

# Difficult wound bed preparation in vasopressor extravasation injury

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## Background

Extravasation injuries (EI) caused by unintentional leakage of infused fluid into surrounding tissues outside vascular pathway. Degree of tissue damage depends on volume, pH, osmolality and pharmacological action of infused drug. Norepinephrine is a vasopressor medication that induces vasoconstriction, which subsequently leads to tissue ischemia. (Wal, Janssen, & Spronk, 2013). This gangrenous tissue impedes wound healing and makes patients prone to secondary infection. The challenge to remove necrosis of EI wound is the debridement method, because of the wound bed is very close to the blood vessels so removal of necrosis by sharp debridement or mechanical debridement will not be suitable for patients.

The proper wound bed preparation in EI injury is important to promote wound healing. The TIME concept (Tissue, Inflammation/infection, Moisture imbalance, Epithelial edge advancement) has been widely used to describe various wound bed aspects to be systematically addressed to promote wound healing. (Harries, Bosanquet, & Harding, 2016).

## Case report

**Case report:** 82-year-old Thai woman with diagnosis of CA colon S/P right half hemicolectomy, who developed edema and erythema to the right arm from norepinephrine extravasation. Her wound bed became total eschar (figure 1)



**Figure 1** A: Early phase of norepinephrine extravasation injury  
B: 2 day later, wound was swollen and edema.  
C: Hard necrotic tissue was cover total of wound bed

## Intervention procedures

### Wound bed preparation by time concept

**1. Tissue:** wound bed became total eschar. Autolytic debridement technique was applied to slit the hard eschar. Honey hydro wound gel was applied and wound was covered with hydrocolloid wafer dressing. Fourteen days after the intervention, the wound bed has become totally soft with yellow slough (figure 2)



**Figure 2** Wound progression after autolytic debridement

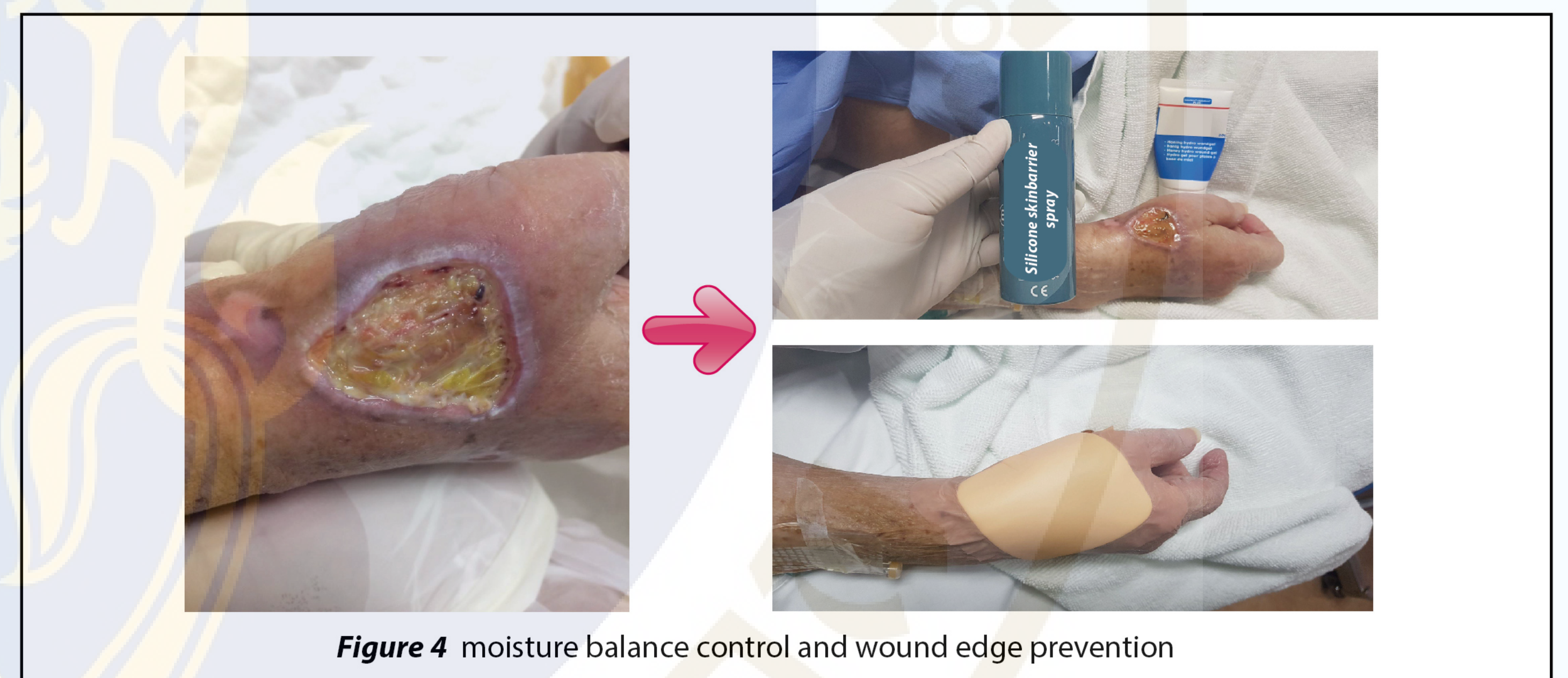
**2. Inflammation / Infection:** wound swelling and erythema were sign of Inflammation. The Honey hydro wound gel that apply on wound bed contains 45% honey is more than enough to act antibacterial. (figure 3)



**Figure 3** Apply Honey hydro wound gel for infection control

**3. Moist Imbalance:** In first phase the wound bed was dry, hydrogel and hydrocolloid wafer dressing was used to rehydration. after autolytic debridement wound bed was over moist we changed wound dressing to hydrofiber foam for exudate absorption and keep moist to wound bed for promote granulation tissue (figure 4)

**4. Epithelial edge advancement:** Fourteen days after the intervention, the wound bed has become totally soft with yellow slough but wound edge was still macerated. Silicone barrier spray was used to protect wound edge from exudate (figure 4)



**Figure 4** moisture balance control and wound edge prevention

## Results

20 days after intervention, wound bed has 80% soft yellow slough, 20% granulation tissue. Wound edge has epithelialization around referral to universal coverage hospital for continuing care.



**Figure 5** twenty days after intervention

## Conclusion

Using TIME concept and proper wound bed preparation, Vasopressor extravasation injury was successfully improved as well as minimization of secondary infection.

## Reference

- Harries, R. L., Bosanquet, D. C., & Harding, K. G. (2016). Wound bed preparation: TIME for an update. *Int Wound J*, 13(S3), 8-14.
- Wal, G. v. d., Janssen, J. C., & Spronk, P. E. (2013). Extravasation injury by norepinephrine: a case report and description of treatment options. *Neth j crit care*, 17(3), 15-17.