



A Case Study Of Ayurvedic Management In Arteriovenous Malformation Induced Chronic Non-Healing Wound.

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Abstract:

The ancient Ayurvedic text Sushruta Samhita describes wound management in the *Vranitopasaniya* Adhyaya, emphasizing various herbal and oil-based preparations for effective healing. However, these formulations still require systematic scientific validation. This case study presents an integrative Ayurvedic approach for managing a chronic non-healing wound arising from an arteriovenous malformation (AVM).

A 58-year-old female presented with an ulcer on the dorsum of the right foot, characterized by mild pain, edema, and eczematous changes, persisting for approximately three months (90 days). The underlying condition was suggestive of AVM over the plantar aspect of the same foot, with a documented history of approximately 10 years, characterized by recurrent episodes of bleeding ulcers.

An Ayurvedic treatment protocol was administered over a period of 90 days, involving daily wound cleaning with Betadine solution and daily dressing with topical application of *Ropan Taila*, *ShodhanTail*, *Yashtimadhu Ghrita* along the period. Oral medications included *Yograj Guggulu* (500 mg, twice daily), *Sukshma Triphala Vati* (400 mg, twice daily), *Aarogyavardhini Vati* (400mg, twice daily), *Chandraprabha Vati* (400 mg,twice daily), *Gandhak Rasayan*, *Lohasav* and *Mahamanjishthadi Kadha* (7 ml, twice daily). Clinical assessment were conducted at baseline (day 0) and subsequently on days 15, 30, 45, 60, 75 and 90.

The treatment demonstrated marked improvement in wound epithelialization, reduction in exudates, and absence of allergic or adverse reactions, supporting the efficacy of ayurvedic medicines in chronic wound management.

Keywords : Non-healing wound, Arteriovenous Malformation, Ropan Taila, ShodhanTail, Yashtimadhu Ghrita

Introduction :

Arteriovenous malformations (AVMs) are rare congenital vascular anomalies characterized by abnormal shunting of arterial blood into the venous system without an intervening capillary network. When located in the extremities, AVMs may lead to chronic pain, edema, tissue ischemia, non-healing ulcerations and bleeding. ⁽¹⁾ Conventional management often yields limited success due to impaired perfusion, venous hypertension, and recurrent infections.

Ayurveda emphasizes *Rakta Shodhana*, *Dosha Shamana*, and *Vrana Ropana* in the management of chronic wounds. This case study explores the clinical efficacy of ayurvedic management in a chronic non-healing wound secondary to AVM, aiming to provide evidence supporting integrative wound management strategies. ⁽²⁾

Case Report

Case Profile:

A 58-year-old female presented at CSMSS Ayurvedic Mahavidyalaya and Rugnalaya, Chh. Sambhainagar, with a chronic non-healing wound over the dorsum of the right foot for the past 90 days. The ulcer measured approximately 4 cm² and was associated with mild pain, edema, and minimal discharge.

The patient had a known history of high-flow vascular malformation in the right foot for nearly 20 years. Over the past 10 years, this underlying vascular pathology had been complicated by intermittent episodes of bleeding and recurrent ulceration, predominantly affecting the planter aspect of the same foot. She had undergone laser ablation of varicosities eight years prior, with only temporary relief. Despite receiving multiple allopathic treatments, there was no sustained or satisfactory wound healing. There was no history of diabetes mellitus, hypertension, or other systemic illnesses that could independently impair wound healing.

Physical Examination:

Local examination revealed an ulcer with mild slough, minimal tenderness, and involvement of the underlying fascia. Surrounding skin showed eczematous changes, consistent with chronic venous and vascular insufficiency. Wound measurements were recorded using a sterile scale.

Investigations:

Routine blood investigations (CBC, ESR, LFT, KFT, RBS) and X-ray of the right foot were within normal limits. The patient's vital signs and systemic examination findings were unremarkable.

Socioeconomic Background:

The patient belonged to a low socioeconomic group, with no significant family or occupational risk factors.

Procedure and Drug Intervention:

Local Management:

Under aseptic precautions, the wound was daily cleaned with Betadine solution. A sterile gauze soaked in *Ropan Taila*, *Shodhan Tail* & *Yashtimadhu Ghrita* was applied topically once daily throughout the period of time, followed by light dressing with non-adherent bandage.

Follow-Up:

Clinical evaluation was done weekly. The wound showed progressive reduction in size, decreased slough, and improved granulation tissue formation.

Observations and Results:

Progressive reduction in wound size and discharge, improved granulation, and complete healing by 3 months.

Total duration of treatment**Internal Medications**

Sr no	Name of drug	Dose	Anupana	Therapeutic Action
1	<i>Yograj Guggul</i> ⁽⁵⁾	500 mg BD	Luke warm water	<i>Vata-Kapha Shamana</i>
2	<i>Sukshma Triphala Vati</i>	400 mg BD	Luke warm water	<i>Rakta Shodhana</i>
3	<i>Aarogyavardhini Vati</i>	400 mg BD	Luke warm water	<i>Rakta Prasadana</i>
4	<i>Chandraprabha Vati</i> ⁽⁸⁾	400 mg BD	Luke warm water	<i>Anti-inflammatory</i>
5	<i>Gandhak Rasayan</i>	400 mg BD	Luke warm water	<i>Vrana Shodhana</i>
6	<i>Mahamanjishthadi Kadha</i> ⁽⁶⁾	7 ml BD	Luke warm water	<i>Rakta Shodhana</i>
7	<i>Lohasav</i> ⁽⁷⁾	7ml BD	Luke warm water	<i>Rakta Vardhana</i>

External Treatment (For topical use)

Sr no	Name of drug	Dose and duration	Therapeutic Action
1	<i>Ropan Taila</i> ⁽³⁾	5 ml (topical)	Wound cleansing
2	<i>Shodhan Tail</i> ⁽⁴⁾	5 ml (topical)	Granulation and healing
3	<i>Yashtimadhu Ghrita</i>	5 ml (topical)	Epithelialization

Assessment**Assessment tool**

In this case study we have used Bates Jensen wound assessment tool for wound evaluation, on the basis of 13 criteria. Score of each category was taken and used for analysis.

Wound Assessment criteria : Bates-Jensen wound assessment tool⁽⁹⁾

1. Size

1-Length x width <4 sq. cm

2- Length x width 4<16 sq.cm

3- Length x width 16.1<36 sq.cm

4 - Length x width 36.1<80 sq.cm

5 - Length x width >80 sq.cm

2. Depth

- 1-Non-blanchable erythema on intact skin
- 2-Partial thickness skin loss involving epidermis &/ or dermis
- 3-Full thickness skin loss involving damage or necrosis of subcutaneous tissue; may extend down to but not through underlying fascia; &/or mixed partial & full thickness &/or tissue layers obscured by granulation tissue
- 4-Obscured by necrosis
- 5-Full thickness skin loss with extensive destruction, tissue necrosis or damage to muscle, bone or supporting structures

3. Edges

- 1-Indistinct, diffuse, none clearly visible
- 2-Distinct, outline clearly visible, attached, even with wound base
- 3-Well-defined, not attached to wound base
- 4-Well-defined, not attached to base, rolled under, thickened
- 5-Well-defined, fibrotic, scarred or hyperkeratotic

4. Undermining

- 1- None present
- 2-Undermining < 2 cm in any area
- 3-Undermining 2-4 cm involving < 50% wound margins
- 4-Undermining 2-4 cm involving > 50% wound margins
- 5-Undermining > 4 cm or Tunnelling in any area

5. Necrotic Tissue Type

- 1- None visible
- 2- White/grey non-viable tissue &/or non-adherent yellow slough
- 3- Loosely adherent yellow slough
- 4- Adherent, soft, black eschar
- 5- Firmly adherent, hard, black eschar

6. Necrotic Tissue Amount

- 1- None visible
- 2-< 25% of wound bed covered
- 3-25% to 50% of wound covered
- 4-> 50% and < 75% of wound covered
- 5-75% to 100% of wound covered

7. Exudate Type

- 1-None
- 2-Bloody
- 3-Serosanguinous: thin, watery, pale red/pink
- 4-Serous: thin, watery, and clear
- 5-Purulent: thin or thick, opaque, tan/yellow, with or without odour

8. Exudate Amount

- 1- None, dry wound
- 2- Scant, wound moist but no observable exudate
- 3- Small
- 4-Moderate
- 5-Large

9. Skin Colour Surrounding Wound

- 1- Pink or normal for ethnic group
- 2-Bright red &/or blanches to touch
- 3-White or grey pallor or hypo pigmented
- 4-Dark red or purple &/or non-blanchable
- 5- Black or hyper pigmented

10. Tissue oedema

- 1-No swelling or oedema
- 2- Non-pitting oedema extends 4 cm around wound
- 3-Non-pitting oedema extends >4 cm around wound
- 4-Pitting oedema extends < 4 cm around wound
- 5-Crepitus and/or pitting oedema extends >4 cm around wound

11. Peripheral Tissue Induration

- 1- None present
- 2- Induration, < 2 cm around wound
- 3-Induration 2-4 cm extending < 50% around wound
- 4-Induration 2-4 cm extending > 50% around wound
- 5- Induration > 4 cm in any area around wound

12. Granulation Tissue

- 1-Skin intact or partial thickness wound
- 2- Bright, beefy red; 75% to 100% of wound filled &/or tissue overgrowth
- 3- Bright, beefy red; < 75% & > 25% of wound filled
- 4-Pink, &/or dull, dusky red &/or fills < 25% of wound
- 5- No granulation tissue present

13. Epithelialization

- 1- 100% wound covered, surface intact
- 2-75% to < 100% wound covered &/ or epithelial tissues extends to >0.5cm into wound bed
- 3-50% to < 75% wound covered &/ or epithelial tissues extends to to <0.5cm into wound bed
- 4-25% to <50% wound covered
- 5-<25% wound covered

Results

Sr no	Wound character	0 th day	15 th day	30 th day	45 th day	60 day th	75 th day	90 th day
1	Size	2	2	2	1	1	1	1
2	Depth	3	3	2	2	1	1	1
3	Edge	3	3	2	2	2	1	1
4	Undermining	1	1	1	1	1	1	1
5	Necrotic tissue type	3	2	2	1	1	1	1
6	Necrotic tissue amount	3	2	1	1	1	1	1
7	Exudate type	3	2	2	1	1	1	1
8	Exudate amount	3	2	2	1	1	1	1
9	Skin colour surrounding wound	5	5	5	5	5	5	5
10	Peripheral tissue oedema	2	2	2	2	2	2	2
11	Peripheral tissue induration	1	1	1	1	1	1	1
12	Granulation tissue	4	2	2	2	1	1	1
13	Epithelisation	3	3	2	2	1	1	1
14	Total score	36	30	26	22	19	18	18



Day 0



Day 15th



Day 30th



Day 45th



Day 60th



Day 75th

Day 90th

Results

By the end of the treatment period, the wound exhibited near-complete epithelialization, resolution of edema, and no signs of infection or recurrence. The patient reported relief from pain and discomfort, with improved mobility. No allergic reactions or complications were observed during the treatment.

Discussion

Wound healing is a multifaceted biological process involving inflammatory, proliferative, and remodeling phases. Chronic wounds associated with vascular anomalies like AVM are notoriously resistant to conventional therapy due to compromised tissue perfusion.

The integrative use of Ayurvedic medication in this case enhanced the healing process, likely due to its synergistic combination of anti-inflammatory, antimicrobial, and wound-regenerative herbs. The treatment addressed systemic pathology through *Rakta Shodhana* and *Srotoshodhana* while promoting local wound healing via *Vrana Shodhana* and *Ropana*. The combined internal and external Ayurvedic therapies resulted in significant improvement in wound healing. Drugs like *Mahamanjishthadi Kadha* and *Aarogyavardhini Vati* purified blood, while *Gandhak Rasayan* and *Yashtimadhu Ghrita* promoted tissue regeneration and epithelialization. The concurrent use of *Yograj Guggulu* and *Sukshma Triphala Vati* contributed to systemic detoxification.

This outcome supports the concept of *Shodhana* (cleansing) *Ropana* (healing) and *Brimhana* (Nourishing, building, strengthening, or promoting anabolism) in Ayurveda, reflecting a holistic approach to wound management.

Conclusion

The present case highlights the potential efficacy of Ayurvedic management in promoting healing of chronic non-healing wounds secondary to AVM when used alongside Ayurvedic internal medications. This integrative approach may serve as a safe, effective, and economical alternative for managing complex wounds resistant to conventional therapies. Further clinical studies with larger sample sizes are recommended to substantiate these findings.

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