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Efficacy of Adhapushpi (Trichodesma indicum) Linn. R.Br. cream in the management of Sadyo-Vrana (Lacerated wound) - A case report

Case Report

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Abstract

Background: Everyone experiences wounds and most wounds cure without incident; however, a significant minority of public requires medical treatment like antibiotics, analgesics & regular dressing etc. *Trichodesma indicum* is utilized in traditional system of medicine. *Trichodesma indicum* is originated all over India along the wayside. In this present case study Adhapushpi cream is used as local application over a lacerated wound. Material and Method: In this present case report, patient with lacerated wound was treated by *Adhapushpi* cream as local application after all the mandatory investigations and its efficacy was evaluated on the basis of clinical parameters. Results: Patient showed significant results in clinical parameters evaluated. Patient got symptomatic relief in pain, skin colour of surrounding skin, discharge, tenderness and wound healing within 7 days. Conclusion: From the above case it is concluded that simply applying *Adhapushpi* cream over a lacerated wound is able to heal it without any antibiotics and analgesic. Study reveals that it not only acts as a *Vrana Ropan* (Healing agent) but also act as analgesic & anti-inflammatory also.

Key Words: *Sadyo vrana*, Trichodesma indicum*, Adhapushpi*, *Ropan.*

Introduction

An injury is a disruption to skin integrity due to physical suffering or disease. Everyone suffers from wounds and most wounds cure monotonously; yet, a major minority of people requires medical treatment like antibiotics, analgesics & regular dressing etc. To explore wound healing agents which is developing area in recent biomedical sciences and several conventional practitioners throughout the world mainly in countries like India and China have precious information of many lesser-known till now unknown natural plants for curing wounds and burns. (1) Conventional forms of medicine accomplished for centuries are being systematically investigated for their potential in the cure of wounds associated disorders in Africa and Asia.(2)

Several herbal medications have been employed in the community for the treatment of various diseases from ancient times. *Trichodesma indicum* is used in the Indian medical system. It is found all over India on wayside and rocky arid wastelands up to 1500 meters. It is acrid, bitter, thermogenic, emollient, alexeteric, inoffensive, anti –inflammatory, carminative, causes constipation, diuretic, depurative, ophthalmic, febrifuge and pectoral. It is useful in vitiated conditions of *vata and kapha*, arthralgia,dyspepsia, diarrohoea, dysentery, strangury, leprosy, skin diseases, ophthalmology, expulsion of the foetus, dysmenorrhoea, sores and fevers.(3)

The phytochemical and anatomical structure of *Trichodesma indicum* was studied to establish the botanical identity of the herbal drug. The preliminary phytochemical screening of the methanolic extracts showed the presence of secondary metabolites like alkaloids, saponins, flavonoids, steroidal compounds, tannins and phenolic compounds and aqueous extract showed the presence of alkaloids, flavonoids, tannins, saponins and steroids.(4)

23 compounds were identified and reported from *Trichodesma indicum* which were from different chemical categories. It was traditionally used for dysentery, arthritis, arthralgia, dysentery, skin disease, as an antidote and diminished *Vata and Kapha* in Ayurvedic system of medicine. The identified compounds from extracts of different plant parts were reported and had antioxidant, antitussive, antidiabetic, antiinflammatory, diuretic, antimicrobial, antifungal, dermal toxicity and metal chelating efficacy.(5)

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Case Report

Twenty seven years old male patient present in Shalya Tantra OPD of Mahatma Gandhi Ayurveda College, Hospital and Research Centre, Salod (H),Wardha, Maharashtra, with complaints of bleeding, pain, difficulty in walking having history of accidental injury over Achilles tendon posterior side of Rt. Ankle joint a day before. He has not taken any medicine except dressing from a local practitioner.

Personal/Family history

Patient was a labour by profession. There was no significant personal and family history of any systemic disorder.

Examination

Local Examination

On local examination a cut injury of 3 cm in length, 1/2 cm depth, with serous discharge, well defined margins, no discolouration of surrounding skin.

Systemic Examination

Vitals are normal and no other significant findings seen in systemic examination.

Investigations

Haemoglobin–13.9 gm%, RBS – 84 mg %

Materials and methods

Material used

There are 6 types of wounds as per *Sushruta* i.e., *Chinna, Viddha, Bhinna, Kshat, Picchit* and *Grishta*. In this case it is of sixth type and as per its treatment *sheetal alepan* and *sheetal parishek* are indicated.

- *Adhapushpi (Trichodesma indicum)* cream
- Dressing material like gauge piece, cotton etc.
- Normal saline for cleaning the wound.

Method

Adhapushpi cream was prepared in Dattatraya Rasashala (FDA approved & GMP certified), under the department of Rasashastra, MGACH & RC, Salod (Hirapur), Wardha, Maharashtra by standard method of preparation of cream. The *Adhapushpi* oil was prepared as per *Snehakalpana* described in *Sharangdhar Samhita*. (6) The wound was cleaned with the help of normal saline and Adhapushpi cream was locally applied over the wound with applicator and dressing was done under all sterile precaution. Patient was called for dressing regularly and observed daily for 7 days. In this case no antibiotics, analgesics or any other drug were used.

Composition of cream:

Table 1: Ingredient of Adhapushpi cream

Sr. No.	Ingredients	Botanical name	Quantity
1	*Adhapushpi* leaves oil	*T.indicum*	100 ml
2	Distilled water	----	500 ml
3	E –wax	----	30 gms
4	Stearic acid	----	25 gms

Preparation of Cream

i) The Adhapushpi Siddha oil was prepared which will be used as an oil phase. (Part A)
ii) Then 6 % E-wax was dissolved in 500 ml of distilled water and heated to 7°C. This was used as an aqueous phase. (Part B)
iii) Now the aqueous phase was added in proportion of oil phase i.e., (20%) with continuous stirring until emulsifier get cooled.
iv) Then it was filled in a wide mouthed glass bottle.

Table No. 2 – Analysis of Adhapushpi Cream

Sr.No.	Test Parameter	Test result
1	Colour	White
2	Consistency	Semi-solid
3	Odour	Characteristic
4	Loss on Drying at 105°C	0.053%
5	Uniformity of Content	100%
6	Total Fatty Matter	17.53%
7	Thermal Stability (at RH 65% and 30 ± 40°C)	Stable, No phase separation
8	Greasiness	Non-greasy, Easy to absorb
9	Water wash ability	Easily washable
10	pH	6.85

It is found that the parameters are within standard limit.

Assessment Criteria

SUBJECTIVE:

1) Pain:
(0) - No pain
+ (1) - Mild (patient can bear pain without analgesics)
+ + (2) - Moderate (patient responds to analgesics)
+++ (3) - Severe (patient does not respond to analgesics)

2) Skin &colour around wound:-
0 - No change
+ (1) - Brown
++ (2) - Purple, bluish
+++ (3) - Blackish, Scale formation

3) Discharge:-
(0) - No Discharge
+ (1) - Mild (Watery)
++ (2) - Moderate (sero-sanguineous)

4) Tenderness: -
(0) - No Tenderness
+ (1) - Pain on deep palpation
++ (2) - Pain on superficial skin Palpation
+++ (3) - Doesn't allows to touch at all

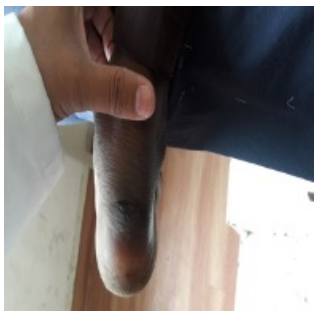
Objective parameters

1) Margins:-
(0) - No Raised Margin (Plane Surface wound)
+ (1) - Raised slightly.
++ (2) - Raised
+++ (3) - Oedematous and raised

Observations and Results

Day	Pain	Skin & colour around wound	Discharge	Tenderness	Margins
1st	5	1	1	2	1
2nd	4	1	0	1	1
3rd	3	1	0	1	0
4th	3	1	0	0	0
5th	0	1	0	0	0
6th	0	1	0	0	0
7th	0	1	0	0	0

In this case, pain gradually reduced within 4 days without any oral analgesic. No change in colour of surrounding skin of wound was observed. Mild watery discharge was seen on first day of treatment. No discharge was noted after the application of cream. Tenderness was not marked in this case. There were slightly raised margins detected on first 2 days of treatment.

Fig1-Image of Wound on day 1	Fig 2-Image of Wound on day 7
	

Discussion

In this present case report patient was young, labour by profession and have wound on Right Achilles tendon on posterior side of foot due to trauma which was associated with pain and bleeding, mild discharge, slightly raised margins of the wound. Dressing of wound has been done with *Adhapushpi* cream. Antipyretic, analgesic, anti-inflammatory, antioxidant, antimicrobial has been proved already. (7) In present case study no bacterial growth is seen during the treatment. In this case no oral/ injectable antibiotic and analgesic used which can be a better substitute modality in future for such type of cases. Cream is used in this case as a base but the drug can be used in another forms also as it is easily available on roadside anywhere in India. In reaction to a cut or wound, a wound healing surge is unleashed. This surge takes place in four stages: clot formation, inflammation, proliferation, and maturation. (8)

- **Clotting phase:** The clotting phase of wound healing begins with the formation of a clot to stop bleeding and reduce contamination by bacteria, viruses, and fungus. After clotting, neutrophils assault the wound three to 24 hours later, and mitoses begin in epithelial cells after another 24 to 48 hours.
- **Inflammation phase:** During the inflammatory phase, macrophages and other phagocytic cells kill bacteria, debride injured tissue, and release chemical factors such as growth hormones, which encourage fibroblasts, epithelial cells, and endothelial cells to transfer to the area and split new capillaries.
- **Proliferative phase:** Not entirely developed granulation tissue with fat active fibroblasts forms during the proliferative phase. Fibroblasts produce a lot of type III collagen quickly, which fills up the gap left by an unwrapped wound. Granulation tissue moves from the wound's edge to the centre as a signal. The fibroblasts produce less collagen as the granulation tissue grows and take on a more lanky appearance. They begin to produce type I collagen, which is significantly more powerful. Some fibroblasts mature into myofibroblasts, which surround a similar type of act seen in smooth muscle, allowing them to constrict and reduce the wound's size.
- **Maturation phase:** During the maturation stage of injury healing, apoptosis separates superfluous capillaries formed in granulation tissue, and type III collagen is mostly replaced by type I collagen. Collagen is crosslinked and oriented along tension lines when it was initially unorganised. This period may last a year or more. Eventually, a collagen mark with a small number of fibroblasts appeared.

Conclusion

In this case study, it is concluded that *Trichodesma indicum* (*Adhapushpi*) cream is found to be effective in wound healing. It has analgesic, anti-inflammatory and antimicrobial properties. This single case study can broaden the scope for further research and may prove as a milestone in wound management. In the present case report *Adhapushpi*, folklore medicine is used to treat acute wound which has significant effect in wound healing. As less research work is available on the efficacy of *Adhapushpi* (*Trichodesma indicum*) on wounds, there is enormous scope for advance research works.

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