

## Role of Vranadhoopan in The Management of Chronic Non-Healing Ulcers Under The Influence of Tab Gandhak Rasayan

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### ABSTRACT

The Vrana (Ulcer) is a universal problem in India, particularly in rural areas where there is very big problem of traumatic wounds due to the laborious job in agriculture fields. The wounds become infected due to unhygienic conditions and low immunity. Also, Due to the poor Economic condition, maximum population is unable to purchase costly antibiotics, anti-inflammatory drugs. So we decided to find out treatment for ulcer which could be within reach of poor patients. Vranadhoopan simply means fumigation of wounds in modified Dhoopanyantra.

**Keywords:** Vrana, Ulcer, Wounds, Dhoopan, Rasayana, Dhoopan Yantra.

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### I. INTRODUCTION

Wounds, ulcers and their management are fundamental to the practice of surgery, as the surgeon has to deal with the wounds, every now and then. Maharshi Sushrut, the father of surgery also described Vrana very neatly. Vrana implies damage to the body parts leading to discoloration and deformity. Wound is defined as breach in the continuity of skin due to forceful assault. Such wounds are clean initially but get infected gradually leading to ulcer formation, if proper care is not taken. Normal ulcer heals easily with minimal and proper care and doesn't require any special treatment, but if some factors like malnutrition, long standing illness, metabolic disorders like diabetes mellitus, Chemo therapy, persistent use of steroid etc. work; the ulcer-healing is retarded and special measures are taken into consideration. The ancient eraworkers of Ayurveda also dealt with such factors which made the ulcer healing a real problem, this fact is supported by the quotations of Sushruta. So they described 60 measures to treat such ulcers (Shashti Upakrama). One of such procedure is "Vranadhoopan", which simply means "fumigation of ulcers with fumes produced by heating medicinal plants in Dhoopan Tantra."

#### Indications of Vranadhoopan are:

- 1) The Vranas with severe Pains and discharge should be exposed to dhoopan produced with dhoopandavyas (medicines for wound fumigation). Though many dhoopan medicines have been described in ancient texts, we selected

Guggula, Vacha, Sarshapa and Nimba Patra for this study as these are easily available everywhere in India and are within the approach of rich as well as poor.

If this local therapy is accompanied with oral therapy that will promote quick development of healthy tissue, will definitely play an important role in ulcer healing. So we studied role of Tab Gandhak Rasayan on ulcer healing along with Vranadhoopan therapy.

### II. AIMS AND OBJECTIVES

- i) To find out some useful therapeutic measures for the management of ulcer which will be cost effective as well as safe. (having no side effects).
- ii) To find out easy treatment of chronic non healing ulcers.
- iii) To bypass hazardous effects like progress of ulcers leading to damage of tissues which may prove fatal if amputation of affected part is not carried out, through Ayurvedic drugs and methods.
- iv) To find out whether Vranadhoopan therapy for healing of chronic ulcer is better than modern methods of ulcer treatments.

### III. METHODS AND MATERIALS

- 1) **Design of clinical study:**
  - a. Prospective open random comparative study.
- 2) **Consent :** Informed written consent of patients as included in the study was taken.

- 3) Patients having chronic non healing ulcers were selected from OPD and IPD of Shalya Tantra Dept. of Vidarbha Ayurved College and GNT Hospital, Amravati.
- 4) 80 Patients were selected for the study and were divided in four groups, each including 20 patients:  
Group I: Treated with Vranadhoopan only.  
Group II: Treated with tab Gandhak Rasayan only  
Group III: Treated with Vranadhoopan and tab. Gandhak Rasayan  
Group IV: Treated with Modern methods.
- 5) All the patients were advised to do necessary investigations.

#### Inclusion criteria:

- i) Chronic non-healing ulcer of both the sexes within the age group of 21 years to 60 years.
- ii) Varicose ulcer / diabetic ulcer / Tuberculous ulcer / Eczematous ulcers/ Post traumatic Ulcers

#### Exclusion criteria:

- i) Acute injuries, wounds, Accidental wounds.
- ii) Presence of foreign bodies like Haematoma etc.

#### Treatment schedule

- i) Vrandhoopan: following drugs were selected for Vrandhoopan
  - a) Guggula : (commiferamukul)
  - b) Vacha : (Acoras calamus)
  - c) NimbaPatra : (Dried or fresh leaves of Azadiricta indica)
  - d) Sarshapa (Brassica juncea)

All these drugs were kept in modified Dhoopan yantra and fumes (dhoop) were obtained by heating them. The ulcer (Vrana) was exposed to these fumes for 15 to 30 min. once or twice a day, depending upon the size, discharge and pains. Gandhak Rasayana Vati was given orally to the patients in the doses of 2 tab. thrice a day. Each tab was of 125 mg.

#### Assessment Criteria:

The improvement in the patients was assessed mainly on the basis of relief in the signs and symptoms of the chronic ulcers. For this purpose, the main signs and symptoms were given a score according to their severity.

#### The detail of the scores adopted for the main signs and symptoms in this study are as follows:

Signs and symptoms noted:

- a) Pain      b) size      c) Skin around ulcer
- d) Floor (slough)      e) margins
- f) discharge      g) tenderness

Symptomatic relief was assessed as per following gradation.

- a) Pain-  
Mild+ (Patient can bear pain without analgesic)  
Moderate++ (Patient responds to analgesic)  
Severe+++ (does not respond to analgesic)
- b) Size- 1 to 5 cm (+)  
5 to 10 cm (++)  
More than 10 cm (+++)
- c) Skin around ulcers:  
Brown (+)  
Purple, Bluish (++)  
Blackish, scale formation (+++)
- d) Floor (presence of sloughs)  
Mild (+) thin layer separated easily  
Moderate (++) patches of sloughs  
Severe (+++) complete floor covered with sloughs and pus.
- e) Margins: Raised Slightly (+)  
Raised (++)  
Edematous and Raised (+++)
- f) Discharge: Mild (+) watery  
Moderate (++) sero-sanguineous  
Severe (+++) pus discharge with foul smelling.
- g) Tenderness: Pain on deep palpation (+)  
Pain on superficial palpitation (++)  
Doesn't allow to touch at all (+++)

Severity of signs and symptoms in chronic non healing ulcer patients under study:

Sr. No.	Sign & Symptoms	+				++				+++			
		I	II	III	IV	I	II	III	IV	I	II	III	IV
1	Pain	9	10	8	7	6	5	7	6	5	5	5	7
2	Size	12	8	9	8	5	9	7	8	3	3	4	4
3	skin around ulcer	11	10	12	9	4	6	5	7	5	4	3	4
4	Floor (slough)	9	8	11	10	6	8	5	4	5	4	4	6
5	Margins	12	9	10	11	4	6	6	4	4	5	4	5
6	Discharge	9	11	9	10	7	5	6	5	4	4	5	5
7	Tenderness	5	4	5	6	7	6	8	6	8	10	7	8

#### IV. STATISTICAL ANALYSIS

For comparison of the signs and symptoms such as pain, inflammation, margins, discharge, sloughs, tenderness; it was not possible to apply any statistical test, so we have calculated the percentage relief – in that particular symptoms or sign after fixed interval of time – and from that the significant group could be judged.

Pair of null hypothesis and alternative hypothesis for both groups is –

- H<sub>0</sub> - Treatment is not significant  
H<sub>1</sub> - Treatment is significant

If significance value associated with each calculated t is less than highest obtainable table value of 0.05 i.e. 2-04;  $H_0$  is accepted and vice versa.

The size of ulcer is measured in terms of mm or cm. hence it is measureable data. Hence for comparing significance of wound, contracture rate, between groups, we applied paired t test of significance. All pairs are tested at 0.05 p level degrees of freedom were

[Df =  $n_1 + n_2 - 2 = 20 + (20 - 2) = 38$ ].

For that, we measured healing rate per day of each and every patient.

#### Healing rate per day with vrandhoopan.

Sr. No.	Healing Rate (mm/day) $X_1$	Now calculating for average healing rate ( $X_1$ )
1)	2.29	
2)	1.25	$24.36 \div 20 = 1.22$
3)	1.00	
4)	1.20	
5)	1.35	
6)	1.63	
7)	1.56	
8)	1.10	
9)	1.41	
10)	1.03	
11)	1.10	
12)	1.10	
13)	1.13	
14)	1.13	
15)	1.13	
16)	1.10	
17)	1.10	
18)	1.12	
19)	1.15	
20)	1.13	

After calculating average healing rate per day of every group:

Sr. No.	Group No.	Average Healing Rate (MM / Day)
1)	1	1.22
2)	2	0.90
3)	3	1.30
4)	4	1.00

#### Total effect of therapy was assessed as follows :

- 1) Curved : 100% relief
- 2) Markedly improved : more than 50% relief
- 3) Improved : 25 to 50% relief
- 4) Unchanged : below 25% relief

#### Observation and Result

- i) Maximum no of patients were from age group 31-40 years (19) and minimum were from group 61 years and above (9)
- ii) Out of 80 patients 25% were farmers while 10% were servicemen.
- iii) Most patients 37 (46.25%) had ulcers of size less than 5 cm ; 29 patients had ulcers of size

between 5 & 10 cm only, 14 (17.50%) patients had ulcers greater than 10 CMS.

It is observed that day wise improvement of ulcers was better with oral administration of Tab Gandhak Rasayana along with Vrandhoopan locally than only vrandhoopan therapy in respects of pain, healing of floors, peripheral oedema; though the reduction in size was just rapid than group I.

#### IV. DISCUSSION

Vrandhoopan is one of the procedures described for ulcer management. Vrandhoopan simply means fumigation of wounds and ulcers with the aid of fumes produced by heating herbs meant for dhoopan purpose. Dhoopan is a very nice procedure described in our ancient texts for refreshing air, repelling mosquitoes, flies, poisonous insects, rats. Here we studied role of Vrandhoopan in the management of chronic non healing ulcers. Though several dravyas have been mentioned in the context of vrandhoopan, we selected only 4 dravyas. These drugs are very easily available in villages and in cities of India at very low cost. The dhoopan Yantra was also modified to make it handy and good looking.

We conducted sensitivity study of Vrandhoopan. For that, colonies of pure strain of staphylococcus aureus were prepared in two petri dishes. One petri dish was exposed to fumes in the same way as we applied fumes to ulcer for 30 min (I sample). At the same time, the other petri dish was also exposed to environment in nearby room for the same time period (sample-II). Then both the petri dishes were incubated in incubator. It was found that, there was mild growth (visible by naked eyes) in sample II after 12 hours; but in sample I, there was no visible growth. After 24 hrs. though there was remarkable growth in sample I, it was very less in comparison with sample 2. Hence dhoopan was found effective for 12 hours. Sushruta also exclaimed that Dhoopan should be done 'Dwiranha' that means 'twice a day-12 hourly'!

Hence Dhoop was applied initially twice a day, But after Separation of sloughs, and with sufficient healing, granulation tissue in ulcer, we reduced the frequency gradually up to twice a week.

#### As per Ayurveda, The properties of Dhoopan Dravyas are :

Sr. No.	Dravya	Guna	Virya	VranaSambandhi karma
1	Guggulu	Laghu, Tikshna, Sookshma	Ushna	Krimighna
2	Vacha	Laghu, Tikshna	Ushna	Rujapaha, Krimighna
3	RaktaSarshapa	Laghu, Tikshna	Ushna	Shulaghnu, VranaRopan
4	Nimba	Laghu, Tikshna	Ushna	VranaRopan

The dhoopan is advised to be provided to Vrana, dressing material (Pads & Bandage) and clothing of the patients. Hence it is expected that Dhoopan dravyas work by sparsh (nipata). Hence in the above table, only properties of dravyas are only considered. As most of these dravyas are ushna-tikshna and light. They possess Vayu-Agni Mahabhoota predominance. Hence these dravyas produce fumes and show tendency of going upwards. The separation of sloughs was very easy due to vishadha and sookshma gunas of these Mahabhootas. There was reduction in pain due to ushnaguna of dhoopan dravya and ushnata of dhoopan itself.

The reduction in strava (discharge) was remarkable due to vishada, shoshan properties. The foul smell (durgandha) was also reduced, as slough and bad discharge in ulcer floor were removed out.

Heating of dhoopan dravyas causes evaporation of volatile oils, resins and gums present in them. This evaporation produces fumes, these are the active ingredients of dhoopan dravyas, which cause separation of slough, promotion of healing through not allowing bacteria to proliferate further. Also, the heat and fumes cause vasodilation, allows increase in local circulation.

Most of the constituents of Tab Gandhak Rasayan possess Katu-Tikta Rasa, Katu Vipak and Ushna Virya. Also Dravyas having Madhura Rasa-Vipaka and Sheet Virya also present. These dravyas reduce kleda and help ulcer healing.

Considering all these findings, it can be stated that the research was encouraging with Vrandhoopan therapy; confirming all the benefits quoted in ancient texts. (Sushrut Chikitsa 45)

## V. CONCLUSION

- 1) The sensitivity study of dhoopan, conducted on pure Staphylococcus Aureas strain gave positive results.
- 2) No side effects of Vrandhoopan therapy noted during this study, hence the therapy is safe.
- 3) Vrandhoopan is very effective treatment of chronic ulcers. It proved very beneficial in removing sloughs, ceasing discharges and elevating pains.
- 4) Vrandhoopan is also effective in secondary ulcers present in other systemic diseases. Those ulcers which were declared non-healing by modern surgeons also responded well.
- 5) The combination therapy with Tab. Gandhak Rasayan was slightly more beneficial.
- 6) With the use of drugs which are cheaply and very easily available in all parts of India, whole the therapy is very cost effective.

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