

Clinical evaluation of Vrana Ropana (Wound Healing) effect of ‘Panchavalkala Tail’ in Shuddha Vrana - A Pilot Study

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ABSTRACT: During the treatment of vrana the two main terms coming across are Shodhana and Ropana. In Ayurvedic texts many drugs have been described for the same. Shodhana is required for infected wounds to remove slough and debris and remove discharge. Ropana comes after shodhana in case of dushta vrana and useful in sadyo vrana when it is non- infected. Though many drugs have been described for ropana but they should be proved scientifically. Referring many Ayurvedic texts in the context of vranaropana, Nyagrodhadi gana or Panchavalkala seems to be effective. Pancha Valkala(the barks of five plants viz. Vata - Ficus bengalensis Linn., Udumbara - Ficus glomerata Roxb., Ashwattha - Ficus religiosa Linn., Parisha - Thespesia populnea Soland. ex Correa., Plaksha - Ficus lecor Buch. Ham.) has activities like vranaprakshalana, vranaropana, shothahar. This needs more and detailed clinical trials of panchavalkal. Wound healing is the basic of surgery and hence the topic is chosen.

Keywords: Panchavalkala Tail, Shuddha Varna, Vrana Ropana, Clinical Evaluation, Wound Healing

Introduction

Vrana and Shalyatantra seem to be inseparable. Vrana and process of healing is the core of shalya tantra. The art of healing is major challenge to the surgeon, which has been described so extensively in Ayurveda that yet each measure needs the scientific touch in explanation. In the context of different kinds of Vrana different kinds of management has been elaborated in Ayurvedic texts. Vrana and healing are two sides of coin, on which an expert surgeon has to play his role very sincerely.

The term vrana is derived from the verbal root ‘Vrana gatravicoornane’ which means splitting or tearing of the body tissue¹. Discontinuity of tissue is either due to pathology inside body like ‘vranashotha’ or due to extrinsic causes. Almost all the acharyas have classified vrana into two groups i.e. Nija and Agantuja depending on their causative factors. Fresh wounds in modern science and Sadyo vrana in Ayurvedic science are similar in nature. Sushruta detailed sixty types of different measures in the management of Vrana. This indicates the importance of the problem and challenges to solve it, attracts many surgical researchers to contribute their work and experience.

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remove discharge. Ropana comes after shodhana in case of dushta vrana and useful in sadyo vrana when it is non- infected. Though many drugs have been described for ropana but they should be proved scientifically. Referring many Ayurvedic texts in the context of vranaropana, Nyagrodhadi gana or Panchavalkala seems to be effective^{2, 3}. Pancha Valkala⁴ (the barks of five plants viz. Vata - Ficus bengalensis Linn., Udumbara - Ficus glomerata Roxb., Ashwattha - Ficus religiosa Linn., Parisha - Thespesia populnea Soland. ex Correa., Plaksha - Ficus lecor Buch. Ham.) has activities like vranaprakshalana⁵, vranaropana⁶, shothahar⁷. This needs more and detailed clinical trials of panchavalkal. Wound healing is the basic of surgery and hence the topic is chosen. Panchavalkala are Kashay and Sheeta properties. They are also known as Vranapaha i.e. healing of wound. Panchavalkala have antibacterial property. Til tail also having wound healing property so this preparation was effective in vranaropana.

Materials and Methods:

Materials:-

Drug: - Panchavalkala tail

No	Ingredients (Bark of following plants)	Latin name
1	Vata	<i>Ficus bengalensis linn</i>
2	Udumbara	<i>Ficus glomerata Roxb</i>
3	Ashwattha	<i>Ficus religiosa Linn</i>

No	Ingredients (Bark of following plants)	Latin name
4	Parish	<i>Thespesia populnea Soland ex correa</i>
5	Plaksha	<i>Ficus lecor Buch. Ham.</i>
6	Til tail	<i>Sesamum indicum oil</i>

Raw drugs required for preparation was **authentically identified** and formulation was prepared in our college pharmacy as per tail preparation and same used for the clinical study.

Methods:-

Type of study –

1. Clinical
2. Randomization was done by alternate method.
3. Patients were observed before, during and after the treatment.

Place of Study-

Patients attending OPD and IPD of Bharati Vidyapeeth Ayurved hospital were taken for study.

Method of collection of data:

1. Total no of patients taken for study was 40, (20 patients in each group) excluding the dropouts.
2. The sign and symptoms were recorded on the proforma designed for the study.

Inclusive criteria

1. Any age group
2. Vrana as a result of debridement, Shuddha vrana, Non-infected Diabetic wounds.
3. Contused lacerated wounds, burns and other non infected wounds.

Exclusive criteria

1. Gangrenous and infected wounds.
2. Patients suffering from systemic disease like HIV, HbSAg etc

Selected patients were divided into 2 groups.

Group A – Patients of Shuddha vrana with the application of Placentrex gel once in a day upto healing.

Group B – Patients of Shuddha vrana with the application of Panchavalkala oil once in a day upto healing.

If the wound gets infected during the course of treatment case was treated with proper systemic antibiotics and considered as “dropped out” one.

Drugs were applied once in a day. Gauze soaked in one of the drugs viz. Panchavalkala oil or placentrex was kept on complete area of wound and dressing was applied over the wound.

Assessment criteria:

Assessment was done on objective and subjective criteria before, during and after the treatment. The data collected was statically analyzed.

Subjective Criteria:

Pain – was calculated on visual analog scale and scored as 1 to 10. Then pre and post study difference was calculated by appropriate statistical method.

Itching –

- 0- No Itching
- 1- Itching some times in a day
- 2- Itching whole day but not disturbing sleep
- 3- Severe itching disturbing sleep

Objective Criteria:

Akriti (Size of wound and Wound contraction)

- Size of wound was taken by its length, breadth and depth of wound and total volume was calculated. In case of superficial wounds total surface area was calculated.

Vranatala

- 0 - Smooth, regular & with healthy granulation tissue.
- 1 - Smooth, irregular, slight discharge, less granulation tissue, needs dressing.
- 2 - Rough, regular wet with more discharge, needs dressing & having slough.
- 3 - Rough, irregular with profuse discharge, needs frequent dressing & much slough.

Gandha/ Smell

- 0 - No smell
- 1 - Bad smell
- 2 - Tolerable unpleasant smell
- 3 - Foul smell which is intolerable

Varna/ Colour (Granulation tissue formation)

- 0 - Pinkish red
- 1 - Slight pinkish red
- 2 - Slight Whitish/ Yellowish
- 3 - Whitish/ Yellowish

Srava / Discharge

- 0 - The gauze is slightly moist
- 1 – Sanguineous/Bloody
- 2- Sero-sanguineous
- 3- Serous
- 4- Seropurulent

Margins

- 0 - Well adhered margin and surface, Similar to surrounding skin. (Twak savarna)
- 1- Smooth, even & regular margin, Grayish colour(Kapot varna)
- 2- Rough, regular & inflamed margin. (arakta varna)
- 3 - Rough, irregular & ugly looked margin.

Investigation

- Blood routine
- Urine routine
- BSL
- Any other as per need

Follow-up was taken every alternate day and changes in the above criteria were noted.

OBSERVATIONS

Age: - In present study Maximum i.e. 32 out of 40 patients were from age group of 20 - 40 years

Sex: - Male to female ratio was 3: 1

Site: - 15 patients had wound at lower extremity followed by 8 patients at sacral region and 8 patients at upper extremity, rest 9 patients had wound on other area of body.

Associated disease: - In Group A Maximum patients suffering from diabetes was 4 while in Group B it was 6

Hetu/Causes: - 80% i.e. 32 patients had Agantuja vrana (Shastrakrit 12 and RTA 20)

20% i.e. 8 patients had nija vrana

RESULTS OF SIGN AND SYMPTOMS IN GROUP A AND GROUP B BEFORE AND AFTER TREATMENT

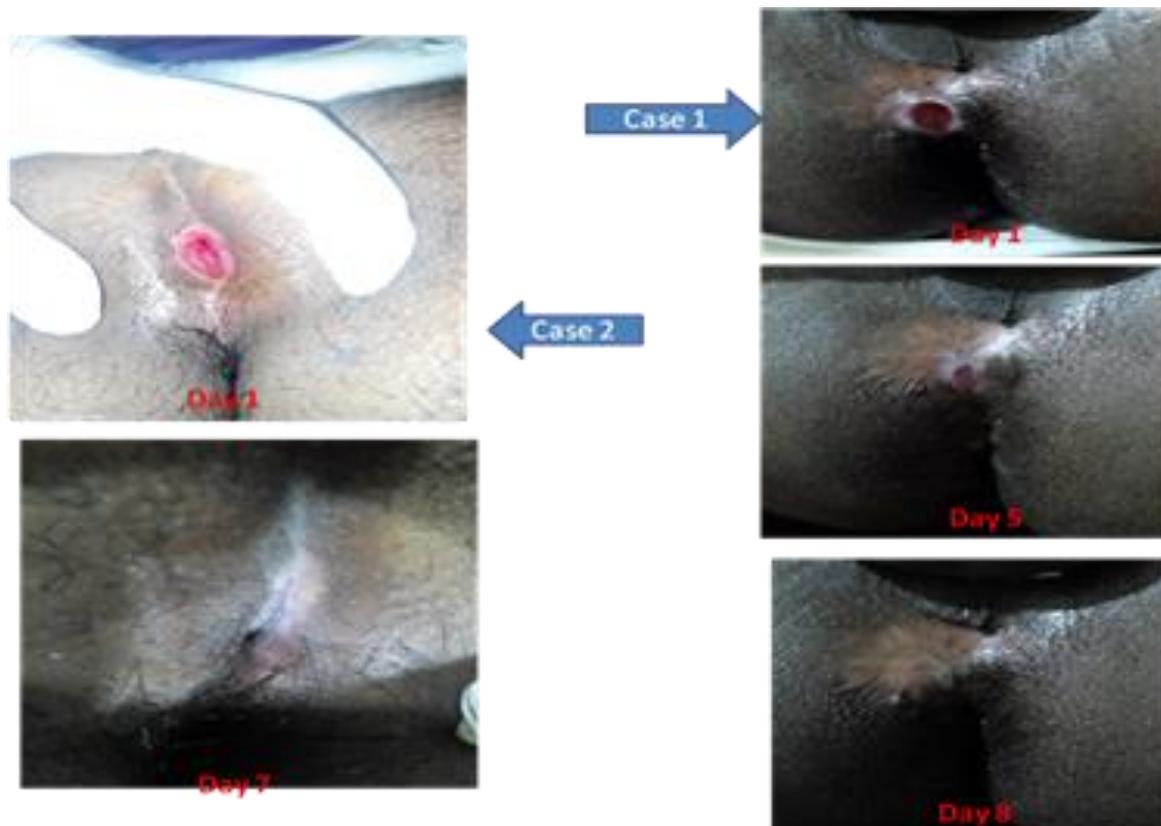
Pain :- This analysis revealed that there is no difference in Pain relief in Group A and Group B, as $t = 0.00$ non significant.

Strava (Discharge):- $t = 2.76$ $p < 0.02$ Significant. Discharge is reduced in Group B than Group A. This indicates

Akruti (Area):- Intergroup statistical comparison of average statistical analysis between both groups (Unpaired t-test). $t = 6.24$ $p < 0.02$ Surface area was reduced in group B than Group A. The wound treated with trial drug, healed faster in comparison to wounds treated by other methods. Surface area and Depth was significantly reduced in treated group. Statistical analysis was found significant. Average Healing time was less in treated group and on statistical analysis it was significant.

Vrana (Granulation tissue) $t = 2.70$ $p < 0.02$ Significant. Granulation tissue was observed earlier in Group B than Group A. This proves Vrana Ropana property of trial drug.

Depth:- Statistical analysis of Depth in both groups by paired t-test was done in between Initial Depth and follow up Depth mean difference in Group-A was $0.96(+0.43)$ and $1.463(+0.29)$ in Group-B. This comparison indicates the better Healing process in group B. As the above comparative analysis p-value is statistically significant. Surface area and Depth of wound was also significantly reduced in group B rather than group A; it proves Ropan property of Panchavalkala Tail.



DISCUSSION

Wound healing is the major concern for the surgeons for this many formulations are available in the market. Billroth, Says that "The proper treatment of wounds is to be regarded as the most important requirement for the surgeon."⁸ Wound healing is the complex process to regenerate and reconstruct the disrupted anatomy at the site of wound. This involves several cellular and biochemical changes. Healing is the natural body reaction to the injury which is initiated immediately and can be classified in four major parts or stages. First stage is coagulation immediately followed by inflammation. Then stage of proliferation which include connective tissue regeneration, epithelialization, neovascularisation followed by maturation stage where contraction, scarring and remodeling of scar occurs. The main processes after inflammation are fibroblast proliferation, blood vessel proliferation, connective tissue synthesis, epithelialization and wound contraction. Wound healing is impaired when these processes do not function properly.

This study included clean open wounds (Shuddha Vrana). Significantly good results were observed in group treated by Panchavalkal tail. Significant granulation tissues occur in the treated group. Panchavalkala has guru guna which causes bruhanas of local tissue as well as enhances new tissue growth. Panchavalkala have kashaya rasa (Astringent) which is known for snadhana (healing), Vranaropana, Kledahara and Rakta pitta prashamana all these properties promotes wound healing⁹.

As per Ayurvedic texts Panchavalkala has activities like vranaprakshalana⁵, vranaropana⁶, shothahar⁷. Astringent and Ruksha properties of Panchavalkala reduces strava (discharge)⁹. Panchavalkala also have

shothahara property (anti inflammatory) which reduces oedema which is one of the sign in inflammatory process.

Panchavalkala have anti-inflammatory property as well as anti bacterial property so this enhances early healing¹⁰. Whenever inflammation persists longer time in wound, wound healing gets delay. Here because of anti-inflammatory effect the next stage of tissue proliferation get started. Panchavalkala possess free radical scavenging activity¹¹, removal of free radicals enhances the wound healing by enhancing its anti-inflammatory property.

Surface area and Depth was significantly reduced in treated group. Statistical analysis was found significant. Average healing time was less in treated group and on statistical analysis it was significant. It has been reported that tannin possess ability to increase the collagen content, which one of the factor for promotion of wound is healing. Tannins and anthraquinones are the major phytoconstituent present in this plant which may be responsible for wound healing action^{12,13}.

CONCLUSION

Surface area and Depth was significantly reduced in treated group. Statistical analysis was found significant. Average Healing time was less in treated group and on statistical analysis. This proves healing properties of Panchavalkala taila. Reduction in pain and discharge proves its anti inflammatory property which helps for healing. Panchavalkala tail promotes smooth and uncomplicated healing process. No other toxic effects of 'Panchavalkala taila' were noted in this present study. Hence Panchavalkala taila have better action on Vranaropana (wound healing) than Placentex gel.

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