Honey dressing beneficial in treatment of Fournier’s gangrene

M. Subrahmanyam, S. P. Ugane
Department of Surgery, Government Medical College, Miraj and General Hospital, Sangli, India.

ABSTRACT
Background: Fournier’s gangrene is a difficult infective condition to treat. We report our experience of the management of this disease with honey dressings.

Material and Methods: Thirty patients admitted with the diagnosis of Fournier’s gangrene were randomly allocated to two groups, one group treated by honey dressing and the other by Eusol dressing. All patients were treated with broad-spectrum antibiotics and underwent debridement and delayed closure as required.

Results: In 14 patients treated with honey dressing, healthy granulation appeared in 4 patients in one week and in all patients within 3 weeks. One patient died. In 16 patients treated with Eusol dressing, healthy granulation appeared in one week and by 4 weeks in remaining patients. Two patients died. Secondary suturing and skin grafting was required in 9 patients in each group. Mean hospital stay was 28 days (range 9-40 days) in the honey-treated group and 32 days (range 12-52 days) in the Eusol-treated group.

Conclusion: In this study, honey was found to be beneficial in the treatment of Fournier’s gangrene.

KEY WORDS
Gangrene, Fournier’s gangrene, Honey dressing.

INTRODUCTION
Fournier’s gangrene is a fulminating, rapidly spreading infection of the scrotum that also involves the perinium and the abdominal wall.1,2 The infective process leads to the thrombosis of subcutaneous vessels resulting in gangrene of the overlying skin. It affects all ages and has been reported in both sexes and various aetiological factors have been noted.3 The basic treatment involves prompt excision of all non-viable tissue, limitation and abolition of any infective process, antibiotics and occasional anatomical reconstruction.4

Honey is a mixture of sugars prepared by the bees from natural sugar solutions called the nectar, obtained from flowers. By inverting the sucrose in the nectar, the bee increases the attainable density of the final product and thus raises the efficiency of the process in terms of caloric density. The higher osmotic pressure thus obtained precludes the bacterial growth. The medicinal properties of honey have been known for years. The Indian system of medicine ‘Ayurveda’ describes honey as the nectar of life and recommends its use in the treatment of various ailments. Honey produced by the Indian hive bee Apis cerana indica, extracted by modern extraction methods, is a transparent liquid and free from foreign materials. Granulation is the natural process of crystallization of the glucose content in honey and granulated honey can be made liquid by slight warming.

Honey has been found to be useful in controlling the infection of wounds and burns5,6 leading to rapid healing and it has also been tried in Fournier’s gangrene.7,8 This study reports the use of honey in Fournier’s gangrene and its comparison with conventional dressing.

Address for correspondence: Dr. M. Subrahmanyam, Old Civil Hospital Compound, Opposite Head Post Office, Rajwada Chowk, Sangli - 416416, India. E-mail: san-avanism@sancharnet.in
MATERIAL AND METHODS

Thirty consecutive male patients with Fournier’s gangrene admitted during the period April 2001 to May 2003 formed the material for this study. Diagnosis was established from the patient’s history and clinical examination. Age, predisposing conditions, site of primary infection, bacteriological findings, therapeutic response, hospital stay and outcome were evaluated.

For assessing the beneficial effects of local dressings, the patients were divided into two groups by randomization, the rest of the treatment being the same. Both the groups had similar age distribution, involvement and were comparable in all respects. The assessor was not aware of the treatment given (single blind). In Group 1, 14 patients were treated with honey of uni-floral origin obtained from Syzygium Cumini (locally known as Jamun) which was unprocessed and undiluted. The sterility of the honey was confirmed by bacteriological tests. Gauze pieces were dipped in the honey and were applied to the wound. In Group 2, 16 patients were given daily dressings with gauze pieces dipped in Eusol solution. Cotton pads were placed, bandage was applied and the dressings were changed daily in both the groups. The amount of discharge, the time taken for clearing of slough, appearance of healthy granulation tissue, hospital stay and the outcome were recorded in both the groups. The statistical analysis was done by chi-square test. Informed consent of the patients was taken and the hospital ethical committee had earlier approved the study.

RESULTS

The age of the patients ranged from 21-70 years (mean 45.2). Thirty per cent of the patients were between 51-70 years. Twenty-three (76.7%) were from the lower socio-economic group, the majority of them were agricultural labourers, 7 (23.3%) were from the middle class. Twenty-three (76.6%) were chronic alcoholics. The period of time spent before presentation to the hospital in both the groups ranged from 1-7 days. Twenty-six (86.6%) had aetiological factors and in 4 patients no apparent cause was found. Table 1 shows the aetiological factors in the 30 patients. The gangrene was confined to the scrotum in 28, it had extended to the penile shaft in 8, to the perineal area in 6, anterior abdominal wall in 4 and to the medial side of the thigh in 4. Diabetes mellitus was associated in 8 patients. The organisms isolated were Staphylococcus aureus (13), E.coli (7), Proteus mirabilis (2), candida albicans (3), Klebsiella (1), pseudomonas aeruginosa (1), citrobacter (1), and no organism in 1. Three patients were found to be HIV +ve and 27 were negative. Twenty-six of them had undergone one surgical debridement and 4 had two debridements.

In the honey-treated group (Group 1, n=14), the clearance of slough took place within one week in 8 patients (57.1%), within 10 days in 1 patient and within 14 days in 5 patients. In all the patients, the foul smell reduced within two days of dressing and the oedema was also reduced with less inflammatory changes in the honey-treated group. One death occurred. In the Eusol-treated group (n=16), the clearance of slough took place within 7 days in 8 patients (50%), within 10 days in 2 (18.7%), and by 14 days in 3 patients. Two deaths occurred in this group. In Group1, healthy granulation was seen within one week in 4 (28.5%) patients; in the Eusol-treated group, healthy granulation appeared in 3 (18.7%) patients in one week. Secondary suturing and skin grafting was required in 9 patients in each group. The mean hospital stay was 28 days (range 9-40 days) in the honey-treated group and 32 days (range 12-52 days) in the Eusol-treated group (P<0.01, significant).

DISCUSSION

Fournier’s gangrene us necrotising fascitis in the specific region of the perinium and genitalia, irrespective of presence of absence of proven infection. Although Fournier’s original description emphasized idiopathy, it is now believed that there are predisposing causes in many cases. In this study, 26 patients (86.6%) had predisposing causes. There were no female patients in
Honey has been used as an adjuvant method for accelerating wound healing since ancient times and honey’s antibacterial and anti-fungal properties have been well documented. Honey is produced from many floral sources and its antibacterial activity varies, which explains why there is so much of variation in *in-vitro* of the sensitivity of wound-infecting bacteria to honey. In studies conducted in superficial, partial-thickness burns and other wounds, honey was helpful. Moore et al. concluded that in some or all of the outcomes honey was superior to the other treatments and suggested that there is a biological plausibility. This review included 6 studies conducted by senior authors. Honey was found to inhibit bacterial growth which is found to be due to its low pH, high viscosity, the hygroscopic effect and presence of inhibine and anti-oxidants. Though there was some debate whether honey should be sterilized by gamma irradiation before use, many authors have used unprocessed honey and in several clinical trials conducted there was no clostridial infection or any other complication. Honey was found to be sterile and can be safely used. In this study the honey-treated group showed faster clearing of slough as well as appearance of healthy granulation tissue. This resulted in a reduced hospital stay. The difference in mortality in the honey-treated group and the Eusol-treated group was not significant. The studies by Hejase et al. and Effem have noted similar findings. There was no allergy or irritation in the honey-treated group. Honey is cheap, cost-effective, and easily available. In this study, honey was found to be beneficial in the treatment of Fournier’s gangrene; this needs to be confirmed by multi-centric trials before routine use of honey is recommended in this condition.

**REFERENCES**