



# Effect of Hyaluronate-iodine-complex in Skin Grafting of Chronic Infected Wounds

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## INTRODUCTION

Autologous skin transplantation is still problematic in treatment of chronic infected wounds. However, skin transplantation may markedly reduce healing time interval and total treatment cost. The current therapy is based on a long application of antiseptics followed by skin transplantation.

Nevertheless, this method is successful only in 50 % of cases. At our department, the hyaluronate-iodine (HI) complex for chronic wound healing has been used successfully for more than 4 years. The aim of our study was to assess the effect of this complex after skin transplantation.

## METHOD

All patients were hospitalised. The treatment started with necrectomy and daily application of HI complex to ulcers. The wound bed was treated with HI complex several weeks before transplantation.

When wound surface was prepared for grafting, the wound was covered by meshed dermoepidermal skin graft.

From the first postoperative day, the graft was covered by two layers of gauze immersed in HI complex and several layers of dry gauze. This dressing was changed daily until complete healing was achieved.

Several cultivation examinations throughout the treatment period were performed.

### Case No 1:

77-year-old polymorbid man

**Diagnosis:** Chronic venous infected ulcers of both lower extremities for 4 years. Polymorbid patient (cardiac, metabolic, renal, skeletal systems).

**Day 1** – cultivation: *Pseudomonas aeruginosa*, *Escherichia coli*, *Candida albicans*  
→ ATB therapy; → necrectomy

**Day 12** – skin transplantation with dermoepidermal meshed graft

**Day 32** – complete healing

Dressing change with HI complex every day.

#### Picture 1.1.

Day 1 – Chronic ulcer with necrosis and infection



Picture 1.2.  
Day 13 – 24 hours after skin transplantation



Picture 1.3.  
Day 17 – Epitelization in spite of persistent infection



Picture 1.4.  
Day 32 – Complete healing of the grafted area; the small residual area left for spontaneous epitelization

### Case No 2:

66-year-old woman

**Diagnosis:** Chronic venous ulceration of left lower extremity with infection for 4 years. Polymorbid patient (cardiac, renal, metabolic systems).

**Day 1** – cultivation: Coliform mixture, *Proteus mirabilis*, *Pseudomonas aeruginosa*  
→ ATB therapy

**Day 23** – necrectomy

**Day 34** – skin transplantation with dermoepidermal meshed graft

**Day 37** – cultivation – *Pseudomonas aeruginosa*

**Day 42** – cultivation – *Pseudomonas aeruginosa*

**Day 46** – complete healing of ulcers

Dressing change with HI complex every day.

#### Picture 2.1.

Day 1 – Chronic ulcer with necrosis and infection



Picture 2.2.  
Day 28 – 24 hours after skin transplantation



Picture 2.3.  
Day 35 – Epitelization in spite of persistent infection



Picture 2.4.  
Day 46 – Complete healing

### Case No 2:

63-year-old woman

**Diagnosis:** Chronic venous insufficiency of lower extremities. Chronic venous ulcers for 12 years. Elephantiasis. Recurrences of erysipiel. Polymorbid patient (extreme obesity, cardiac, metabolic, skeletal systems).

**Day 1** – cultivation: Coliform mixture, *Proteus mirabilis*; → ATB therapy; → necrectomy

**Day 5** – cultivation – Coliform mixture, *Proteus mirabilis*

**Day 25** – autotransplantation with the dermoepidermal meshed graft

**Day 26** – cultivation – *Pseudomonas aeruginosa*, *Acinetobacter*

**Day 42** – complete healing of ulcers

Dressing change with HI complex every day.

#### Picture 3.1.

Day 1 – Chronic ulcer with necrosis and infection



Picture 3.2.  
Day 20 – 24 hours after skin transplantation



Picture 3.3.  
Day 24 – Epitelization in spite of persistent infection



Picture 3.4.  
Day 42 – Complete healing

## COMMENTARY AND CONCLUSIONS

The effect of HI complex was studied in 3 patients with chronic venous ulcer gr. 3 - 4 (4 - 12 years before our treatment). In all patients, 24 hours after transplantation, the graft did not adhere to the wound surface completely. The administration of dressing containing HI complex led to a successful graft fixation within next 48 hours. Subsequent complete wound healing was apparent in spite of persistent infection within 28 days.

We can conclude that HI complex is promising method of dressing of the wounds treated by autologous skin transplantation. However, randomized study is necessary to proof this observation.

This study was supported by the grant MSM 0021620820, Czech Republic

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Presented at: EWMA, May 14 – 16, 2008, Lisbon, Portugal

Up to date, we used this method in 14 patients. The effect of hyaluronate-iodine complex in the skin grafting of infected wounds was excellent in 13 patients. This results demonstrate, that the success in more than 90 % of cases can be achieved, in comparison with 50 % of the current therapy, when the antiseptic solutions and skin grafting are used.

### BENEFITS

1. Complete wound healing of ulcers in spite of infection by dermoepidermal graft
2. Disappearance of pain within several days after skin transplantation
3. Financial benefit of treatment
4. Improvement of quality of life

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