II Degree Thermal Injury in a Child — Comparing Xe-Derma® Treatment with Synthetic Dressing

Age: 2
Sex: Female
Etiology: Hot Water Scalding Burn

Introduction

Hot water scalding is the most common mechanism of thermal injury in very young children. In most cases, the injury involves grade II areas with good prognosis for spontaneous healing within 14 days. The dressing should protect the wound against mechanical injury, infection, and drying out. Other major criteria for successful treatment include pain reduction, the frequency of dressing replacement and other interventions on the injured area, as well as treatment costs.

Case Report

A 2-year girl was admitted to a burn clinic (BC) with hot-water-scalding burns on her chest. The burn corresponding to 13% of her body surface area was located on the anterior part of the trunk. The injury was classified as superficial partial thickness burn (IIa degree), occasionally with minor petechiae at the wound base. While a synthetic dressing (Askina Derm) was applied to the burn's cranial part, a biological one (Xe-Derma®) was applied to the caudal part; both parts were then covered with standard outer dressing, i.e., tylexol and bandage soaked with 3% boric water.

The first dressing replacement performed in operating room was done at 48 hours after the injury. The area previously covered with Xe-Derma® was calm, with Xe-Derma® firmly adhering to the wound bed, and no sign of infection. There was exudate accumulation over the area covered with synthetic dressing, which required its re-application onto a well-perfused base. At the next dressing replacement, both dressings stuck firmly to the base, and there was good area epithelialisation. Spontaneous healing occurred within 10 days, and the child was discharged.

Fig. 1: Admission
2-year old child with IIa degree hot-water scalding burns on 13% of her body area

Fig. 2: Admission
The cranial part of the lesion is covered with Askina Derm synthetic dressing

Fig. 3: Admission
The caudal part is covered with Xe-Derma®

Xe-Derma®

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Discussion

In II degree scalding injuries with well-perfused base, covering the wound with acellular porcine dermis causes the dermal collagen and wound fibrin to bind firmly to each other. Provided the wound is not infected, Xe-Derma® sticks firmly to the wound bed with no need for re-application, until spontaneous healing when it peels of. Intervention on the wound area is minimized, with denuded nerve endings in the epidermal upper layer covered, thus significantly reducing the wound's painfulness.

Synthetic dressing needs more frequent replacement, as wound exudate tends to accumulate as soon as the synthetic material's absorption capacity is exceeded. Any intervention on the wound requires the use of anesthetics or even general anesthesia in pediatric patients. Re-application increases the risk of secondary infection in the wound area; postoperative analgesic therapy is also required.

Conclusion

Xe-Derma® is an ideal dressing for II degree scalding injuries. It adheres firmly to the wound base; there is no need for re-application until spontaneous healing. Compared with synthetic dressing, which needs to be replaced once its absorption capacity has been exceeded, the number of painful and laborious dressing replacements is brought to a minimum with Xe-Derma®, thus reducing the number of general anesthesia procedures as well as bandaging material consumption and staff workload.

Total Treatment Duration: 10 Days
Total Number of Xe-Derma® Applications: 1

Fig. 4: Admission
Tulle and boric-water-soaked compress used as outer dressing on both parts

Fig. 5: 48 hours after admission
In the caudal part of the injured area, Xe-Derma® firmly sticks to the wound bed, no re-application necessary.
The cranial part of the wound covered with synthetic dressing shows complications in the form of exudate accumulation under the dressing. The wound area is washed and the dressing replaced.

Fig. 6: Day 7 after admission
Both dressings stick firmly to the wound, spontaneous epithelisation is in progress

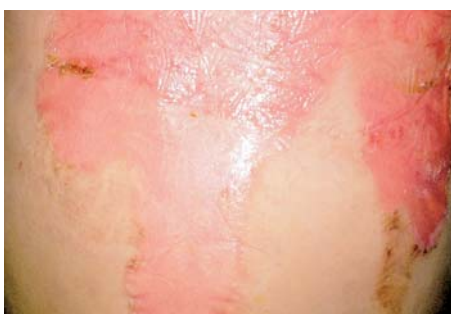

Fig. 7: Day 10 after admission
Both parts of the wound area are covered with epithelium; the child is discharged from the hospital