

A COMPARATIVE CLINICAL STUDY OF PARISHEKA WITH NYAGRODADI KASHAYA AND TRIPHALA KASHAYA IN DUSHTA VRANA W.S.R. TO CHRONIC WOUND

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ABSTRACT

The epidemiology of chronic wounds, in India one study estimated the prevalence at 4.5 per 1000 population. Acharya Sushruta has mentioned *Parisheka* one among *Shasti Upakrama* as principle of management of *Vrana*. Hence, a study is planned to evaluate and compare efficacy of *Parisheka* with *Nyagrodhadi Kwatha* and *Triphala Kwatha*. **Methods:** It is an open label clinical study, where 30 patients were selected from OPD/IPD of S.D.M Ayurveda Hospital, Udupi and were randomly grouped into two groups of 15 each. Group A was treated with *Triphala Kwatha* and Group B with *Nyagrodadi Kwatha* as *Vrana Parisheka*. The results were analyzed based on the proforma prepared for the study. **Results:** Group B showed better results on healing of *Dushta Vrana* than Group A. **Conclusion:** Effect of *Nyagrodadi Kwatha* was better compared to the effect of *Triphala Kwatha* when used as *vrana parisheka* with internal medications on healing of *Dushta vrana*. Positive results were observed on both *Shodhana* and *ropana* of *vrana*. No adverse reactions observed during the trial.

Keywords: *Dushta Vrana*, *Nyagrodadi Kwatha*, *Triphala Kwatha*, *Parisheka*, Wound Healing.

INTRODUCTION

The epidemiology of chronic wounds, in India one study estimated the prevalence at 4.5 per 1000 population¹. The *Vrana* is compared with ulcer in contemporary medicine. The scientific description of *Vrana* has been mentioned in *Sushruta Samhita* (1000 B.C.) in great detail, a textbook of ancient Indian surgery written by *Acharya Sushruta*; Father of Indian Surgery.

Even though healing of *Vrana* is a natural process of the body, the *Vrana* should be protected from *Dosha dushti* and from various microorganisms which

hamper the natural course of wound healing. *Urdhwa Shodhana* by doing *Vamana*, *Shirovirechana*. *Adho shodhana* by *Virechana*, *Basti* followed by *Langhana*, *Katu-tikta*, *kashaya ahara* then *Raktamokshana* is the main line of principles explained by Acharya Sushruta². He also has described *Shashti Upakramas*³ (sixty measures) for management of *Vrana*. Considering all the above said modalities its management can be broadly classified into two headings namely Medical as well as surgical management. Medical management includes

Apatarpana, Aalepa, Parisheka, Abhyanga, Sweda, Vimlapana, Upanaha, Pachana, Sneha, Shodhana procedures like *Abhyantara Shodhana* (Internal purification) like *Vamana, Virechana, Basti* and *Shiro-Virechana* and *Bahya Shodhana* (External purification) like *Rakta mokshana, Ropana, Parisheka, Vrana Prakshalana, Vrana Picchu, Vrana lepa* and *Vrana Basti*. The Surgical management comprises of *Chedana, Bhedana, Daarana Lekhana, Eshana, Aaharana, Vyadhana, Visravana, Seevana, Sandhana, Kshaarakarma, Agnikarma, Pratisaarana, Lomaapaharana* and *Yantra vidhi*.

Wide range of treatment modalities and various useful preparations are mentioned in Ayurveda classics. *Parisheka* is considered as one among the effective modality for management of chronic wound. The properties of the ingredients also helps in getting better results as in *Triphala kwatha*, it is *Kaphapittaghna, Meha, Kustha Vinashini, Vishamajwaranashini*⁴ and *Nyagrodadi kashaya* is *Vranya, Sangrahi, Bhagnasandhaka, Raktapittahara* and *Daha Medhohara*⁵.

The objective is to study and compare efficacy of *Parisheka* with *Nyagrodadi Kashaya* and *Triphala Kashaya* for *Vrana Parisheka* in chronic ulcer.

MATERIALS AND METHODS

The work was carried out after obtaining approval from Institutional ethical committee, Sri Dharmasthala Manjunatheshwara College Of Ayurveda, Kuthpady, Udupi, Karnataka with Ref no: SDMCAU/ACA-49/ECH-26 /2015-2016 on 23-03-2016.

DRUG CONTENT AND PROCUREMENT

Triphala Kwatha and *Nyagrodadi Gana Kwatha* was cited in Sushruta Samhita. The first one contains *Haritaki, Bibhitaki* and *Amalaki*. The second one contains *Nyagrodha, Udumbara, Asvattha, Plaksha, Madhuka, Kapitana, Arjuna, Amra, Kosamra, Coraka patra, two types of Jambu, Priyala, Madhuka, Katphala, vanjula, Kadamba, Badari, Tinduki, Shallaki, Rodhra, Savara Rodhra, Bhallataka, Palasha* and *Nadivrksha*. The *Triphala*

Kwatha was prepared in Sri Dharmasthala Manjunatheshwara Ayurveda Pharmacy, Udupi and *Nyagrodadi gana Kashaya Choorna* was prepared from Amruthanjali Ayurveda Pharmacy, Kollam, Kerala.

CLINICAL STUDY

Source of data: Patients diagnosed with chronic ulcer or *Dushta Vrana* were selected from OPD and IPD of SDM Ayurveda Hospital, Kuthpady, Udupi.

Methods of Collection of Data: 30 randomly selected patients diagnosed as *Dushta Vrana*, irrespective of gender were selected and subjected for clinical trial. Total duration of the study is 60 days with 1 week initial I.P.D. admission intervention and follow up after every 15 days till 60th day.

Design of study: This is an open label randomized clinical study with Pre-test and post-test design. 30 patients suffering from *Dushta Vrana* were randomly grouped into Group-A & Group-B with 15 patients under each group. Patient's data & assessment findings were recorded on a specially designed proforma. The patients were assessed based on subjective & objective criteria before & after treatment.

Intervention: In Group A *Triphala Kwatha Parisheka* is done followed by dressing of wound and with *Jatyadi Taila*. GROUP B *Nyagrodadi Kwatha Parisheka* is done followed by sterile gauze dressing of wound with *Jatyadi Taila*. The both the groups were treated internally with Tab. *Triphala Guggulu* 450 mg, Tab. *Gandhaka Rasayana* 250 mg one thrice a day and *Asanadi kwatha* 50 ml twice a day.

Duration of treatment: 60 days

Observation period: Observation period was 2 weeks. Assessment criteria was recorded on day 1 (before treatment), day 7, day 15, Day 30, day 45 and day 60 and findings was assessed clinically and statistically.

Follow up period: First on 7th day and later on every 15th day till 60th day of treatment to record assessment criteria and observe for any other findings.

Inclusion Criteria: Patients having *Lakshanas* of *Dushtavrana* with indication for *Shodhana Kashaya* and chronicity more than 21 days of either gender and People of age group between 18-70 years.

Exclusion Criteria: Patients suffering from gangrene, features of septicemia, malignant ulcers, tubercular ulcers, leprosy ulcers, HIV, Patients with systemic disorders like renal diseases, liver diseases, nutritional deficiency and burns

ASSESSMENT CRITERIA:

Subjective parameters: Itching sensation, Burning sensation, Smell/ odour, Tenderness, Discolorations, Edema.

Objective parameters: Discharge: Gauze bandage, Size of wounds: scale in mm, Floor: Amount of granulation tissue and Pain.

Criteria for Assessment: The patient's response was assessed based upon subjective and objective criteria. The subjective parameters are *Vedana* (pain), *Daha* (Burning sensation), *Kandu* (Itching sensation) and *Gandha* (smell). The objective parameters Tenderness, *Akruti* (Size) *Srava* (Quality of Discharge), *Varna* (colour), Floor and Granulation Tissue. These criteria were recorded on the basis of score adopted with grading 0, 1, 2 and 3. After completion of treatment assessment of ulcer was done on the basis of grading 0, 1, 2 and 3 respectively.

INVESTIGATIONS- Hematological: Hemoglobin Percentage, total leukocyte count, differential count, erythrocyte sedimentation rate, random blood sugar, HIV. Urine: albumin, sugar. Microscopic: wound swab culture and sensitivity test, X-ray of wound site and Histopathological examination (If found necessary).

ASSESSMENT & FOLLOW UP DATA

Grading of parameters for assessment of *Dushtavrana*

RESULTS

The present study revealed that incidence of *Dushta Vrana* is more common in age group between 61-70 years with 33.3%. Maximum patients were male with 90% .96.7 % of patients were Hindus. Maximum number of patients was businessman and

farmer with 20% each. Socio-economic status of patient revealed that maximum number of patients belongs to middle class with 46.7%. All of *Dushta Vrana* were located in lower limbs 100%. Maximum number of patient 66.7% had varicose vein in lower limbs and 43.3% diagnosed as *Vatakaphaja Dushta vrana*.

The detailed statistical results are mentioned in table no. 3, 4, 5 and 6. The Unpaired t-Test and Mann-Whitney U-Test between the groups is not significant statistically. It can be concluded that similar action of both *Kashaya* drugs on Group A and Group B might be the cause for not significant results between the groups before and after treatment. Clinically, following results were noticed, In GROUP A treated with *Triphala Kwatha*, marked improvement was seen in eight patients, complete healing of wound was observed in one patient. Moderate improvement in five patients and a partial improvement in one. In GROUP B treated with *Nyagrodhadi Kwatha*, marked improvement was observed in ten patients. Complete healing of a wound in three patients and moderate improvement in two patients. In comparison, Group B (*Nyagrodhadi Kwatha*) showed better results than Group A (*Triphala Kwatha*) on *Dushta Vrana*. None of the patients in either group showed any adverse reaction to the intervention during the study.

DISCUSSION

According to Acharya Sushruta, among the 60 measures of comprehensive wound management, *Parisheka*⁶ (pouring of liquids) for reduction of *Shopha* and *Kashaya*⁷ (Cleansing Deccoction) for *Durgandhanam* (Smelling), *Kledavatam* (Sodden), *Picchila* (Slimy) wounds. The *Kashaya Parisheka* performs both the functions of *Shodhana* (cleansing) and *Ropana* (healing) in cases of *Dushta Vrana*.

The *Triphala Kwatha* contains active compounds in them such as Gallic acid, Chebulinic acid, Ellagic acid, Flavonoids, Tannins and Polyphenols (Aringin, Quercetin, Homoorientin, Isorhamnetin, Hypaconitine, and Acaciin), which are responsible

for its effective immune stimulatory and immunosuppressant property⁸. It is reported to be an effective antibacterial agent against Gram-positive and Gram-negative bacteria, antifungal agent⁹. *Triphala* extract ointment (10% w/w) was assessed for in vivo wound healing on infected rat model by rate of healing, bacterial count, biochemical analysis and expression of matrix metalloproteinase. Topical application of *Triphala* ointment on infected wound not only reduces the risk of infection but also improved the healing¹⁰. There are 4 dissertation which were carried out in our institution which conclude that, *Triphala Kwatha* was effective on *Dusta vrana* by its *Shodhana*, *Ropana*, *Sraavahara*, *Vedana* *Shamaka* and *Rasayana properties*¹¹⁻¹⁴.

The *Nyagrodadi* contains active phytochemical constituents like Glycosides, Flavonoids, Alkaloids, Acids, Gums and Tannins¹⁵. The test sample *Nyagrodadi Kwatha* did not show Antifungal activity, Antibacterial activity against *Pseudomonas aeruginosa* and *Staphylococcus aureus*, which was done on Shri Dharmasthala Manjunatheshwara Center for Research in Ayurveda and Allied Science, Udupi, Karnataka.

PROBABLE MODE OF ACTION

On the basis of above study and clinical findings the probable mode of action of *Parisheka*, *Nyagrodadi Kwatha* and *Triphala Kwatha* can be postulated as:

Effect of treatment on Pain (*Vedana*) - 9 patients out of 15 were complaining pain before treatment in Group A, while 13 patients out of 15 were complaining about pain in Group B. The Pain was not reduced significantly in group A from BT till 60th day but shown good result in improvement of pain which is statistically significant in Group B. Hence study reveals that pain might be better managed with *Nyagrodhadi gana Kashaya Parisheka*. This might be due to the action of the *Guna* (Property) having *Guru* (heavy) *Guna* it is supposed to be *Vatahara* and thus might have decreased the *Vedana*. *Rakta* is invariably the chief *Dhatu* involved in *Vrana*, with which other *Doshas* results in different types of pain. *Parisheka* as a procedure is advocated to be the best

in alleviating the *Doshas* and *Agni* which here refers to inflammation. *Nyagrodhadi gana* as such is the best in *Raktaprasadana* hence helps in reducing the pain.

Effect of treatment on Burning sensation (*Daha*):

5 patients out of 15 were complaining burning sensation before treatment in Group A, while 11 patients out of 15 were complaining about burning sensation in Group B. There was no improvement of burning sensation in Group A but there was improvement of burning sensation in Group B in 15th day and 60th day which is statistically significant. In the *Phalashruti* of *Nyagrodhadi gana* it is mentioned as *Raktapitta Pittahara* and *Dahahrit*, and many drugs possess *Tikta Kashaya Rasa* and *Sheetaveerya* which would have played role in alleviating this symptom.

Effect of treatment on Itching (*Kandu*):

9 patients out of 15 were complaining itching before treatment in Group A, while 13 patients out of 15 were complaining about itching in Group B. There was not much marked improvement in itching sensation in ulcer of Group A but marked improvement was seen on 15th, 30th and 60th day of treatment with statistically significant value. In case of *Nyagrodadi Kwatha*, which is considered to be good *Sothahara* (that which reduces swelling), due to the *Kashaya Rasa* of the drug it acts with *Peedana* (act of squeezing), *Ropana* (healing) and *Shodhana* (curative effect) property. Due to these properties, it helps in reducing itching.

Effect of treatment on Smell (*Gandha*):

13 patients out of 15 were complaining Smell from ulcer before treatment in Group A, while 13 patients out of 15 were complaining about smell from ulcer in Group B. Remarkable improvement was noticed. In group A there was improvement on malodour from BT- 7th day and BT-15th day only but there were gradual changes in malodour in Group B till 60th day.

Effect of treatment on Size: In 1 patient among 15, ulcer was completely healed after treatment in Group A, while 3 patients out of 15 were completely healed after treatment on Group B. Wound contrac-

tion was faster in Group B comparing to group A because the drugs in Group B contains Anti-oxidants, Tannins, Phytosterols and Flavonoids are main chemical constituents that are having anti-inflammatory in action, reduces microbial load and promotes the healing process by wounds by optimizing neo-angiogenesis and facilitating wound contraction..

Effect of treatment on Tenderness: The improvement in tenderness in both group A and B was not statistically significant but clinically significant.

Effect of treatment on Discharge: It was noted that there was significant improvement in reduction of discharge in Group B comparing to Group A. *Nyagrodadi kwatha* drugs are *Kashaya Rasa* (astringent taste) *Pradhana* and *Sheetaveerya* both have the property of *Srava stambhana*.

Effect of treatment on Varna: There was the change in Varna from BT-15th day of treatment in Group A and there was a marked improvement in Varna in Group from BT-60th day of treatment. *Nyagrodadi Kwatha* are considered to be *Pittaghna*, that is both by the action of *Rasa* (taste) and *Veerya* (potency) they are *Pittahara* and therefore they must decrease the *Raga* (redness), which is mainly due to *Pitta*. By virtue of its *Kashaya Pradhana Rasa*, it must have acted as *Rakta shodhaka* (blood purifier), *Pitta Shamana*, *Varnya* (imparts color) and *Twak Prasadana*.

Effect of treatment on the floor of ulcer: There was a marked improvement in floor of ulcer in both Group A and B from BT-60th day. The *Triphala Kwatha* drugs are *Laghu*, *Ruksha*, *Teekshna*, *Kashaya* and *Tikta Rasa*. *Lekhana* and *Shodhana* property might have helped in improving the quality of granulation tissue. The *Nyagrodadi Kwatha* drugs is *Rooksha* (dry) and pitta *Kaphashamaka*. Even due to this, *Shopha*, which is *Kaphaja*, gets reduced. The *Lekhana* (scraping), *Kledahara* (arresting moistening), *Chedana* and *Raktashodhaka* (blood purifier) properties of *Kashaya Rasa* might also had facilitated the pharmacological debridement of the slough

and development of granulation tissue to build up the floor of ulcer.

Inflammation is an integral part in *Vrana* to help its healing. *Parisheka* helps in controlling *Shopha* (*inflammation*) by *pacifying doshagni*. *Shodhana* of *Vrana* is accomplished by the reduction of microbial colonies by virtue of the drugs and irrigation, loosening of debris and slough and mechanical debridement. *Ropana* is thus facilitated by the healing properties of the drugs used in *Kashaya* helping the stabilization of the granulation bed, wound contraction, and promoting epithelialisation.

Triphala being a combination of 3 drugs has a multifaceted action like *Samshodhana* and *Samshamana Karma*, it is *Tridosha shamaka* as well as *Kaphapittahara* based on *Kashaya Rasa Pradhana* and it exhibits *Sangrahi*, *Ropana* (Heals up), *Sharirakleda Upayukta* (Absorbs the fluid) and *Lekhana* (Scrapes out unwanted tissues) which are most essential in healing the *Dushta vrana*.

Nyagrodhadhi gana is having a combination of dravyas which are predominant with *Kashaya*, *Tikta* and *Madhura Rasa* which acts in pacifying the vitiated *Doshas* accordance with healing of *Vrana* and reduction of *Daaha* with its *Sheeta Virya*. Based on the *Doshakarma* it acts on *Pitta* and *Rakta* along with *Varnya Karma* which in turn has an impact on reduction of healing process. Extracts of the *Nyagrodhadhi Gana* exhibited a broad spectrum antimicrobial activity, which is an important requirement of wound healing by controlling and reducing the microbial load. Tannin is supposed to be having wound healing property, which helped in wound healing. It acted as scavenger and probably helps to remove free radicals as well as inhibited further generation of free radicals.

There was a significant removal of slough in initial 4-5 days and appearance granulation tissue showing good healing effect after 7 days. Further the wound became contacted markedly.

CONCLUSION

This treatment in chronic wound is found to be cost-effective, safe, and easy to implement in general practice. So, *Nyagrodadi Kwatha* along with *Triphala Guggulu*, *Gandhaka Rasayana* and *Asanadi Kwatha* can be recommended as cost-effective and effective therapy for healing of chronic wound. Therefore, from this study we can conclude that *Nyagrodadi Kwatha* and *Triphala Kwatha* possess sufficient efficacy in *Vrana Shodhana* and *Ropana* without producing any adverse effect. The *Nyagrodadi Kwatha* was more effective when comparing with *Triphala Kwatha*.

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Table 1: Subjective Criteria Grade

GRADE	<i>Vedana</i>	<i>Daaha</i>	<i>Kandu</i>	<i>Gandha</i>
0	No pain	No burning sensation	No itching	No odour
1	Mild pain on touch	Mild occasional episodes of burning	Mild occasional episodes of itching	Faint color after opening dressing
2	Mild pain even without touch	Moderate continuous burning sensation	Moderate continuous itching	Strong odour after opening dressing
3	Continuous severe pain throughout day & night	Severe continuous burning, disturbing sleep	Severe continuous itching disturbing sleep	Strong odour even with dressing

Table 2: Objective Criteria Grade

GRADE	<i>AKRUTI</i>	TENDERNESS	<i>SRAVA</i> (QUANTITY OF DISCHARGE)	<i>VARNA</i>	FLOOR AND GRANULATION TISSUE
0	A sterile thread is placed across the ulcer in two of the widest directions & the length of the thread is measured on measuring tape in cm/mm. Area of ulcer=length × breadth × depth of the ulcer in cm/mm	No tenderness	No discharge Dry dressing	Complete epithelization tissue (scar)	Even floor, completely covered with granulation tissue
1		Tenderness on deep palpation	Small stains on gauze after 24 hours	Granulation tissue (red)	Uneven floor with patches of granulation tissue
2		Tenderness on moderate pressure	Gauze fully wet. Pad stained after 24 hours	Sloughy tissue (yellow)	Uneven floor with spots of granulation tissue
3		Tenderness on touch	Gauze and pad soaked with discharge. Need to change 2-4 times within 24hrs	Necrotic tissue (black colour)	Uneven floor, no granulation tissue, fibrous tissue, slough.

Table 3: Effect of treatment within the groups /Pair t test

	Length	breadth	Depth
	P values		
Group A			
BT-7 ST DAY	.001	.002	.024

BT-15 TH DAY	0.77	0.11	0.020
BT-30 TH DAY	0.423	0.597	0.306
BT- 45 TH DAY	0.154	0.156	0.090
BT-60 TH DAY	0.002	0.193	0.07
Group B			
BT-7 ST DAY	.001	.000	.001
BT-15 TH DAY	0.001	0.00	0.002
BT-30 TH DAY	0.04	0.11	0.240
BT- 45 TH DAY	0.002	0.54	0.006
BT-60 TH DAY	0.03	0.89	0.000

Table 4: Effect of treatment between the groups / Unpair t test

	Length	breadth	Depth
	P values		
BT-7 ST DAY	.083	.850	.227
BT-15 TH DAY	.610	.766	.091
BT-30 TH DAY	.205	.282	.335
BT- 45 TH DAY	.869	.525	.003
BT-60 TH DAY	.842	.724	.002

Table 5: within the groups WILCOXON SIGNED RANK TEST

	burning sensation	itching	Smell/ odor	tenderness	Discharge	skin discoloration/ Varna
	P values					
Group A						
BT-7 ST DAY	1.0	.414	.005	1.000	.083	.001
BT-15 TH DAY	0.317	0.56	0.014	0.317	0.046	0.008
BT-30 TH DAY	1.0	1.00	0.157	0.317	0.157	0.083
BT- 45 TH DAY	1.0	0.317	0.102	0.157	0.157	0.157
BT-60 TH DAY	1.0	0.317	0.102	0.157	0.157	0.157
Group B						
BT-7 ST DAY	.157	.059	.005	.157	.025	.000
BT-15 TH DAY	0.046	0.021	0.002	0.083	0.025	0.001
BT-30 TH DAY	1.02	0.023	0.005	0.102	0.008	0.004
BT- 45 TH DAY	0.59	0.063	0.014	0.157	0.014	0.008
BT-60 TH DAY	0.034	0.046	0.023	0.083	0.023	0.014

MANN- WHITNEY U TEST

Table 6: Effect at ulcer between the groups A & B

	Pain	Burning sensation	itching sensation	Smell	Tenderness	discharge	Varna	Floor
	P values							
BT-7 ST DAY	.035	.150	.274	1.000	.150	.417	.630	.267
BT-15 TH DAY	.277	.352	.124	.714	.559	.721	.722	.174

BT-30THDAY	.240	.273	.069	.114	.704	-.369	.141	.027
BT-45THDAY	.327	.151	.693	.886	.091	.593	1	.593
BT-60THDAY	.140	.059	.693	1.00	.237	.378	1.00	.267

Fig 1: Healing of Wound



Fig 2: Healing of wound



Fig 3: Healing of wound



Source of Support: Nil

Conflict Of Interest: None Declared

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