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## RESEARCH ARTICLE

## STUDY OF AN EFFECT OF HONEY DRESSING IN TRAUMATIC WOUNDS OF ORTHOPEDICS.

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**Abstract**

**Background:-** Honey Is The Oldest Known Wound Dressing. Its Uses Date Back To Ancient Greece, Egypt, And Parts Of India. Composed Of 80% Sugar And 17% Water, This Supersaturated Natural Substance Makes A Splendid Wound Dressing. Its High Osmolarity, Phytochemicals, And Enzymatic Production Of Hydrogen Peroxide Inhibit Bacterial Growth, While Its Acidic Ph And Autolytic Debridement, Decrease Inflammation And Improve Blood Circulation To Enhancing Epithelialization And Healing With Minimal Scar Tissue. The Subject Of This Review Is Whether Studies Show That Honey's Wound Healing Properties Make It a Better Wound Dressing by Decreasing the Healing Time of Wounds, Compared to Standard Therapy.

**Material & Methods:-** This was Randomised Trials study conducted in the department of orthopaedics S.B.K.S M.I.R.C DHIRAJ HOSPITAL, Vadodara between April 2015 to January 2016. Study was conducted on 20 patients who fulfilled inclusion criteria of wound healing by honey dressing for this study. That Evaluated Honey as a Treatment For wounds and wound Healing Was the Primary Endpoint.

**Results:-** Honey has anti-oxidant, anti-bacterial and anti-inflammatory properties. It can be used as a wound dressing to promote rapid and improved healing. These effects are due to honey's anti-bacterial action, secondary to its high acidity, osmotic effect, anti-oxidant content and hydrogen peroxide content. The use of honey leads to improve wound healing in acute cases, pain relief and decreased inflammatory response & out of 20 patient 12 patients have good effect Of honey dressing & healing was improved.

**Conclusion:-** Honey Is An Effective Wound Treatment Agent But No Additional Benefit Is Gained Over Standard Therapy.

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**Introduction:-**

Honey Has Been In Use As A Wound Dressing For Thousands Of Years.<sup>1,2</sup> In The Past Few Decades, There Has Been A Large Amount Of Clinical Evidence Has Been Accumulated That Demonstrates The Effectiveness Of Honey In This Application

More Recently, Honey Has Been Reported To Have An Inhibitory Effect To Around 60 Species Of Bacteria Including Aerobes And Anaerobes, Gram-Positives And Gram-Negatives [2]. An Antifungal Action Has Also Been Observed For Some Yeasts And Species Of *Aspergillus* And *Penicillium* [2], As Well As All The Common Dermatophytes [3]. The Current Prevalence Of Antibiotic-Resistant Microbial Species Has Led To A Re-Evaluation Of The Therapeutic Use Of Ancient Remedies, Including Honey.

Honey Has A Broad-Spectrum Antibacterial Activity, But There Is Much Variation In Potency Between Different Honeys. There Are 2 Types Of Antibacterial Activity. In Most Honeys The Activity Is Due To Hydrogen Peroxide, But Much Of This Is Inactivated By The Enzyme Catalase That Is Present In Blood, Serum, And Wound Tissues. In Manuka Honey, The Activity Is Due To Methylglyoxal Which Is Not Inactivated. The Manuka Honey Used In Wound-Care Products Can Withstand Dilution With Substantial Amounts Of Wound Exudate And Still Maintain Enough Activity To Inhibit The Growth Of Bacteria. There Is Good Evidence For Honey Also Having Bioactivities That Stimulate The Immune Response (Thus Promoting The Growth Of Tissues For Wound Repair), Suppress Inflammation, And Bring About Rapid Autolytic Debridement. There Is Clinical Evidence For These Actions, And Research Is Providing Scientific Explanations For Them.

### **Aim & objectives:-**

- ❖ The aim & objective was to determine whether honey increases the rate of healing in acute wounds (e.g. abrasion, lacerations) and chronic wounds (e.g. skin ulcers, infected surgical wounds).

### **Materials & Methods:-**

#### **Selection Criteria:-**

Randomised Trials That Evaluated Honey As A Treatment For Any Sort Of Acute Or Chronic post traumatic and infected wound were Sought. Wound Healing Was The Primary Endpoint

Study Period:- From April 2015 to January 2016

Study Type:- Randomised Trials

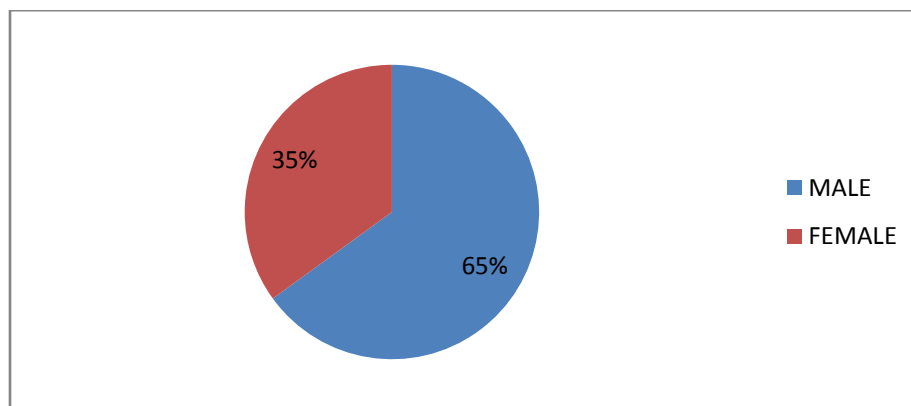
Data Collection:- Dhiraj General Hospital  
Piparia, Vadodara

All The Patients In Whom Honey Was The Medication For Management Of Wounds Were Included In The Study. The Cases Which Received Any Other Form Of Local Or Systemic Antibiotic were also included in the study. Before Considering Any Patient For The Study, The Patients Were Properly Counseled And All The Available Alternative Modes Of Wound Management Were Explained To Them. The Honey Applied Was A Locally Available Floral Honey.

The inclusion criteria was, all randomized clinical trials, using patients with skin wounds which are superficial or marginally deep, and must have had no other co morbidities or poorly controlled diabetes influencing the healing of the wound.

Studies must have tested honey in comparison to standard therapy with the primary outcome of measuring healing time.

Sex	Number	Percentage
Male	13	65%
Female	7	35%
Total	20	100%



**Antibacterial activity:-**

- ❖ Very broad spectrum of activity (antifungal as well).
- ❖ Effective against antibiotic-resistant species.
- ❖ Effective against bacteria in biofilms.
- ❖ The minimum inhibitory concentration with bacteria is generally less than 10% honey.
- ❖ Development of resistance to honey is unlikely.

**Debriding action:-**

- ❖ Acts to activate plasminogen which lyses fibrin attaching slough.
- ❖ Prevents formation of eschar and scabs.

**Anti-inflammatory activity:**

- ❖ Many reports of clinical observation of decrease in symptoms of inflammation.
- ❖ Biochemical and histological studies have demonstrated decreased inflammation.
- ❖ The action is direct, not secondary to clearing infection causing inflammation.
- ❖ Demonstrated in many studies on inflammation in sites other than wounds.
- ❖ Acts to inhibit phagocytosis, the start of the inflammatory response.

**Antioxidant activity of honey:**

- ❖ Contains plant phenolics from the nectar source.
- ❖ Scavenges reactive oxygen species which act as messengers between cells to increase the inflammatory process and cause hypertrophic scarring.
- ❖ Decreases oxidative activation of proteases which destroy the matrix and growth factors.

**Increasing the rate of healing:-**

- ❖ Stimulates leukocytes to release cytokines and growth factors that activate tissue repair.
- ❖ Acidity of honey makes more oxygen available from the circulation for tissue repair.
- ❖ Osmotic action causes outflow of lymph like in VAC therapy.

**Discussion:-**

Honey Is A Biologic Wound Dressing With Multiple Bioactivities. Each Of The Healing-Promoting Activities Can Be Found Separately In Pharmaceutical Products, But In Honey They Are All Present And Work Together Synergistically To Enhance The Healing Process. In Addition, There Is The Added Benefit From The Physical Properties Of The Honey Creating A Moist Healing Environment, One In Which The Antibacterial Activity Removes All Likelihood Of Moist Conditions Favoring Bacterial Growth. Bacterial Infection And Critical Colonization Can Inhibit Healing, Either Through The Direct Effects Of Bacteria On Wound Tissue, Or Through The Deleterious Effects Of Excessive Inflammation.

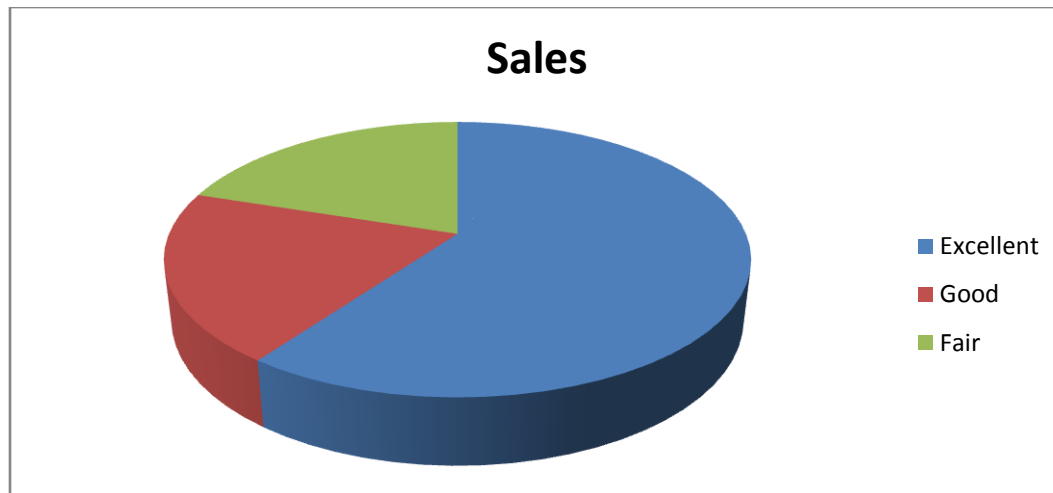
Honey, The Most Ancient Of Wound Treatments, Is Taking Its In Place In Modern Wound Care. Like Modern Wound Dressings, It Is Easy To Apply, Painless and Comfortable, Harmless To Tissues, Creates A Moist Healing Environment, Is Antibacterial and Stimulates Healing and Epithelialisation

The antibacterial, anti-inflammatory, and debridement qualities give honey the potential to be a good treatment option for chronic wounds.

The objective of this paper was to evaluate the healing rate of honey as a therapy for chronic wounds in comparison to standard therapy.

**Results:-**

Out of 20 patients in our study 12 patients had an excellent result with only honey dressing. 4 patients had good result required additional antibiotics and multiple debridement. 4 patients had fair result treated with local flap and skin grafting.



### Cases:-

#### Case 1:-

A 20 years old male brought to the casualty dept of Dhiraj Hospital with h/o RTA and c/o pain and bleeding over left lateral aspect of calcaneum. On examination there was an open wound grade 3 B of 4\*3 cm over left lateral aspect of calcaneum. Pt was treated with exclusive dressing with honey on alternate day for 1 month than every 4<sup>th</sup> day for 1 month at the end of 2 months follow up wound is completely healed.



Pre dressing



15 days followup



2 moths followup

**Case 2:-**

A 32 years old male brought to casualty dept of Dhiraj Hospital with h/o RTA and c/o pain and bleeding over right leg. On examination & x ray patient had an open grade 3 B right mid shaft tibia fibula fracture. Wound was 3\*2 cm in size. Treated with external fixation and debridement immediately and then alternate dressing with honey for 1 month and then every 4<sup>th</sup> day dressing for 1 month. At the 3 months followup wound is very good healing.

**Pre dressing****3 months followup****Conclusion:-**

There is a large body of evidence to support the use of honey as a wound dressing for a wide range of types of wound. Its antibacterial activity rapidly clears infection and Protects wounds from becoming infected, thus it provides a moist healing environment Without the risk of bacterial growth occurring. It. also rapidly debrides wounds and removes malodour. Its anti-inflammatory activity reduces oedema and exudate, and Prevents or minimises hypertrophic scarring. It also stimulates the growth of granulation tissue and epithelial tissue so that healing is hastened. Furthermore, it creates a no adherent interface between the wound and the dressing so that dressings may be easily removed without pain or damage to newly re-grown tissue.

The barrier to using honey that has existed for many clinicians who have been constrained to using only licensed products has been removed now that honey is available in the form of various sterile products licensed for use in wound care. To practise evidence-based medicine, clinicians involved in wound care thus should check what evidence exists for other wound dressing products they may be considering using, and weigh this up against the evidence that exists to support the use of honey.

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