Granulox treatment in combination with Skin graft & PolyMem

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Case 1

A 61-year-old male patient was hospitalised in January 2014.

Medical history

- b) Ulceration
- c) Venous congestion
- d) Hyperpigmentation

Case 2

A 67-year female patient was hospitalised in November 2013.

Medical history

- a) Diabetes
- b) Hypertension

Introduction

Venous leg ulcers are the most common form of leg ulcers [1]. They are usually caused by venous insufficiency, impaired venous blood flow, brought about by chronic hypertension [2]. One consequence of such a condition is a prolonged deficient venous blood flow, resulting in increased venous pressure. Hydrostatic pressure on the skin and the subcutaneous tissues is associated with many of these chronic wounds [3, 4]. In addition, bacterial burden becomes often a critical factor in impaired wound healing of chronic wounds and the development of infection-related complications [2]. The most common bacterial isolates include Staphylococcus aureus and Pseudomonas aeruginosa [3].

The duration of venous leg ulceration observed ranges from a few weeks to longer than 10 years while in certain cases, such wounds never heal [3]. Therefore, it is not surprising that venous stasis is a significant risk for the long-term work productivity of affected individuals. In addition, the costs associated with the long-term care of these chronic wounds are substantial [5].

Here we present two case reports with a successful treatment of infected chronic leg ulcers by using a treatment regime combining infection control, surgical modalities (skin graft), a new type of topical oxygen carrier (Granulox®), wound dressing (PolyMem®), and compression therapy.

Wound care before hospitalisation

After wounds were cleansed, a polyurethane foam dressing was applied and PolyMem was used as wound dressing, followed by a rinsing with isotonic saline solution. Thereafter, a thin layer of Granulox was applied on to the wound area. PolyMem® was applied as wound dressing, fixed with gauze. High compression therapy (Lenkelast® medium stretch bandages/Lohmann & Rauscher) was performed according to the previous treatment regime.

Prior to a mechanical wound debridement (if required) or cleansing, wounds were rinsed and incubated with an antiseptic solution (Dowisp®/Prontoxy® or Microxy®) to reduce bacterial load. During debridement, necrotic and infected granulation tissue was removed using a sharp spoon. Subsequently, wounds were rinsed several times with antiseptic solution, followed by a rinsing with isotonic saline solution.

Thereafter, a layer of Granulox was applied on to the wound area. PolyMem® was applied as wound dressing, fixed with gauze. High compression therapy (Lenkelast® medium stretch bandages/Lohmann & Rauscher) was performed according to the previous treatment regime. After three treatments (3 days interval) of the wound including a débridement, antiseptic treatment, Granulox application and change of dressing, infection was reduced and wound bed was preconditioned for a split skin transplantation (Mesh graft). The transplanted skin was meshed approximately 1:1.5 and fixed by stitching (Seran/Vinylic size 6). Granulox was applied and PolyMem® was used as wound dressing as described before.

In addition, compression therapy was performed.

Case 2

Wound care after hospitalisation

After wound cleansing, as wound dressing a polyurethane foam dressing was applied and PolyMem was used as wound dressing, followed by a rinsing with isotonic saline solution. Thereafter, a thin layer of Granulox was applied on to the wound area. PolyMem® was applied as wound dressing, fixed with gauze. High compression therapy (Lenkelast® medium stretch bandages/Lohmann & Rauscher) was performed according to the previous treatment regime.

Prior to a mechanical wound débridement (if required) or cleansing, wounds were rinsed and incubated with an antiseptic solution (Dowisp®/Prontoxy® or Microxy®) to reduce bacterial load. During débridement, necrotic and infected granulation tissue was removed using a sharp spoon. Subsequently, wounds were rinsed several times with antiseptic solution, followed by a rinsing with isotonic saline solution.

After three treatments (3 days interval) of the wound including a débridement, antiseptic treatment, Granulox application and change of dressing, infection was reduced and wound bed of the left leg was preconditioned for split skin transplantation. The transplanted skin was meshed approximately 1:1.5 and fixed by stitching. Granulox® and PolyMem® was used as wound dressing as described before. But three additional changes of bandages, the transplanted skin was completely attached and adapted to the wound area.

The leg ulcer at the right leg was treated according to the treatment regime described but without split skin transplantation.

Wound care after hospitalisation

After wound cleansing, as wound dressing a polyurethane foam dressing was applied, in addition compression therapy was performed.

Wound care protocol

Prior to a mechanical wound débridement (if required) or cleansing, wounds were rinsed and incubated with an antiseptic solution (Dowisp®/Prontoxy® or Microxy®) to reduce bacterial load. During débridement, necrotic and infected granulation tissue was removed using a sharp spoon. Subsequently, wounds were rinsed several times with antiseptic solution, followed by a rinsing with isotonic saline solution.

Results

In the presented cases, skin graft transplantation in conjunction with Granulox®, PolyMem® and compression bandaging, showed convincing results regarding fast healing of venous leg ulcer compared to the previous dressing plus compression strategy.

Figures:

- Figure 1A: Wound after second treatment before Granulox application
- Figure 1B: Status 3 days after after mesh graft; before Granulox application
- Figure 1C: Wound after second treatment before Granulox application
- Figure 1D: Status 3 days after after mesh graft; before Granulox application
- Figure 1E: Wound after second treatment before Granulox application
- Figure 1F: Status 3 days after after mesh graft; before Granulox application

Conclusion

In the presented cases, skin graft transplantation in conjunction with Granulox®, PolyMem® and compression bandaging, showed convincing results regarding fast healing of venous leg ulcer compared to the previous dressing plus compression strategy.

Literature