



## **A Pilot Study on Wound healing activity of *Paathira Saara Virana Poochu Thylam* for Skin Ulcers**

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### **ABSTRACT**

***Viranam***(wound) and its sequels play a major concern in the field of surgery as wound healing requires uneventful healing. The aim of the study was to evaluate the changes in physical and morphological properties due to topical application of ***PAATHIRA SAARA VIRANA POOCHU THYLAM*** on fresh traumatic wounds or cutaneous wounds. Ten patients of wounds of either sex were randomly selected. Site of the wound, shape, size, floor, and margin were recorded on day 0 and observed on day 7, 15, 20, and till the end of the healing for the progression of granulation, scar type, shape, size, and clinical symptoms. There was significant improvement in the healing process as ***THYLAM*** possesses antibacterial, wound cleansing, wound healing properties and showed beneficiary effects.

**Key words:** Skin ulcer, External medicine, wound healing, Siddha Medicine

## INTRODUCTION

Worldwide prevalence of wounds is believed to be 1% of world population, whereas an Indian perspective of hospital based study shows leprosy (40%), diabetes (23%), venous disease (11%), and trauma (13%) were among important causes of lower extremity wounds. In that study, 13% of wounds were not directly linked to any known cause. According to **T V SAMBASIVAM PILLAI AGARATHI**, *Viranam* (wound) as a complex phenomenon causing destruction or discontinuation of tissue in a particular part of the body with discoloration. In siddha system, the causative factors for viranam is due to imbalance in *uyir thathukal* and trauma. There are two types of viranam, ***Thutta viranam*** (*endogenous*) and ***Athutta viranam*** (*exogenous*). After surgical procedures, the thylam is applied on the wound or suture line, before covering with thick layered gauze and bandaging, prescribed by ***Theraiyar***. ***Theraiyar Siddhar***, a stalwart of Siddhar Agathiyar is one of the strong patrons of Siddha Medicine system, whose contribution towards Siddha System is immeasurable. His works are of major importance to the modern stressful and clueless world, towards the guidelines of hale and healthy life.

## MATERIALS AND METHODS

A total number of 10 patients of either sex, fulfilling the diagnostic criteria for cutaneous wounds, were randomly selected for the clinical trial. Cases were selected from O.P.D. of Government Siddha medical College and Hospital, Palayamkottai, Tirunelveli District, Tamil Nadu, after taking permission from the Ethics committee and consent from the patient for the clinical trial.

### Objectives

A pilot study to evaluate the therapeutic efficacy of siddha formulation “**PATHIRASAARA VIRANA POOCHU THAILAM**” (EXTERNAL) in the treatment of **Viranam**.

### ***Preparation of the trail Drug:***

The required drugs for preparation of “**PATHIRASAARA VIRANAPOOCHU THYLAM**” (external) will be purchased from a well reputed country shop and the purchased drugs will be authenticated by the faculty members in charge of Gunapadam laboratory at Government Siddha medical college palayamkottai.

### ***Preparation of Thylam***

An effective herbal medicine with sesame oil as its base is the Pathirasaara Virana Poochu Thylam. The thylam is made from the leaf juice of following plants Cassia auriculata (Avarai), Azadirachta indica (Vembu), Achyranthes aspera (Nayuruvi), Gossypium herbaceum (Paruthi), Tamarindus indica (Puli), Solanum trilobatum (Thuthuvelai) and Erycibe paniculata (Oonankodi) as per indicated in Theriyar Thylavarkka Surukam.

Fresh leaves of the plants were cleaned from extraneous material and pounded and extract juice. Gingelly oil is to be in a vessel. Add leaf extract in oil and boiled it in a mild fire. The vessel is to be kept without any disturbance till it reach desired consistency. Filter the oil and it is ready to use externally.

### ***Inclusion Criteria***

Patients having cutaneous wounds with classical signs and symptoms. Patients without any severe systemic disease in the age group of 10 to 70 years of both sexes were selected

### ***Exclusion Criteria***

Patients below 10 years and above 70 years. Patients suffering from varicose ulcers, lepromatous ulcers, syphilitic ulcers, skin malignancies, and HIV were excluded.

### ***Investigations***

- Routine hematological investigations: Hemoglobin %, TLC (Total Leukocyte Count), DLC (Differential Leukocyte Count), ESR (Erythrocyte Sedimentation Rate).

- Biochemical investigations: FBS (Fasting Blood Sugar), PPBS (Post-Prandial Blood Sugar), lipid profile, blood urea, serum creatinine.
- Urine-Routine and microscopic examination.
- Viral screening:-HBs Ag, HIV.

### *Criteria for Clinical Assessment*

Area of wound on day zero was noted and recorded by a tracing paper to identify the shape, size which is further exactly measured by a graph paper and assessed in sq. cm. Observations were done on day 7, 15, 20, or after complete healing of wound.

The scoring symptoms and wound healing parameters for the statistical analysis are as under.

- Site of the wound
- Size of the wound
- Size of the wound = length  $\times$  breadth in cms.
- Pain

Assessment of pain was done with the help of Numerical Rating Scale (NRS). Patient was advised to choose a number for grading 0-10 to describe their current pain

<b>Parameter</b>	<b>Grading</b>
<b>Tenderness</b>	
Tolerance to pressure	0
Little response on sudden pressure	1
Wincing of face on slight touch	2
Resistance to touch and rigidity	3
<b>Burning</b>	
No burning	0
Little, localized and sometimes feeling	1
More, localized but not disturbing sleeps	2
Continuous burning sensation with disturbance of sleep	3
<b>Color</b>	
Normal pigmentation of color	0
Slight red	1
Reddish black	2
Pale yellow/black or blue	3
<b>Margin and surface</b>	
Adheres to margin	0
Smooth, even, and regular	1
Rough, regular, and inflamed	2
Rough, irregular	3
<b>Swelling</b>	
No swelling	0
Slight red, tender, and hot with painful movement	1
Red with painful movement and local temperature	2
Hot, resists touching	3

<b>Parameter</b>	<b>Grading</b>
<b>Size of scar</b>	
<5 mm	0
>5 mm but <10 mm	1
>10 mm but <20 mm	2
>20 mm	3
<b>Scar color</b>	
Normal skin color	0
More pigmentation than surrounding skin	1
Darker pigmentation	2
Hyper pigmentation	3
<b>Scar surface</b>	
Normal, smooth, regular and even	0
Smooth and irregular	1
Regular and rough	2
Irregular and rough	3
<b>Scar consistency</b>	
Normal	0
Soft	1
Firm	2
Hard	3
<b>Scar condition</b>	
Normal and even	0
Depressed	1
Elevated	2
Ugly abnormal look	3

### ***Unit Healing Time***

Wound healing was assessed by UHT (Unit Healing Time) and scoring of signs and symptoms. The UHT means number of days required for healing of per sq. cm area of wound. UHT was calculated by formula:-

$$\text{UHT} = \text{TDRH}/\text{IAW sq.cm.}$$

Where, TDRH = Total number of Days Required for Healing and IAW = Initial Area of Wound in square centimeter.

### ***APPLICATION OF THYLAM***

Before application of Thylam on the wound on the first day, wound was cleaned with ***PADIKAARA WATER***, Thylam was applied locally by soaking it in sterile cotton gauge, and dressed daily in the morning and evening.

### ***Statistical Analysis***

The information obtained on the basis of observation related to the parameters was subjected to statistical analysis in terms of Mean, SD (Standard Deviation), and SE (Standard Error). Student's *t* test was applied for statistical significance. The results were interpreted at values of  $P < 0.05$ ,  $P < 0.01$ , and  $P < 0.001$  significance levels. The obtained results were interpreted as  $P > 0.01$ -Insignificant,  $P < 0.05$ -Significant, and  $P < 0.01$  and  $0.001$ -highly significant.

## **OBSERVATIONS AND RESULTS**

### **General observations**

In all cases (100%), the causative factor for cutaneous wounds was trauma or injury. Majority of the patients (30%) were in the age group of 31 to 45 years, implies to outgoing working tendency, 50% belongs to low-socioeconomic group, 60% were rural inhabitants.

Observation of biochemical parameters: 2 (20%) patients were in anemic state showing 9 gm Hb% levels, 2 (20%) patients has slightly elevated blood glucose levels and controlled on dietic restrictions.

In this study, majority of wounds were in irregular shape (70%) as the causative factor is trauma, and with sloping edges, pinkish red granulation tissue on the base. 50% patients were interpreted as maximum number of patients belongs to middle age who were having better capability for wound healing indicated by *theraiyar*

### **Effect of therapy**

In this study, 10 patients were evaluated for the wound healing effect of Thylam on cutaneous wounds. Thylam showed highly significant results in all clinical symptoms of cutaneous wounds and promoted natural healing process.

Pain relief (80%) was observed after completion of 15<sup>th</sup> day as thylam possesses anti-inflammatory action and soothing property, thus reducing pain and swelling and accelerating the healing. Healthy granulation has developed after completion of 7<sup>th</sup> day in 50% cases. Tenderness reduced on 15<sup>th</sup> day in 80% cases. Oozing and discoloration surrounding the skin are markedly reduced on 7<sup>th</sup> day.

### **Effect of therapy on scar formation**

Scar color and surface is smooth, regular, and even with soft consistency in 80% cases after complete healing as thylam stimulated the epithelial cell growth with skin level.

### **Unit healing time**

The UHT of wounds are shown in the Table 1 and Average UHT calculated was 1.56. Paired 't' test: At 9 degrees of freedom, 5% significant limit of 't' is 2.26, the observed *t* value

for wound healing is 4.9 times the standard error; hence, thylam accelerated the wound healing efficiently.  $t = 4.9, P < 0.001$ , significant.

Days	Healed area (sq.cm.)	UHT
15	12	1.25
10	2.5	2.5
15	10.5	1.42
12	8	1.5
5	3	1.6
15	10	1.5
8	6	1.3
25	16	1.5
14	8	1.75
20	15	1.3

UHT = Unit healing time

Table 1 : UHT observed in individual wound

## DISCUSSION

The Thylam performs both the functions of cleansing and healing in cases of *Dushta Viranam*. Extracts of the leaves in thylam exhibited a broad spectrum antimicrobial activity, which is an important requirement of wound healing by controlling and reducing the microbial load. Wound became clean with healthy granulation on 21<sup>st</sup> day as *thylam* is having the ability to disinfect and destroy the micro-organisms in cases of sores acted as a disinfectant and promoted excellent healing.

Signs and symptoms such as pain, discharge, discoloration, bad odor, etc., are considered due to active involvement of *Tridosha*. The *kasapu suvai* (bitter taste) of the leaves and *Seetha Guna* of sesame oil pacified the vitiated *Doshas*, rendered relief in pain, discharge which were proven helpful in the healing process of wound. All those properties of drug assisted in cleaning the wound and helped to inhibit the growth of micro-organisms. Another property of *thylam* is antioxidant activity due to the presence of some flavanoids and tannins in abundant quantity. Tanin is supposed to be having wound healing property, which helped in wound healing. It acted as scavenger and probably helped to remove free radicals as well as inhibited further generation of free radicals.

After application of the *thylam*, the wound became clean and free from slough and foul smell within 3 days. There was a significant increase in granulation tissue showing good healing



effect after 15 days. The wound became contracted markedly by 21 days, and complete wound healing was observed by 30 days (4 weeks). After wound healing, there was little formation of scar tissue with noticeable pigmentation. There were no any adverse events noted throughout the treatment and healing occurred uneventfully. The dressing of *thylam* in chronic wound is found to be cost-effective, safe, and easy to implement.

## CONCLUSION

On the basis of clinical observations obtained, it can be concluded that the trial drug *Pathirasaara Virana poochu Thylam* possess antibacterial and wound healing properties without showing any adverse effects. In the present study, wound healing activity of thylam on cutaneous wounds showed highly *significant* results, but further studies on large samples are required for an authentic conclusion.

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