

## Management of Bed Sores with Thumari Gel [*Securinega leucopyrus* (Willd.) Muell.]-An Extra-pharmacopeal Drug- A Case Study

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### Abstract:

The wound management is troublesome when its aetiology is based on continuous pressure. Fracture, paralysis, coma, spinal cord injuries are triggering factors to develop pressure ulcers. Diminished sensations, muscular weakness hampers the patient's quality of life. In this case study, a 42 years male with hemiparesis since four years presented with bed sores on either greater trochanters (Both sides hips). On measurement wound sized approx. 3cm x 3cm with minimal serous discharge, hyper granulation and grade II ulcer. This patient was managed with daily local application of Thumari gel once in morning. The regular treatment for hemiparesis was continued during the course of treatment. The wound assessment was done with local findings and photography by weekly interval. Both side's ulcers were completely healed within four weeks with peripheral minimal pigmentation. This healing effect might be due to increasing fibroblast activity, neovascularisation and early collagen depositions. By these activities it can be concluded that Thumari gel possess remarkable healing effect in cases of bed sores.

**Keywords:** Bed sores, *Securinega leucopyrus*, Thumari Gel, wound healing.

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### Introduction:

Pressure sore or bed sore, is an open wound on the skin surface. Often it occurs on the skin covering over bony prominences. Hips, buttocks, back, and ankles are most common places to appear pressure ulcers. National Pressure Ulcer Advisory Panel (NPUAP) defines it as an area of unrelieved pressure over a defined area, usually over a bony prominence, resulting in ischemia, cell death, and tissue

necrosis (Table-1). The World Health Organization (WHO) uses the incidence and prevalence of pressure ulcers as an indicator of the quality of patient care services. <sup>[1]</sup>The use of efficient prevention measures and its treatments has become very important. Treatment principles includes assessing the severity of the wound; reducing pressure, friction, and shear forces; optimizing wound care;

removing necrotic debris; managing bacterial contamination; and correcting nutritional deficits.<sup>[2]</sup> Intervention strategies included PU-specific changes in combination with educational strategies. Use of moist dressings and adequate nutritional support are strong predictors of pressure ulcer healing.<sup>[3]</sup>

*Securinega leucopyrus* is a desert climatic plant found in wet climates in Sri Lanka known as Katupila. Katupila (*Securinega leucopyrus*) (Willd.) Muell is a commonly used folklore remedy in Sri Lanka and in Saurashtra region of India known as

Thumari. It belongs to the family Euphorbiaceae.<sup>[4]</sup> It is known as Thumari or Panduraphalika in the Indian Sub-continent also called as “Spinous fluggea” in English. Katupila possesses kashaya and Tikta rasas; Lagu, Ruksha, Tikshna gunas; Ushna veerya and Katu vipaka. Katupila leaves act as an antiseptic and its paste is used in folklore to extract any extraneous materials from body tissues without surgery.<sup>[5]</sup> Its leaves and the bark are rich with vast number of important phytochemicals such as alkaloids, terpenoids, steroids, flavanoids, saponins, phenol and glycosides.<sup>[6]</sup>

**Table-1: Pressure Ulcer stages defined by NPUAP:** <sup>[7]</sup>

Stage I:	Non-blanchable erythema	Intact skin with non-blanchable redness of a localized area usually over a bony prominence. The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue.
Stage II:	Partial thickness	Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. Presents as a shiny or dry shallow ulcer without slough or bruising. This category should not be used to describe skin tears, tape burns, incontinence associated dermatitis, maceration or excoriation.
Stage III:	Full thickness skin loss	Subcutaneous fat may be visible but bone, tendon or muscles are not exposed. Slough maybe present but does not obscure the depth of tissue loss. May include undermining and tunnelling.
Stage IV:	Full thickness tissue loss	Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present. Often includes undermining and tunnelling. Stage IV ulcers can extend into muscle and/or supporting structures (e.g., fascia, tendon or joint capsule) making osteomyelitis or osteitis likely to occur.

#### **Preparation and Application of Thumari gel:**

As per classical *sneha-paka-kalpana* Thumari oil was prepared [ratio of *Sneha*

(Sesame oil), *Kalka* (prepared from leaves of *Thumari*) and *Kwatha* (prepared from leaves and stem of *Thumari* in 1:4:16 respectively]. Then Aerosil (15% w/w) was added in prepared *Thumari* oil and

triturerated and was packed in air tight container for use.

Bed sore were cleaned daily with normal saline. After cleaning of ulcer, topically Thumari gel was applied and covered with sterile gauze pieces and bandaged daily once in the morning hours.

### Case History:

A 42 years male patient with history of hemiparesis (spinal injury) since four years was presented with bedsores on both sides of greater trochanters [Fig.1.1, 1.2]. Patient had not reported history diabetes mellitus (DM). Patient was under modern medication for wound management but ulcers were not responding to heal. During general physical examination, vitals were reported within normal limits. In neurological examination; tendon reflex of ankle, and motor functions of lower limb were diminished. Patient was unable to stand or walk without support. During local examination of ulcer, 3cm x3cm sized bed sores were noted associated with blackish discoloration, mild serous discharge, irregular margins, hyper granulation, and minimal sensations. Hence it was categorized in Grade II bed sores.

### Result & Discussion:

Improvement in serous discharge, granulation tissue, odour, numbness, and ulcer size contraction were observed weekly. On the 1st day mild serous discharge was present. On both lateral aspect ulcers were also presented with mild serous discharge, numbness, and macerated peripheral skin around ulcer

[Fig. 1.1, 1.2]. During 1<sup>st</sup> week [Fig. 1.3, 1.4] and 2<sup>nd</sup> weeks, right and left sided ulcer showed healthy granulation tissue and collagen deposition with results in ulcer contraction. In 2<sup>nd</sup> week; on measurement ulcer size was reduced to 2.2cm x2.3 cm (right), 2.0cm x2.1cm (left) sides respectively [Fig. 1.5, 1.6]. In 3<sup>rd</sup> week, left sided ulcer was approximately healed and on right sided the size was reduced to 1.5cm x1.3 cm.[Fig. 1.7, 1.8].In 4<sup>th</sup> week, left sided ulcer was complete healed with surrounding minimal pigmentation and on right side was 0.8cm x0.9 cm sized [Fig. 1.9, 1.10].In 6<sup>th</sup> week both right sided ulcers was also healed completely. Both side ulcers were healed with healthy tissue strengthening, minimal scar and normalizing surrounding pigmentation [Fig. 1.11, 1.12].

The case was followed up after six month to assess the recurrence and it was noted that the scar was normal without recurrence. [Fig. 1.13, 1.14] Early healing of pressure ulcer with good strengthening of tissue represents acceleration of the phases of healing with promoting vascularity, and tissue nutrition which is achieved by local application of Thumari Gel. Previous research studies on *Securinega leucopyrus* also had shown healing potential in diabetic wounds and non healing ulcers. [8-10] As Thumari leaves possess antibacterial, anti-inflammatory and immune-modulatory activities which are responsible for proper disinfection of ulcer and promote for healthy granulations tissues and another antioxidant activity which scavenges off and inhibit generation of the free radicals.

These properties of the drug regulate wound healing sequence which results in signs of healing. Thumari Gel acts as a mediator between wound surface and dressing material to adhere which protects

from wound desiccation. It maintains hydration and helps to earlier epithelisation. Earlier collagen synthesis activity also results in proper healing.

### Weekly Healing of bed sores:

LEFT SIDED



Fig. 1.1 On 1st Day



Fig. 1.3 After 1st Week



Fig. 1.5 After 2nd Week

RIGHT SIDED



Fig. 1.2 On 1st Day



Fig. 1.4 After 1st Week



Fig. 1.6 After 2nd Week





Fig. 1.7 After 3rd Week



Fig. 1.8 After 3rd Week



Fig. 1.9 After 4th Week



Fig. 1.10 After 4th Week



Fig. 1.11 After 6<sup>th</sup> week



Fig. 1.12 After 6<sup>th</sup> week



Fig. 1.13 Follow-up after 4 Months



Fig. 1.14 Follow-up after 4 Months

**Conclusion:**

This case demonstrated that Thumari gel has tremendous healing properties which help in healing of bedsores with normalizing pigmentation.

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