



Efficacy of Aragwadadhi Kwatha irrigation over ulcer infected with *Pseudomonas aeruginosa* – A case study

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Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 12 Oct 2023	<p>The body's natural reaction is to heal a wound or an ulcer. In the event that there is no doshic invasion or infection, a wound will normally heal in one week. <i>Dusta vrana</i>(infected wound), which is defined as a <i>vrana</i> lasting longer than a week, infected with microorganism and that fails to heal for an extended length of time to produce a chronic wound, requires <i>sthanika shodana</i>. Materials and methods: Aragwadadhi kwatha dhavana was used for doing shodana in <i>dusta vrana</i> whom <i>pseudomonas aeruginosa</i> was isolated and the impact was observed. Conclusion:it was concluded that ARAGWADADHI kwatha dhavana was beneficial in destroying the gram -negative bacteria (<i>pseudomonas aeruginosa</i>).</p> <p>Keywords: <i>dusta vrana,pseudomans aeruginosa, ARAGWADADHI kwath dhavan</i></p>
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1. Introduction

Shalya tantra and *vrana* are words that are analogous to one another, so they are seen as two sides of the same coin. The healing process is the essence of *shalya tantra*. "*Doshair Adhishtito Dushtah*", It denotes that *Dushta Vrana* is blocked or controlled by *Dosha*, many of them create a foul smell, excessive purulent discharge mixed with blood, but the area is in severe agony. Chronic ulcers or non-healing ulcers are defined as spontaneous or traumatic lesions, typically in lower extremities that are unresponsive to initial therapy or that persist despite appropriate care and do not proceed towards healing in a defined time period with an underlying etiology that may be related to systemic disease or local disorders (Sebastian et al., 2014). Chronic non-healing ulcer is a major health problem and is estimated to affect approximately 2–6 million people in the United States alone, while its prevalence in the world ranges from 1.9 to 13.1% . The incidence of chronic ulcers is expected to increase as the population ages and due to increased risk factors for atherosclerotic occlusi (Greer et al., 2012) on such as smoking, obesity and diabetes. It is estimated that almost 10% of the population would develop a chronic wound in the course of a lifetime, with wound related mortality rate of 2.5% ³. The goal of ulcer treatment is to obtain wound closure as expeditiously as possible. Conventional treatment for non-healing ulcers includes wound cleansing, necrotic tissue debridement, prevention, diagnosis, and, if necessary, treatment of infection, mechanical off-loading, management of blood glucose levels and local ulcer care with dressing application (Rayner et al., 2009). While *Acharya Sushruta* stated ARAGWADADHI dhavana in the management of *dusta vrana* which has good effect of *shodana*⁴.

Patients Information

A 35-year-old male patient arrived with the initial complaints of a right lower leg wound that wasn't healing, and was infected and he specified about the greenish discoloration of the wound who has never been diagnosed with diabetes or hypertension, but he had history of allergic reaction like severe diarrhoea and rashes all over the body caused by antibiotics. Patient was diagnosed with varicose veins previously on right lower limb, later on he had ulcer on the medial malleolus of right lower limb and it was not healing. For further treatment, she went to the Shalya Tantra OPD at the Dr. D. Y. Patil College of Ayurveda and Research Centre in Pimpri.

Clinical Findings

The patient was hemodynamically stable during the initial general examination, with a sitting positional blood pressure of 130/80 mmHg, a steady pulse rate of 76 beats per minute, and normal volume. When examined locally, the wound measured 3 cm x 2 cm, the floor was covered in unhealthy-granulation, greenish discoloration, oozing no acute bleeding, and no itching, and the dorsalis pedis and posterior tibial artery pulsations could be felt.

Timeline

He developed varicose vein on march 2016, later on the month of may 2022 he had suffered from varicose ulcer on right lower limb medial malleolus, which was later infected with *pseudomonas aeruginosa* so he came to shalya tantra department, Dr.dy patil college of ayurved and research center ,pimpri, pune on 18.6.2022 for further management.

Table 1: Timeline of Treatment and Observations

Day	Treatment	Observation
20.6.2022	<i>Aragwadadhi kwatha dhavan</i>	Greenish discoloration +++ Discharge ++
22.6.2022	<i>Aragwadadhi kwatha dhavan</i>	Unhealthy granulation ++ Unhealthy granulation ++ Greenish discoloration +++ Discharge ++
24.6.2022	<i>Aragwadadhi kwatha dhavan</i>	Unhealthy granulation + Greenish discoloration + Discharge +
26.6.2022	<i>Aragwadadhi kwatha dhavan</i>	No evidence of greenish discoloration Discharge +
4.7.2022	Follow up	Healthy granulation +

Diagnostic Focus And Assesement

Investigations

Hb - 13.8gms, RBC- 4.68cu/mm , WBC - 8300cu/mm ,PLT -3.87 cu/mm

BLOOD UREA - 24mg/dl, SERUM.CREATININE- 0.9 mg/dl,

HIV -NEGATIVE, HbsAg - NEGATIVE

AV COLOR DOPPLER - varicose veins on right lower limb.

Pus culture and sensitivity -*pseudomonas aeruginosa* isolated

Wound Assesment

Table 2

Duration of wound	One month
Pain	2(vas scale)
Discharge	<i>Present</i>

Size	3×2cm
Number	One
Position	Medial aspect of right medial malleolus
Edge	sloping edge
Floor	Unhealthy -granulation+++
Surrounding area	Mild oedema
Base	Slight induration present
Bleeding	No acute bleeding
Regional lymph nodes	Non palpable



Before Treatment



After Treatment

Therapeutic intervention and assessment

1. Aargwadha- *Cassia fistula* Linn.
2. Madanphal -*Randia spinosa* Poir.
3. Gopghanta- *Zizyphus oenoplia* Mill
4. Kantaki -*Caesalpinia bonducella* (Linn.) Flam
5. Kutaj/ Indrayava -*Holarrhynia antidysentrica* Wall.
6. Patha -*Cissampleos pareira* L.
7. Patla -*Stereospermum suaveolens* DC.
8. Murva- *Sansevieria roxburghiana* Schult.
9. Saptaparna- *Alstonia scholaris* (L.) R.Br.
10. Nimba- *Azadiracta indica* A. Juss
11. Kurantak *Barleria prionitis* Linn
12. Dasi-kurantak *Barleria cristata* Linn
13. Guduchi *Tinospora cordifolia* (Thunb.)
14. Chitrak- *Plumbago zeylanica* Linn
15. Shangestra- *Dregia volbulis* Linn
16. Karanj -*Pongamia pinnata*(L.) PIERRE
17. Puti karanj- *Holoptelia integrifolia* Roxb
18. Patol -*Trichosanthes dioica* Linn
19. Kirattikta- *Swertia chirata* Ham.
20. Sushvi- *Momordia charantia* Linn

The above mentioned drugs comes under *aragwadhadhi gana*, *kwatha churna* was made using these drugs (each 20 gms -so total 400 gms churna was prepared).

- *Aragwadhadhi Kasaya* was made out of this *kwatha churna*
- Patient had asked to dip his leg(*dhavan*)s in the *kasaya* for about 30 mins
- Later the wound was cleaned and sterile bandaging was done.

Discussion on The Criteria

Action of ARAGWADADHIDHI kwath dhavana against *P.aeruginosa*

1. Aragwadha (*Cassia fistula* Linn.) Bhalodia (2017).
2. Madanphala (*Randia spinosa* Poir.) Satpute et al. (2015).
3. Gopghanta (*Zizyphus oenoplia* Mill.)- Ramaligam et al. (2010).
4. Kantaki [*Caesalpinia bonducella* (Linn.). Lakshimidevi (2015).
5. Kutaj (*Holarrhena antidysenterica* Wall.) Iqbal (1998).
6. Patha (*Cissampelos pareira* L.) Hema et al. (2013).
7. Patla (*Stereospermum suaveolens* DC) Vijaya et al. (2010).
8. Murva (*Sansevieria roxburghiana* Schult.) Hanumanth (2015).
9. Saptaparna *Alstonia scholaris* (L.) R.Br.) Goyal (1995).
10. Nimba (*Azadirachta indica* A. Juss.) Saseed (2008).
11. Kurantaka (*Barleria prionitis* L.) (Aiswarya (2014).
12. Guduchi (*Tinospora cordifolia* (Thunb.) Miers.) Thatte et al. (1987).
13. Chitrak (*Plumbago zeylanica* Linn.) (Dhale (2011).
14. Shangestra (*Dregia volbulis* Linn) Natarajan et al. (2013).
15. Karanj (*Pongamia pinnata* (L.) Pierre). Soma et al. (2016).
16. Putikaranj (*Holoptelia integrifolia* Roxb) Paarakh (2011).
17. Patola (*Trichosanthes dioica* Linn.) Rai et al. (2010).
18. Kiratatikata (*Swertia chirata*) Ahirwa et al. (2011).

On reviewing the all ingredients in this Aragvadhadi Gana, most of the drugs during in-vitro studies are effective against *P. auregenosa*. Evaluation of particular single herb in vitro antimicrobial activity reveals that most of drugs are possessing strong antibacterial activity against responsible pathogens. In combinations ingredients mixed and create a new molecular structure that is having strong affinity to reduce growth of pathogens. Thus it can be said that the combination of these drugs in different form definitely helpful in the management of ulcer infected with *P.aeruginosa*. The specific features of ulcer infected with *P.aeruginosa* is greenish discharge (kasisa-colour of ferrous sulphate)which can coreralted to vrana srava (discharge) predominated by kapha dosha and the contents of aragwadhadhi gana basically has properties to reduce kapha dosha . Hence the drug proved its efficacy.

4. Conclusion

According to this study, *ARAGWADADHI KWATHA DHAVANA* may be able to lessen the *pseudomonas aeruginosa* growth in infected wounds. Through this single case study resulted in reduction in the *pseudomonas* infection in the wound that resists wound healing, which is a very positive finding. In order to fully assess the effect of *dhavana* with *ARAGWADADHI kwatha* and its precise mode of action with regard to their ability to ultimately heal wounds, a large sample size is required.

Conflict of Interest

None

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