MedCrave Step into the World of Research
International Journal of Complementary & Alternative Medicine

Research Article

Open Access

Honey and cupping for leg ulcer healing in rheumatoid arthritis patients, data supporting their use in clinical practice

Abstract

Introduction: Patients with rheumatoid arthritis are predisposed to developing chronic leg ulcers. These ulcers must be treated as early as possible as it is substantial regarding the fate of the patient specially in spectrum of that most of treated ulcers for a long time with conventional treatment have little if any signs of healing. Honey as a natural, widely available product had been investigated with promising results as an effective factor with many benefits in promoting healing of various wounds & ulcers. Meanwhile many studies were conducted on cupping as healing measures used in many cultures & still used, enhancing blood supply to the affected area & removing exudates to prepare the wound for sound healing.

Materials and methods: In this prospective study, patients with rheumatoid arthritis leg ulcers refractory to conventional therapies were treated with cupping & honey application for three months until either healing or failure of treatment was achieved.

Results: 93.3% of ulcers showed signs of healing while failure of treatment was observed in only 6.7% of ulcers that needed surgical intervention.

Conclusion: Honey combined with cupping suction had considerable therapeutic effects on leg ulcers in rheumatoid arthritis patients.

Keywords: rheumatoid arthritis, ulcer, honey, cupping

Volume 3 Issue 6 - 2016

Amal Fehr,[1] Ashraf Shoma,[2] Mohamed A Ismail,[3] Ahmed K Mousa[4]

[1]Rheumatology & Physical Medicine Department, Aswan University, Egypt
[2]General Surgery Department, Mansoura Faculty of Medicine, Egypt
[3]Vascular Surgery Department, Aswan University, Egypt
[4]Plastic Surgery Department, Aswan University, Egypt

Correspondence: Amal Fehr, Rheumatology & Physical Medicine Department, Aswan Faculty of Medicine, Aswan University, Sahari Road, Egypt, Tel +201006706822, Email amalfehr@yahoo.com

Received: April 16, 2016 | **Published:** May 26, 2016

Abbreviations: RA, rheumatoid arthritis; ABI, ankle brachial index

Introduction

The widespread existence of unhealed ulcers specially of legs has a great impact on patient morbidity & productivity as well as on public health and economy[1] that requires more effective lines of management rather than the classically used ones.[2]

Meanwhile, patients with rheumatoid arthritis (RA) are predisposed to developing chronic leg ulcers; approximately 10% of patients with rheumatoid arthritis will experience leg ulceration.[3] Many studies have found that at least half the ulcers in these patients are multifactorial in origin but often associated with venous insufficiency.[2–4] In patients with RA, the mean duration of chronic leg ulcers is from 5 to 15 onths, which means that they are often long-lasting and resistant to treatment.[5] The treatment commonly used is similar to that used for other chronic leg ulcers, i.e. compression therapy and different dressings.[2] Other treatments commonly used include antibiotics, immunosuppressive therapy, skin grafting, and other surgical options.[2] However, the slow healing tendency and high morbidity create a need for new, efficient, and cost-effective treatments. Though many interventions, including new medications and technologies, are being used to help achieve significant ulcer healing but still those ulcers are difficult to treat.[3–5] In this study we report our experience with two combined modalities namely cupping and honey local application for 20 leg ulcers in 6 patients with RA.

Cupping therapy is a simple, effective, economic and time-saving treatment for many health problems and is still practiced till now in China and in many parts of the world.[6] Cupping therapy enhances blood circulation, treats congestion and stops the inflammatory extravasations from the tissues.[7] The relative vacuum created at the surface of the skin causes a major increase in the liquid exchanges stimulated in this way through the capillary walls, On this subject, Nückel says that as anatomic and physiological studies have shown, the local application of a partial vacuum has a significant effect on lymph flow as well, where the aim is to improve capillary permeability and ideal vascularization of the affected region the best results are obtained with moderate pressure: 150 to 200mm Hg.[8]

Although honey as a natural product has long been documented as having healing properties but it has been recently introduced in modern medical practice.[9] Honey's antibacterial properties and its effects on wound healing have been thoroughly investigated. Laboratory studies and clinical trials have shown that honey is an effective broad-spectrum antibacterial agent.[10]

Honey application was associated with scarless healing in cavity wounds.[11] It has been reported that wounds treated with a topical application of honey showed less edema, fewer polymorphonuclear and mononuclear cell infiltrations, less necrosis, better wound contraction, improved epithelialization, and lower glycosaminoglycan and proteoglycan concentrations.[12] Furthermore, honey causes significantly greater wound contraction, and it promotes the formation of granulation tissue and epithelialization of wounds & ulcers.[13] Honey stimulates tissue growth, synthesis of collagen, and development of new blood vessels in the bed of wounds & ulcers.[14] The widespread development of antibiotic-resistant bacteria is a challenging problem; therefore, current interest is focused on an alternative to antibiotics and conventional therapies, such as honey antimicrobial moisture-retentive dressings, essential oils, topical enzymes, biosurgical therapies, and vacuum therapies.[15] These properties might help to explain some biological and therapeutic properties of honey & cupping, particularly as a wound or ulcer healer.

Material and methods

The study comprised 6 patients (4 women and 2 men) presented to Rheumatology & Physical Medicine Department at Aswan University hospital, Egypt, from June 2014 to March 2016 referred by vascular surgeon (3 cases), plastic surgeon (2 cases), and general surgeon (one case) as chronic leg ulcers refractory to treatment, patients were diagnosed as RA for years before presenting to us (mean 9years SD ±3), all of them satisfied the American College of Rheumatology Criteria for RA[15] & one of them was followed by Rheumatology & Physical Medicine Department in our hospital while others were from outside Aswan, 3 of them were not under any medical advice for the last few years.

Results

Patients were with an age span from 33 to 69years (mean 42.1years). The body mass index (BMI) varied from 27.8 to 38.2kg/m^2 (mean 33.3kg/m^2). The ulcer surface area was from 22cm^2 to 80cm^2 (mean 60cm^2) with persistence time from 30weeks to 60weeks (mean 40weeks). In 4 patients, the ulcer was situated on the right leg and in 2 on the left one. The ulcer distribution was at tip of toes (5 ulcers), lower third of right calf (6 ulcers) (Figure 1) and dorsum of right foot (5 ulcers) (Figure 2), dorsum of left foot (2 ulcers) & at medial malleolus of right foot (2 ulcers) . Total number of ulcer treated was 20. Three patient were nearly unable to walk with severe deformities and degenerative changes of the small and large joints, 4 patients had ulnar deviation and flexion contracture of the fingers on the hands, all the patients had at least one debridement for their ulcers and all received antibiotics based on culture and sensitivity tests done by their surgeons, but currently at presenting none of them was on antibiotics.

Each patient presented history of the ulcer, treatment, and other significant medical conditions were reported. All patients had been previously treated by their referring physicians by means of elastic bandage compression stocking with wound antiseptic lavage and local application of traditional dressing such as hydrogel and hydrocolloid dressing. However, none of these methods resulted in complete healing of the wound. Each ulcer was classified according to wound morphology, severity, and location. A systematic description of wound and limb appearance was recorded, including edema, erythema, exudation, granulation, and presence of fibrin or eschar.

Figure 1 Reduction of ulcer area (before treatment).

Figure 1a Reduction of ulcer area (at treatment).

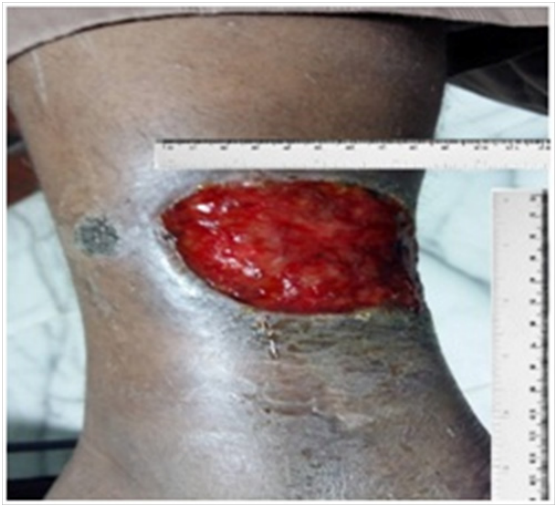

Figure 1b Reduction of ulcer area (after one month of treatment).

Cultures were taken from all ulcers at presenting & at first end point which was one month after start of treatment with honey & cupping and at end point which was after 3months of treatment.

Histological examination (by referring surgeons) was done in 3 cases without a tendency to heal showed:

I. Epithelial hyperplasia, elastic fiber degeneration

II. Chronic inflammatory cell reaction, scarification

III. Vascular proliferation, no sign of vasculitis

That was constant with the diagnosis of RA ulcers[16]

Patients were currently on one or more of the following therapies: depo steroid, non-steroid anti-inflammatory medication, chloroquine, sulfasalazine, methotrexate, leflunomide, methylprednisolone, cyclophosphamide for their underlined rheumatoid arthritis.

Etiology of the ulcers by the referring surgeons was multifactorial: primary disease (6 cases), inactivity (3 cases), and chronic venous insufficiency (4 cases).

Citation: Fehr A, Shoma A, Ismail MA, et al. Honey and cupping for leg ulcer healing in rheumatoid arthritis patients, data supporting their use in clinical practice. *Int J Complement Alt Med.* 2016;3(6):178–181. DOI: 10.15406/ijcam.2016.03.00093

Figure 2 Appearance of new clean hyperaemic granulation tissues (at treatment).

Figure 2a Appearance of new clean hyperaemic granulation tissues (at treatment).

Protocol of therapy

After clinical examination, the venous origin of the ulcer was confirmed by means of the venous duplex and the ankle brachial index (ABI) measurement.[17] ABI varied from 0.9 to 1.1 (mean 0.98). The patients with previous or active deep vein thrombosis were excluded from the study. The additional exclusion criteria were contraindications to compression therapy, immobilization in orthosis or plastic cast, paresis related to stroke or paraplegia, chronic cardiac failure with peripheral swelling, and systemic infection. In all the cases, diabetes was also excluded on the basis of laboratory data.

Treatments were done at the outpatient of Aswan university hospital. Honey and cupping were applied twice-weekly as a thin layer of honey on the wound surface specially edges with cupping applied over the center of ulcers (Figure 1a-2a), each session lasted 20-30minutes for each ulcer site, and each patient had his own cupping system with proper sized cups for his ulcer. ulcer area was measured each time before the session and comments on ulcer shape, size, edges and granulation were documented, wound debridement was done by surgeon when needed with proper cleaning and dressing with no antibiotics applied to the ulcers.

Figure 2b Appearance of new clean hyperaemic granulation tissues (after one month of treatment).

Honey and cupping were applied for three months until either healing or failure of treatment was achieved. Healing was achieved if ulcer area was reduced by 50%, a healthy granulation tissue covered the floor of the ulcer completely (Figure 1b-2b) with subsided edema and the bacterial load was reduced as reported by bacteriological study. In 43.3% of ulcers a 50% decrease in size and a healthy granulation was observed as well as the bacterial load of ulcers was reduced after the first month of applying the honey and cupping while more ulcer showed healing at the end of the three months (93.3%). Failure of treatment was observed in only 6.7% of ulcers that needed surgical intervention. No reported allergic reactions or side effects to procedure in all patients along the study.

Discussion

Basically, there have been many reports of case studies, animal experiments, and randomized controlled trials that provide considerable evidence for the effectiveness of honey in wound healing. As a dressing on wounds, honey provides a moist healing environment, rapidly clears infection, deodorizes, and reduces inflammation, edema, and exudation.[18]

The data obtained from this current study clearly demonstrate that with the use of honey, no allergic reaction is elicited and no significant side effects were reported, and there is rapid elimination of wound odor, improvement of granulation and epithelialization, reduction of amount of exudates, and sterilization of wounds from microbes.

That was supported with many studies as that reported that in addition to honey valuable nutritional constituents, several mechanisms could explain its effects; honey as well has anti-inflammatory and antioxidant activities that make it a suitable natural subject for wound healing.[18] Honey's acidity and osmolarity play an important role in the healing process. Its antioxidant contents are important as wound healers and help in the eradication of microbial infections. In addition, honey has considerable effects on the cellular elements of immunity and antibody production.[19] The antibacterial, anti-inflammatory, antioxidant, as well as nutritional and physical

properties of honey, make it a logical and accepted natural agent for wound dressing.[20]

Cupping therapy is a mean of suction therapy (minus pressure) inside the cups, so as to apply it promptly on the desired part of the body, according to the previously performed studies, the compression therapy is crucial for the healing of the venous leg ulcers, although the local therapy may also improve the healing rate, if correctly applied to the wound.[7] It was used for the treatment of chronic venous leg ulcers of a surface area greater than 50cm^2 to promote wound healing through a number of mechanisms.[21] These include edema reduction, increased wound/dermal perfusion, increased granulation tissue stimulation, decreased bacterial loading, and enhanced wound exudates removal.[22]

All patients in our study group had had conventional therapy before presenting to our clinic, when negative pressure wound therapy was used; healing of ulcers was achieved in majority of patients.

Kieser, et al. examined 12 patients with chronic resistant venous ulcers. They used cupping and compression bandaging for 4weeks. The wounds were monitored for a total of 12weeks. The authors found statistically significant reductions in ulcer surface area in the first weeks of therapy.[23] These results are in accordance with ours.

Studies done on patients with pressure ulcers found that it acts mainly by increasing local blood circulation and relieving the painful muscle tension.[21] It mainly involves improving microcirculation, promoting capillary endothelial cell repair, accelerating granulation, and angiogenesis in the regional tissues.[7] This helps in normalizing the patient's functional state and progressive muscle relaxation,[23] that all were observed, though not thoroughly investigated in patients of this current study.

Conclusion

The data presented in this study demonstrated that honey combined with cupping suction had considerable therapeutic effects on leg ulcers in RA patients. The results encourage the use of honey in clinical practice as a natural and safe ulcers healer and the use of negative pressure wound therapy as a standard protocol with venous insufficiency ulcers. Hence we recommend further studies on wider range of patients with RA leg ulcers and with comparative studies with other commonly conventional used lines of treatment, with detailed study of histopathological outcomes not only clinical outcome.

Acknowledgments

None.

Conflicts of interest

Author declares there are no conflicts of interest.

Funding

None.

References

1. Shubhangi Vinayak Agale. Chronic Leg Ulcers: Epidemiology, Aetiopathogenesis, and Management. Ulcers. 2013.p.9.
2. Clinical Practice guidelines. The management of patients with venous leg ulcers. Oxford: *Royal College of Nursing Institute.* 2006.
3. Cojocaru M, Cojocaru IM, Silosi I, et al. Extra-articular Manifestations in Rheumatoid Arthritis. *Mædica*. 2010;5(4):286–291.
4. Zhan HT, Bush RL. A review of the current management and treatment options for superficial venous insufficiency. *World J Surg.* 2014;38(10):2580–2588.
5. Persoon A, Heinen MM, van der Vleuten CJ, et al. Leg ulcers: a review of their impact on daily life. *J Clin Nurs*. 2004;13(3):341–354.
6. Mahmoud HS, Abou-El-Naga M, Omar NAA, et al. Anatomical Sites for Practicing Wet Cupping Therapy (Al-Hijamah): In Light of Modern Medicine and Prophetic Medicine. *Altern Integ Med*. 2013;2:138.
7. El Sayed SM, Mahmoud HS, Nabo MMH. Medical and Scientific Bases of Wet Cupping Therapy (Al-hijamah): in Light of Modern Medicine and Prophetic Medicine. *Altern Integ Med*. 2013;2(5):122.
8. Hunter JE, Teot L, Horch R, et al. Evidence-based medicine: vacuum-assisted closure in wound care management. Int Wound J. 2007;4(3):256–269.
9. Dorai AA. Wound care with traditional, complementary and alternative medicine. Indian J *Plast Surg*. 2012;45(2):418–424.
10. Ahmed AK, Hoekstra MJ, Hage JJ, et al. Honey-medicated dressing: Transformation of an ancient remedy into modern therapy. *Ann Plast Surg.* 2013;50(2):143–147.
11. Fahmida Alam, Asiful Islam, Siew Hua Gan, et al. Honey: A Potential Therapeutic Agent for Managing Diabetic Wounds. *Evidence-Based Complementary and Alternative Medicine*. 2014;2014:1–16.
12. Ghaderi Reza, Afshar Mohammad, Akhbarie Hadi, et al. Comparison of the Efficacy of Honey and Animal Oil in Accelerating Healing of Full Thickness Wound of mice skin. *International Journal of Morphology*. 2010;28(1):193–198.
13. Nasir NA1, Halim AS, Singh KK, et al. Antibacterial properties of tualang honey and its effect in burn wound management: a comparative study. *BMC Complement Altern Med*. 2010;10(31):1–7.
14. Saeed Nazeri. Evaluation of Effectiveness of Honey-Based Alginate Hydrogel. *Journal of Applied Biotechnology Reports.* 2015;2(3):293–297.
15. Aletaha D, Tuhina Neogi, Alan J Silman, et al. Rheumatoid arthritis classification criteria: an American College of Rheumatology/European League Against Rheumatism collaborative initiative. *Ann Rheum Dis*. 2010;69(9):1580–1588.
16. Suresh E. Diagnostic approach to patients with suspected vasculitis. *Postgraduate Medical Journal.* 2006;82(970):483–488.
17. Allison MA, Aboyans V, Granston T, et al. The relevance of different methods of calculating the ankle-brachial index: the Multi-Ethnic Study of Atherosclerosis. *Am J Epidemiol.* 2010;171(3):368–376.
18. Shoma A, Eldars W, Noman N, et al. Pentoxifylline and local honey for radiation-induced burn following breast conservative surgery. *Curr Clin Pharmacol*. 2010;5(4):251–256.
19. Al-Waili, Salom K, Al-Ghamdi AA. Honey for Wound Healing, Ulcers, and Burns. *The Scientific World Journal*. 2011;11:766–787.
20. Cherbuliez T, Bogdanov S, Fluri P, et al .D'avantage d'apitherapie en Suisse. *Revue Suisse d'apiculture.* 2006;2006(8):27–29.
21. Cao H, Hu H, Colagiuri B, et al. Medicinal cupping therapy in 30 patients with fibromyalgia: a case series observation. *Forsch Komplementmed.* 2011;18(3):122–126.
22. Tham LM, Lee HP, Lu C. Cupping: from a biomechanical perspective. *J Biomech*. 2006;39(12):2183–2193.
23. Kucharzewski M, Mieszczański P, Wilemska-Kucharzewska K, et al. The Application of Negative Pressure Wound Therapy in the Treatment of Chronic Venous Leg Ulceration: Authors Experience. *Biomed Res Int.* 2014;2014:297230.