

Plant-based wound healing cream for the treatment of a topical wound

Narinder Singh Parhar^{*1}, Kunal Shah², Gloria St John¹ and Sachin A Shah²

¹Parhar Health Systems, Roseville, CA, USA

²University of the Pacific, Thomas J Long School of Pharmacy and Health Sciences, Stockton, CA, USA

Case report

For thousands of years, botanical remedies have been a central component of several traditional medicinal systems around the world and are widely used to promote wound healing [1]. A classic example is the development of medical grade Manuka honey which possesses antiseptic and anti-inflammatory properties [2]. The efficacy of other botanical and plant extracts in wound care has been substantiated in recent years for having similar anti-inflammatory and pro-regenerative properties [3-8]. We describe one patient with an acute wound that was successfully treated using a novel herbal wound healing cream. Mukta™ Wound Care Cream contains three primary ingredients, Aloe, Neem, and White Turmeric, which have long been used in traditional medicine to stimulate the body's own healing and tissue-regeneration response [3-9].

A 93-year-old, non-smoking, Caucasian female visited her physician for a fall related traumatic injury on her right arm. There was a skin deep laceration which was surrounded by a moderate hematoma. The wound had occurred one hour prior to the physician's office visit (Figure 1). She was 126 lbs. (57 kg) with a BMI of 24.61 kg/m². She was noted to have bilateral peripheral limb cyanosis in past encounters. Comorbid conditions included congestive heart failure, hypertension, peripheral vascular disease, hyperlipidemia, osteoarthritis, allergic rhinitis, anxiety, asthma, COPD, skin lesions, back pain, and degenerative disc disease. Her current medications were Spironolactone, Furosemide, Metoprolol Succinate ER, Potassium Chloride, Lisinopril, Lovastatin, Clopidogrel, Ipratropium/Albuterol, Advair Diskus, and polyethylene glycol.

During the first visit (Figure 1A), the patient was bleeding but in no apparent distress (day 1). Non-viable skin areas were debrided as needed on each visit without the use of anesthetics. The wound was cleaned with normal saline. The wound care cream was applied and the wound was adequately dressed. The patient was instructed to continue all medications and skip Clopidogrel for 5 days.

During the follow-up clinic visits, days 5 and 9 after the initial



Figure 1. A) Patient presents with skin deep laceration and moderate hematoma from a fall one hour prior. B) Patient presents 5 days later with significantly improved wound with rapid skin margin enhancements. C) Patient presents with extensive healing to wound with controlled bleeding and continued skin margin enhancements. D) Patient presents 22 days after initial injury with completely closed wound and minimal scar tissue.

injury, the following was done: debridement, application of wound cream, and dressing. (Figure 1B,1C). On each of these visits, the patient was afebrile, and the bleeding from the wound was minimal and well controlled. As early as day 5, rapid skin margin enhancements were seen. The patient was again instructed to continue all medications except Clopidogrel.

On day 22 (Figure 1D), the final clinic visit, the patient did not have any skin debridement done and the wound had healed almost completely. Minimal scar tissue was seen during this visit. At this time, aspirin 81 mg was prescribed for the patient. Throughout the 22-day treatment, the patient was instructed to clean the wound, apply the herbal wound cream 1-2 times a day, and wrap the wound.

The process of healing that the body undergoes following an injury can be broken down into three phases; inflammation, proliferation, and maturation. During these healing phases, multiple types of growth factors are released by cells (*i.e.*, transforming growth factor alpha & beta, platelet derived growth factor, vascular endothelial growth factor, epidermal growth factor, fibroblast growth factor, and keratinocyte growth factor) [10]. These growth factors, along with other endogenous chemicals, cause angiogenesis, fibroblast stimulation, epithelialization, and eventual wound closing. The proliferation phase can begin within 24 hours and can last for several days, depending on wound severity. During this phase, a wound may close at a rate of about 0.75 mm/day in a healthy patient [10].

The wound healing process can be impaired by factors such as patient age, medications, and comorbidities [11,12]. In this case the patient was elderly, had multiple chronic conditions, and was on Clopidogrel, a PGI₂ inhibitor, which reduces platelet aggregation [13]. Although the Clopidogrel was discontinued after the first visit, it is worth noting that the initiation of the healing process could have been delayed by this medication, which continues to disrupt platelet function for up to 5 – 10 days after discontinuation [13-15]. This patient was also taking Spironolactone, which is known to have estrogenic effects. Estrogen is linked to increased wound healing in elderly women by regulating genes associated with regeneration, epidermal function, and inflammation [16].

Correspondence to: Narinder Singh Parhar, Sutter Independent Physician, 584 N. Sunrise Avenue, #100, Roseville, California 95661, USA, Tel: (916) 773-2990; Fax: (916) 773-5154; E-mail: Parharmd@gmail.com

Received: November 01, 2016; **Accepted:** November 14, 2016; **Published:** November 17, 2016

In this report, the novel plant based wound healing cream, MUKTA™, was used on the patient. Typically, this cream is to be applied directly on a wound, once daily. MUKTA™ is thought to hasten wound healing by stimulating the body's own regeneration mechanisms by enhancing the somatic stem cell activity and release of tissue growth factors while still preventing an infection [9].

The three main active ingredients in MUKTA™ are a patented modified aloe polysaccharide, *azadirachta indica* (neem), and *curcuma zedoaria* (white turmeric) [9]. Studies have shown that aloe can increase cell proliferation, wound closure rate, blood vessel count, and collagen fiber density while reducing wound secretions, inflammation, and scar formation [4]. Aloe has also been noted to cause an increase in transforming growth factor beta at the wound site [5]. A study showed that the use of neem oil was associated with significant amounts of angiogenesis and DNA concentration within the wound site after 8 weeks of treatment [6]. White turmeric has demonstrated antibacterial and antifungal properties [7]. For these reasons, it is reasonable to expect a combination of these agents, such as in MUKTA™, to have a beneficial effect on wound outcomes. MUKTA™ may serve as a viable adjunct to current wound treatment modalities.

References

- Dorai AA (2012) Wound care with traditional, complementary and alternative medicine. *Indian J Plast Surg* 45: 418-424. [Crossref]
- Pieper B (2009) Honey-based dressings and wound care: an option for care in the United States. *J Wound Ostomy Continence Nurs* 36: 60-66. [Crossref]
- Leach MJ (2004) A critical review of natural therapies in wound management. *Ostomy Wound Manage* 50: 36-40, 42, 44-6 passim. [Crossref]
- Farzadnia P, Jofreh N, Khatamsaz S, Movahed A, Akbarzadeh S, et al. (2016) Anti-inflammatory and Wound Healing Activities of Aloe vera, Honey and Milk Ointment on Second-Degree Burns in Rats. *Int J Low Extrem Wounds* 15: 241-247. [Crossref]
- Takzaree N, Hadjiakhondi A, Hassanzadeh G, Rouini MR, Manayi A, et al. (2016) Transforming growth factor- β (TGF- β) activation in cutaneous wounds after topical application of aloe vera gel. *Can J Physiol Pharmacol* 94: 1285-1290. [Crossref]
- Singh A, Singh AK, Narayan G2, Singh TB, Shukla VK (2014) Effect of Neem oil and Haridra on non-healing wounds. *Ayu* 35: 398-403. [Crossref]
- Lobo R, Prabhu KS, Shirwaikar A, Shirwaikar A (2009) *Curcuma zedoaria* (white turmeric): a review of its chemical, pharmacological and ethnomedicinal properties. *Journal of Pharmacy and Pharmacology* 61: 13-21. [Crossref]
- Hosein FM, Abbasabadi Z, Reza SM, Abdollahi M, Rahimi R (2014) A comprehensive review of plants and their active constituents with wound healing activity in traditional Iranian medicine. *Wounds* 26: 197-206. [Crossref]
- <http://www.mukta.care/>
- Young A, Menaught C (2011) The physiology of wound healing. *Surgery (Oxford)* 29: 459-479.
- Guo S, Dipietro LA (2010) Factors affecting wound healing. *J Dent Res* 89: 219-229. [Crossref]
- Nicks BA, Ayello EA, Woo K, Nitzki-George D, Sibbald RG (2010) Acute wound management: revisiting the approach to assessment, irrigation, and closure considerations. *International Journal of Emergency Medicine* 3: 399-407. [Crossref]
- <http://www.uptodate.com/contents/clopidogrel-drug-information>