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Case report

CONSERVATIVE TREATMENT OF A CHRONIC WOUND WITH HYDROFIBER DRESSINGS: A CASE REPORT

Mihajloski Vladimir[1], Kostovski Ognen[2], Trajkovski Gjorgji[2], Volchevski Goce[2], Ognjenovikj Ljubomir[2], Gelevski Radomir[3], Trajkovska Vanja[4], Kostovska Irena[5], Mekikj Elvira[2], Grupche Dijana[6]

[1]Neuromedica Hospital, Skopje, Republic of North Macedonia
[2]University Clinic for Digestive Surgery, Faculty of Medicine, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia
[3]General Hospital - Kumanovo, Republic of North Macedonia
[4]University Clinic for Traumatology, Orthopedic Surgery, Anesthesiology, Reanimation and Intensive Care, Skopje, Republic of North Macedonia
[5]Institute of Medical and Experimental Biochemistry, Faculty of Medicine, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia
[6]General Hospital - Ohrid, Republic of North Macedonia
e-mail: vladimirmihajloski@gmail.com

Abstract

Chronic postoperative wounds represent a serious challenge, both for the medical personnel treating the wound and for the patient. Their size, anatomical localization, and the presence of infection further complicate the healing process. In this case report, we present a 52-year-old patient, without diabetes or vascular diseases, who was operated on due to the presence of an extrasphincteric fistula and a system of perianal fistulas. Due to the presence of the fistulous system, a fistulectomy was performed, along with skin incisions in the gluteal and inguinal regions, as well as the perineum. Postoperatively, an extensive wound (15 × 15 cm) was obtained. In the postoperative period, infection with *Enterococcus* spp. was noted. Treatment included antibiotic therapy, repeated sharp debridement, mechanical debridement, wound irrigation, and the application of hydrofiber dressings with silver ions (Aquacel® Ag). Six months after the surgical procedure, complete wound resolution and coverage with granulation tissue were achieved, without the need for reoperation. This case report confirms the possibility of treating extensive wounds in a conservative manner, without additional surgical interventions and hospitalization. It also underscores the role of modern hydrofiber dressings in the treatment of chronic postoperative wounds.

Keywords: chronic wound, fistulectomy, Aquacel®, conservative treatment, debridement

Introduction

Chronic wounds are defined as wounds that do not undergo an orderly, regular, and timely sequence of healing, or wounds that heal without restoring normal anatomical and functional relationships[1,2]. Chronic wounds are considered those whose healing lasts longer than the expected period of 4 weeks. They most commonly occur as venous ulcers, arterial ulcers, diabetic foot, pressure ulcers, infected surgical incisions, or contaminated traumatic wounds[1,2]. It has been established that chronic wounds, due to infection, are arrested in an

abnormal inflammatory phase of wound healing, which prevents the normal sequence of wound healing. In the anorectal region, postoperative wounds are particularly complex for treatment due to the presence of polymicrobial microflora characteristic of the region, constant bacterial contamination with anaerobes and aerobes, a moist environment favorable for the development of microorganisms, and difficult access for maintaining hygiene. The constant moisture in this region, as well as the presence of feces and urine, represents a particular problem for the person caring for the wound. Due to the moisture, as well as the acidic environment of urine that promotes maceration of the surrounding skin, special care is required both in maintaining hygiene and in preserving the tissue surrounding the wound.

Modern principles of chronic wound management include: minimal trauma to the wound bed, elimination of dead space, assessment of exudate, support of the immune system, use of non-toxic irrigation solutions, removal of necrotic tissue, control of environmental moisture and temperature, and protection of the wound from bacterial invasion[1,2]. Hydrofiber dressings are characterized by their ability to absorb exudate and form a gel that maintains wound moisture. The dressing material traps bacteria, reduces maceration of the surrounding tissue, and fills dead space[1-3]. The gel simultaneously prevents adherence of the dressing material. At the same time, the gel reduces pain and damage to newly formed granulation tissue during dressing changes. The addition of silver ions to the dressing helps reduce inflammation and the need for antibiotics. It has been shown that silver in its ionized form penetrates bacteria, damages their DNA, and interferes with protein replication. Silver ions have a broad spectrum of antibacterial activity against Gram-positive, Gram-negative, anaerobic, and aerobic bacteria, as well as fungi[3,4]. The aim of this paper was to present a successful conservative treatment of a large postoperative wound with Aquacel® Ag^{+}.

Case report

A 52-year-old male patient, without diabetes mellitus or vascular diseases, underwent surgery due to a system of perianal fistulas originating from an extrasphincteric fistula (Figure 1). During the surgical procedure, a fistulectomy with complete excision of the fistulous system was performed.

Fig. 1. Preoperative view of a perianal fistula

Postoperatively, a wound measuring 15 × 15 cm was noted, extending into the perineal, gluteal, and inguinal regions (Figure 2), with clearly defined edges and walls. At the base of the wound, the *m. gluteus maximus* was exposed.

Fig. 2. Postoperative wound extending into the perineal and inguinal regions

During wound dressing two weeks later, whitish deposits and turbid exudate were observed at the base of the wound (Figure 3). Necrosis of the skin was noted at the wound edges. During the dressing, the necrotic tissue was removed by sharp debridement, and an occlusive dressing was applied (Figure 4). A microbiological swab was obtained, and *Enterococcus* spp. was identified. The enterococcus was treated according to the antibiogram with trimethoprim/sulfamethoxazole for 10 days.

Fig. 3. Wound infection with necrosis at the edges

Fig. 4. Sharp debridement of the wound

Dressings were changed every two days. After removal of the dressing, the wound was irrigated with normal saline and repeated mechanical debridement was performed[5,6]. During mechanical debridement, the "wet-to-dry" principle was used, employing moist gauze soaked in normal saline and iodine solution. Sharp debridement with surgical scissors and curettage was used to remove necrotic tissue and to clean the wound pockets (Figure 5).

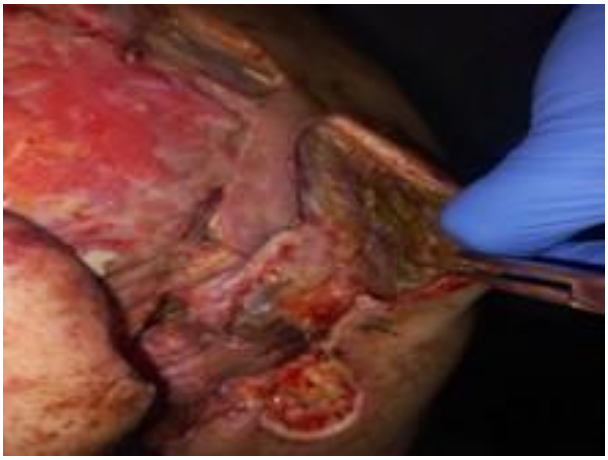

Fig. 5. Sharp debridement of wound pockets

One month after the initiation of treatment, a biofilm appeared. Due to the presence of biofilm, wound irrigation with sterile normal saline was performed. Treatment was continued with the application of hydrofiber dressings with silver ions (Aquacel® Ag)[3-5] (Figure 6) for wound dressing. The dressing was changed every three days when Aquacel® Ag was used.

Fig. 6. Application of Aquacel® Ag+ dressing to the wound

After two months, a clean wound bed with scant exudation was obtained. A wound swab was taken. Microbiological findings revealed *Enterococcus* spp. and *Staphylococcus aureus*, but without signs of inflammation. In this case, it represented colonization only.
During the third month after the initiation of dressings, the first granulations appeared (Figure 7). A particular problem was the presence of a wound "pocket" in the inguinal region (Figure

8). With persistent irrigation, mechanical debridement and the use of Aquacel® Ag dressings, granulation also began in that segment by the end of the third month (Figure 9).

Fig. 7. Clean wound without infection and with the appearance of granulation tissue

Fig. 8. Wound in the inguinal region

Fig. 9. Granulation tissue formation in the inguinal region

Further treatment was continued with occlusive Aquacel® dressings every 3 days. During the fourth month, after reduction of secretion and complete removal of fibrin deposits,

hydrocolloid dressing (Granuflex®)[6,7] was introduced (Figure 10). With its use, the wound became completely covered with granulation tissue within the next 2 months (Figure 7). Complete wound resolution was achieved by the sixth postoperative month (Figure 11).

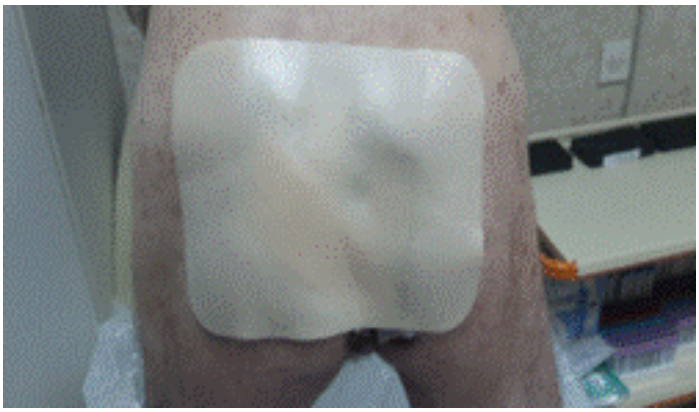

Fig. 10. Application of Granuflex® dressing to the wound

Fig. 11. Complete wound resolution

Throughout the entire treatment period, the patient received dietary recommendations emphasizing protein-rich nutrition, which contributed to improved wound healing.

Discussion

Postoperative wounds in the anorectal region are difficult to treat. They represent a challenge for medical professionals involved in wound management due to the polymicrobial contamination characteristic of the region, the anatomically difficult-to-access location, the risk of recurrent infection and the risk of maceration of healthy tissue due to the presence of urine and feces. A thorough understanding of the sequence of wound healing, recognition of tissue types and appropriate selection of dressings are required. Large incisions, as in the presented case, further complicate healing. Chronic wounds, in addition to being a challenge for the caregiver, also represent a socioeconomic burden for the patient. In patients with such chronic wounds, the occurrence of depression is common due to the condition itself, the prolonged and complex treatment and the disruption of social life. Due to the presence of the wounds, the

unpleasant odor and often the exudate present in some wounds, patients are limited in their social life and their social interactions.

Prolonged treatment, unpleasant odor, exudate, and disruption of daily life lead to an increased risk of depression. Some patients, due to the localization of the wounds, have limited mobility. Limited mobility in some patients also occurs due to the presence of pain. This results in an inability to perform daily activities. The high cost of dressings represents an additional burden for the patient.

The basic principles of chronic wound management include infection control, debridement, and the use of modern dressings that enable moist wound healing[7]. In the presented case, a combined approach was essential: systemic antibiotic therapy for *Enterococcus* spp., wound irrigation with sterile normal saline and iodine solution[5,7], repeated sharp debridement for elimination of necrotic tissue and biofilm, mechanical debridement, and the use of modern hydrofiber dressings (Aquacel® Ag) with silver ions. Hydrofiber dressings have multiple advantages: absorption of exudate, formation of a gel that maintains wound moisture and promotes autolytic debridement, reduction of pain during dressing changes, and an antimicrobial effect due to silver[3]. Literature data indicate that Aquacel® Ag is effective in venous ulcers, pressure ulcers (decubitus wounds), and postoperative wounds. Aquacel® Ag dressings promote tissue granulation. Their use reduces the number of wound infections compared to traditional gauze dressings. Additionally, because of their antimicrobial effect, the need for prescribing systemic antibiotics is reduced[3,4].

In our patient, despite the size of the wound and the presence of infection, timely and persistent conservative treatment resulted in complete healing within six months, without the need for additional hospitalization, repeat surgical intervention, or the use of expensive methods such as negative pressure wound therapy (NPWT). A satisfactory cosmetic outcome was also achieved without the need for additional surgery. During the course of conservative treatment, despite the size and localization of the wound, the patient was able to ambulate and perform some of his daily activities.

Conclusion

This case demonstrates that modern moist dressings, particularly hydrofiber dressings with silver (Aquacel® Ag), represent an effective and reliable conservative therapy for chronic postoperative wounds. A problem associated with such dressings is their high cost, as well as the prolonged duration of treatment. Due to the localization of the wound, the patient was limited in mobility during the first months. However, the use of modern dressings enables a relatively normal life for the patient without the need for additional hospitalization. The combination of systemic antibiotic therapy, repeated debridement, and careful monitoring enabled successful healing of an extensive wound without the need for repeat surgical intervention.

Conflict of interest statement. None declared.

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