

## CASE REPORT

# A Royal Jelly Mixture with Berberine for Dressing Change on a Refractory Skin Ulcer: A Case Report

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### ABSTRACT

It has been reported that a 92-year-old female had got a bruise superficial wound on her right leg one and a half years ago, developing into refractory skin ulcer due to improper management before. A prepared cream, mixed royal jelly with berberine for dressing change, was made on the scene through the crush of berberine tablets, working with fresh royal jelly. Topical dressing change with the cream was done every 3 days, and two months later, such the ulcer became clean and was covered fully with fresh granulation tissue. This kind of cream consists of the ingredients of TCM purely, free of antibiotic, and being quite effective clinically, also helpful for proper use of antibiotic.

## 1. Introduction

This is a 92-year-old female patient with a bruise superficial wound on her right leg over one and a half years, which developed into a refractory skin ulcer because of improper management prior to the latest admission. A prepared cream was made on the scene for the topical dressing change, consisting of fresh royal jelly and berberine, and then applied to the wound surface after cleaning once every 3 days, lasting for two months. The wound surface became clean, and covered fully with fresh granulation tissue. The skin ulcer healed pretty well, and its vibrant effect for refractory skin ulcer was impressive.

## 2. Case Report

This is a 92-year-old female, who sustained a bruise superficial wound by a hard object on her right leg from a fall at home one and a half years ago. The wound was about 2cm long and without obvious bleeding. The patient and her families didn't pay more attention to it; thenceforward, the wound gradually widened and deepened, then applied erythromycin ointment to the wounded part by herself; however, it was no better, but rather grew worse. Two months later, the wound measuring 6×4 cm, and the purulent secretion on the surface was increased. So far, the patient at home was

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admitted to one hospital for this skin ulcer, resulting from the neglect by this patient. The wound infection was treated with systemic use of antibiotics, associated with topical dressing change for such an ulcer by mupirocin and erythromycin ointments. About 3 months passed before she was admitted to our hospital, and no significant improvement had been achieved during the course.

The patient on admission presented with an ulcer in the heel of her right foot measuring 4×3 cm, above the level of lateral malleolus, and having a wide communication with the Achilles tendon. The wound revealed a small blood oozing and fluid oozing, and peripheral soft tissue edema (Figure 1). The doctor concerned made a deep cleaning of the wound surface at first, and then, a specific cream consisting of fresh royal jelly and berberine, named Mi Lian Cream (MLC) for topical dressing change, was prefabricated on the scene. We applied it to topical dressing change once every 3 days, together with a careful observation of the healing. And over the duration of two months, the wound surface became clean, and covered fully with fresh granulation tissue (Figure 2). No allergy to the jelly preparation was found here.



**Figure 1.** the skin ulcer on admission



**Figure 2.** the wound healing through MLC for 2 months

Reasons for composition: (1) Fresh royal jelly is animal-derived, safe completely in medication, from the secretion of worker bee, in which lysozyme and epidermal growth factor are contained to kill germs and promote healing for a refractory skin ulcer. (2) Berberine is vegetable-

derived, a kind of alkaloid in *Coptis*, which can be applied to suppress a variety of pathogenic microorganisms in wound tissues. In addition, the hyperosmotic environment made with the mixture of animal-vegetable components in the nature, free of antibiotics, also restrain the bacterial growth in skin ulcers; thus, a less induction to multiple drug resistance (MDR) in bacteria was obtained.

Formula of MLC 5 tablets of berberine (500 mg) once, was grinded into powder, and then mixed thoroughly with 10 grams of fresh royal jelly. A yellowish cream, 5% royal jelly mixture with berberine, turned out as a consequence, ready-made for topical dressing change.

### 3. Discussion

Royal jelly, secreted from pharyngeal gland by *apis cerana*, has its pharmacological effect in medication as well as tonic, both in antiseptic therapy and promoting tissue regeneration<sup>[1]</sup>. The properties of fresh jelly, safe completely in its application<sup>[2]</sup>, could be applied to topical dressing change of ulcer healing, especially for refractory skin ulcer in lower extremities (a poor blood supply); with which, *E. Coli*, *S. aureus*, *Strep. haemolyticus* and *Tinea epidermidis* can be covered in its antibacterial spectrum<sup>[3]</sup>. In addition, several kinds of nutrients and epidermal growth factor (EGF) contained in fresh jelly can repair injured tissue and promote epidermis regeneration<sup>[4]</sup>. Superoxide dismutase(SOD) in the jelly has an antioxidant effect on dermis to facilitate its cellular regeneration<sup>[5]</sup>.

Berberine originates from vegetable medicine--*Coptis Chinensis*, characteristic of antiseptic effect on bacterial infection in gut. It was mainly used to treat dysentery in the past<sup>[6]</sup>; and now, berberine has been proved to restrain the growth of *S. aureus*, *Strep. haemolyticus*, *N. gonorrhoeae* in vitro and boost the leukocytic phagocytosis in vivo<sup>[7]</sup>.

The refractory skin ulcer on her right leg resulted from a bruise superficial wound one and a half years ago, which made progress due to improper management before. During the course, the old lady got doctors for a cure around the city, and many attempts were already made to try to control it, including both systemic medication and topical dressing change, together with the bacteriostasis lotion for skin health from the folk, finally evolving into the present condition. The medical team thought divergently for the sake of a better healing and tried to seek for the inspiration from the vegetable treasury of TCM. Mi Lian Cream (MLC), 5% mixed jelly with berberine, turned out as a consequence, which is reasonable in its composition. Fortunately, this kind of dressing cream has succeeded in the topical dressing change of this case. Compared with its previous condition, the present one was clean and vibrant in skin healing; and

the patient was fully satisfied with such a healing.

This is also a dressing preparation composed of natural components of TCM purely, free of any kinds of antibiotics used now in a surgical ward. Nursing homes will benefit from the less exposure to antibiotics in chronically hospitalized patients with the help of such a preparation, which would improve the rational use of antibiotic by means of the less induction to MDR in bacteria clinically<sup>[8]</sup>. Considering the significance mentioned above, we reported this case based on the efficacy of MLC (a jelly mixture with berberine) for the first time. No matter how a drug of TCM or western medicine it is, we think, its effective ingredients exist in the manner of one chemical compound or several ones, and it should be proven clinically effective on the basis of supportive evidence. We conducted the initial exploration in its application of MLC, and look forward to the following results applied to more inpatient patients and deeper research for its mechanism.

#### 4. Conclusions

A specifically-used cream, consisting of fresh royal jelly and berberine (free of antibiotic), was prepared on the scene for an aged patient with a refractory skin ulcer on her right leg; with which, the wound surface healed quite well through the careful dressing changes, being also helpful for rational use of antibiotic clinically.

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