



## STUDY OF COMPARISON BETWEEN GLYCERINE MAGNESIUM SULFATE DRESSING AND HONEY DRESSING IN SUPERFICIAL SOFT TISSUE INFECTION.

### General Surgery

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### ABSTRACT

Prospective comparative study was done in term of effectiveness of honey dressing with comparison of magnesium sulfate glycerin dressing in superficial soft tissue infections. This study consisted 100 patients. Honey was used as an topical agent for cellulitis & thrombophlebitis on 50 patient in comparison with mgso4 glycerine dressing (sample size-50 patient). result were collected compare in both the group. & suppurity of honey is proved over mgso4 glycerine dressing

- Non adherence of dressing.
- Presence of wrinkles on the skin.
- Absence of signs of inflammation.
- Absence of pain while removal of dressing.
- In case of surgical intervention, earlier localization and minimum area of intervention required.
- **Study Population:** All patients who got cellulitis upper and lower limb and thrombophlebitis coming to this hospital.

**RESULT:** Cheap, efficient, easily available acceptable and with no side effect dressing makes honey as valuable superiority over other dressings.

### KEYWORDS

#### Background & objectives

There was a misbelief in ancient times that simple uncontaminated wound will be cured only after formation of pus in it, so people would apply noxious substances such as sand, dust or soil over it which would lead to formation of pus followed by burst and healing.

People in ancient times were known to use liquids with high concentration of sugars such as honey to decrease suppuration of wound and were suturing open wounds with natural things such as hairs and cotton clothes.

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Suppuration prevents inflammation -it was a standard surgical dictum from Hippocratic times until just 100 years ago.

In this modern antimicrobial era, superficial soft tissue infections still remains a therapeutic challenge because invading microorganisms are particularly viscous and that the body is unable to mount an adequate defense.

Honey, the most ancient wound dressing has been rediscovered in recent times.

High sugar concentration (honey) decreased wound suppuration - known since ancient times.

It has been well established that honey has both the roles,

1. Antibacterial and anti-inflammatory properties
2. Stimulate growth of new epithelial cells, fibroblast and capillaries

which may be secondary to anti-inflammatory property.

Inflammation of swelling, de-sloughing of necrotic tissue without debridement, unpleasant odour ceases, local reaction like other agents (mgso4), pain decreased are observed.

Honey works differently from antibiotics which attack the bacterial cell wall and or inhibit intracellular metabolic pathways.

Honey has low pH, about 3.7 which creates an unfavorable

environment for bacterial growth.

The application of magnesium sulphate (Epsom salt) alone may cause skin irritation so any of the skin softeners also should apply with this preferably glycerin used; glycerin is a thick liquid that has variety of uses.

It is capable of softening skin and it will help to nourish the skin tissues. The combination of magnesium sulphate and glycerin application on a limb edema with help of roller bandage and followed by limb elevation may help in reduction of swelling and nourishment of skin as evidenced by studies.

Studies suggest that the glycerin magnesium sulfate of high concentration to hypertonic substances, penetration, with the convergence effect, edema tissue surface wet packing can alleviate edema, and magnesium ions through the expansion of small vascular smooth muscle and improve microcirculation, reduce local inflammation and swelling of purpose.

Superficial soft tissue infections are spreading non suppurative infections of subcutaneous tissue and superficial fascia which is typical of organisms such as beta hemolytic streptococcus, staphylococcus aureus and clostridium perfringens.

Honey is used as medicine and has a broad-spectrum antibacterial activity.

The wound bed to create an outflow of lymph as occurs with negative pressure wound therapy.

The aim of this study is to use honey in superficial soft tissue infections as a topical agent and to control spreading of infection so that early localization of infection or resolution of infection can be achieved by its properties as,

1. High osmolality
2. Antibacterial and anti-inflammatory properties.

This cost effective, technically simple and patient efficient dressing with no side effects deserve to be well known and integrated in the set of common antiseptics.

### MATERIALS AND METHOD

This study was carried at our hospital(D.Y PATIL HOSPITAL ,KOLHAPUR) between September 2016 to October 2018.

### Research Question:

Does Honey used as a topical agent increases rate of wound healing favours early localization, decreases need of Antibiotics and is cost-effective over Glycerin-magsulf dressings?

Patients were admitted and were randomly allocated to both groups A and B. In this study all other variables were kept constant except topical agent used. In Group A honey and in Group B Glycerin magsulf was used.

This study consisted 100 patients. They were divided into two groups. Group A included patients in which honey was used as topical agent and Group B included patients in which glycerin magsulf was used as topical agent.

Patient's detailed history about mode of onset, symptoms was taken

### Monitoring :-

The patients were examined daily for the systemic signs. If the indications of surgical intervention were present patients were immediately subjected to it.

After debridement, magsulf/ honey was not used routinely.

### DISCUSSION

Statistical Analysis:

Both the groups were compared for outcome analysis in following respects:

1. Duration of healing.
2. Dressings required.
3. Hospital Stay.
4. Antibiotic Usage.
5. Need of debridement.
6. Mode of Onset
7. Site of involvement
8. Total Body Surface Area involved.

Comparison of the groups carried out using tests of comparison like Chi- square test. P-value was then computed to test the significance. Honey as a topical agent was compared with standard practice of using Glycerin Magsulf dressing in management of cellulitis and thrombophlebitis.

**Table No.1 Comparable Baseline Features For Continuous Variables Of Two Groups**

SR.NO	Comparable feature	Group'A'mean	Group'B'mean	P value
1	Age (yrs)	36.37	37.07	0.79
2	Site 1. Upper Limb 2. Lower Limb	14 36	18 32	0.7634
3	Hemoglobin Ingram (%)	9.6	9.35	
4	Sugar (mg %)	86.5	88.3	
5	Mean total leukocyte count	7600	7800	

**Table No.2 Comparable Baseline Features For Categorical Variables**

Comparable Feature	Chi Square	P Value
Mode of onset	1.49	0.85
Area of involvement	9.1	0.0105

### 1. Total number of dressings:

There is a significant decrease in total number of dressings and frequency of change of dressing when honey dressing was used in treatment of cellulitis and thrombophlebitis.

Honey has effective Antibacterial, debriding and anti inflammatory properties and it acts as stimulant for growth of new blood capillaries, fibroblasts and epithelial cells.

Decrease in total number of dressing makes this method cheaper,

acceptable to patient, helps in early healing and significant decrease in need of debridement.

### 2. Duration Of Resolution And Wound Healing:

In the present study it was observed that subjects in Group 'A' has significant reduction in duration of resolution and wound healing.

Honey dressing forms a uniform surface preventing exudation keeping moist environment and acts as hygroscopic agent under which wound heal. The antibacterial activity of honey was achieved mainly by the high concentrations. This suggests that most beneficial use of honey in treatment of bacterial infections is when it can be applied directly to the bacteria without much dilution by body fluids or other factors as in bacterial skin diseases, septic wounds and eye infections. Rapidly, the easy removal of honey dressing and decrease in frequency of dressings causes minimal disturbance in local process of healing leading to early healing.

In cellulitis and the thrombophlebitis, most important is the early localization and resolution.

Honey by virtue of its hygroscopic, antibacterial properties helps to cure, decrease edema and early localization.

The nonadherence of honey dressing over the wound is because of moist surface it provides at the wound site. Moreover, presence of high percentage of sugar solutions acts as a hyperosmolar medium.

Winit Phuapradit<sup>29</sup> in his study of topical application of honey in treatment of abdominal wound disruption found significant acceleration of wound healing and none of the patients needed resuturing.

Out of 15 patients he studied average wound healing was 7 to 14 days (mean hospital stay 4.5 days). None of the patients required resuturing. Ndayisaba et al<sup>32</sup> in their study of treatment of wounds with honey. Studied 40 patients with wounds of various origins, honey provided healing in 88% of cases.

### 3. Hospital Stay:

There is significant decrease in the hospital stay. The average hospital stay in honey dressing was 6.3 days where as in magsulf dressing it was 8.33 days. Significance can be denoted by chi square and P value (P=0.0179).

### 4. Antibiotic usage:

There is significant decrease in Intravenous / oral antibiotic usage in group A (P=0.00089).

### 5. Need of debridement:

Honey dressing definitely reduces need of debridement by virtue of its hygroscopic and bactericidal action and is evident from the P value (P=0.008956).

### 6. Cost analysis:

This is a very important comparative feature, which signifies the overall efficacy of honey dressing over magsulf dressing in treatment of superficial soft tissue infections.

Natural Honey available free of cost in rural areas. While 1 KG. MAGNESIUM SULPHATE POWDER costs RS. 350 and 1 KG. GLYCERINE costs RS. 400.

Thus there is marked difference in the cost of dressing itself.

Then another feature, as already discussed, like decrease in total number of dressings, hospital stay is very evident. Similarly, debridement and intravenous antibiotic also increase the cost of treatment.

### SUMMARY

Study of 100 cases of superficial soft tissue infections (cellulitis and thrombophlebitis) was carried out during the academic year September 2016 to October 2018 at our hospital; after considering inclusion and exclusion criteria. 50 cases were allocated in Group A and 50 cases in Group B.

Patients in study Group A were dressed with honey dressing while

those in study Group B were dressed with glycerin magsulf dressing.

Following is the summary of results:-

- The incidence of Cellulitis was found to be maximum in age group 25- 50 years in both groups.
- Males predominated in both groups
- Blunt trauma, puncture wound and intravenous line accounted for most of the cases.
- Most of the cases of Cellulitis were common on lower extremity while in thrombophlebitis it was common on upper extremity.
- Duration of healing in patients treated with honey was significantly less than groupB
- The total number of dressing required till complete healing was significantly less in group A than in groupB
- The requirement of intravenous antibiotics or oral antibiotics decreased significantly in group A than in groupB
- The need for debridement despite of increase area involvement was significantly less in group A than in groupB
- The duration of hospital stay was decreased in patients treated with honey.
- Honey dressing is easily available, cheap and acceptable to the patients.
- There is no pain while removal of dressing and easy to apply.
- There is significant decrease in odour / foul smelling from the dressing after honeydressing
- Cost of the treatment in group A was significantly decreased as compared to groupB

Cheap, efficient, easily available acceptable and with no side effect dressing makes honey as valuable superiority over other dressings.

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