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EXPLORING *GUDA AGNIKARMA* AS A THERAPEUTIC MODALITY FOR PAIN IN *KRIMIDANTA* – A CASE STUDY

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ABSTRACT

Introduction: *Agnikarma*, an ancient para-surgical technique, has been used for its efficacy in alleviating pain associated with various medical conditions. It encompasses the application of localised heat to relieve pain by achieving therapeutic cauterisation, thereby reducing discomfort. Sushrutacharya mentions a variety of *Agnikarma Upakaranas* that are indicated to address a range of ailments and alleviate pain effectively, and recognized *Guda* as one of them, specifically indicated for the management of pain associated with disorders of *Sira*, *Snayu*, *Asthi*, and *Sandhi*. *Krimidanta* is a prevalent and distressing dental condition with a high global incidence rate. It is characterised by severe pain, blackish discolouration, increased tooth mobility, and discharge from the affected tooth, predominantly due to vitiated *Vata*. **Methods:** The *Guda Agnikarma* was chosen to assess its efficacy in managing pain associated with *Krimidanta* based on its

symptomatology. A 23-year-old female patient with a complaint of *Krimidanta* was treated with *Guda Agnikarma,* in which a sufficient quantity of *Guda* was heated in a ladle until it melted. It was applied to the affected tooth using a cotton roll around a thin *Shalaka* for 5 seconds, repeated three times in a single session. **Results:** Pain levels were assessed using the VAS Scale before and after *Agnikarma,* and the scores were recorded. **Discussion:** Applying *Guda Agnikarma* at the *Krimidanta* site has demonstrated substantial pain relief, indicating its therapeutic effectiveness. *Krimidanta,* primarily caused by vitiated *Vata* and *Kapha*, results in severe pain and is alleviated by the *Ushna*, *Tikshna*, *Sukshma*, and *Ashukari* properties of *Agnikarma*.

KEYWORDS: *Danta Shoola. Guda Agnikarma, Krimidanta.*

INTRODUCTION

Krimidanta is one of the *Danta Rogas* mentioned in the classical texts in *Ayurveda*. *Samanya Mukha Roga Nidana* can be incorporated into a comprehensive understanding of the manifestation of *Krimidanta,* which causes the vitiation of *Vata* that becomes localized in the *Danta*.

Then, the vitiated *Vata* causes the *Shoshana* (Drying) of the *Danta Majja* (Dental Pulp), leading to the *Danta Shaushira* (Hollow or Porous Tooth), which is understood as a potential space for food impaction. The recurrent food impaction will give rise to the formation of *Krimidanta*. This causes *Teevra arti* (Severe pain), which aggravates and then relieves itself on its own. Also, the affected *Danta* will become *Asita* (Blackish) and *Chala* (Mobile), along with *Puya* (Pus) and *Rakta Srava* (Blood Discharge).[1]

Krimidanta may be correlated with Dental caries, which represents a prevalent and troubling dental ailment with a considerable global incidence rate.

In the year 2019, a total of 3.09 billion cases of dental caries in permanent teeth were documented worldwide. This condition impacts nearly 54.16 percent of the Indian population annually.[2]

Vagbhatacharya mentioned the use of *Guda* for *Poorana* (Filling) and *Dahana* (Burning) of the affected tooth to alleviate the pain and to fill the remaining cavity resulting from the *Krimi* (Microorganism) with various other treatments.[3]

Agnikarma is an ancient para-surgical technique where the application of localized heat has been highly regarded for its efficacy in alleviating pain associated with various medical conditions.

Sushrutacharya mentions a variety of *Agnikarma Upakaranas* that are indicated to address a range of ailments and alleviate pain effectively. Sushrutacharya has recognized *Guda* as one of the *Agnikarma Upakaranas*, specifically indicated for the management of pain associated with disorders of *Sira*, *Snayu*, *Asthi*, and *Sandhi*.[4]

Hence, *Guda Agnikarma* was chosen to assess its efficacy in the management of pain associated with *Krimidanta* based on its symptomatology.

CASE REPORT

A 23-year-old female student from Bangalore reported at the OPD of the Department of Shalakya Tantra on 12th October 2024 with complaints of severe pain in the right side of the lower jaw for a week.

As per the history given by the patient, she was healthy two months ago. Then, during brushing, the patient noted a blackish discoloration on the lower right 2nd molar tooth. Initially asymptomatic, last week, the patient began experiencing mild pain in the lower right jaw, which intensified the following morning after eating.

The patient took analgesics for two days and did not have any significant relief. Now, as complaints persist, the patient came to our hospital for the management of the same.

Past History: Nothing Significant

Medical History: Zeredol SP 1 BD on the 6th and 7th of October, 2024.

Timeline

The detailed timeline of this case is shown in Table No. 1.

Table No. 1. Case Timeline.

Date	Onset of Symptoms
10th August 2024	The patient noted a blackish discoloration on the lower right molar. Initially asymptomatic.
5th October 2024	The patient started experiencing mild pain in the lower right jaw, which intensified the following morning after eating.
6th and 7th October 2024	The patient took Zeredol SP 1 BD and got no relief.

12th October 2024	The patient reported to Shalakya Tantra OPD for the c/o pain in the lower right jaw.
12th October 2024	The patient underwent Guda Agnikarma treatment.
13th October 2024	Follow up on Day 1, the VAS Score was 1
14th October 2024	Follow up on Day 2, the VAS Score was 0
22nd October 2024	Follow up on Day 10, the VAS Score was 0

Examination

General Examinations

The general examination is mentioned in Table No. 2.

Sr.No.	Table No. 2: General Examination.	
1.	BP	130/80 mmHg
2.	G.C.	Moderate, afebrile
3.	RS.	RR: 18/min, normal vesicular breath sounds
4.	CVS.	S1 and S2 heard. No added sounds
5.	CNS.	Conscious, oriented to time, place, and person
6.	Built	Moderate
7.	Height	5 feet, 3 inches
8.	Weight	72 kg
9.	BMI	27.6 kg/m^2

Local Examination

The local examination has been mentioned in Table No. 3.

Sr. No	Table No. 3: Local Examination	
	Extraoral Examination	
1.	Face and skin	Symmetrical face with no swelling or skin lesions.
2.	Head and scalp	No Tenderness or masses on palpation.
3.	Temporomandibular joint	Normal movements without pain or clicking.
4.	Neck	No palpable enlarged or tender lymph nodes.
5.	Lips	Smooth, pinkish, and moist with no cracks.
	Intraoral examination	
6.	Buccal mucosa	Pinkish and moist with no lesions or ulcers.
7.	Gingiva	Firm, pink, and do not bleed on probing.
8.	Tongue	Moist, pink, with no swelling.
9.	Floor of the mouth	Smooth with no masses or discolouration.
10.	Hard palate	Firm and intact.
11.	Soft palate	Pinkish and intact.
12.	Oropharynx	Clear and no redness.
	Tooth Examination	
13.	Affected teeth:	2nd Right Lower Molar. (Figure 1)
14.	Color	Greyish black Occlusion Surface. (Figure 2)
15.	Shape	Normal cusp
16.	Alignment	Normal
17.	Mobility	Absent

18.	Caries	Detectable enamel lesions with intact surfaces (non-cavitated)
19.	Plaque	Absent
20.	Calculus	Absent
21.	Arrangement	Cusp-Fossa Occlusion

Figure 1: **Affected Tooth.**

Figure 2: **Affected Tooth.**

MATERIAL AND METHODOLOGY

- ***Purva Karma***

  - Materials required for the procedure, i.e., *Guda (*Figure 3), *Shalaka* (Figure 4), Spoon, Candle, Cotton, and Gloves, were arranged.
  - The patient was made to sit comfortably on the chair facing the physician.

Figure 3: **Guda.**

Figure 4: **Cotton rolled around Shalaka.**

- ***Pradhana Karma***

  - A sufficient quantity (approximately 2-3 g) of *Guda* was heated in a spoon until it melted.
  - It was then applied to the affected tooth (at the site of the cavity) using cotton rolled around a thin *Shalaka* for 5 seconds, repeated three times in a single session.
  - Essential precautions were taken not to apply the heated *Guda* over the gingiva or mucosal area.
  - The same has been depicted below in Figures 5 to 8 in order.

Figure 5: **Guda melting with the help of a candle.**

Figure 6: **Melted Guda.**

Figure 7: **Melted Guda taken with cotton rolled Shalaka.**

Figure 8: **Application of Guda Agnikarma at the affected tooth.**

- ***Paschat Karma***

  - The patient was instructed to abstain from eating immediately following the *Agnikarma* procedure, but was advised to consume warm food after one hour.
  - The patient was instructed to consume warm water and maintain good oral hygiene for the next 3 - 4 days following the *Agnikarma*.

Assessment

The degree of pain in *Krimidanta* was assessed using the Visual-Analogue scale before and after *Guda Agnikarma* with three follow-ups. The following has been depicted below in Figure 9 and Table No. 4.

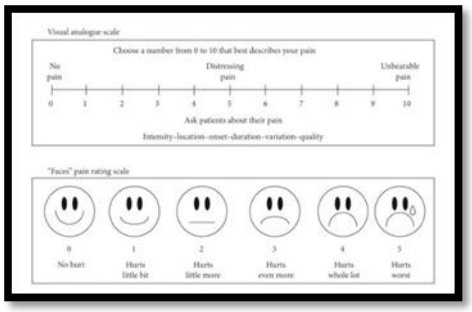

Figure 9: **VAS Scale for Pain assessment.**

Table No. 4: VAS SCALE	
Assessment	**Score on VAS**
No Pain	0
Mild Pain	1 – 3
Moderate Pain	4 – 6
Severe Pain	7 – 9
Worst Possible Pain	10

RESULTS

Results are derived based on the favourable subjective scores on the Visual Analogue Scale before and after intervention and during follow-ups, depicted below in Table No. 5.

Table No. 5: Results Based on VAS Scale.	
Assessment	**Score on VAS**
Before Intervention (Day 0)	9
After Intervention (Day 0)	4
First Follow-Up (Day 1)	1
Second Follow-Up (Day 2)	0
Third Follow-Up (Day 10)	0

DISCUSSION

In non-cavitated dental caries, pain can arise even without visible cavitation due to early demineralisation of enamel that exposes microscopic dentinal tubules. This exposure allows fluid movement within the tubules, which activates nerve endings in the dentin-pulp complex, a process explained by the hydrodynamic theory.[5]

The sharp, localized pain typically associated with this stage is mediated by A-delta fibres - myelinated sensory nerves that respond rapidly to stimuli such as cold. [6] Even unmyelinated C fibres may also become active in deeper involvement or prolonged irritation, producing dull and aching pain.

These signals are transmitted through the posterior superior alveolar nerve, a branch of the maxillary division (V2) of the trigeminal nerve.[7] From there, impulses travel to the trigeminal ganglion and enter the brainstem at the level of the pons, descending to the spinal trigeminal nucleus, particularly the subnucleus caudalis.[8]

Here, second-order neurons cross over and ascend to the thalamus via the trigeminophthalamic tract, eventually reaching the primary somatosensory cortex, where pain is perceived.[9]

As explained in the Gate Control Theory of Pain, pain is not solely the result of nociceptive signals but is modulated at the spinal level by Gates that can be opened or closed by other neural activity. The gates in this context are the spinal trigeminal nucleus in the brainstem.

Here, the application of thermal stimulus led to the activation of non-nociceptor fibres, i.e., A-beta fibres, which can "close the gate" at the level of the spinal cord or spinal trigeminal nucleus, thereby reducing the transmission of pain signals from A-delta and C fibres to higher brain centres.[10]

In *Guda Agnikarma*, due to *Ushna*, *Tikshna*, *Sukshma*, and *Ashukari Guna*, it helps in alleviating the *Vata-kapha doshas*. [11] In the present study, *Guda* is taken for *Agnikarma*, where it has shown the property of getting liquified at a temperature of 140° and then cools down within 10 seconds when applied over the tooth.[12]

Guda Agnikarma reduces pain not by acting directly on the pain-transmitting A-delta or C fibres inside the pulp but by stimulating the surrounding oral tissues where A-beta fibres are present. The gentle warmth and pressure from the heated material may activate these large, myelinated A-beta fibres in the periodontal ligament or adjacent gingival tissues.

According to the Gate Control Theory of Pain, these A-beta fibres engage inhibitory interneurons in the brainstem's trigeminal sensory nucleus, which suppress the

transmission of pain signals from nearby A-delta and C fibres. As a result, the "pain gate" is partially closed, leading to reduced perception of pain.[13]

This theory provides valuable insights into the complex interaction of these components within the spinal cord that occurs due to the effect of *Guda Agnikarma* and offers potential avenues for understanding and managing the acute onset of pain in *Krimidanta*.

CONCLUSION

The pathophysiology of pain in non-cavitated dental caries reveals a complex neurophysiological interaction primarily mediated by A-delta and C fibres through the trigeminal nerve pathway. Despite the absence of visible cavitation, early enamel demineralisation can initiate fluid shifts in exposed dentinal tubules, activating these pain fibres and transmitting signals to higher centres in the brain.

The Gate Control Theory of Pain offers a compelling framework for understanding how this pain can be modulated at the level of the spinal trigeminal nucleus.

The therapeutic application of *Guda Agnikarma*, utilising its *Ushna* (heat) and *Tikshna* (sharp) properties, appears to activate A-beta fibres in adjacent oral tissues, which in turn inhibit the transmission of nociceptive signals via inhibitory interneurons. This mechanism provides a scientific basis for the traditional intervention's analgesic effects and underscores its relevance in managing acute dental pain, particularly in conditions such as *Krimidanta*.

Hence, it can be inferred that *Guda Agnikarma* may be employed as the principal modality for alleviating severe pain or integrated as an initial step in the management of *Krimidanta* within specific treatment regimens that encompass various other therapeutic modalities.

Declaration of patient consent: The patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and that due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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