

Honey 'The Life Saviour' in Necrotising Fasciitis: A Case Report

Rajesh Chaudhary^{1*}, Sanjeev Sharma¹, Ankit Shukla¹, Amit Joshi¹ and Usha K Chaudhary²

¹Department of Surgery, Dr. Rajendra Prasad Government Medical College Kangra, Tanda, Himachal Pradesh, India

²Department of Anaesthesia, Dr. R.P. Govt. Medical College Kangra, Tanda, Himachal Pradesh, India

Abstract

Introduction: Necrotising fasciitis is rapidly spreading inflammation and necrosis of the subcutaneous tissue and the fascia. Surgical debridement is the treatment of choice along with broad spectrum antibiotics and supportive measures. Although the modern day surgeons are sceptic about the use of honey as a dressing material but it is a good debriding agent with anti-inflammatory properties which can make even plastic surgery unnecessary in some cases.

Case Report: We present the case of a young boy who suffered a life threatening necrotizing fasciitis leading to massive skin and subcutaneous tissue loss. But the boy made a remarkable recovery due to dressing with unprocessed honey.

Conclusion: This lays a huge stress over the fact that unprocessed honey is a safe, effective, cheap and life-saving alternative to the other costly debriding agents and dressings in life threatening skin and soft tissue infections.

Keywords: Honey; Necrotizing fasciitis; Wound dressings; Debridement

Introduction

Necrotizing fasciitis is a rapidly progressing inflammation and necrosis of the subcutaneous tissue and the fascia [1]. It is usually a polymicrobial infection comprising mostly of gram positive organisms but also contains gram negative organisms. Both aerobes and anaerobes are seen. Beta hemolytic streptococci along with staphylococcus aureus and pseudomonas are the commoner ones. The disease is fulminant and has got high morbidity and mortality. Surgical debridement of all the tissue is the pre-requisite of the successful treatment outcome besides adequate resuscitation and supportive measures [2]. The use of honey has been known to the humanity for thousands of years but has fallen behind in this modern era of antibiotics and new age dressings. Honey is a good debriding agent. It promotes the early cleansing of the wounds and makes the wounds odourless. Honey prevents the growth of all kinds of microbes. The anti-inflammatory action of honey causes mobilization of the cellular defences and prevents the scar formation [3].

Case Report

We report the case of a 14 year old boy who came with extensive necrotizing fasciitis of the lateral aspect of the left leg extending upto the lower half of the back and the lateral aspect of the anterior abdominal wall. The boy suffered an injury while grazing his sheep where he slipped over a wooden log and suffered an injury to the lateral aspect of his left leg. The boy belonged to a tribal area. He was prescribed some herbal remedy by some local practitioner who led to blackish discoloration of the skin with extreme pain. He kept taking medications at various hospitals but to no relief. When he presented to the emergency department, the boy was in a poor general condition. He was having fever (38.88 degree celsius). Laboratory investigations showed mild anemia with raised total leucocyte counts (18000 per cubic millimetre) and neutrophil (82%). Pulse rate was 110 /minute with a respiratory rate of 22/minute. Skin of the lateral compartment of thigh on the left side was necrosed upto the lower one third of the back involving the left gluteal area and the scrotum. There was no history of diabetes mellitus or tuberculosis. No history of any chronic disease in the family. The boy was taken up for surgery and debridement was done. The boy was started on intra venous amoxicillin clavulanate and metronidazole along with analgesics and intravenous fluids. Since the boy was lean and thin with poor body reserve, skin grafting could not be done. So unprocessed honey dressing was started. The wound cleared within a week and the

boy made a remarkable recovery. After two weeks of honey dressing the boy was shifted to eusol dressing but the wound again became dirty over a period of 04 days. So the boy was again started on honey dressings, again the wound became clean within three days-time and showed a healthy granulation tissue. The patient was continued on honey dressings for two months and was discharged with a healthy granulation tissue with an advice to continue with the honey dressing and come for follow up on out-patient bases. The patient was followed up for one and a half year continuing on honey dressing. The wound was healing well and had contracted by more than fifty percent of the initial after about two years. The patient had gained weight and so underwent split skin grafting. The boy is still in follow up and has made an excellent recovery (Figures 1-3).

Discussion

Necrotizing fasciitis is described as a rapidly progressive



Figure 1: Wound following debridement and honey dressing at three weeks.

***Corresponding author:** Dr. Rajesh Chaudhary, MS, Senior Resident, Department of Surgery, Dr. Rajendra Prasad Government Medical College Kangra, Tanda, Himachal Pradesh, India, Tel: 0189 226 7115; E-mail: topgun.chaudhary@gmail.com

Received: September 03, 2015; **Accepted:** November 23, 2015; **Published:** November 30, 2015

Citation: Chaudhary AR, Sharma S, Shukla A, Joshi A, Chaudhary UK (2015) Honey 'The Life Saviour' in Necrotising Fasciitis: A Case Report. *Dermatol Case Rep* 1:102.

Copyright: © 2015 Chaudhary R, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



Figure 2: Wound after six weeks with daily honey dressing showing healthy granulation tissue.



Figure 3: Wound after two years following skin grafting.

inflammation and necrosis of subcutaneous tissue and fascia. It was also known by the names of haemolytic gangrene, acute streptococcal gangrene, gangrenous erysipelas, necrotizing erysipelas, supportive fasciitis and hospital gangrene, but Wilson coined the term necrotizing fasciitis to include all diffuse necrotizing soft tissue infections other than gas gangrene [1]. The necrotizing fasciitis was believed to be caused only by beta haemolytic streptococci, but now a synergistic and polymicrobial etiology has been identified which is more serious. It may start from a minor trauma, surgery or from a local infection. It is seen in adults as well as children but more common in diabetics, alcoholics, transplant patients, HIV infected people, extremes of ages, immunosuppressive therapy, malignancies, chronic liver failure and chronic renal failure patients [4]. The patient may present with local signs of inflammation to Systemic Inflammatory Response Syndrome (SIRS) and Multiple Organ Dysfunction Syndrome (MODS).

The subcutaneous edema extending beyond the local wound along with pain out of proportion to the wound is the clinical hallmark of this disease. Although the radiological investigations are helpful but the diagnosis is mainly clinical. The treatment of choice is repeated debridement of all the necrotic tissue along with broad spectrum antibiotics. To stop the disease progression all the dead soft tissue along with fascia should be removed [2]. Honey was once most commonly used for wound dressings but with the advancement of modern medicine it was left behind. The use of honey was known to most of the ancient civilizations like Romans, Greeks, Egyptians and Chinese [5]. Honey can be used for dressing the wounds once the surgical debridement has been done in major cases or directly for smaller wounds. With the ever increasing incidence of antibiotic resistance and adverse effects of the modern day antibiotics honey is a good alternative for wound dressing as compared to most other methods of dressing. Honey has been used successfully in the treatment of pressure ulcers, venous ulcers, diabetic foot, chronic non healing ulcers, superficial and deep burns, ulcers after radiotherapy, burst abdomen, diabetic foot ulcers to mention the few [3]. High osmolarity of the honey is sufficient to arrest the growth of microbes but it also contains oxidase enzyme which produces low dose of hydrogen peroxide, as low as one

thousand times the dose of 3 percent solution of hydrogen peroxide hence potentiating its antibacterial action. MIC of honey against most bacteria's is 5- 10 % generally [6]. Proteolysis of the dead and decaying tissue is required for debridement. Honey provides a much comfortable and affordable means of proteolysis which is a part of the healing process [3]. The lymph drawn out by the honey provides a supply of the proteases and provides a moist environment. Hydrogen peroxide facilitates the activation of tissue proteases hence facilitating the debriding action of the honey [7]. Honey can stimulate the activation of lymphocytes at a very low concentration and at a concentration of 1% it leads to stimulation of TNF-1, IL-1, and IL-6, which are intermediates in the immune response. Inflammation leads to the generation of the free radicals which further damages the tissues and hence sets up a vicious cycle. Prolonged inflammation can lead to hyper stimulation of the fibroblasts and can cause excessive scarring. Honey is a free radical scavenger which potentiates its anti-inflammatory action and prevents the formation of the scar tissue. Honey's anti-inflammatory properties lead to the decreased oedema and prevents further tissue necrosis. This has been proved in studies conducted on superficial and deep burn wounds which showed almost no inflammatory cells [3]. Honey is the promoter of collagen formation and angiogenesis in the wounds. It can rapidly clean the wounds and even prevent the need for skin grafting in some cases. It provides a preferred substrate for the bacteria for metabolism hence reducing the metabolic use of proteins and amino acids by the bacteria thus leading to low amount of gas produced thus the wounds are deodorized faster [8]. The efficacy of honey in wound care has been put to test against conventionally used antiseptics and colloid dressings. It has been compared to silver sulphadizene in burn wounds [9], eusol [10], saline dressing [11], hydrocolloids [12], potato peel [13] and other dressing materials but honey has stood up to the challenge and has proved to be safe, effective and cheap alternative to other modern debriding agents.

Conclusion

Necrotizing fasciitis is a fast spreading infection of the subcutaneous tissue and fascia leading to tissue loss. Liberal debridement of the tissue along with broad spectrum antibiotics is mandatory and life-saving. Honey is a cheap, easily available and very effective debriding agent. In the era of modern antibiotics where resistance is an emerging threat honey is a time tested alternative. Although most people might not agree but studies have shown that It makes the dressing less painful, easy to change makes the healing faster and saves from the drug related side effects. Its anti-inflammatory properties boost up the body immunity and prevent excessive scarring sometimes even eliminating the need for plastic surgery. Honey is really a life saviour in necrotizing fasciitis.

References

1. Wilson B (1952) Necrotizing fasciitis. *Am Surg* 18: 416-431.
2. Qgundiran T, Akute O, Oluwatosin O (2004) Necrotizing fasciitis. *Trop Doct* 34: 175-178.
3. Peter M (2002) Re-introducing honey in the management of wounds and ulcers-theory and practice. *Ostomy/Wound Manage* 48: 28-40
4. Lawrence M, Catherine A, Kosloske A (1996) Necrotizing fasciitis in children: prompt recognition and aggressive therapy improve survival. *J Pediatr Surg* 31: 1142-1146.
5. Zumla A, Lulat A (1989) Honey a remedy rediscovered. *J R Soc Med* 82: 384-385.
6. Allen K, Hutchinson G, Molan P (2000) The potential for using honey to treat wounds infected with mrsa and vre. poster presented at the first world wound healing congress. melbourne, Australia.

7. Zaib (1934) The honey in auberlicher application . *Münchener Medizinische Wochenschrift*. 49: 1891-1893.
8. Silver A (1980) *The physiology of wound healing: Wound healing and wound infection: theory and surgical practice*. Appleton-century-crofts, New york, USA.
9. Subrahmanyam M (1998) A prospective randomised clinical and histological study of superficial burn wound healing with honey and silver sulfadiazine. *Burns* 24: 157-161.
10. Subrahmanyam M, Ugane S(2004) Honey dressing beneficial in treatment of fournier's gangrene. *Indian Journal of surgery* 66: 75-77.
11. Weheida S, Nagubir H, Esanna H Marzouk (1991) Comparing die effects of two dressing techniques on healing of low grade pressure ulcers. *Journal of the medical research institute* 12: 259-278.
12. Gethin G, Cowman S (2009) Manuka honey vs. hydrogel-a prospective, open label, multicentre, randomised controlled trial to compare desloughing efficacy and healing outcomes in venous ulcers. *j clin nurs*.
13. Subrahmanyam M (1996) Honey dressing versus boiled potato peel in the treatment of burns: a prospective randomized study. *Burns* 22: 491-493.