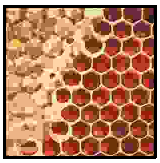

ORIGINAL PROF-652

HONEY DRESSINGS;
EXPERIENCE AT DEPARTMENT OF PLASTIC SURGERY AND BURNS ALLIED HOSPITAL FAISALABAD

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ABSTRACT

OBJECTIVE: To clinically evaluate the effectiveness, economy and patient friendliness of honey as a topical dressing of burn wounds. **DESIGN:** Analytical and observational study **PLACE & DURATION OF STUDY:** The department of Plastic Surgery and Burn, Allied Hospital Faisalabad from June 1999 to December 2001. **SUBJECTS & METHODS:** A total of fifty patients were included in this study. All patients were evaluated on the basis of percentage and depth of burns. 10 patients were having symmetric involvement of limbs, these were subjected to comparative analysis of honey and silver sulphadiazine dressings. **RESULTS:** Out of the 28 male and 22 female patients the majority presented between 3rd day to one week of burn accident. 40% patients had superficial burns and healed within 10 days of honey application on an average. The rest of 60% needed grafting which was done at a mean time of 14 days. Majority of patients had a mild bacterial growth while on honey dressings. **CONCLUSION:** Honey is economical, more effective and patient friendly. It has shown better and early results in acute and late burn wounds. So it should be the first choice as a dressing material.

KEYWORDS: Burns, Wound dressings, Spontaneous healing, grafting.

INTRODUCTION

Honey has been an integral part of the medicinal culture in different parts of the world since ages. It is one of the earliest known dressings for wounds[1,2,3]. In an endeavor to find an ideal material for burn wound dressing at affordable price, we revisited this traditional remedy and found it to fulfill all the criteria to be rated on top of the list of all available dressing material.

The clinical observations recorded in other international studies are that infection is rapidly cleared, inflammation, swelling and pain is decreased, odour is decreased, desloughing of necrotic tissue is induced, granulation and epithelialisation are hastened and healing occurs rapidly with minimum scarring. Honey has achieved healing of wounds not responding to conventional therapy with antibiotics and antiseptics[4-9] including wounds with resistant bacteria[10]. On the basis of these observations it was thought that the time has

now come to lift the blinds off this traditional remedy and let it earn proper recognition.

In many of the reports effectiveness of honey as a dressing for burn/infected wounds is attributed largely to its anti-bacterial properties, which are primarily due to $H_2 O_2$ formed in a slow release manner by the enzyme glucose oxidase present in honey.

It also provides a supply of glucose for leucocytes essential for respiratory burst that produces $H_2 O_2$[11], the dominant component of the antibacterial activity of macrophages. The other contributory factors are high sugar concentration, acidic pH of honey, creation of a physical barrier between wound and environmental contamination[12], promotion of formation of healthy granulation tissue. It contain growth factors to enhance epithelialisation[13,14,15]. It reduces inflammation and edema, hence improves flow of blood in and lymph out of the area. All these factors are working at one time therefore healing occurs remarkably rapidly making plastic reconstruction unnecessary at times[14,16]

MATERIAL & METHODS

All patients of both sexes and all age groups having burn wounds reporting to us from June 1999 to Dec 2001 were included in this study. A routine baseline workup with blood and urine examination, serum creatinine and blood sugar was done at the time of admission. The patients who expired during treatment were excluded.

Patients were showered with plenty of plain water first and then wounds were washed thoroughly with jet stream of normal saline. Gauze pieces were soaked with commercially available tube packed honey and applied on wounds. A second layer of sterile cotton dressing pads were applied and secured with a 3rd layer of crepe bandage.

The dressings were changed in this manner daily. In all patients having involvement of symmetric areas like both upper and / or lower limbs, right side was allocated to honey dressings and left side for silver suphadiazine to keep all the other variables like age, sex, mode and depth of burn at a constant. A continuous visual and photographic record was maintained at frequent intervals. Culture and sensitivity tests from wound surface were done regularly on weekly basis till the wound spontaneously healed or grafted.

RESULTS

A total of 50 patients were included in the study. The male to female ratio is shown in table I.

Table-I

Male	Female	Total
28	22	50

Table-II. shows the type and extent of burns in our cases.

	Male	Female	TBSA(%age)
Superficial	8	4	15 — 50
Medium	5	3	10 ---- 40
Full Thickness	5	2	10 ---- 30
Mixed	10	13	5 ----- 45
Total	28	22	-

Table-III

Time	No of patients
Within 48 hours	5
3rd day - 1 week	35
> 1 week	10
Total	50

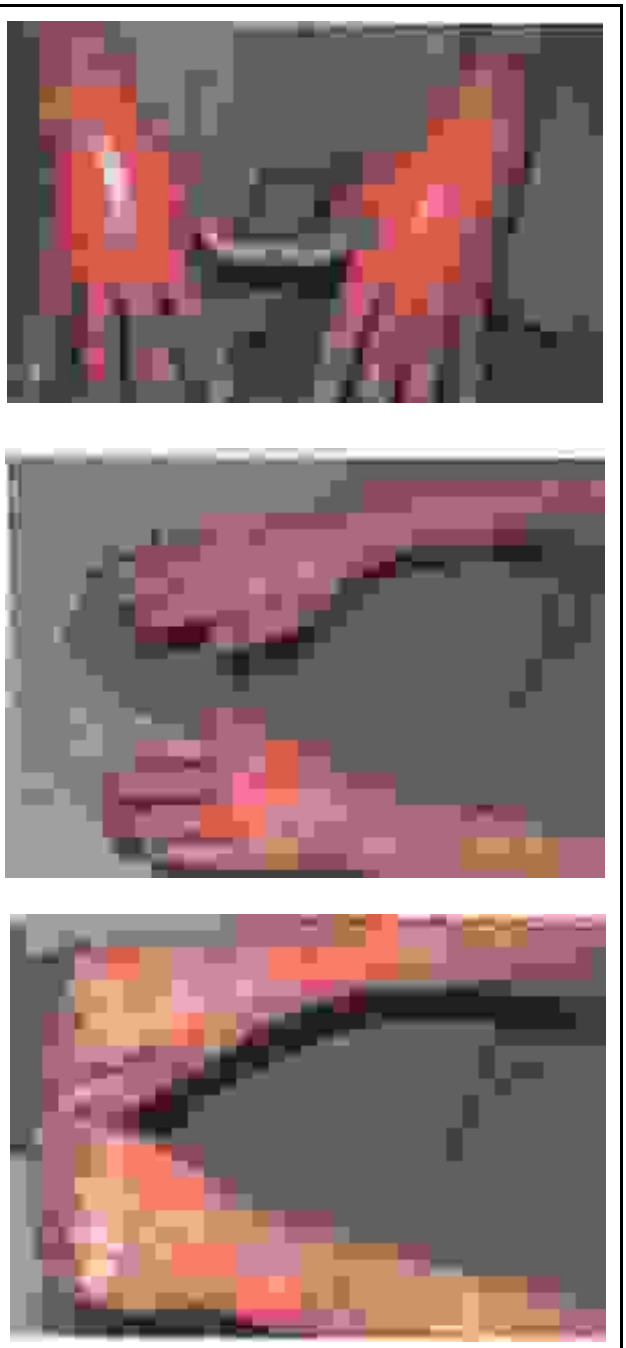

Figure-1. Effect of Honey dressings on a superficial band burn

No patient presented to us immediately after burn accident. The presentation time is shown in table III.

Most of the patients had deep burns and needed grafting of their ulcers as described in table IV.

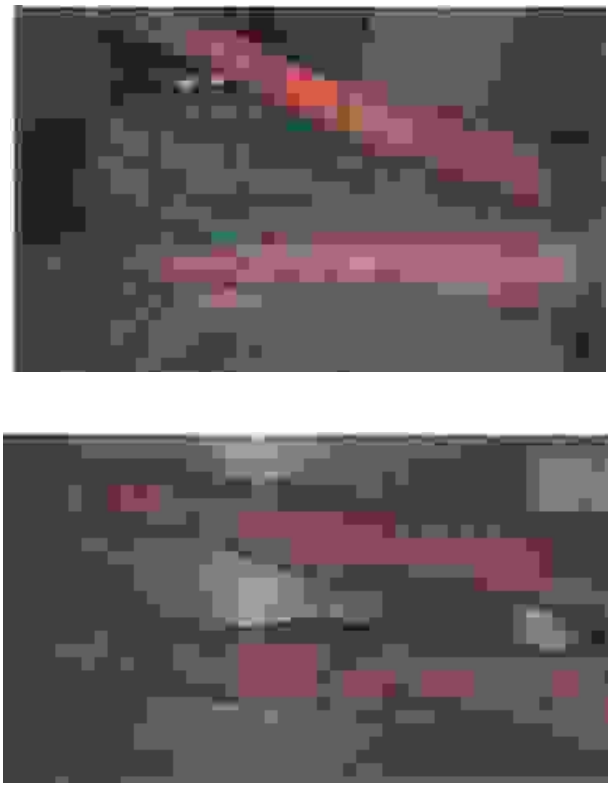

Figure-2. Comparison between the effects of Honey vs. Silver Sulphandiazines dressings

Table-IV

Healing	%age	Mean time for healing
Spontaneous healing	40%	10 days
Grafting	60%	14 days

Table-V

	Honey	Silver sulphadiazine
Spontaneous healing	10 days	15 days
Wound ready for grafting	14 days	21 days

In patients with symmetrical involvement of two limbs the effects of honey were compared with

silver sulphadiazine with patient's consent. The results are depicted in table V and VI.

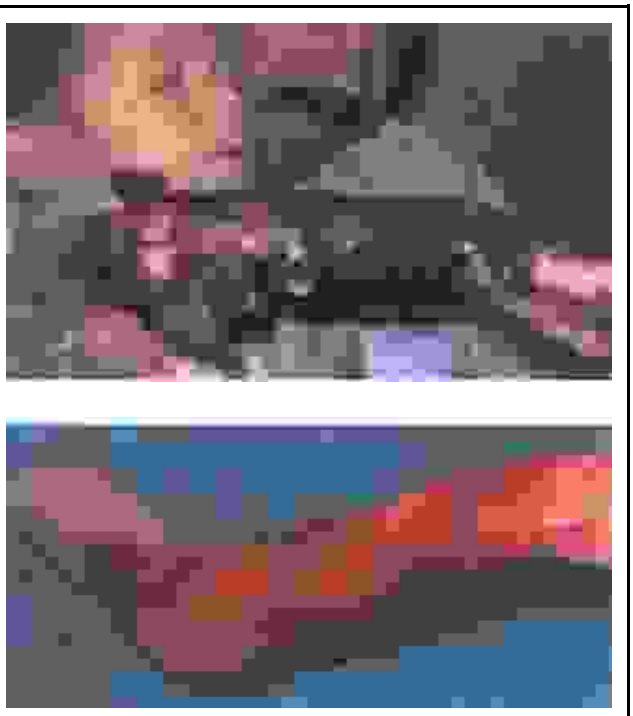

Figure-3. Some More Results

Table-VI

	Honey		Silver sulphadiazine	
Superficial burns healed spontaneously	No	days	No	Days
	4	13	4	17
Deep burn needing grafting	6	21	6	28

Table-VII. shows the results of culture and sensitivity reports.

Culture	Honey	Silver sulphadiazine
Mild	28	22
Moderate	12	20
Heavy	10	28
Total	50	70

DISCUSSION

There is a plethora of studies[1-16] on honey in the developed world. New Zealand and Australia are leading the work at this movement.

In New Zealand there is a honey research unit at the University of Waikato, Hamilton New Zealand. We are in regular contact with Dr. P.C. Molan[17,18] who is the director of the unit working on honey for >20 years. Dr. P.C. Molan is known as a world authority on this subject. In his publications , he has strongly concluded in favor of honey as the best wound dressing agent. He has managed to develop a medical grade honey named as MEDI HONEY and published the atttributes of medi honey as ;

1. Physical barrier to prevent wounds from infection
2. Promote healing by stimulation of growth process as formation of new blood capillaries and fibroblasts.
3. No sticking to wounds therefore no tearing away of newly formed tissue, no pain while dressing changed.
4. Anti inflammatory action, increase the circulation
5. Draws lymph out of wound and lifts dirt / dead tissue out of wound bed.
6. Rapid clearance of infection from wounds and fully effective even with antibiotic resistant strains of bacteria.
7. Unlike antiseptics and antibiotics there is no impairment of healing process.

In India some work has been done on honey and compared with potato peel and silver sulphadiazine and they have similar observations[14,15,19,20].It is a novel work in Pakistan since no similar work has been done here until now.

Our clinical experience supports the observations made by the international studies which have already been described in the introduction[1-20]. To make our work more scientific, we are working on the following programs:

1 Collaboration with the world renowned biological research facilities like the University

of Agriculture , Nuclear Institute of Biotechnology and Genetic Engineering at Punjab Institute of Nuclear Medicine, all based in Faisalabad.

2 Finding and establishing a uniform source of Citrus honey, which is found in abundance in our neighborhood. Our area boasts the production of some of the best citrus fruit in the world.

3 Packaging and Gamma sterilization according to the FDA standards.

4 Quantitative cultures of the wounds on serial basis to determine the efficacy of the dressings.

CONCLUSION

On the basis of this study and clinical observations it can be firmly said that honey is the first choice for dressing in burn wounds / ulcers. In all those cases where honey was compared with sliver sulphadiazine none of the bacterial culture showed heavy microbial growth one week after commencement of honey application.

The partial thickness burns healed better and early (100% by 10 days) as compared to silver sulphadiazine where healing was completed only in 70% cases by 15th days. In honey dressed wounds early subsidence of acute inflammation, better control of infection and quick wound healing resulted in better wound coverage. The hospital stay and expenses were reduced by 30%

In full thickness burns healthy granulation was observed earlier, making earlier grafting possible. Lower incidence of hypertrophic scarring leading to contractures was observed in all patients who had been on honey dressings.

Honey dressing is more patient and wound friendly. The wounds became red, free of necrotic unhealthy tissue at accelerated rate. Most of our patients remained happy and felt far less pain with honey dressing removal and application except few who felt transient stinging in immediate post dressing period. This was in those who had generally low threshold for pain. It was managed adequately with a dose of analgesia just prior to dressing session.

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