

**Effect Of Madha , Ghruta And Haridra On Non-Healing Wounds****Dr.Bhauasaheb Patange**

HOD Shalyatantra

Department Ayurved Mahavidyalaya ,Pusad

**Abstract:**

Management of wound healing is a major problem now a days .many treatment and therapy are used some have effect some have complication .In many patients wound heals but complications such as scar formation occurs.In this type of wound management we used only ayurvedic herbal medicine for wound healing these medicines are easily available ,also easy methods to apply .Madha ghruta and Haridra is a herbal formulation .The aim of this study is to verify the wound healing without any complications.all these ingredients having anti inflammatory, healing properties .Haridra. Wound healing properties of honey ,ghruta and Haridra is mentioned in ayurveda.it reduces inflammation debride the necrotic tissuereduces oedema and pramotes angiogenesis ,granulation,and epithelisation .

Wound may be described as loss or breaking of cellular structure or loss of functional continuity of living tissu, stirred and triturated to get homogeneous mixture .This mixture cooled and stored in a bottle and has been used for topical application to wound.

Acharya Sushruta described various drug for the treatment of Varna .Out of these drugs only Ghreet Madha and Haridra powder are selected for this study.

**Aim:** To compare the effect of Ghreet Madha and Haridra in the treatment of chronic non-healing wounds.

**Materials and Methods:**The sample followed during each dressing are as follows.The dressing was opened the wound was derided,cleaned .the wound was completely dried off.then ghruta madha and Haridra dressing done.

Day	Frequency of dressing
1 To 20	2 Times daily
20 To 40	Once in a day
40 To 60	Alternate day

Total 60 patients of wounds with more than 8 weeks duration were enrolled and alternatively allocated to Group I (topical application of Ghreet Madha (Honey)) local application, Group II (Haridra powder local application and Group III Local application of ghruta madha and Haridra local application used for deessing

**Background:** In Sushruta Samhita, Sushruta described details description of Varna . Vrana can be classified into two types 1)Shuddha Vrana 2)Dushta Vrana

**Statistics**

Wound size was measured and recorded at weekly intervals. Wound biopsy was repeated after 4 weeks for assessment of angiogenesis and deoxyribonucleic acid (DNA) analysis. Is done

**Results:**

Combination of Ghruta ,madha and Haridra showed improvement in terms of

- 1) Healing of the wound
- 2) stoppage of oozing and discharge
- 3) closing of the wound from the borders.this helped in wound healing and border of wound joined.After 90% of wound healing patient was discharged.The size of the wound reduced almost negligible.their was no oozing the depth of the wound had filled completely the colour of the wound become almost colour of skin.

**Qualities of Ghruta:** It has Vrana Shodhan

Vrana Ropan properties

It softens the edges of everted .It has also Rakshoghna .

**Madha:** Madha has antibacterial activity.

shodhan properties

wound healing (ropan) properties,

**Haridra:**Haridra better known for its skin tone.i.e

Varnya.but when used as local application Haridra posses shodhan.,varna ropan,another and Lekhanproperties.it also .in shudha varna.

After 8 weeks of treatment, 50% wound healing was observed in 43.80% patients of Group I, 18.20% patients of Group II, and 70.00% patients of Group III. Microscopic angiogenesis grading system scores and DNA concentration showed highly significant effect of combined use of three drugs when compared before and after results of treatment ( $P < 0.001$ ).

**Introduction:**

**W**ound is a discontinuity or break in the surface epithelium. it is simple when skin is involved and becomes complex when it involves underlying nerves, vessels and tendons. Contusion, Abrasion, Haematoma are the type of closed wound. and Incised, Lacerated, Penetrating, and Crushed are the types of open wound. General principal regarding the management of the wound are Observation, monitoring temperature, treatment of the wound in the form of cleaning, dressing etc.

It has been a major problem since the early stage of medical science. Chronic nonhealing wounds present serious complications such as Infection, Ugly scar, Keloid formation, pigmentation etc for patients, family, and clinicians. Most are associated with underlying disorders such as diabetes, leprosy, and peripheral vascular diseases. The development of pharmacological agents (antibiotics, vasodilators, antioxidant, and Vitamins) has enhanced the healing of acute as well as chronic wounds. Wound infection has been one of the major complications in the process of wound. Ayurveda, the Indian traditional system of medicine, mentions the values of ayurvedic medicine namely Madha, ghruta and Haridra to treat the wound. all the above drugs having antibacterial anti-inflammatory and wound healing properties and thus these drugs helps in wound healing without any complications.

**Materials and Methods :**

Sixty patients

**Inclusion criteria**

Patients aged between 18 to 60 years of age

Sex both Male and female

● Patients with non-healing chronic wounds of more than 8 weeks duration were included.

**Exclusion criteria**

• Patients having malignant wounds, osteomyelitis, Aids patients, Tuberculosis,

**Laboratory investigations**

Haemogram, TLC DLC, ESR

BLOOD SUGAR, Sr Creatinine

Blood Urea

Urine routine And Microscopic

**Grouping and treatment protocols**

Among 60 patients only 47 patients were completed the treatment and they were alternately allocated into three groups:

Group I: Wounds were treated with topical use *Ghrut and Madha* only 16 patient

Group II: *Haridra* powder only 11 patient

Group III: *Ghrut Madha and Haridra* used only 20 patient

Dressings were changed daily in patients of all three groups. Duration of treatment considered till complete healing of wound and 4<sup>th</sup> and 8<sup>th</sup> week is only for assessment of 50% healing because study sample was small.

**Assessment criteria****Wound area**

Size of the wound was recorded by tracing the perimeter of the wound on transparent plastic sheets at every 2 weeks. Wound size (percentage area of wound healed/total area of wound × 100) was assessed.

**Microscopic angiogenesis grading system score**

Biopsies were performed before initiating the treatment and after 4 weeks of treatment to assess angiogenesis. These were analyzed using the microscopic angiogenesis parameters of endothelial cell regeneration: Vasoproliferation, endothelial cell hyperplasia and endothelial cytology. A numerical grade was given to each variable and a simple equation was used to calculate the overall index of endothelial regeneration - the microscopic angiogenesis grading system (MAGS) score.

Formula used to calculate the MAGS score:

$$\text{MAGS} = \text{KaN} + \text{KbE} + \text{KcX}$$

(N = Number of capillaries per high power field, Ka = 1, E = Number of endothelial cells lining the cross-section of a capillary, Kb = 3, X = Endothelial cell cytology on a scale of 0-5, Kc = 6, Ka, Kb, and Kc are constants with fixed values of 1, 3, and 6, respectively). Endothelial cell cytology scale:

0 = Normal cell: Thin, flat, well-differentiated nucleus;

1 = Plump, clear nucleus;

2 = Plump, clear nucleus plus prominent nucleolus;

3 = Large hyperchromatic nucleus;



4 = Irregular endothelial cell that cannot be classified as containing mitotic or hyperchromatic nuclei;  
5 = Mitotic figure.

**Deoxyribonucleic acid analysis**

DNA content estimation was done in the sample of wound tissue by phenol-chloroform method [Chart 1. Tissue was kept in ribonucleic acid later solution at -70°C temperature for DNA assessment. DNA assessment was done twice that is before treatment and after 4 weeks of scheduled treatment.

**Statistical analysis**

Statistical analysis was done using the ANOVA test to compare MAGS score in all groups. The distribution of DNA variable did not follow the normal distribution; therefore, nonparametric Kruskal-Wallis test was used to find out the significant difference at mean level in various study groups.

**Observations**

All three groups were considered in terms of patients characteristics (means characters related to wound like site of the wound, type of wound, duration of wound, etc.). Wound duration ranged from 1.5 to 3 months in 12 patients, 3 to 6 months in 9 patients, 6 to 12 months in 10 patients, 12 to 36 months in 10 patients, 36 months and above in 6 patients. Mean duration in Group I was 61.56 ± 189.05 (range 6-77) weeks, 14.82 ± 19.18 (range 6-72) weeks Group II, 29.85 ± 79.32 (range 6-36) weeks in Group III.

The ulcer was on lower limb in 93.61% of patients. When the data for the lower limb was analyzed for the exact location of the wound, it was found that the plantar aspects of feet were the most common sites. The plantar aspect of the foot accounted for 29.9% of ulcers among 47 cases. Diabetes (42.55%) was the most common underlying cause of the nonhealing ulcers, followed by leprotic (24.4%), venous ulcer (21.28%), and pressure ulcer (12.77%) [Table 1]. The patients had previously used other topical preparations, including antibiotic ointments and antiseptic creams for varying lengths of time. Those with leprosy had received antileprotic treatment, which resulted in minimal improvement in healing.

Table 1: Etiology of non-healing wounds

Etiology	Number of patients		
	Group I (n=16)	Group II (n=11)	Group III (n=20)
Diabetes	5	3	12
Leprosy	7	2	2
Venous ulcer	0	6	4
Decubitus	4	0	2

**Results**

More than 50% healing at 12 weeks was observed in 75% of cases in Group I, 54% in Group II and 90% in Group III with P = 0.082, which shows statistical insignificance of healing in Group III. Beneficial effects of therapy were obvious from 4<sup>th</sup> week onwards. Among these patients pus and discharge decreased and granulation tissue began to appear by 2<sup>nd</sup> week, only one patient of Group III showed hypergranulation tissue formation [Table 2].

Duration	Number (%)			P
	Group I (n=16)	Group II (n=11)	Group III (n=20)	
4 weeks	3 (18)	0 (0)	5 (25)	0.20
8 weeks	7 (43)	2 (18)	14 (70)	0.02
12 weeks	12 (75)	6 (54)	18 (90)	0.082

Table 2: Evidence of >50% wound healing during treatment in three groups

Those wounds that achieved 50% healing at the end of 8 weeks were, 43% in Group I, 18% in Group II, and 70% in Group III.

Increased angiogenesis was evident after four weeks in all groups when histopathological assessment was undertaken to identify MAGS scores [Figure 1] and [Figure 2]. Statistically significant difference was observed in MAGS scores among all groups and P = 0.02 after treatment [Table 3].

Figure 1: Microscopic angiogenesis grading system score in wound tissue before treatment

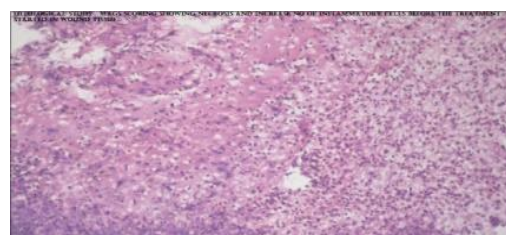


Figure 2: Microscopic angiogenesis grading system score in wound tissue after 4 week of treatment

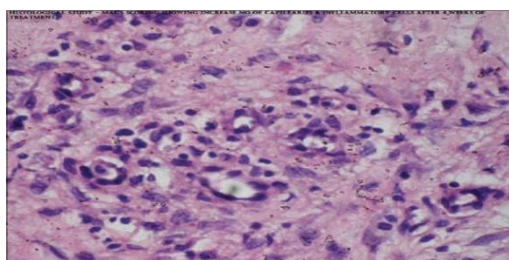


Table 3. Mean MAGS scores achieved following treatment within three groups

Duration value	Mean MAGS score			P
	Group I	Group II	Group III	
Baseline±SD (range)	30.12±12.87 (23-36)	24.64±7.14 (19-29)	31.6±11.6 (26-32)	0.26
4 weeks±SD (range)	39.56±13.91 (32-46)	29.91±8.21 (24-35)	43.75±12.8 (37-49)	0.02

MAGS: Microscopic angiogenesis grading system

Deoxyribonucleic acid concentration (ng/μl) in wound tissue at the interval of four weeks showed statistically significant difference in all three groups [Figure 3] and [Figure 4]. The significant difference among the mean DNA was observed after treatment (P = 0.023). Thereafter, Mann-Whitney U-test was used to find the pair wise difference in mean [Table 4]. [Figure 5] shows effect of therapy before and after treatment in some of the patients.

Table 4: DNA concentration achieved within three groups

Duration	Mean DNA concentration			P
	Group I	Group II	Group III	
Baseline±SD (range)	82.2±49.67	68.11±55.06	81.85±52.08	0.58
4 weeks±SD (range)	161.93±70.15	106.55±76.92	205.29±115.78	0.023

SD: Standard deviation, DNA: Deoxyribonucleic acid

Histopathological examination and DNA assessment of 47 cases showed that combined use of ghruta madha and Haridra showed a significant effect in Group III.

**Discussion**

It was already said that non-healing and chronic wounds are mostly concerned with a diabetic condition. In the case of diabetic ulcer the effect of ghrut madha and Haridra (C.longa), there is a

synergetic effect of all these drugs, while when they are used alone is not very significant.

This study showed that combined use of ghruta madha and Haridra can be a better option for chronic non healing wounds. MAGS scores revealed that it promoted vascular proliferation and DNA concentration in the regenerated tissues.

Rhizome of Haridra is brownish, yellow in color and powder of Haridra is used systemically for wound healing. It possess antibacterial, antifungal and anti-inflammatory activities. It is useful in inflammations, ulcers, wounds, leprosy, skin diseases and allergic conditions. Rhizomes of it contain curumin (diferuloylmethane), turmeric oil or turmerol and 1,7-bis, 6-heptadiene-3, 5-dione, proteins, fat, Vitamin A, B, and C. Curcumin has potent anti-inflammatory and analgesic activities. The antiinflammatory property and the presence of Vitamin A and proteins in turmeric result in the early synthesis of collagen fibers by mimicking fibroblastic activity.

Antimicrobial effects of Haridra have been demonstrated against Streptococcusmutans and Streptococcus faecalis. Similarly, curcumin is an important constituent of turmeric powder, has shown faster wound closure of punch wounds bre-epithelialization of the epidermis and increased migration of various cells including myofibroblasts, fibroblasts, and macrophages in the wound bed. Multiple areas within the dermis showed extensive neovascularization as well.

**Conclusion:**

In this study we used combined effect of all these three drugs .in combine effect such as ghruta having Yogavahi properties means when they used along with other drugs they enhance the effects of other drugs.

Signdha guna of ghruta helps for softening the edges of the wound.

Kashaya ,raktsatambhak,krumighna properties of madha aheals non healing wound.Also Haridra having anti inflammatory properties helps in infected wound. skin coloured the wound due to its Varna guns.

As explained earlier all these drugs having varnashodhan varnaropan when used in combination



its increased ghruta efficiency and thus all these drugs give synergistic effects in healing of wound. The topical use of *Ghruta*, *madha* and *Haridra* and in both groups were found effective in healing the chronic wound. Both drugs have proven value in the management of non-healing wounds. They have also angiogenic property and potency to increase DNA content as well. The combination of *ghruta madha* and *Haridra* is best to treat diabetic chronic wounds in a better way, both drugs showed a remarkable

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