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A Clinical Study on the efficacy of *Laksha Choorna Pratisarana* and *Tila Taila Kavala* in the control of *Danta Sharkara*

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ABSTRACT

Introduction: *Danta Sharkara* (Dental Calculus) is one among the *Danta Rogas* (Diseases of Tooth) characterized by, hardened accumulation of *Mala* (dirt) on tooth surface which destroys the teeth and its surrounding structures. It can be compared to Dental calculus, which is a calcified mass that forms on and adheres to the surface of teeth causing periodontal diseases. Modern approach of treatment is Scaling and Root planing. Ultrasonic scalers are used widely by the dentists, which is more efficient method, but it has certain drawbacks. Long term use of mouth washes and dentifrices also have shown adverse effects. Considering these drawbacks in modern dentistry present study was taken up to evaluate the efficacy of local therapeutic procedure mentioned in our classics for calculus removal and its control. **Materials and Methods:** 40 patients were selected and randomly divided into Group A and B consisting of 20 patients each. Group A was treated by *Lakshachoorna Pratisarana* (rubbing lac) with *Madhu* (honey) after Scaling followed by *Tilataila Kavala* (gargle with gingelly oil) for a period of 3 months. Group B was treated by Ultrasonic Scaling followed by Chlorhexidine mouth wash for a period of 3 months. **Result:** In the present study, It was found that Group A showed better improvement in calculus index and lesser recurrence rate.

Key words: *Danta Sharkara*, *Dental Calculus*, *Scaling*, *Laksha Choorna Pratisarana*, *Tilataila Kavala*.

INTRODUCTION

Good oral hygiene is not just important, it's probably even more important than we think. Bad oral hygiene can kill us. Over the past decade, researchers have discovered that bad oral hygiene can trigger immune system reactions that can lead to heart attacks and strokes. The CDC estimates that more than 90% of

adults over the age of 40 have tooth decay due to bad oral hygiene.

In Ayurveda, *Dantaswasthyan* (dental health) is held to be very individualistic, varying with each person's *Prakriti* (Human Constitution) and *Kala Parinama* (Time factor). If oral hygiene is not maintained then it leads to various *Danta Rogas*. 8 *Danta Rogas* are mentioned in our classics among which *Danta Sharkara* is one such disease which occurs due to inadequate oral hygiene.

According to *Acharya Sushruta*, Dirt of the teeth becoming hard like crystals of sugar adhering to the teeth is to be known as *Danta Sharkara*.^[1]

The line of treatment as told in our classics is removal of the *Sharkara* by *Shastra* (instrument) without hurting the root of tooth, followed by *Pratisarana* with powdered *Laksha* and honey.^[2] *Dantashanku* is

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used to clean *Danta Sharkara*, which measures 6 *Angula*. It has a tip which is bent and measures $\frac{1}{2}$ *Angula*.^[3] The treatments mentioned for *Danta Harsha* (Dental Hypersensitivity) may as well be employed in this disease.^[2] For *Dantaharsha*, gargling the mouth with warm oil or ghee boiled with *Trivrt* (*Operculina turpethum*), drinking decoction of drugs mitigating *Vata*, inhalation of smoke which is lubricating, so also lubricating nasal medication are beneficial. Foods like Soup of meat, thick gruel prepared of meat, cream of milk and ghee must be used more. *Shiro Basti* is beneficial so also other *Vata* mitigating therapies.^[2]

The disease *Danta Sharkara* can be compared to Dental calculus, which is considered as one of the major problems in Modern Dentistry. Dental calculus is an adherent, calcified or calcifying mass that forms on the surfaces of teeth and dental appliances. It is covered on its external surface by vital, tightly adherent, nonmineralized plaque.^[4] Calculus consists of mineralized bacterial plaque that forms on the surfaces of natural teeth and dental prostheses.^[5]

Depending upon the position of calculus in relation to the marginal gingiva it is classified as;

- 1. Supragingival Calculus:** It is the tightly adherent calcified deposit that forms on the clinical crowns of the teeth above the free gingival margin. Hence, it is clinically visible. It is also called as salivary calculus, because it forms from the saliva.
- 2. Subgingival Calculus:** As the name implies, it is that calcified deposits that is formed on the root surfaces below the free marginal gingival. It is believed to be formed from the gingival exudates and hence called serumal calculus.^[4]

Once tartar forms on teeth, it may be more difficult to brush and floss effectively. If this is the case, the acids released by the bacteria in the mouth are more likely to break down tooth enamel. Tartar that develops above the gum line can be especially serious. That is because the bacteria it harbors may irritate and damage gums leading to gingivitis.

If tartar is not removed and gingivitis is left untreated, it can progress into periodontitis. With this gum

disease, pockets form between the gums and teeth. Those pockets become infected by bacteria beneath the gums. The body's immune system releases chemicals to fight the bacteria. These chemicals along with the substances the bacteria release can damage the bone and other tissues that hold the teeth in place. This can lead ultimately to tooth loss and bone degradation. In addition, studies have shown that these bacteria may contribute to heart disease as well as other conditions. Even in Ayurvedic classics it is quoted that, if the enamel starts eroding away along with *Sharkara* then it is called as *Kapalika* which destroys the teeth.^[1]

Approach of treatment in modern medicine is Scaling and root planing. Scaling is the process by which biofilm and calculus are removed from both supragingival and subgingival tooth surfaces. No deliberate attempt is made to remove tooth substance along with the calculus. Root planing is the process by which residual embedded calculus and portions of cementum are removed from the roots to produce a smooth, hard, clean surface.^[6]

Scaling consists of removal of soft and hard deposits on tooth surface by powerful short strokes of scaler. It is performed using hand instruments, ultrasonic instruments or rotating instruments. Ultrasonic scalers are used widely now a day by the dentists. Though it is more efficient and convenient method, it has certain drawbacks. Studies have shown that ultrasonic scaling leaves behind a rough tooth surface which makes further plaque accumulation and hence calculus formation easier. Chemical agents such as mouth washes and dentifrices used as an adjunct to mechanical removal, inhibit plaque and calculus formation. But these when used for long term have shown adverse effects such as extrinsic staining of teeth, impaired taste sensation, dryness and soreness of mucosa.

Modern Dentistry has advanced a lot in terms of its numerous specialties and technical precision. Despite this advancement, the dental and related disorders are in a steady rate of increase. The approach of Western Dentistry is more mechanical than biological.

Considering these drawbacks in modern dentistry present study was taken upto evaluate the efficacy of local therapeutic procedure i.e. *Laksha Choorna Pratisarana* with *Madhu* and *Tila Taila Kavala* mentioned in our classics for control of Calculus after its removal by scaling.

OBJECTIVE OF THE STUDY

- To establish the efficacy of *Laksha Choorna Pratisarana* with *Madhu* after Ultrasonic Scaling followed by *Tila Taila Kavala* in control and prevention of *Danta Sharkara*.
- To establish the efficacy of Ultrasonic Scaling followed by Chlorhexidine mouth wash in the control and prevention of *Danta Sharkara*.
- To compare the efficacy of *Laksha Choorna Pratisarana* with *madhu* after Ultrasonic Scaling followed by *Tila Taila Kavala* with efficacy of Ultrasonic Scaling followed by Chlorhexidine mouth wash in the control and prevention of *Danta Sharkara*.

MATERIALS AND METHODS

Methods of collection of data

A total of 40 patients having the features of supragingival calculus were selected for the study irrespective of sex, occupation, religion and social status from Shalaky Tantra OPD & IPD of Sri Jayachamarajendra Institute of Indian Medicine, Bangalore.

Selection of the patients

The selection of the patients was done on the basis of clinical examination. After establishing the diagnosis of *Danta Sharkara* 40 patients were selected for the study. The selected patients were divided randomly into 2 groups as Group A and Group B consisting of 20 patients each.

Inclusion criteria

1. Patient aged between 15 to 65 years
2. Patients with Supra gingival calculus.

Exclusion criteria

1. Patients below 15 years of age and above 65 years.
2. Patients contraindicated for Scaling

Investigations

All the patients in the study were subjected to Routine Blood and Urine analysis.

Study Design

40 patients selected were randomly divided into 2 groups with 20 patients each.

A) Treatment adopted in Group A

Group 'A' was treated by *Laksha Choorna Pratisarana* with *Madhu* after Scaling followed by *Tila Taila Kavala* for a period of 3 months.

Procedure:

The patient was asked to sit on dental chair. Since there was difficulty in using hand scalers supragingival calculus was removed gently with the help of Ultrasonic scaler. Then *Lakshachoorna* with *madhu* was rubbed over the teeth and gums and left in situ for 5 minutes. This was followed by *Tila Taila Kavala*, i.e., vigorous rinsing of the mouth.

This procedure was advised to be done twice daily, morning & night before going to bed, for a period of 3 months. Later, follow up was done for 6 months. During this period patients were advised to maintain oral hygiene.

B) Treatment adopted in Group B

Group 'B' was treated by Ultrasonic Scaling followed by Chlorhexidine mouth wash for a period of 3 months.

Procedure

The patient was asked to sit on dental chair. With the help of Ultrasonic scaler, supragingival calculus was removed gently. Then the patient was given Chlorhexidine mouth wash in 1:1 dilution (1 part solution and 1 part water) for rinsing the mouth.

Patients in this group were advised to maintain oral hygiene and to continue mouth wash with

Chlorhexidine twice daily, morning and night before going to bed, for a period of 3 months. Later, follow up was done for 6 months.

Instructions given to the patient during the period of treatment

The patients were advised to maintain oral hygiene. They were asked to brush twice daily and were advised to gargle the mouth after each meal.

Parameters for the clinical study

The subjective and objective parameters were graded as follows;

1. Calculus index (Green and Vermillion)

Grade 0	No Calculus present	Good
Grade 1	Supra gingival calculus covering not more than one third of exposed tooth surface	Mild
Grade 2	Supra gingival Calculus covering more than one third but not more than two thirds of exposed tooth surface or the presence of individual flecks of subgingival calculus around the cervical portion of tooth or both	Moderate
Grade 3	Supra gingival Calculus covering more than two thirds of the exposed tooth surface or a continuous heavy band of subgingival calculus around the cervical portion of the tooth , or both	Severe

2. Gingival index (Loe, 1967)

Grade 0	Healthy gingivae	Good
Grade 1	Gingivae look inflamed, but don't bleed when probed	Mild

Grade 2	Gingivae look inflamed & bleed when probed	Moderate
Grade 3	Ulceration & spontaneous bleeding	Severe

3. Gum recession index (PD Miller's)

Class I	Marginal tissue recession that does not extend to mucogingival junction. No loss of bone or soft tissue in interdental area.	Mild
Class II	Marginal tissue recession that extends to or beyond mucogingival junction. No loss of bone or soft tissue in interdental area.	Moderate
Class III	Marginal tissue recession that extends to or beyond mucogingival junction with loss of bone or soft tissue in interdental area or malpositioning of tooth.	Severe
Class IV	Marginal tissue recession that extends to or beyond mucogingival junction with severe loss of bone or soft tissue in interdental area or severe malpositioning of tooth.	

4. Halitosis index

Grade 0	No bad odour	Good
Grade 1	Slight bad odour	Mild
Grade 2	Moderate bad odour decreases after mouth wash	Moderate
Grade 3	Persistent bad odour even after repeated mouth wash	Severe

OBSERVATION AND RESULTS

Table 1: Showing effect of treatment on individual parameters in Group A.

Parameter	Mean		Mean diff (d)	% diff (d)	SD	SE	t	p	Remarks
	B. T	A. T							
Calculus index	1.5	0.0	1.5	100	0.6882	0.1539	9.747	P<0.001	HS
Gingival index	1.75	0.95	0.8	45.71	0.4104	0.0917	8.718	P<0.001	HS
Gum recession	1.65	1.6	0.05	3.03	0.2236	0.0500	1.000	p>0.10	NS
Halitosis index	1.0	0.05	0.95	95	0.9445	0.2112	4.498	P<0.001	HS

Figure 1: Showing effect of treatment on individual parameters in Group A.

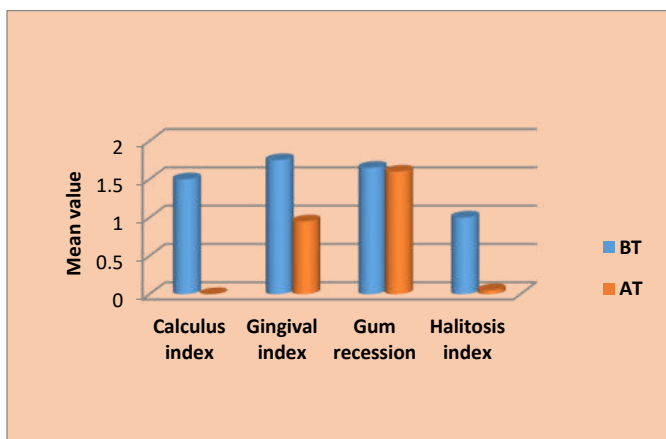


Table 2: Showing effect of treatment on individual parameters in Group B

Parameter	Mean		Mean diff (d)	% diff (d)	SD	SE	t	p	Remarks
	B. T	A. T							
Calculus index	1.35	0.1	1.25	92.5	0.5501	0.1230	10.16	P<0.001	HS
Gingival index	1.7	1.05	0.65	38.2	0.4894	0.1094	5.940	P<0.001	HS

index	B. T	A. T	Mean diff (d)	% of diff (d)	SD	SE	t	P	Remarks
Gum recession	1.8	1.7	0.1	5.5	0.3078	0.0688	1.453	p>0.10	NS
Halitosis index	1.1	0.05	1.05	95.45	0.8256	0.1846	5.688	P<0.001	HS

Figure 2: Showing effect of treatment on individual parameters in Group B

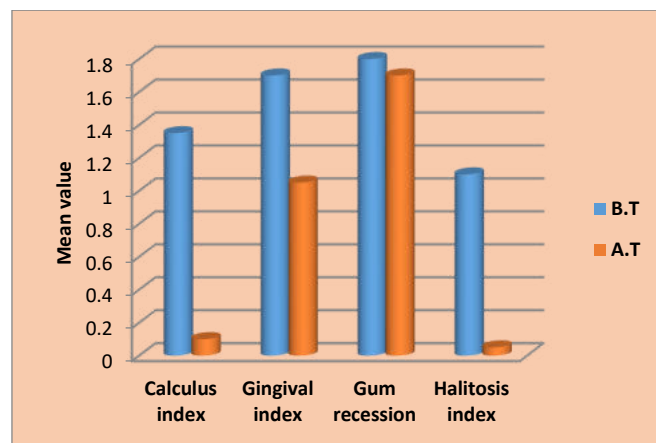


Table 3: Comparison of effect of treatment on Parameters in "Group A" and "Group B" after treatment.

Parameter	Group	Mean diff (d)	% of diff (d)	SD	SE	t (df=38)	P	Remarks
Calculus index	A	1.5	100	0.6229	0.1970	1.269	p>0.10	NS
	B	1.25	92.5					
Gingival index	A	0.8	45.71	0.4516	0.1428	1.050	p>0.10	NS
	B	0.65	38.2					
Gum recession	A	0.05	3.03	0.2690	0.0851	0.5878	p>0.10	NS
	B	0.15	5.55					
Halitosis index	A	0.95	95	0.8870	0.2805	0.3565	p>0.10	NS
	B	1.05	95.45					

Figure 3: Comparison of effect of treatment between Groups A & B

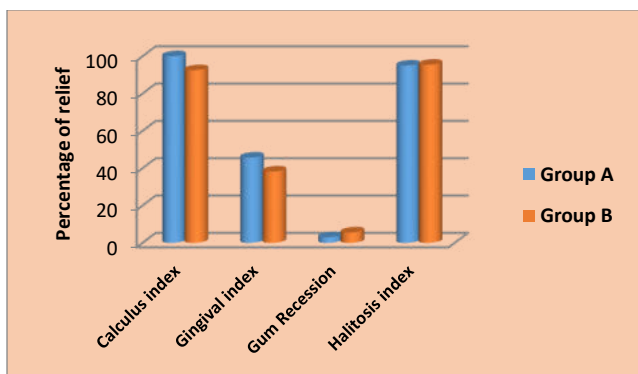


Table 4: Showing distribution of observations after the follow-up period in trial groups.

Calculus	Group A		Group B	
	No. of patients	%	No. of patients	%
Recurrence	04	20	8	40
Non-recurrence	16	80	12	60
Total	20	100	20	100

Figure 4: Showing observation after the follow-up period.

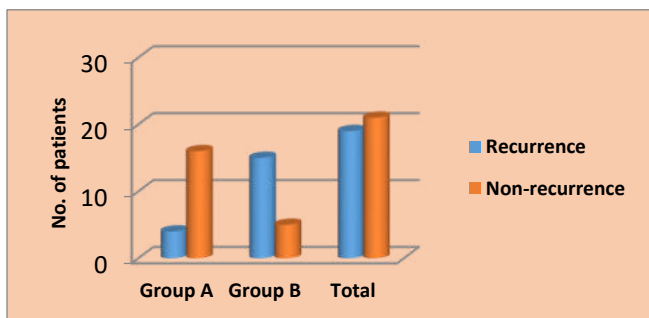


Figure 5: Before Treatment



Figure 6: After Treatment



Figure 7: After Follow Up



DISCUSSION

In order to evaluate the comparative efficacies of the treatment in both groups, student ‘t’ test was applied to Calculus index, Gingival index, Halitosis index and Gum recession index. Paired ‘t’ test was applied to evaluate the efficacy of treatment on the parameters within the Group and Unpaired ‘t’ test was applied to compare the efficacies between the 2 groups.

Overall assessment of results in the groups

a) At the end of treatment

In Group A, 80% patients showed moderate response and in Group B, 60% patients showed moderate response.

b) After follow-up

In Group A, 60% showed moderate response and in Group B, 40% showed mild response.

Comparative effects of therapy between Groups A & B after follow-up

a) Calculus index

There is statistically significant result between Group A & Group B at the level $p < 0.05$ with success rates of 86.67% in Group A and 70.37% in Group B after follow-up. This shows that Group A therapy is more effective than Group B.

b) Gingival index

There is statistically no significant result between Group A & B at the level $p > 0.10$ with success rates of 31.42% in Group A and 26.47% in Group B after follow-up. This shows that Group A therapy is more effective than Group B.

c) Gum recession

There is statistically no significant result between Group A & Group B at the level $p > 0.10$ with success rates of 3.03% in Group A and 0% in Group B after follow-up. This shows that Group A and Group B therapy are equally effective.

d) Halitosis index

There is statistically no significant result between Group A & B at the level $p > 0.10$ with success rates of 100% in Group A and 63.63% in Group B after follow up, suggesting Group A therapy is effective than Group B.

Probable mode of action of Laksha Choorna

Laksha has *Kashaya* (astringent), *Tikta* (bitter) and *Madhura Rasa* (sweet taste), hence it pacifies *Pitta*. It has *Vedana Shamana* (pain reliever), *Daha Prashaman* (relieves burning sensation) and *Shothahara* (anti-inflammatory) properties. It also helps in healing of wound caused due to scaling by its *Vranaropaka* (wound-healing) properties. It has *Krimiharaguna* (anti-bacterial) which may help in reducing plaque accumulation. Based on its *Dravya-guna* it has acted on *Danta Sharkara* and has helped in control of plaque and hence, tartar.

Laksha (Lac) is a natural, non toxic, physiologically harmless and edible resin. It is acidic in character. It is

having a mild abrasive action, which aids in eliminating plaque through cleaning and polishing tooth surfaces. It restores natural luster and also enhances enamel whiteness. Its coloring agent imparts its color to soft deposits which can be rinsed easily from tooth surfaces and hence help in plaque control.

Studies have suggested a relationship between oral disorders and a reduced level of antioxidant capacity that may be explained by an age-related reduction in the level of antioxidants in saliva and/or by the age-related increase of ROS and oxidative stress in the oral cavity. Dental products as well as dietary and environmental compounds are among the many sources of ROS. In particular, tobacco smoking promotes ROS release, resulting in heightened oxidative damage to periodontal tissues.

Aleuritic acid, a major constituent of lac resin, is a potential substitute for alpha-hydroxy acids and is valued for its antioxidant action. Antioxidants have been proven to be beneficial in controlling plaque, gum disease prevention, and healing gum disease. They cause the degradation of mineral deposits, making them water-soluble. The calcified dental plaque is composed of calcium carbonate, which is converted to calcium bicarbonate, becoming water-soluble. They can prevent the formation of dental stains that occur from oxidation of both organic and inorganic compounds. Antioxidant treatment can block the production of ROS or obstruct its effects and may be therapeutically valuable in reducing the risk for many dental maladies.

Probable mode of action of Madhu

Madhu has *Sheeta Guna* (cold), having *Madhura* (sweet) and *Kashaya Rasa* (astringent) which are contradictory to the properties of *Daha* and *Pitta*. It is mentioned in *Rakta Sthapana Mahakashaya* and in *Sandhaniya Mahakashaya*. It has *Vrana Shodhana*, *Sandhana*, *Ropana*, *Lekhana* and *Krimihara* property. *Madhu* increases the flow of saliva which contains a large number of leucocytes mainly PMNLs that migrate through the epithelium of the gingival crevice has not only a bactericidal effect but rinsing function

also. The antibacterial properties of honey can be attributed to its low pH (3.6), a thermolabile substance called inhibin and its hygroscopic properties (Efem, 1988, Bannur, et.al., 1994). The hydroscopic property of honey enables it to dehydrate bacteria rendering them inactive.

It 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.

Honey contains small amounts of all the B vitamins (except B₁₂) 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 also contains an enzyme that produces hydrogen peroxide, which is believed to be the main reason for the antimicrobial activity of honey. The research has shown that honey not only stops the growth of dental plaque bacteria, it also reduces the amount of acid produced, which stops the bacteria from producing dextran. Dextran, a component of dental plaque, is the gummy polysaccharide that the bacteria produce in order to adhere to the surface of the teeth.

Probable mode of action of Tila Taila

Tila Taila is of *Madhura Rasa* and *Vipaka*, *Balya* and *Rasayana* in *Karma*. It is considered as *Shreshta Vatahara*. *Snigdha* (unctuous) and *Guru Guna* decreases *Rukshata* of *Vata* and with the help of *Ushna Guna* and *Veerya* it alleviates *Vata*. Hence, it is helpful in reducing the *Dantaharsha* caused after scaling. It has *Lekhana Guna* (scraping action) which helps in removing plaque and prevent formation of calculus.

Sesame oil has three lignans - sesamin, sesamol and sesaminol - that have antioxidant properties and potentiate Vitamin E action. It has the following advantages over chlorhexidine mouth wash: no staining, no lingering after-taste, and no allergy. It

fulfills the criteria of ideal mouth wash. Sesame oil has increased polyunsaturated fatty acids and the lipid peroxidation is reduced there by reducing free radical injury to the tissues. The viscosity of the oil probably inhibits bacterial adhesion and plaque co-aggregation. The other possible mechanism might be the saponification that occurs as a result of the alkali hydrolysis of fat. Sesame oil is a vegetable fat and when it is acted upon by the salivary alkali, like the bicarbonates, the soap making process is initiated. Soaps are good cleansing agents because they are effective emulsifying agents. Emulsification is the process by which insoluble fats like sesame oil can be broken down into minute droplets and dispersed in water. Emulsification greatly enhances the surface area of the oil thereby increasing its cleansing action. The unsaponifiable fraction, a class of substances not found in other fats (sesamin or sesamol) can probably protect the oral cavity from infection and inflammation by its antioxidant property. These mechanisms could have been the reason for the reduction of plaque scores.

Probable mode of action of Chlorhexidine mouth wash

Chlorhexidine is a chemical antiseptic. It has both bactericidal and bacteriostatic action. It has been shown to have an immediate bactericidal action and a prolonged bacteriostatic action due to adsorption onto the pellicle-coated enamel surface. If it is not deactivated, chlorhexidine lasts longer in the mouth than other mouth washes. It is a cationic compound that binds to the tooth surface, plaque bacteria and soft tissues of the mouth thus inhibiting bacteria colonization. The ability of the oral tissues to absorb chlorhexidine gluconate allows it to be slowly released in active form over 12 to 24 hours.

Despite its advantages, this mouth wash causes some side effects that include;

- Staining of teeth
- Altered taste
- Oral mucosal erosion
- Enhanced supragingival calculus formation.

Probable mode of action of Scaling

In this study, Ultrasonic scaling was done to remove the supragingival calculus. It performed the function of *Lekhana Karma* of *Danta Sharkara* using *Dantashanku* as mentioned in classics.

The vibrational energy produced by the ultrasonic instrument makes it useful for removing heavy, tenacious deposits of calculus and stain. Such deposits can be removed more quickly and with less effort ultrasonically than manually. It is well established that power driven instruments remove biofilms, bacteria and calculus through mechanical action.

Probable mode of action of Pratisarana

Gentle rubbing with finger is *Pratisarana*. It is a mechanical approach for plaque control. *Pratisarana* mainly possesses *Shodhana* (cleansing) and *Ropana* (healing) properties. By *Pratisarana* mechanical pressure is exerted on gingivae in the direction of the gingival sulcus which remove food debris, food impaction, plaque, desquamated epithelial cells, calculus, and bacterial colonies. *Pratisarana* increases rate of crevicular fluid production, which inhibits bacterial diffusion into the tissues as it has phagocytic leukocytes and enzyme. It also enhances absorption of active principles of *Dravyas* i.e. *Laksha*, *Madhu* and *Tila Taila*.

Based on the above information the action of *Pratisarana*

1. Helps in healing of tissues
2. Helps in plaque control by increasing crevicular fluid
3. Excellent *Shodhana Kriya* as it has good effect on oral hygiene index.

Probable mode of action of Kavala

In *Kavala Graha*, a comfortable amount of fluid is retained with the mouth closed and then gargled. It is a simple rejuvenating treatment, which, when done routinely, enhances the senses, maintains clarity, brings about a feeling of freshness, and invigorates the mind. This oral cleansing technique can also

benefit bad breath, loss of taste, sore throat, and all *Kapha* related imbalances.

The exact mechanism of the action of oil pulling therapy is not clear. It was claimed that the swishing activates the enzymes and draws the toxins out of the blood. Oil pulling can be used as an effective preventive adjunct in maintaining and improving oral health. The lukewarm liquid or oil used for *Kavala* helps in dilation of the blood vessels in the oral mucosa and thus helps in absorption of the active ingredients present in medicine.

Gargling with oil helps in reduction in the specific bacteria in the oral cavity i.e. *Streptococcus mutans*. These bacteria are responsible for plaque accumulation which in turn results in Calculus formation. Due to scaling, the enamel gets thinned out and may cause hypersensitivity. As dentin loses its smear layer it becomes hyper conductive and hence hypersensitive. *Kavala* with oil forms a smear layer over the dentin thus probably helps in curing hypersensitivity caused after scaling.

CONCLUSION

The study was aimed to evaluate the efficacy of *Laksha Choorna Pratisarana* with *Madhu* after scaling, followed by *Tila Taila Kavala* and also to compare its efficacy with Ultrasonic scaling in control and prevention of *Danta Sharkara*. The following conclusions are drawn after considering the clinical aspects and theoretical facts. *Danta Sharkara* can be co-related to Dental calculus based on the clinical features mentioned in classics and also the line of treatment explained. Present study was restricted to 40 patients and treatment duration was only for 3 months with a follow up period of 6 months. Group A advocated with *Laksha* and *Madhu Pratisarana* after Scaling followed by *Tila Taila Kavala* showed better results than Group B which was treated with Ultrasonic scaling followed by chlorhexidine mouth gargle for 3 months. From the observation made it can be inferred that this particular study can be conducted on more number of patients for correct evaluation. Awareness should be brought about in the society regarding oral hygiene methods like *Kavala*,

Gandusha etc. to prevent primary plaque formation and regular dental check ups to prevent and control calculus which is the main cause for most of the dental disorders.

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