SAR Journal of Medical Case Reports

Abbreviated Key Title: *SAR J Med Case Rep*

Home page: http://sarmedjournals.com/sarjmcr/home

ISSN 2707-7780 (P)
ISSN 2709-6947 (O)

Case Report

Medical Grade Indian Honey As an Effective Agent in Moisture Associated Skin Damage

Amit Kumar C Jain*[1] and Apoorva HC[2]

[1]*Professor, Department of Surgery, Raja Rajeswari medical college, & Amit Jain's Institute of Diabetic foot & Wound Care, Brindhavvan Areion Hospital Bengaluru, India*

[2]*Amit Jain's Institute of Diabetic foot & Wound Care, Brindhavvan Areion Hospital, Bengaluru, India*

***Corresponding Author**
Amit Kumar C Jain

Article History: | Received: 25.03.2020 | Accepted: 25.03.2020 | Published: 28.04.2020 |

Abstract: Large wounds with heavy exudate are known to cause moisture related skin damages that can be distressing to the patient especially when he has pain that disturbs his sleep and other activities. Honey, known to be used to treat wound in ancient era, has antimicrobial properties, is anti-inflammatory and is known to promote wound healing. This case report demonstrates the efficacy of Indian medical grade honey in high exuding wound with peri wound skin damage.

Keywords: Diabetes, Wound, Honey, exudate.

INTRODUCTION

Wounds in lower limb of diabetic patients, acute or chronic, are quite common in clinical practice. Acute wounds, especially after debridement, could be large and pose challenge in management. One problem the clinician face with large wound is moisture associated skin damages. Large amount of exudate from the wound can result in peri wound skin damage (Bianchi, J. 2012).

Apart from maceration, excessive exudate can result in soiling, delayed healing, pain, foul odor, risk of infection, etc (Romanelli, M., *et al.*, 2010). We hereby describe a case wherein we used medical grade Indian honey that helped in wound healing, decreased pain, odor and significantly decreased the moisture related peri wound skin erosion of a large wound over thigh.

CASE REPORT

A 56-year-old male diabetic patient of 15 years duration presented to us with pain in inner part of left thigh along with fever and chills of 2-3 days duration. On examination, there was around 10 x 8 cm^2 area of redness, tenderness along with local rise of temperature. A diagnosis of cellulitis of left thigh was made and patient was advised admission. He didn't agree for admission and was given oral antibiotics (Amoxiclav) at his request and was given time to decide and review for admission. Patient presented 2 days later with increase in pain, fever and presence of a swelling over inner lower thigh. Examination showed increased redness of more than 15 x 20 cm^2 area. There was an induration of >10cm^2 area and >4 x 6 cm^2 ruptured blister at the center of redness (Figure 1). There were also small pustules. His RBS was 530 mg/dL. A diagnosis of ascending cellulitis with localized abscess was made and patient was subjected to debridement.

Figure 1 showing cellulitis of the left thigh

There was extensive pus and subcutaneous necrosis underneath (Figure 2). He later underwent re-debridement to remove slough over the wound and was discharged with regular dressing advice and to review weekly with us. His culture revealed Escherichia coli and he was put on culture specific antibiotics. He was undergoing regular dressings.

Figure 2 showing intraoperative view. Note the pus (Blue arrow) and the subcutaneous necrosis (Green arrow)

At the end of 3 weeks, when patient presented to us, we noticed that though the wound was granulating, there was extensive pseudomonas infection, along with periwound skin maceration. Patient could not afford for negativepPressure wound therapy. Although we started with acetic acid dressing (3%), patient could not tolerate pain and we had to stop it after 2 dressing as he refused acetic acid. Even 2 sittings of Urgotul dressings also could not benefit in this case (Figure 3) as he still complained of severe pain (burning type) around the wound and posterior part of thigh and there was still greenish discharge and peri wound redness (Figure 4}.

Figure 3 showing the Urgotul sheet being applied

Figure 4 showing greenish discharge from wound along with peri wound skin damage. Note the red, weeping appearance.

There was increase in peri wound skin damage and he was not able to sleep or do his routine work. After discussing various therapeutic options, patient agreed for medical grade honey. The sterilized honey was applied through gauge piece (Figure 5) after cleaning the wound with saline and secondary dressing was applied over it.

Figure 5 showing application of honey to the wound (second application). Secondary dressing was done over it by placing pads.

In just 2 sittings (once in 2 days) of honey usage, patient found significant reduction of pain, decrease in exudate and odor and drastic visible improvement in periwound area. By 7th day after usage of honey (3 sittings), the peri wound inflammation had subsided and wound showed excellent granulation with no greenish discoloration of dressing and wound decreased in size (Figure 6). Patient being from lower socioeconomic status, did not agree for secondary suturing/split skin grafting and the wound was allowed to heal with secondary intention (Figure 7).

Figure 6 showing decrease in size of the wound with decrease in exudate and peri wound healing and decrease in inflammation.

Figure 7 showing wound healing by secondary intension

DISCUSSION

It's well known that moist environment is necessary for wound healing (Romanelli, M., *et al.*, 2010). However, the excessive exudate is known to cause moisture associated skin damage (Dowsett, C., & Aleen, L. 2013)). Exudates have enzymes, which when in large amount, would be corrosive to intact skin (Bianchi, J. 2012). The initial maceration around wound appears white soggy area in peri wound region (Cutting, K. F., & White, R. J. 2002). Continuous exposure of skin to large exudates that contain enzymes like matrix metalloproteinase (MMP's) could cause damage to epidermal barrier function leading to red, weeping surface (Bianchi, J. 2012).

The more the exudate, the larger the area of involvement of skin damage. Maceration leads to pain, decreases wound healing and increases susceptibility to secondary infections. Further, there is longer treatment and increased cost (Cutting, K. F., & White, R. J. 2002). Wound care treatment could be costly when one uses advanced wound products, the time given by wound care providers, etc (Davies, P., *et al.*, 2019), which are direct cost. Prevention of moisture related damage is essential in wound care but once it occurs, then clinicians should resort in future damage prevention and also its treatment.

Honey has been approved as a wound dressing worldwide and it got clinical approval long ago (White, E. 2019). Its antibacterial activity can be up to hundred-fold (Molan, P. C., & Betts, J. A. 2004). It has both bacteriostatic and bactericidal activity (Alam, F., *et al.*, 2014). Its acidity restricts microbial growth and its antimicrobial action is due to presence of hydrogen peroxide (Haynes, J. S., & Callaghan, R. 2011; Yaghoobi, R., *et al.*, 2013).

Different honeys used worldwide includes gelans, manuka, tulang, etc (Yaghoobi, R., *et al.*, 2013). The honey recommended for wound care is medical grade honey which is sterilized (gamma irradiated) before use (Cooper, R. 2017).

The medical honey we used in this case was obtained from the giant coombs of Apis Dorsata bee, which is an Indian rock bee. We obtained fresh raw honey and cultured (aerobic, anaerobic and fungi) this honey and found Bacteroides species and penicillium species in it. This honey was then sterilized with 15KGy gamma irradiation. This was then again cultured and no growth was found in it. This was then used on the wound.

Honey has action against many bacteria and fungi including staphylococcus aureus, pseudomonas aeruginosa (Cooper, R. 2017). It encourages wound healing, decreases pain, deodorizes wound and has anti-inflammatory properties (Haynes, J. S., & Callaghan, R. 2011). The anti-inflammatory action of honey can result in decreasing the exudate (Molan, P. C., & Betts, J. A. 2004).

We believe that this case was ideal for honey usage as there was pseudomonas infection, high exudates leading to inflammation, odor and peri-wound skin damage which was decreased by honey.

CONCLUSION

Prevention of peri wound skin damage is an important strategy. Once it occurs, effective treatment should be instituted. In this case, the Indian medical grade honey was found to be very effective in decreasing pain, exudates and inflammation along with odor and facilitating a smooth healing process.

REFERENCE

1. Alam, F., Islam, M. A., Gan, S. H., & Khalil, M. I. (2014). Honey: A potential therapeutic agent for managing diabetic wounds. *Evidence Based Complementary and Alternative Medicine*, 169130.
2. Bianchi, J. (2012). Protecting the integrity of the periwound skin. *Wounds essentials*, *1*, 58-64.
3. Cooper, R. (2017). The use of honey in diabetic foot ulcers. *The diabetic foot Journal*, *20*(3), 154-9.

4. Cutting, K. F., & White, R. J. (2002). Maceration of the skin and wound bed 1: its nature and causes. *J Wound care*, *11*(7), 275-278.
5. Davies, P., Stephenson, J., & Manners, C. (2019). Understanding undistributed wound healing in clinical practice- a global survey of healthcare professionals. *Wound UK*, *15*(4), 56-65.
6. Dowsett, C., & Allen, L. (2013). Moisture associated skin damage made easy. *Wounds UK*, *9*(4).
7. Haynes, J. S., & Callaghan, R. (2011). Properties of honey: it's made of action and clinical outcomes. *Wounds UK*, *7*(1), 50-57.
8. Molan, P. C., & Betts, J. A. (2004). Clinical usage of honey as a wound dressing: an update. *J Wound Care*, *13*(9), 353-356.
9. Romanelli, M., Vowden, K., & Weir, D. (2010). Exudates Management made easy. *Wounds International*, *1*(2).
10. White, E. (2019). Honey: antimicrobial and antibacterial nectar of gods. *Wounds UK*, *15*(4), 70.
11. Yaghoobi, R., Kazerouni, A., Kazerouni, O. (2013). Evidence for clinical use of honey in wound healing as an Antibacterial, Anti-inflammatory, Antioxidant and Antiviral agent: A review. *Jundishapur J Nat Pharm Prod*, *8*(3), 100-104.