Tool/BWAT) showed a marked decrease between the first and second assessments. On 14 October 2024, the initial score was 8**,** indicating a moderate wound severity level. After one week of treatment using the modern Metcovasin dressing, the score decreased to 2.8 on 21 October 2024.This reduction reflects a significant improvement in wound healing**,** as evidenced by the decrease in exudate, the increase in granulation tissue, the absence of necrotic tissue, and the reduction in wound size. These findings suggest that the application of modern Metcovasin dressing contributed positively to the wound healing process in this patient. Visual documentation of the wound also demonstrated notable improvements between the first and second visits. Initially (14 October 2024), the ulcer on the dorsal left foot showed approximately 10% moist exudate on the dressing**,** 55% epithelial tissue coverage**,** and measured 5 cm in length by 3 cm in width, with the surrounding skin appearing compromised.By the second visit (21 October 2024), the wound showed no exudate**,** approximately 75% epithelial tissue coverage**,** and improved skin appearance**,** with a reduced size of 0.8 cm in length by 2 cm in width**,** while maintaining a Grade 2 classification and no odor**.** These visual changes further support the quantitative findings, indicating significant wound healing progression following the application of modern Metcovasin dressing.

On the first day of treatment (14 October 2024), the patient presented with a Grade 2 diabetic ulcer on the dorsal aspect of the left foot. The wound appeared red, with approximately 10% moist exudate on the dressing, 55% granulation tissue, no necrotic tissue, improving skin turgor, measuring 5 cm in length by 3 cm in width, and with no odor. By the second visit (21 October 2024), the wound showed remarkable improvement, with a red wound bed, no exudate, 75% granulation tissue, no necrotic tissue, improving skin turgor, and had decreased in size to 0.8 cm in length by 2 cm in width, with no odor present.The intervention carried out by the researcher resulted in a decrease in impaired skin integrity following two weeks (14–21 October 2024) of modern wound dressing using Metcovasin, as evidenced by progressive epithelialization. Wound care implementation began with monitoring the wound characteristics, which initially showed a combination of pink and red tissue with a small amount of exudate and slight odor. The old dressing was gently removed, revealing a small amount of serous exudate (about 10%) moistening the dressing. The wound was then cleansed using mineral water and Metcovasin antibacterial soap, applied from the outer edge toward the center to prevent recontamination. After cleansing, the wound was dried, and necrotic tissue was removed using a combination of sharp and mechanical debridement techniques.Wound condition was documented photographically for follow-up evaluation. A primary dressing of Metcovasin ointment was applied to the wound bed and margins, followed by a secondary gauze dressing and tertiary fixation with adhesive plaster. Aseptic technique was maintained throughout the procedure. The patient's family received education regarding home-based wound care and early signs of infection to monitor.

Evaluation of the first treatment showed subjective improvement: the patient reported a diabetic wound on the dorsal foot with minimal exudate, no odor, no pain, and stated that the wound had improved considerably. Observation showed a wound with combined granulation (55%) and epithelialization (45%), approximately 10% exudate, and no odor, measuring 5 cm × 3 cm. The intervention was continued with removal of residual necrotic tissue using sharp and mechanical debridement, application of secondary dressing, and tertiary covering. The family was educated about wound care techniques and reported that, despite the presence of exudate, the modern Metcovasin dressing with wound healing techniques helped reduce the wound size and prevented the risk of

amputation. During the second wound care session (21 October 2024), the wound was again assessed, showing red and pink tissue, reduced exudate, and minimal odor. The old dressing was removed gently, and the wound was cleansed using mineral water and Metcovasin antibacterial soap from the outer margin inward to avoid recontamination. The wound was dried, and remaining necrotic tissue was removed with sharp debridement. The wound was redressed with modern Metcovasin as the primary dressing, covered with gauze as secondary and fixed as tertiary dressing. Aseptic technique was maintained throughout, and the patient's family was again educated about home-based wound care and warning signs of infection.

Table 1. BWAT Score

Visiting	Length wound	width of the wound	score
First week	5cm	3 cm	8
Second week	0,8 cm	2 cm	2,8

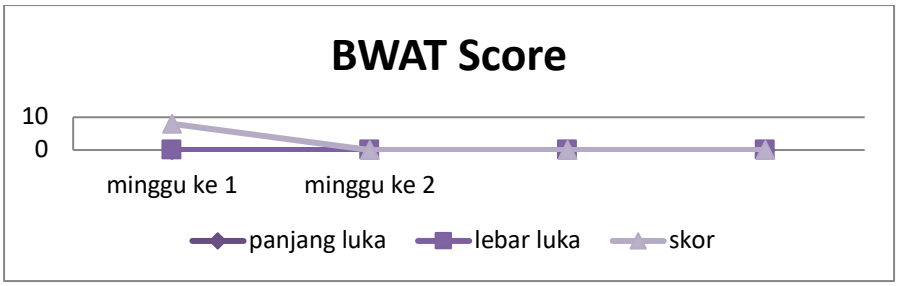
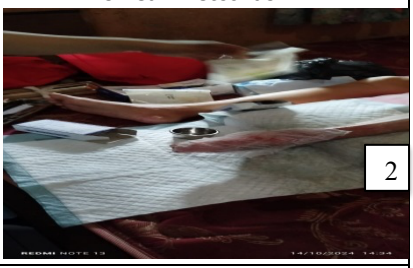


Figure 1 : BWAT Chart

First week (14 -10- 2024)	Second week (21-10-2024)
remove the dressing and wash the wound 	smear metcovasin 
measuring the wound 	measuring the wound 

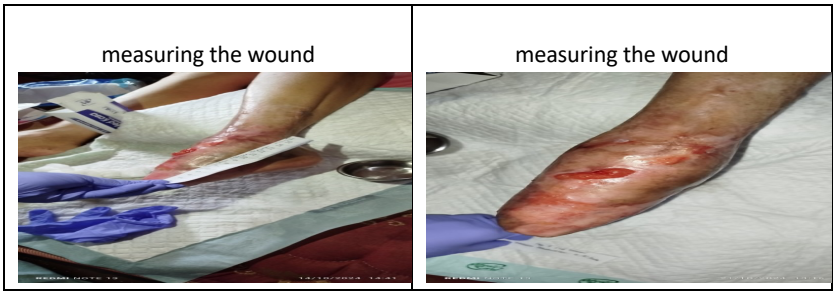


Figure 2. changes and appearance of wounds

Discussion

The findings of this case study demonstrated that the application of modern dressing using Metcovasin was effective in promoting wound healing in a patient (Mrs. S) with a diabetic foot ulcer at the ETN Centre Clinic, Makassar. The primary nursing diagnosis was impaired tissue integrity related to peripheral neuropathy. The patient received wound care once weekly, and significant improvement was observed within two weeks of treatment.In this case, the use of Metcovasin ointment in conjunction with modern dressing techniques was found to be highly effective. As reported by Asri (10), the use of Metcovasin after modern wound care can inhibit bacterial growth and facilitate the healing process of diabetic ulcers. Similarly, Eneng and Naziyah (7) reported that the combination of Metcovasin with contemporary wound care techniques accelerates wound healing and is more effective compared to traditional approaches.Metcovasin helps maintain moisture in the wound bed, which supports the growth of healthy new tissue, promotes autolytic debridement, and reduces unpleasant odor originating from the wound. This aligns with findings from Riza et al. (9), who demonstrated that the application of Metcovasin ointment every morning between 08:00–09:00 for 14 consecutive days (from 30 May to 12 June 2023) in patients with diabetic ulcers resulted in decreased tissue integrity impairment, enhanced wound moisture, increased granulation, and healthier reddish wound appearance.

Their procedure involved applying Metcovasin ointment to the wound bed, followed by sterile gauze as the primary and secondary dressings, secured using Sofftan synthetic, Asgurd Flexfix, and Tensocrepe as fixation layers. Metcovasin, which contains the active ingredients chitosan and zinc oxide, has been shown to support wound moisture and accelerate healing.Furthermore, Dewi Fatimah (11) reported that modern dressing with Metcovasin provides an offloading effect by protecting the wound from pressure, preventing infection, minimizing tissue damage, and absorbing excessive exudate. These effects are marked by improved epithelialization. The observed wound healing progress included three key improvements: (1) wound size reduction, (2) decreased exudate production, and (3) absence of odor, with surrounding skin becoming smooth and free from callus. The wound edges showed epithelial growth as granulation tissue matured and merged with the wound margins. This healing progression can be attributed to the presence of chitosan and zinc oxide in Metcovasin, which maintain wound moisture and enhance the wound healing process.In this case, the second wound care session followed the same standard nursing procedures as the first session. However, a marked reduction in exudate, improved granulation and epithelialization, and better skin appearance were observed, indicating the clinical effectiveness of modern wound care using Metcovasin for diabetic foot ulcers.

CONCLUSION

Based on the nursing assessment conducted on Mrs. S (70 years old), the primary nursing diagnosis identified was impaired tissue integrity related to peripheral neuropathy. The main nursing intervention implemented was modern dressing using Metcovasin, preceded by wound cleansing with mineral water and Metcovasin antibacterial soap.The application of modern Metcovasin dressing for the dorsal diabetic foot ulcer proved to be effective in addressing impaired tissue integrity**,** as evidenced by a marked increase in epithelialization and overall wound healing progress. After weekly treatment sessions, significant clinical improvements were observed, including reduced exudate, increased granulation, and decreased wound size.Furthermore, this study did not reveal any discrepancies between the observed findings and existing theoretical evidence, indicating that the results are consistent with previous studies and support the effectiveness of modern wound care using Metcovasin in patients with diabetic foot ulcers.

ACKNOWLEDGEMENTS

The researcher would like to express sincere gratitude to the nurses at ETN Centre Makassar for their support and facilitation during this study. Special thanks are also extended to the academic supervisor for their valuable guidance and encouragement. Finally, the researcher wishes to thank Mrs. S and her family for their willingness to participate as respondents in this case study.

REFERENCES

1. Jurgen H, Michael R. Diabetes mellitus: Definition, classification, diagnosis, screening und prevention (Update 2023). Cent Eur J Med. 2023;135.
2. International Diabetes Federation. IDF Diabetes Atlas. 9th ed. Brussels: International Diabetes Federation; 2021.
3. Maryana, Lena. Hubungan dukungan keluarga terhadap perawatan kaki diabetik pada pasien ulkus diabetikum di Wocare Center Bogor. Malahayati Nurs J. 2023;5.
4. Rizqiyah, Soleha H, Hanriko R, Apriliana E. Pola bakteri ulkus diabetikum pada penderita diabetes melitus (Bacteriological profile of diabetic foot ulcer) di RSUD Dr. H. Abdul Moeloek. 2020;9.
5. Aliefia R, Cynthia L, Amalia R. Asuhan keperawatan pada pasien dengan ulkus diabetikum: studi kasus. J Penelit Perawat Prof. 2023;6(5).
6. Diva Noor, Mukhamad Musta'in. Gambaran pengelolaan gangguan integritas kulit/jaringan pada pasien post op debridement atas indikasi ulkus DM pedis dextra di Desa Lungge Kabupaten Temanggung. Indones J Nurs Res. 2021;4(4).
7. Eneng, Naziyah. Analisis asuhan keperawatan intervensi cadexomer iodine powder dan zinc cream untuk biofilm pada pasien Ny. E & Ny. D dengan diagnosa diabetic foot ulcer di Wocare Center Bogor. Univ Nas. 2022;6(13).
8. Putri Rhieyanar, Levina Nabila N. Proses perawatan luka pada pasien diabetes melitus. J Penelit Perawat Prof. 2025;7.
9. Riza NN, Hidayat D, Soleha HS. Perawatan luka modern pada pasien ulkus diabetikum: sebuah studi kasus intervensi keperawatan. Indogenius. 2023;2.
10. Asri. Penatalaksanaan perawatan luka kaki diabetes grade 1 pada Ny. S dengan modern dressing Metcovasin di Klinik ETN Centre Makassar tahun 2023. 2024;4(7).

11. Fatimah D. Analisis asuhan keperawatan melalui intervensi penggunaan silver calcium alginate sebagai primary dressing pada Ny. N dan Tn. D dengan diagnosa medis diabetic foot ulcer di Wocare Center Kota Bogor [tesis]. Bogor: Universitas Nasional; 2024.