



## ALKALINE INTERVENTION: EXPLORING KSHARODAKA'S ROLE IN KELOID TREATMENT- A CASE SERIES

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### ABSTRACT

Keloid is a chronic and recurrent fibroproliferative disorder of the skin, characterized by excessive collagen deposition that extends beyond the boundaries of the original wound. Globally, the annual incidence of keloids is estimated between 0.09% and 0.16%, with a prevalence as high as 16% in individuals with darker skin types, such as African, Asian, and Hispanic populations. Affects both sexes equally, though some studies suggest slightly higher rates in females, possibly due to higher rates of skin trauma (e.g., ear piercing, cesarean section, abdominoplasty, breast reduction surgeries etc). Age group most affected is 10–30 years — the most active phase of wound healing and collagen synthesis. Keloids are notoriously stubborn to treat, often requiring a combination of therapies. Despite the availability of multiple treatment modalities, including corticosteroids, surgery, laser therapy, and cryotherapy, no definitive treatment exists, and recurrence remains common. In Ayurveda, keloid can be correlated to *vranagranthi*, for which *Kshara* therapy is a time-tested approach. *Shigru* (*Moringa oleifera*) *ksharodaka*, possessing *Lekhana*, *Shothahara*, and *Kaphavatahara* properties, is indicated in the management of abnormal growths. Herewith, we report a case series of 2 patient, presented with keloid over the anterior chest wall, who underwent *shigru ksharodaka* infiltration treatment administered subcutaneously. The treatment led to significant reductions in keloid size and softening of the tissue. Notably, good results were observed in terms of symptom relief, with most patients reporting significant improvement in pain, itching, and discomfort. No significant adverse effects were observed, demonstrating the safety and tolerability of the therapy.

**KEYWORDS:** Keloid, *Shigru*, *Ksharodaka*, Subcutaneous infiltration.

### INTRODUCTION

Keloid is the excessive abnormally stretched (type III thick) collagen tissue bundles arranged with aligning in the same plane as the epidermis but extends beyond the original scar margin which continues to grow for long period. Keloid is common in blacks. Common in females. Genetically predisposed. Often familial. Very rare in Caucasians. There is defect in maturation and stabilization of collagen fibrils. Normal collagen bundles are absent. Keloid continues to grow even after 6 months, may be for many years. It extends into adjacent normal skin. It is brownish black/pinkish black (due to vascularity) in colour, painful, tender and sometimes hyperaesthetic; spreads and causes itching. When keloid occurs following an unnoticed trauma without scar formation is called as spontaneous keloid, commonly seen in dark skinned people. Some keloids occasionally become non-progressive after initial growth. Pathologically keloid contains proliferating immature fibro-blasts, proliferating immature blood vessels and type III thick collagen stroma. They occur commonly

over the sternum. Other sites are upper arm, chest wall, lower neck in front.<sup>[1]</sup>

In Ayurveda, keloids can be correlated with conditions like *Vrana Vriddhi* (abnormal wound healing) or *Granthi* (benign nodular growths), based on their clinical features and underlying pathology. keloids are understood to arise from an imbalance of *Pitta* and *Kapha doshas*, along with *Rakta Dhatu Dushti* (vitiation of the blood tissue). The aggravated *Pitta dosha* leads to increased metabolic activity and inflammation at the site of injury, while *Kapha dosha* contributes to excessive fibrous tissue formation and abnormal scarring due to its heavy, sticky, and growth-promoting nature. The vitiation of *Rakta Dhatu*, which is essential for proper tissue repair and regeneration, results in irregular and uncontrolled proliferation of scar tissue beyond the original wound margins. This pathological process aligns with the clinical characteristics of keloids—raised, thick, and often itchy or painful scars.<sup>[2]</sup>

The modern management of keloids includes several treatment options aimed at reducing scar size, alleviating symptoms, and preventing recurrence, but these methods are often only partially effective. Intralesional corticosteroid injections, particularly triamcinolone acetonide, are commonly used as first-line therapy due to their anti-inflammatory and collagen-suppressing properties. However, while they can reduce size and itching, they may not completely prevent recurrence, especially in more severe cases. Surgical excision is another option for large or persistent keloids, but it carries a significant risk of the keloid reforming, sometimes even larger than before, unless followed by other therapies like corticosteroid injections or radiation. Silicone gel sheets and pressure garments are often recommended to soften and flatten keloids, but results can be slow, and their effectiveness varies from person to person. Laser therapy, such as pulsed dye laser (PDL), may help improve the appearance of the scar, but it is not a definitive solution, especially for long-established keloids. Other treatments like cryotherapy or 5-fluorouracil (5-FU) injections show some promise, but the recurrence rates remain high. Despite these advancements, no treatment guarantees permanent relief, and keloid management often requires a combination of therapies, with many patients facing ongoing challenges with recurrence and limited improvement. The recurrence rate of surgical excision alone is 45 to 100%, radiotherapy is 13.5%, intralesional steroid injection is 8 to 50%, silicon gel sheets is 12.5%, cryotherapy is 21%.

In Ayurveda, the management of keloids is based on addressing the underlying *dosha* imbalance and promoting proper wound healing through internal and external therapies.

तथाऽप्यपक्वं छिन्वेत् स्थिते रक्तेऽग्निना दहेत् ।

साध्वशेषं, सशेषो हि पुनराप्यायते ध्रुवम् ॥

मांसव्रणोद्धवौ ब्रन्थी यापयेदेवमेव च ॥ (AH. UT.30/4-5)

That which has not become ripe, inspite of all these should be cut (excised) and when bleeding stops it should be burnt by fire (thermal cautery) leaving no residue/remnant, because such a residue/remnant is sure to develop again into a tumour. Both mamsa granthi (tumour of muscle tissue) and vrana granthi (tumour sequel to an ulcer) should also be treated in the same (above) way.

Among external therapies used for the purpose of burnings, *Kshara Karma* stands out as a highly effective treatment modality. *Kshara*, a potent alkaline preparation derived from the ash of medicinal plants, is highly valued in Ayurveda for its *Lekhana* (scraping), *Chedana* (excision), *Bhedana* (piercing), *Shodhana* (cleansing), and *Ropana* (healing) properties. It is remarkably versatile and can be used in multiple ways, depending on the nature and location of the disease. Externally, *Kshara* is applied in the form of *Pratisaraniya Kshara* (paste or powder), which is directly applied to abnormal growths like warts, piles, or non-healing ulcers for chemical

cauterization. The liquid form, known as *Ksharodaka*, is used for subcutaneous infiltration in conditions like keloids and chronic sinuses, where it helps to dissolve fibrotic tissue and promote healthy granulation. *Kshara Sutra*, a medicated thread coated with *Kshara*, is a specialized form used in para-surgical procedures. Additionally, *Kshara* is sometimes used internally in diluted form for specific gastrointestinal disorders under strict supervision. This multi-purpose use of *Kshara* across different dosages and delivery methods reflects its adaptability and importance in Ayurvedic Shalya Tantra (surgical science), offering safe, minimally invasive, and cost-effective alternatives to conventional surgical interventions.<sup>[4]</sup> Here, we report two cases of chronic keloids treated with subcutaneous infiltration of *Ksharodaka*, showing significant reduction in size and symptoms. This approach highlights the efficacy of Ayurvedic para-surgical intervention in managing resistant keloids.

## CASE DESCRIPTION

### CASE 1

A 58-year-old male patient, K/C/O hypertension since 5 months (under antihypertensive drug-tab TELMISARTAN 40 mg, OD) complaints of spontaneous onset of raised, discoloured lesion over anterior chest wall with intermittent episodes of pain and itching since 3 years. patient had consulted a nearby allopathic hospital and treated with 6 episodes of intrakeloidal steroid injection TRIAMCINOLONE once in 7 days but couldn't find relief hence approached SJGAUH, Bengaluru for further evaluation and needful management.

## LOCAL EXAMINATION

### On inspection

- Site-over anterior chest wall, corresponding to sternum
- Colour-brownish black
- Shape-oblong shape
- Size-upper one-4x2 cm, lower one-6x4cm
- Surface-regular
- Edge-clearly defined, sessile
- Number-2
- No evidence of pulsation, impulse of coughing etc.

### On palpation

- Temperature-not raised
- Tenderness-present(mild)
- Surface-smooth
- Edge-defined
- Consistency-firm
- Fixation-fixed to the overlying skin
- No evidence of fluctuation, reducibility, compressibility etc.

The patient was treated with intralesional infiltration of *Shigru Ksharodaka*, given subcutaneously in a fanwise manner around the lesion. A dose of 3 ml was

administered directly into the upper lesion measuring 4x2cm using 3 mm syringe. A dose 5 ml was administered directly into the lower lesion measuring 6x4cm present around 8cm below the upper lesion using 3 mm syringe. Treatment was followed for 5 consecutive week. Weekly follow-ups showed gradual symptomatic improvement.

#### Observations elicited

- reduced tightness
- reduction in pruritus
- flattening of the bulge

- softening of the lesion
- decrease in the intensity of pain
- reduction in size-upper one-3x1.5cm, lower one-4.5cm
- overall subjective relief.
- However, the patient reported pain during the procedure, likely due to the irritant nature of the alkaline preparation and the sensitivity of the fibrotic tissue. Despite this, no other adverse effects were noted, and the treatment was well tolerated.



**Figure 1: Procedure of Ksharodaka Infiltration To The 2 Keloids.**

## CASE 2

A 35-year-old apparently healthy male complaints of spontaneous onset of raised discoloured lesion over the anterior chest wall associated with intermittent episodes of pain, itching, burning sensation since 2 years. patient had consulted an allopathic hospital near his residence and underwent 1 episode of intrakeloidal steroid injection(triamcinolone),since the procedure was intolerable for him due to severe pain, came to SJGAUH for further evaluation and needful management.

## LOCAL EXAMINATION

### On inspection

- Site-over anterior chest wall, corresponding to sternum
  - Colour-pinkish red
  - Shape-butterfly shaped
  - Size-4x4cm
  - Surface-regular
  - Edge-clearly defined, sessile
  - Number-1
  - No evidence of pulsation, impulse of coughing etc.
- On palpation
- Temperature-not raised
  - Tenderness-present(mild)

- Surface-smooth
- Edge-defined
- Consistency-firm
- Fixation-fixed to the overlying skin
- No evidence of fluctuation, reducibility, compressibility etc.

He was treated with intralesional infiltration of 3 ml *Shigru Ksharodaka* using an insulin syringe administered subcutaneously in a fanwise manner. *Ksharodaka* was administered weekly for 5 weeks. Over follow-ups, the patient reported significant improvement in symptoms.

### Observations elicited

- reduction in pruritus
- flattening of the bulge
- softening of the lesion
- decrease in the intensity of pain
- reduction in size-3x2.75cm
- overall subjective relief.

Mild pain was experienced during each infiltration, but no other adverse effects were observed. The treatment was effective and well-tolerated overall.



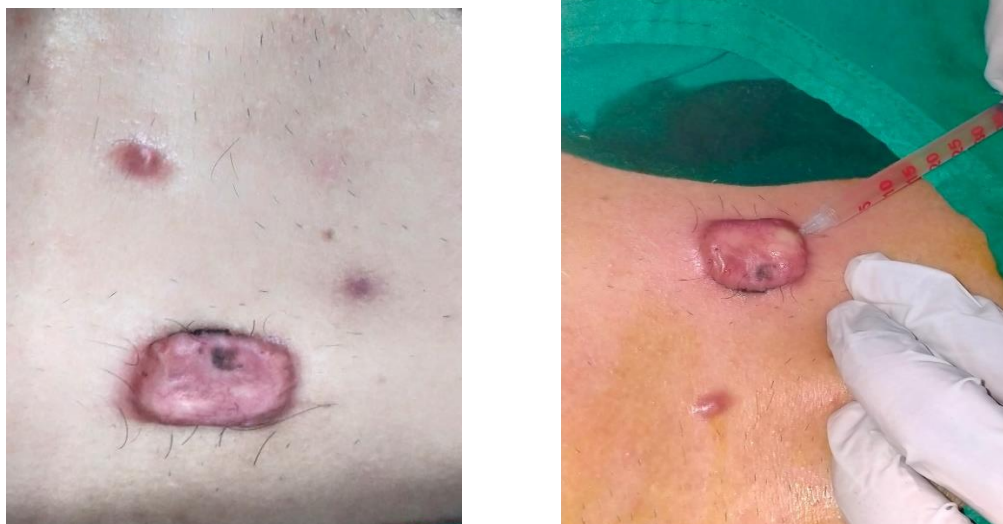


Figure 2: *ksharodaka* infiltrating to butterfly shaped keloid.

#### TREATMENT PROTOCOL IN BRIEF PREOPERATIVE PROCEDURE

- Informed written consent taken from the patient and attender of the patient.
- Materials required
- *Shigru ksharodaka*

It was prepared by burning dried *Shigru* plant parts (*panchanga*) to obtain ash, which is then mixed with normal water in 1:6 ratio. This mixture is stirred and filtered 21 times through clean cloth to obtain a clear, alkaline solution, which was used for the procedure.



Figure 3: prepared *ksharodaka*.

- Insulin syringe
- Betadine solution
- Sterile gauze and pad
- Sterile surgical gloves
- Vitals monitored.
- Part preparation done.
- Inj TT 0.5 ml given intramuscularly.

#### OPERATIVE PROCEDURE

- Patient was taken in supine position.
- Part painted with betadine 10% solution f/b sterile draping.
- *Shigru ksharodaka* was taken in insulin syringe and infiltration around the keloid was done in a fanwise manner slowly withdrawing the needle of the syringe while pushing the *ksharodaka* inside.

#### POSTOPERATIVE PROCEDURE

- Patient was observed postoperatively for a period of 30 mins, for any adverse reaction.
- Orally, tab LIV 52 1 BD.
- *CHITRAKASAVA* 5 ML BD, before food was given for improving gut health as there is some evidence of gut pathology leading to the formation of spontaneous keloids which not have been proved.

#### DISCUSSION

In this case, intralesional administration of *Shigru Ksharodaka*, a traditional Ayurvedic preparation derived from *Moringa oleifera*, demonstrated promising results. The lekhana (scraping), anti-fibrotic, and anti-inflammatory properties of *Ksharodaka* contributed to noticeable symptomatic relief, including reduction in pruritus, pain, burning sensation, and size of the keloid. The use of an insulin syringe ensured precise delivery

into the lesion. Although the patient experienced mild procedural pain likely due to the caustic nature of the preparation no other side effects were reported, and the treatment was well-tolerated. This case supports the potential role of Ayurvedic intralesional therapies as an effective alternative in keloid management, especially for patients seeking non-steroidal, plant-based interventions. However, controlled studies are needed to establish standardized dosing, safety, and long-term efficacy.

#### Positive Points of the Case Report

1. Safe and Well-Tolerated Intervention: *Shigru Ksharodaka* was administered intralesionally without any systemic or serious local side effects, apart from mild procedural pain.
  2. Symptomatic Improvement: The patient experienced relief from major keloid symptoms, including pruritus, burning sensation, pain, and bulging, within a short follow-up period.
  3. Non-Steroidal, Herbal Approach: Demonstrates an effective Ayurvedic alternative to corticosteroids or surgery, which may appeal to patients seeking natural or less invasive options.
  4. Minimally Invasive Technique: Use of an insulin syringe allowed precise, localized delivery of the drug with minimal tissue trauma.
  5. Improved Cosmetic Outcome: The treatment led to softening and flattening of the keloid, addressing both functional and cosmetic concerns.
  6. Cost-Effective Therapy: Herbal preparations like *Ksharodaka* are generally affordable and accessible, making this a practical option in resource-limited settings.
  7. Supports Traditional Knowledge with Clinical Observation: Validates Ayurvedic principles through modern case documentation, encouraging integration into broader clinical practice.
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#### CONCLUSION

The use of *Shigru Ksharodaka* (derived from *Moringa oleifera*) as an infiltrative treatment for keloids is an emerging area of interest in Ayurvedic medicine. While scientific literature on this specific application is limited, Ayurvedic practices have explored the use of *Ksharodaka* preparations for various dermatological conditions. Future research should focus on larger clinical trials to validate the efficacy and safety of *Shigru Ksharodaka* in keloid management. Standardization of dosage, frequency, and preparation is needed for consistent outcomes. Comparative studies with conventional treatments and long-term follow-ups will help determine its place in clinical practice. Exploring combination therapies and investigating the formulation's pharmacological mechanisms could further enhance its therapeutic potential.

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