



## Clinical Research

# Vranaropaka effect of Laksha Churna with Madhu on wound after removal of Danta Sharkara

Mridulata Maurya, Dinesh K. Maurya<sup>1</sup>

Lecturer, Department of Shalaky Tantra, GJ Patel Ayurveda College, New Vallabha Vidya Nagar, Anand, Gujarat,  
<sup>1</sup>Professor and Head, Department of Shalaky Tantra, SKD Government Ayurveda College, Muzaffarnagar, Uttar Pradesh, India

### Abstract

According to Sushruta, disease in which plaque formed on teeth and hardened by the action of deranged *Vayu*, lies in a crystallized form at root of teeth is called as *Dantasharkara*. According to Vagbhata, accumulation of dirt on teeth by not cleaning them daily or of *Kapha* dehydrated by *Vata* adhering to the teeth, becoming hard and emits bad odor is known as *Dantasharkara* (Tartar). Tartar manifests as a deposit of inorganic salts composed primarily of calcium carbonate and phosphate mixed with food debris, bacteria and desquamated epithelial cells which reduce the quality of whiteness and strength of the teeth. Teeth loss is also not uncommon in tartar sufferers. Such deposits tend to destroy the healthy growth and function of teeth. It should be removed in such a way as not to hurt the roots of the teeth and then parts should be rubbed (*Pratisarana*) with *Laksha Churna* and *Madhu*. In trial group, management of tartar is attempted by local rubbing of *Laksha Churna* with *Madhu* on the surface of teeth and gingiva. Regeneration, repair and new attachment are the aspects of periodontal healing that are achieved by gingival physiotherapy on scaling wound. *Pratisarana* of *Laksha Churna* with *Madhu* is easy to apply, cost effective and free from side effects in comparison to systemic use of modern drugs.

**Key words:** *Dantasharkara*, *Laksha Churna*, *Madhu*, *Pratisarana*, *Vranaropaka*

## Introduction

Tartar is the single most common cause of teeth loss in adults. Disease attacks the gum, alveolar bone, periodontal ligament and cementum which are the supporting structures of the teeth. Causative factors are improper tooth brushing, fast changing lifestyle, faulty dietary habits, tobacco addiction and using more cooked food against hard and raw food, hence the need to chew the food grew less and less.<sup>[1]</sup> It allows the deposition of sticky materials on teeth due to lack of gum and teeth exercise.

If we do not follow the proper methods to clean the teeth in daily routine, plaque deposit mixes with sugar and starch in the diet to form acid and other byproducts in the mouth, irritating the gum and causing them to become red, tender and swollen. If not removed daily, plaque hardens to form tartar by calcification.

In spite of vast development of modern science, satisfactory

treatment of oral diseases by newer drugs are not achieved, rather than the chemical compounds have exposed the patient to their different ill effects. After primary review of textual references, it was found that *Laksha Churna* and *Madhu* both have wound healing properties.<sup>[2]</sup>

Keeping these properties in view, a study on the “*Vranaropaka* effect of *Laksha Churna* with *Madhu* on wound after removal of *Dantasharkara*” was designed in interest of the patient’s health.

## Aims and Objectives

Present study is designed with the following objectives.

1. To assess the *Vranaropaka* property of *Laksha Churna* and *Madhu*.
2. To assess the changes in condition of gum and teeth after *Pratisarana* of *Laksha Churna* with *Madhu* on scaling wound.

## Materials and Methods

### Inclusion criteria

1. Patients between 15 to 60 years of age group.

**Address for correspondence:** Dr. Mridulata Maurya,  
 D/O Dr. Radhey Shyam Maurya,  
 305-E, Nakaha No. 1, Teacher’s Colony, Naya Tola  
 Basaratpur, Gorakhpur, U.P.-273 004, India.  
 E-mail: drmridulata@gmail.com

2. Patients having normal BT and CT.
3. Patients having swollen gums, bleeding gums with tartar.
4. Mobility of teeth + or ++.

### Exclusion criteria

1. Patients having Hb % below 5 g.
2. Patients with acute conditions like acute pulpitis, acute Ludwig's angina.
3. Patients having mouth ulcers.
4. Mobility of teeth +++ or more.

+	Less than 0.5 mm labio-lingual movement
++	Less than 1 mm labio-lingual movement
+++	1mm or more labio-lingual displacement and including tooth movement up and down in an axial direction

### Randomization and treatment schedule

Sixty cases were randomly selected on the basis of clinical presentation and patient's narration from dental OPD of Shalakya Tantra. Patients are divided into two groups namely A (Trial group) and B (Standard group) and were asked to follow-up in O.P.D on 3<sup>rd</sup>, 7<sup>th</sup>, 15<sup>th</sup> day and on 1 month.

#### Group A: Trial group

Thirty patients were advised to apply *Laksha Churna* with *Madhu* on surface of teeth and gum after scaling. It is applied twice a day for 7 days.

#### Group B: Standard group

Thirty patients were advised to take Tab. Ciprofloxacin 500 mg and Tab. Diclofenac sodium 50 mg after scaling. It is given twice a day after meal for 5 days.

#### Pathyapathya

Patients of both groups were asked to follow same *Pathyapathya*. All patients were advised to brush teeth twice a day and eating nutritious diet to avoid deposition of tartar further.

### Methods

Both subjective and objective parameters were taken into consideration for the assessment of drug efficacy on scaling of wound. All clinical observations were recorded in a tabular form as follows:

At the end of the study, all follow-up patients were subjected to the data as compiled and interpreted.

The result have been classified according to the percentage of effectiveness on signs and symptoms as follows:

- Very effective- 90-99% effective on signs and symptoms.
- Effective- 75-90% effective on signs and symptoms.
- Slight effective- 50-75% effective on signs and symptoms.
- Not significant - Below 50% effective on signs and symptoms.

## Observations and Results

### General observations

1. A maximum of 51.67% patients were belonging to 30-45 years of age group, where the age group of 30-45 year is the standard monitoring age group for the oral health of adults especially for the level of severe periodontal involvement and general effects of care.

2. A maximum of 61.67% patients were females. It is probably due to lack of awareness about the oral hygiene.
3. A maximum of 70.00% patients were from rural area, suggesting that patients having poor nutrition which are considered to be one cause of tartar deposits.
4. A maximum of 41.67% patients were from lower middle class. This may be a reflexion of socio-economic factors which in turn determine both nutritional status and oral hygiene habits.
5. A maximum of 55.00% patients were *Pitta-Kaphaja Prakriti*, suggesting tartar deposits are more common in *Pitta-Kaphaja Prakriti* cases [Table 1].
6. A maximum of 56.67% patients were housewives, suggesting patients neglect their oral hygiene due to lack of awareness.
7. A maximum of 60.00% patients were addicts, suggesting that these are aggravating factors for the tartar.
8. A maximum of 48.33% patients were having mixed (supra and sub-gingival) type of tartar deposits, neglected oral hygiene in primary stage.
9. A maximum of 53.34% patients were having moderate type of tartar suggesting that chronic gingivitis and periodontitis supervene if not treated early.
10. 100% patients were having bleeding gums, swollen gums and pain, 91.67% patients had reduced teeth strength, 88.33% patients complaint of mobility of teeth, 95.00% patients had reduced teeth whiteness, 91.67% patients had halitosis.

### Effect of treatment

#### Bleeding gums

50.00% patients were improved on 3<sup>rd</sup> day, 70.00% improved on 7<sup>th</sup> day, 86.67% were improved on 15<sup>th</sup> day and 1 month follow-up in group A.

60.00% patients were improved on 3<sup>rd</sup> day, 66.67% improved on 7<sup>th</sup> day, 80.00% were improved on 15<sup>th</sup> day and 1 month follow-up in group B [Tables 2,3].

It signifies that the *Pratisarana* of *Laksha Churna* with *Madhu* causes haemostatic action on fragile oozing capillaries at wound site.

#### Swollen gums

46.67% patients were improved on 3<sup>rd</sup> day, 73.33% improved on 7<sup>th</sup> day, 90.00% were improved on 15<sup>th</sup> day and 1 month follow-up in group A.

53.33% patients were improved on 3<sup>rd</sup> day, 70.00% improved on 7<sup>th</sup> day, 83.33% were improved on 15<sup>th</sup> day and 1 month follow-up in group B [Tables 2,3].

It signifies that the *Pratisarana* of *Laksha Churna* with *Madhu* has an anti-inflammatory action.

#### Pain

36.67% patients were improved on 3<sup>rd</sup> day, 66.67% improved on

**Table 1: Prakriti wise distribution of 60 patients**

Type of Prakriti	Group A no. (%)	Group B no. (%)	Total no. (%)
Vata-Pittaja	06 (20.00)	05 (16.66)	11 (18.33)
Pitta-Kaphaja	16 (53.33)	17 (56.67)	33 (55.00)
Vata-Kaphaja	08 (26.67)	08 (26.67)	16 (26.67)

**Table 2: Effect of therapy on signs and symptoms in Group A**

Signs/ Symptoms	No. of patient with presenting complaint	Improvement after scaling on same day	Improvement in follow-up			
			1 <sup>st</sup> day	3 <sup>rd</sup> day	7 <sup>th</sup> day	15 <sup>th</sup> day
Bleeding gum	30	0	15	21	26	26
Swollen gum	30	0	14	22	27	27
Pain	30	0	11	20	24	24
Teeth strength	28	0	13	22	25	25
Mobility	26	0	10	16	22	22
Teeth whiteness	28	0	16	20	24	24
Halitosis	28	0	15	18	25	25

**Table 3: Effect of therapy on signs and symptoms in Group B**

Signs/ Symptoms	No. of patient with presenting complaint	Improvement after scaling on same day	Improvement in follow-up			
			1 <sup>st</sup> day	3 <sup>rd</sup> day	7 <sup>th</sup> day	15 <sup>th</sup> day
Bleeding gum	30	0	18	20	24	24
Swollen gum	30	0	16	21	25	25
Pain	30	0	15	19	26	26
Teeth strength	27	0	14	20	22	22
Mobility	27	0	11	15	23	23
Teeth whiteness	29	0	15	20	23	23
Halitosis	27	0	10	15	21	21

7<sup>th</sup> day, 80.00% were improved on 15<sup>th</sup> day and 1 month follow-up in group A.

50.00% patients were improved on 3<sup>rd</sup> day, 63.33% improved on 7<sup>th</sup> day, 86.67% were improved on 15<sup>th</sup> day and 1 month follow-up in group B [Tables 2,3].

It signifies that the *Pratisarana* of *Laksha Churna* with *Madhu* has analgesic action.

#### **Teeth strength**

46.43% patients were improved on 3<sup>rd</sup> day, 78.57% improved on 7<sup>th</sup> day, 89.29% were improved on 15<sup>th</sup> day and 1 month follow-up in group A.

51.86% patients were improved on 3<sup>rd</sup> day, 74.07% improved on 7<sup>th</sup> day, 81.48% were improved on 15<sup>th</sup> day and 1 month follow-up in group B [Tables 2,3].

It signifies that the *Pratisarana* of *Laksha Churna* with *Madhu* increases gingival tone, surface keratinization and regeneration of gingival epithelial cells and thus strength of the teeth is restored.

#### **Tooth mobility**

38.46% patients were improved on 3<sup>rd</sup> day, 61.54% improved on 7<sup>th</sup> day, 84.62% were improved on 15<sup>th</sup> day and 1 month follow-up in group A.

40.74% patients were improved on 3<sup>rd</sup> day, 55.56% improved on 7<sup>th</sup> day, 85.19% were improved on 15<sup>th</sup> day and 1 month follow-up in group B [Tables 2,3].

It signifies that the *Pratisarana* of *Laksha Churna* with *Madhu* reduces pocket formation and helps in regain normal gingiva due to its astringent and purifying property.

#### **Teeth whiteness**

57.14% patients were improved on 3<sup>rd</sup> day, 71.43% improved on

7<sup>th</sup> day, 85.71% were improved on 15<sup>th</sup> day and 1 month follow-up in group A.

51.72% patients were improved on 3<sup>rd</sup> day, 68.97% improved on 7<sup>th</sup> day, 79.31% were improved on 15<sup>th</sup> day and 1 month follow-up in group B [Tables 2,3].

It signifies that the *Pratisarana* of *Laksha Churna* with *Madhu* removes stained pellicle from the tooth surface and enhances enamel whiteness.

#### **Halitosis**

53.57% patients were improved on 3<sup>rd</sup> day, 64.29% improved on 7<sup>th</sup> day, 89.29% were improved on 15<sup>th</sup> day and 1 month follow-up in group A.

37.04% patients were improved on 3<sup>rd</sup> day, 55.56% improved on 7<sup>th</sup> day, 77.78% were improved on 15<sup>th</sup> day and 1 month follow-up in group B [Tables 2,3].

It signifies that the *Pratisarana* of *Laksha Churna* with *Madhu* removes toxins, debris, food and bacterial particles; cleans the teeth, tongue and gingivae and makes breathe fresh.

#### **Overall effect on 1<sup>st</sup> month**

Both groups show effective results on all signs and symptoms. It signifies that result in group A has shown more or less identical effect on tartar induced periodontal signs and symptoms against group B [Table 4].

## **Discussion**

Tartar in all 60 patients was removed by ultrasonic scaler as it acts as a barrier in healing. By ultrasonic scaler probe, the stream of water in the forms of tiny bubbles came in contact

**Table 4: Summary of statistical analysis: (Combined)**

Signs/Symptoms	Total	Improved	Not Improved	% relief	$\chi^2$	Probability	Significance
Bleeding gum							
Group A	30	26	04	86.67	0.480	$P>0.05$	Insignificant
Group B	30	24	06	80.00			
Swollen gum							
Group A	30	27	03	90.00	0.1442	$P>0.05$	Insignificant
Group B	30	25	05	83.33			
Pain							
Group A	30	24	06	80.00	0.480	$P>0.05$	Insignificant
Group B	30	26	04	86.67			
Teeth strength							
Group A	28	25	03	89.29	0.1920	$P>0.05$	Insignificant
Group B	27	22	05	81.48			
Mobility							
Group A	26	22	04	84.62	0.1062	$P>0.05$	Insignificant
Group B	27	23	04	85.19			
Teeth whiteness							
Group A	28	24	04	85.71	0.0825	$P>0.05$	Insignificant
Group B	29	23	06	79.31			
Halitosis							
Group A	28	25	03	89.29	0.6221	$P>0.05$	Insignificant
Group B	27	21	06	77.78			

with the teeth surfaces will collapse and release shock waves. This has a bactericidal effect as it causes bacterial cell wall lysis. The stream of water produces pressure within the confined space of the periodontal pocket. This process can destroy Gram-negative rods and other bacteria. In trial group, *Laksha Churna* and *Madhu* encourages reattachment of gum to tooth surface due to its wound healing property.

### Wound healing property of *Laksha*

#### *Ayurvedic aspect*

*Laksha* has *Kashaya*, *Tikta* and *Madhura Rasa* which is called *Saumya Rasa*. It pacifies *Pitta*. It is mentioned in *Vranaropaka Churna* in *Bhela samhita*.<sup>[3]</sup> It has *Vednashamana*, *Daha Prashaman*, *Shothahara* and *Krimihara* properties.<sup>[4]</sup>

#### *Modern aspect*

*Laksha* is having a mild abrasive action, which aids in eliminating plaque through cleaning and polishing tooth surfaces.<sup>[5]</sup> It restores natural luster and also enhances enamel whiteness.

*Laksha Churna* is astringent, having analgesic and anti-inflammatory property.

Its coloring agent imparts its color to soft deposits but can be rinsed easily from clean tooth surfaces so help in plaque control.

### Wound healing property of *Madhu*

#### *Ayurvedic aspect*

*Madhu* has *Sheeta Guna*, having *Madhura* and *Kashaya Rasa* which are contradictory to the properties of *Daha* and *Pitta*. It is mentioned in *Rakta Sthapana Mahakashaya* and in *Sandhaniya Mahakashaya*.<sup>[6]</sup> It pacifies all three *Doshas*, having *Vrana Shodhana*, *Sandhana*, *Ropana* and *Krimihara* property.<sup>[7]</sup>

#### *Modern aspect*

*Madhu* increases the flow of saliva which contains a large number of leucocytes mainly polymorphonuclear leucocytes that migrate through the epithelium of the gingival crevice has not only a bactericidal effect but rinsing function also.

Thermolabile and photolabile substances that give *madhu* its bactericidal properties. Content of specific substances (inhibins) destroy many pathogens such as the *Staphylococcus* and the *Diphtheria bacillus*.

Hygroscopic nature of *Madhu* (by the potassium content) withdraws the moisture from the bacteria, which is essential for their existence and enables the wound to dry quickly.

*Madhu* stimulates the saliva flow which provides a protective coating for the oral tissues. Because of its bicarbonate and phosphate content it can act to buffer acids from food or micro-organisms. It contains lysozymes which lyse certain microorganisms, e.g., some *Staphylococci* and Gram-negative organisms, by breaking up cell walls.

*Madhu* contains small amounts of all the B vitamins (except B<sub>12</sub>) and vitamin C (ascorbic acid). These vitamins are most needed for the healing process of gingivae. Vitamin C is necessary for synthesis and maintenance of collagen. It is said to have crystal inhibiting properties and prevents plaque deposits.

Tissue responses after treatment in trial group are:

1. Epithelium restores surface continuity.
2. Connective tissue attaches bone to cementum and establish bone height.
3. Bone restores balance between formation and resorption.
4. Cementum attaches periodontal fibers [Figure 1].

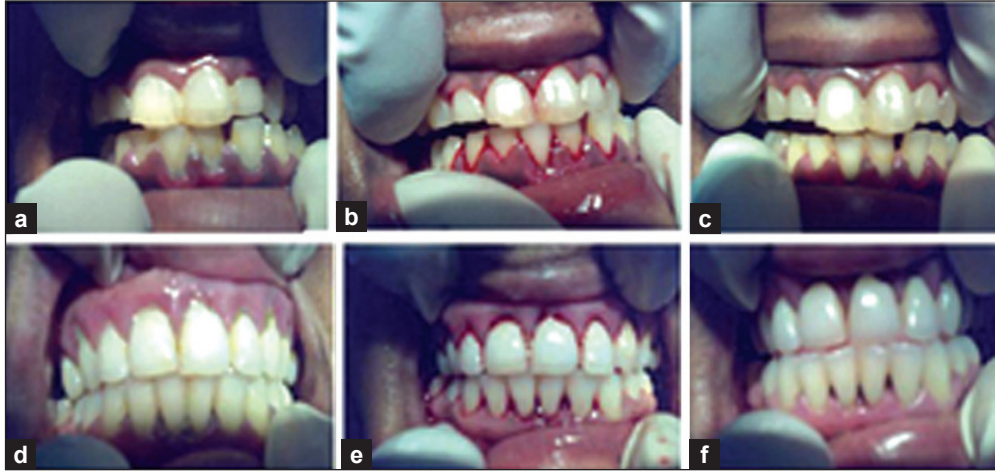


Figure 1: Group A - (a) Tartar deposits on teeth before treatment; (b) Wound after scaling; (c) Healing after treatment. Group B - (d) Tartar deposits on teeth before treatment, (e) Wound after scaling, (f) Healing after treatment

## Conclusions

In trial group, rationale behind *Pratisarana* of *Laksha Churna* with *Madhu* is the fact that mechanical stimulation of the gingival cleansing by finger massage plays an important role in increasing gingival tone, surface keratinization and gingival circulation. This is resulted in an overall improvement in the gingival health due to modulation of the gingival host defence mechanism.

On the basis of the results of present study, it can be concluded that the *Pratisarana* of *Laksha Churna* with *Madhu* on scaling wound can have better line of treatment in the successful management of tartar without any systemic use of drugs.

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## हिन्दी सारांश

# दन्तशर्करा उन्मूलन पश्चात मधु युक्त लाक्षा चूर्ण लेप के व्रणरोपण प्रभाव का अध्ययन

मृदुलता मौर्य, दिनेश के. मौर्य

आयुर्वेदानुसार दाँतों को ठीक प्रकार साफ न रखने से वायु से शोषित कफ अथवा दन्तगत मल जम कर कड़ा हो जाता है। इससे दाँतों की दृढ़ता, शुक्लत्व, सौन्दर्य आदि गुण चला जाता है। इसमें मुख से दुर्गन्ध आती है। इसको दन्तशर्करा कहते हैं। आधुनिक विचार से, मैल जम जाने से जो कठिन पदार्थ दाँतों पर जम जाता है उसको Tartar कहते हैं। इसकी चिकित्सा में दन्तशर्करा का उन्मूलन कर देना चाहिये परन्तु ध्यान रहे कि दन्तमूल को कोई क्षति न पहुँचे। इसके बाद लाक्षा चूर्ण में शहद मिलाकर उस स्थान पर प्रतिसारण कर्म करना चाहिये। दन्तशर्करा को उखाड़ने के बाद लाक्षा चूर्ण एवं शहद के व्रण रोपण गुण से व्रण जल्दी ठीक हो जाता है। यह प्रयोग में आसान, सस्ता एवं दुष्परिणाम रहित है।