Clinical experience with a new gelling fiber dressing among clinicians in Italy

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Introduction

A new gelling fiber dressing* was developed through consultation with healthcare professionals around the world to perform highly on parameters such as absorption and retention, gelling capacity, ability to stay in shape with minimal shrinkage and one-piece removal with minimal risk of leaving residues[1]. A high performance of important performance parameters has been documented in vitro[1,2]. Here we present an evaluation of the new gelling fiber dressing on wounds of different aetiologies in a series of Italian patient cases.

Method

As part of their wound treatment protocol, five patients were treated with the new gelling fiber and appropriate cover dressings. The five study wounds had the following aetiologies:

1. Ischemic ulcer
2. Abdominal ulcer
3. Laparotomic wound dehiscence
4. Infected hidradenitis suppurativa under axilla
5. Vascular wound

Patients were between 28 years and 84 years of age. Baseline data and wound progress were registered with the Triangle of Wound Assessment.[3,4]

Results

The gelling fiber supported healing progress of all the wounds. It managed thin and thick exudate well, protecting wound edges and periwound skin from maceration. The dressing stayed in place in all cases and did not shrink in the wounds. In two cases control of odour levels was reported. In all cases, the gelling fiber was easily removed in one piece without leaving residue.

Conclusion

In conclusion, the gelling fiber supported wound healing, managed even thick exudate well and was easily removed in one piece without leaving residue.

References: 1. Karlsmark et al. A new reinforced gelling fibre to reduce exudate pooling: Biatain® Fiber with HexaLock® Technology. Wounds International 2020; 11(3):34–40. 2. Le DM et al. New gelling fiber dressing with a strong in vitro performance, EP030, EWMA 2021 3. Dowsett et al. Taking wound assessment beyond the edge. Wounds International 2015; 6(1):19-23. 4. Dowsett et al. A focus on the Triangle of Wound Assessment - addressing the gap challenge and identifying suspected biofilm in clinical practice. Wounds International 2019; 10(3):34–9.

*Biatain® Fiber (Coloplast); #Biatain Silicone (Coloplast); §Biatain Non-Adhesive (Coloplast), ^Biatain Silicone Lite (Coloplast)

Case 1: Ischemic ulcer on lower right leg (Maurizio Carnali)

Patient

The patient is a 79-year-old man with hypertension, diabetes mellitus, depression, heart disease with coronary artery bypass and 3rd stage AOCP, renal cell carcinoma, and k prostate. He presented with an ischemic ulcer on his lower right leg. It was the fifth relapse. He was revascularized and soon after treated with NPWT for about three weeks. The limb was very exuding and smelly, with bruises all over the leg. After end of NPWT, the patient underwent a hemicolectomy. After 5 days he entered in this study.

Initial wound assessment (March 3rd 2020)

- Wound size: 75 mm x 35 mm x 0.5 mm
- Wound bed: Granulating tissue, high exudate, no infection
- Wound Edge: Maceration, thickened/rolled edges
- Periwound skin: Maceration, excoriation, hyperkeratosis
- There was mild pain in the ulcer

Picture 1. The wound at inclusion.

Treatment

The wound was cleansed with physiological saline and mechanically debrided. The gelling fiber* was applied as primary dressing and covered with a superabsorbent dressing. Urea or zinc oxide based cream was applied and a simple bandage was used for dressing fixation. Dressing change was once a week.

Wound assessment at the end of the study (31/03/20)

- Wound bed: Granulating tissue, moderate exudate, no infection
- Wound edge: Dehydration, thickened/rolled edges
- Periwound skin: Maceration, excoriation, hyperkeratosis

The results were good. The patient presented over time a clear reduction of the ulcer, which continued to be very exuding. The dressing absorbed a large amount of exudate and the patient reported no pain on dressing removal. Excellent control of the infection and malodour. Pictures 2 and 3 show the wound at the end of the study (4 weeks) before and after debridement. The wound area had decreased 30% since initial assessment.

Picture 2. The wound before debridement (31/03/20).

Picture 3. The wound after debridement (31/03/20).

Conclusion

The new gelling fiber supported healing very well. It absorbed and retained a large amount of exudate. The dressing maintained its structure without shrinking or leaving residue, and there was no trauma at removal during dressing changes.

Case 2: Surgical dehiscence on the abdomen (Raffaele Trulli)

Patient

A 60-year-old woman with first degree obesity suffered a surgical dehiscence following an abdominal-plastic operation. There was an abscess of the fistulized wall.

Initial wound assessment (March 13th 2020)

- Wound size: 50 mm x 30 mm x 15 mm
- Wound bed: granulating, fibrinous, necrotic tissue, very high exudate, no infection
- Wound edge: Undermining (up to 5 cm), thickened/rolled edges
- Periwound skin: Normal

Picture 1. The wound at inclusion.

Treatment

Treatment with the gelling fiber* started on March 13th, 2020. The gelling fiber was covered with a wound bed conforming, non-adhesive foam dressing§. The undermined areas were filled with gelling fiber rope*. The wound was treated effectively for about 2 months. For the first two weeks, the dressings were changed every three days due to the high exudation. Subsequently, the frequency was reduced to one weekly change.

Wound assessment at the end of the study (21/06/20)

- Wound bed: granulation tissue, no exudate, no infection
- Wound edge: Normal
- Periwound skin: Normal

The wound was completely closed after 3 months. The gelling fiber dressing showed excellent control of even high exudate and great absorption capacity. It was very easy and gentle to remove in one piece.

Picture 2. Dressing change after two weeks (31/03/20). The wound progressed with healthy granulation tissue.

Picture 3. After a month (17/04/20) epithelialisation was progressing well.

Picture 4. After 3 months (21/06/20) the wound had healed.

Conclusion

The fistulized dehiscence was completely healed after treatment with the gelling fiber. The dressing had a long wear time and was easy and gentle to remove. We were very satisfied with the excellent performance of the gelling fiber.

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Case 3: Laparotomic wound dehiscence (Gaetano De Angelis)

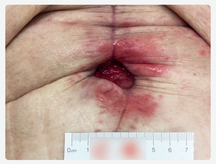
Patient

The patient is a 84-year-old woman with a laparotomic wound dehiscence after twofold surgical procedure for biliodigestive bypass (gastric NPL). Her skin is dehydrated as she does not drink enough. The wound dehiscence was initially treated with NPWT. In addition to this type of dressing, the patient underwent a cycle of 8 sessions of photobiomodulation. The wound was painful with NRS scores greater than 3.

Initial wound assessment

(February 28th 2020)

- Size of biggest wound: 40 mm x 30 mm x 20 mm
- Wound bed: High, serous exudate, no infection
- Wound Edge: Maceration, dehydration, thickened/rolled edges
- Periwound skin: Maceration, dry skin, erythema



Picture 1. The wound at **day 2.**

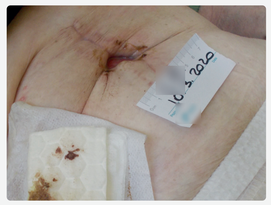
Treatment

The gelling fiber* was started on 28/02/20 and the case ran until 20/03/20. The gelling fiber was covered by a superabsorbent dressing and TNT tape.

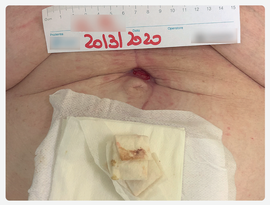
Wound assessment at the end of the study (20/03/20)

- Wound bed: 100% granulation tissue, low exudate, no infection
- Wound edge: Normal
- Periwound skin: Normal

After 20 days there was a substantial reduction in wound size and exudate was now low (Picture 3). The wound bed appeared clean and there was a substantial reduction of periwound erythema, so there was no need to continue with the gelling fiber. The high level, serous exudate was well managed as demonstrated from the external impression of the dressing. Pain management was allowed to continue with this treatment (NRS 2).



Picture 2. After 10 days the wound progressed well and there was a reduction in erythema.



Picture 3. After 20 days, wound progress continued and erythema had reduced substantially.

Conclusion

The gelling fiber demonstrated very good absorption capacity and structural integrity. In addition, the dressing conformed well to the bottom of the wound and supported the moist wound healing with granulation emerging at the bottom of the wound. The characteristics of the gelling fiber made it possible to manage the exudate optimally.

Case 4: *Infected hidradenitis suppurativa under axilla (Leonarda Angela Spano)*

Patient

A 28-year-old man with hidradenitis suppurativa under the left armpit. The wound had existed for a year before it was presented to the outpatient clinic for difficult wounds. The wound was critically colonized by Pseudomonas. Treatment was started on 02/01/2020 with a silver gelling fiber dressing. On 14/02/2020 it was decided to start the treatment with the new gelling fiber*.

Initial wound assessment

(February 14th 2020)

- Wound Size: 80 mm x 30 mm x 10 mm
- Wound bed: biofilm tissue, purulent exudate, infection
- Wound Edge: Normal
- Periwound skin: Normal
- Swab still positive. We proceed with systemic antibiotic therapy

Picture 1. The wound at inclusion.

Treatment

The gelling fiber was used a primary dressing and covered with sterile gauze. Dressings were changed three times a week, given the high risk of infection and the abundance of exudate. Antibiotic treatment was continued.

Wound assessment at the end of the study (17/07/2020)

- Wound bed: Granulation tissue
- Wound edge: Normal
- Periwound skin: Normal

The gelling fiber managed exudate well and protected the periwound skin. Wound progress was good and after five months this wound that had existed for one year was completely re-epithelialised.

Picture 2. Wound progress after 40 days (26/03/20).

Picture 3. Wound progress after 3 months (08/05/20).

Picture 4. After 5 months, the wound had reepithelialised (17/07/20).

Conclusion

The gelling fiber demonstrated an excellent performance in managing exudate and maintaining the integrity of the periwound skin. Even though the wound demonstrated a high bacterial load at inclusion, wound healing was supported very well.

Case 5: Vascular wound (Adalgisa Dalla Riva)

Patient

A 64-year-old woman presented with a peri malleolar vascular wound on the left lower limb. A hematoma in the left ankle ulcerated about two months before with periwound inflammation and a high level of pain (VAS 9). The patient had been on antibiotic therapy for two weeks due to methicillin resistant MRSA. She suffers from β-Thalassemia intermedia, AOCP, and relapsing ulcers on her lower limbs and is on Cardioaspirina, Lasix, and Moduretic medications.

Initial wound assessment

(August 27th 2020)

- Wound size: 30 mm x 25 mm x 3 mm
- Wound bed: Necrotic tissue, high, serous exudate, infection (MRSA positive swab)
- Wound edge: Maceration, thickened/rolled edges
- Periwound skin: Maceration, inflammation, chronic hypodermatitis and white atrophy
- Pain: VAS: 5

Picture 1. Wound at inclusion.

Treatment

Rinsing and cleansing and mechanical debridement. The gelling fiber* was used as primary dressing and the secondary dressing was a conforming silicone foam dressing#. Dressing change was initially every 2 days and later every 5 days. When the wound was almost healed in five months, a thin conforming silicone foam dressing^ was used to protect the skin until complete healing.

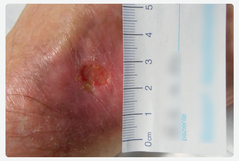
Wound assessment at the end of the study (27/01/21)

- Wound bed: Healthy tissue, low exudate
- Wound edge: Healthy, no maceration
- Periwound skin: Healthy

After five months of treatment with the combination of the gelling fiber and the conforming silicone foam dressing, autolytic cleansing of the fibrinous wound bed was achieved, despite rigid fibrin that could not be removed with normal cleansing procedures. The bacterial load in the bottom of the wound was controlled in one month (after suspension of antibiotic therapy).

Picture 2. Vertical absorption of exudate by the gelling fiber and the conforming silicone foam (13/10/20).

Picture 3. The wound before cleansing and debridement on 27/01/21.



Picture 4. The wound after cleansing and debridement on 27/01/21.

Conclusion

The use of the combination of the gelling fiber and the conforming silicone dressing provided optimal management of this chronic relapsing ulcer, in a context of constantly inflamed periwound skin and despite the patient's non-adhesion to the compression bandage. The gelling fiber managed the very high, serous exudate and there was no maceration of the periwound skin. Gentle dressing removal and no pain with the dressing in situ.

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