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

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**Abstract**
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. Dusta vrana (infected wound), which is defined as a vrana 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 sthanika shodana. Materials and methods: Aragwadadhi kwatha dhavana was used for doing shodana in dusta vrana whom pseudomonas aeruginosa was isolated and the impact was observed. Conclusion: it was concluded that ARAGWADADHI kwatha dhavana was beneficial in destroying the gram-negative bacteria (pseudomonas aeruginosa).

**Keywords:** dusta vrana, pseudomans aeruginosa, ARAGWADADHI kwath dhavan

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 occlusion (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% . 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 shodana³.

**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 one 18.6.2022 for further management.

**Table 1: Timeline of Treatment and Observations**

<table>
<thead>
<tr>
<th>Day</th>
<th>Treatment</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.6.2022</td>
<td>Aragwadadhi kwatha dhavan</td>
<td>Greenish discoloration +++</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discharge ++</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unhealthy granulation ++</td>
</tr>
<tr>
<td>22.6.2022</td>
<td>Aragwadadhi kwatha dhavan</td>
<td>Unhealthy granulation ++</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Greenish discoloration +++</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discharge ++</td>
</tr>
<tr>
<td>24.6.2022</td>
<td>Aragwadadhi kwatha dhavan</td>
<td>Unhealthy granulation +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Greenish discoloration +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discharge +</td>
</tr>
<tr>
<td>26.6.2022</td>
<td>Aragwadadhi kwatha dhavan</td>
<td>No evidence of greenish</td>
</tr>
<tr>
<td></td>
<td></td>
<td>discoloration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discharge +</td>
</tr>
<tr>
<td>4.7.2022</td>
<td>Follow up</td>
<td>Healthy granulation +</td>
</tr>
</tbody>
</table>

**Diagnostic Focus And Assessment**

**Investigations**
- Hb - 13.8 gms, RBC - 4.68 cu/mm, WBC - 8300 cu/mm, PLT - 3.87 cu/mm
- BLOOD UREA - 24 mg/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 Assessment**

**Table 2**

<table>
<thead>
<tr>
<th>Duration of wound</th>
<th>One month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>2 (vas scale)</td>
</tr>
<tr>
<td>Discharge</td>
<td>Present</td>
</tr>
</tbody>
</table>
Therapeutic intervention and assessment

1. Aargavadha - Cassia fistula Linn.
3. Gopghanta - Zizyphus oenoplia Mill
4. Kantaki - Caesalpinia bonducella (Linn.) Flam
5. Kutaj/Indrayava - Holarrhynia antidysenterica Wall.
6. Patha - Cissampelas pareira L.
7. Patla - Stereospermum suaveolens DC.
8. Murva - Sansevieria roxburghiana Schult.
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
20. Sushvi - Momordia charantia Linn

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

**Before Treatment**

**After Treatment**
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The above mentioned drugs comes under aragwadadhi 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) in the kasaya for about 30 mins
- Later the wound was cleaned and sterile bandaging was done.

**Discussion on The Criteria**

Action of ARAGWADADHIDHI kwatha dhavana against P. aeruginosa

7. Patla (Stereospermum suaveolens DC) Vijaya et al. (2010).
17. Patola (Trichosanthes dioica Linn.) Rai et al. (2010).

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, ARAGWADADHII 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 ARAGWADADHII 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**
Acknowledgement

would like to thank everyone at our shalya department.

References


