

Managment of Periodontitis with Panchalavanayavakshara and Arimedadi Taila

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Abstract

Periodontitis is defined as an inflammatory disease of supporting tissues of teeth caused by group of microorganisms, resulting in progressive destruction of periodontal ligament and alveolar bone with periodontal pocket formation, gingival recession or both. It is prevalent in about 20-50% of global population. If periodontal disease is left untreated, the infection can progress which cause bone loss and leads to loose tooth. Periodontitis can be compared to dantapupputaka, one among the dantamoolagata roga (disease of gums) according to Ayurveda.

Aim of the study was to evaluate the effectiveness of rakthamokshana (blood letting), panchalavana yava kshara pratisarana (rubbing), arimedadi taila nasya (nasal medication) and gandusha (retention of mouth full of liquid) in the management of periodontitis.

In the present clinical study, 30 patients were registered to have a complaint of Dantapupputaka. Each case was observed for prevalence according to age, gender, occupation, diet pattern, gingival bleeding, inflammation, gingival recession, gum discolouration, pain, halitosis, sponginess, moistness, gingival bleeding index, plaque index, pocket probing depth and oral hygiene index

6ml arimedadi taila nasya for 7 days, 3g panchalavana yava kshara pratisarana, and 90-110ml arimedadi taila gandusha daily

once for 30 days showed significant reductions in gingival bleeding, inflammation, gingival recession, gum discolouration, pain, halitosis, sponginess, moistness, gingival bleeding index, plaque index, pocket probing depth and oral hygiene index, with an improvement of 100%, 93%, 20%, 67%, 83%, 100%, 63%, 50%, 88%, 85%, 73% and 81% respectively. Statistical analyses were performed with SPSS software and are clinically significant with $p < 0.0001$.

Panchalavanas having antibacterial and anti-inflammatory property along with yavakshara with its ushnatikshana guna and ksharana properties cause lekhana karma on dantamamsa and ruchakasthi. This helps in reduction of dental plaque deposition. Nasya with arimedadi taila helps to strengthen dantamoola. Ingredients of arimedadi taila having anti-inflammatory, analgesic and vranaropana and varnya properties helps in reduction of subjective symptoms. Since asthi was affected, use of taila gandusha helps in improving asthikshaya with the added benefits of drugs in arimedadi taila.

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The Rakthamokshana, Arimedadi taila nasya , Panchalavana yava kshara pratisarana and Arimedadi taila gandusha is safe and effective in management of periodontitis.

Keywords

Periodontitis, Dental plaque, Oral hygiene.

Introduction

Periodontitis is defined as an inflammatory disease of supporting tissues of teeth caused by group of microorganisms, resulting in progressive destruction of periodontal ligament and alveolar bone with periodontal pocket formation, gingival recession or both.¹ The overall prevalence of periodontitis increases with age and the incidence rises steeply in adults aged 30-40 years.² The primary cause of periodontitis is dental plaque which leads to gingivitis in long course periodontitis. If periodontal disease is left untreated, the infection can progress, bone loss can occur and teeth may become loose, fall out or require extraction.³ Periodontitis can be compared with the symptoms of dantapupputaka in Ayurveda. Dantapupputaka is caused due to the vitiated condition of rakta and kapha dosha. Nowadays the occurrence of this disease in rural as well as urban areas is very high. Improper tooth brushing, alcohol consumption, pan and tobacco chewing, intake of fast foods, lack of oral hygiene leads to painful, big inflammatory swelling in gingiva and ultimately leads to dantapupputaka. Treatment recommendations according to contemporary science included good oral hygiene, root scaling, medicated mouth washes and oral antibiotics. Surgical interventions include flap surgery, bone and tissue grafting in severe cases. Treatment mentioned in our classics are Rakthamokshana, Pratisarana, Nasya , Gandusha and intake of snigdha bhojana which are aimed at breaking the pathogenesis of the disease and improving the health of gingiva.

Methodology

The study was conducted in Outpatient and In-patient department of Shalakya Tantra, Amrita school of Ayurveda, Amritapuri. 30 Patients of age 20-60years, who were diagnosed to have periodontitis clinically with Dāntamūlā Śoṭha (Inflammation of Gums), Sparsha asahathwa (Hyperaesthesia), Teevru (Severe pain), Sheekrapaaki (Suppurated quickly) and had minimum of 3 sites with less than 5mm pocket depth and minimum of 3 sites that bleed on probing were selected for the present study irrespective of sex. Patients were tested COVID negative prior to enrollment. Patient suffering from known systemic diseases, having alveolar bone destruction, Immuno-compromised patients, smokers, alcoholics, pregnant and lactating women were excluded from study.

Study Design

The study protocol was reviewed and approved by the Institutional Ethics Board Committee (IEC-AIMS-2019-AYUR-162) on research. Clinical Trial Registry (CTRI/2020/01/022969) was also done. Written informed consent in agreement with Declaration of Helsinki was obtained from all enrolled individuals. 30 Participants

who were fulfilling the inclusion criteria were selected for the clinical study.

Subjective Parameters⁴

All selected participants were observed before and after treatment visit on the 31st day and as follow ups on the 45th day, 75th day and 105th day. These consultations involved the assessment of Akasmata Rakta srava (Bleeding), Shotha (Inflammation), Shiryamana Dantamamsa (Gingival recession), Krishnata (Discolouration of gums), Mukhadaurgandhya (halitosis), Vedana (Pain), Dantamamsa Mridutha (Sponginess), Dantamamsa Prakledatha (Moistness).

Objective Parameters

It includes plaque index⁵, gingival index⁴, pocket probing depth⁶ and oral hygiene index⁴.

Therapeutic Interventions

The Participant was asked to take 30 ml ghee along with dinner prior to the treatment. On day 1 of treatment, blood was removed from the affected site using a lancet by giving minor pricks. From 2nd to 8th day, arimedadi taila nasya (6 ml of taila was instilled in each nostril) was done. After nasya, 3g of panchalavana yava kshara mixed with 5ml of honey, was rubbed over the teeth for 2 minutes. The massage was done both in vertical and round direction so that the debris particle if present was removed effectively. After proper Pratisarana with Kṣāra, Gaṇḍūṣā karma was done with arimedadi taila. Gaṇḍūṣā is done by holding the taila in the mouth to its full capacity (90-110ml) without any movement for 10 minutes. Panchalavana yava kshara pratisarana and arimedadi taila gandusha was continued till 30th day. Patients were assessed with subjective and objective parameters for danta pupputaka before treatment, after treatment and during 3 follow-ups.

Ingredients of Panchalavanayavakshara⁷

Saindhava lavana (Rock-Salt), SamudraLavana (Sea -Salt), Bida lavana (Ammonium Chloride), Sauvarchala lavana (Black Salt), Audbida (Lake Salt) And Yava (Hordeum vulgare)

Table no : 1 shows Ingredients of Arimedadi Taila⁸

DRUGS	SCIENTIFIC NAME	DRUGS	SCIENTIFIC NAME
Yasti	Glycyrrhiza glabra	Kumkuma	Crocus sativus
Twak	Cinnamomum verum	Laksha	Laccifer lacca
Ela	Elettaria cardamomum	Brihati	Solanum indicum
Patra	Cinnamomum tamala	Bilwapatra	Aegel marmelos
Khadira	Acacia Catechu	Devadaru	Cedrus deodara
Lodhra	Symplocos racemose	Manjishta	Rubia cordifolia
Katphala	Gmelina arborea	Saileya	Parmelia perlata
Vata	Ficus bengalensis	Sarala	Pinus longifolia
Asvattha	Ficus religiosa	Sprikka	Anisomeles malabarica
Udumbara	Ficus racemose	Palasa	Butea monosperma
Plaksa	Ficus lacor	Haridra	Curcuma longa
Parisha	Thespesia populnea	Daruharidra	Berberis aristate
Arimeda twak	Acacia franesiana	Priyangu	Callicarpa macrophylla
Mustha	Cyperus rotundus	Tejani	Celatrus paniculatus
Agaru	Aquilaria malaccensi s	Arjuna	Terminalia arjuna
Sweta Chandana	Santalum album	Sarapungha	Tephrosia purpurea
Rakta Chandana	Pterocarpus santalinus	Harithaki	Terminalia chebula
Karpura	Cinnamomum camphora	Vibhitaki	Terminalia bellerica
Jathi	Mrystica fragrans	Amalaki	Embllica officinalis
Takkola	Ileciun vernum	Peeta Chandana	Santalum album
Jatamamsi	Nardostachys jatamamsi	Pushkaramoola	Inula racemose
Dhataki	Woodfordia fruticose	Jaya	Clerodendrum phlomidis
Gairika	Red Ochre	Kantakari	Solanum xanthocarpum
Mrinala	Nymphaea stellate	Madhanaphala	Randia dumetorum
Shatahwa	Anethum Sowa	Nyagrodha	Ficus bengalensis
Pippali	Piper longum	Tila	Sesamum indicum
Padmakesara	Nelumbo nucifera		

Results

Statistical analysis was done using SPSS VER. 25.0. Complete 30 Patients were taken for statistical analysis. Wilcoxon sign rank test was done for post Hoc with Bonferroni correction on subjective parameters and Paired t test was done on objective parameters, to interpret the significant change.

Wilcoxon sign rank test showed reduction in gingival bleeding between BT and AT, follow-up 1, follow-up 2 and follow-up 3 in subjects, which is highly significant at all stages $P < 0.0001$ [Bonferroni Correction]. Below table makes it clear that all 30 patients got reduction in bleeding after treatment and it was sustained throughout all follow-ups.

Table no : 2 shows ranking of gingival bleeding

Bleeding Ranks		N	Mean Rank	Sum of Ranks	Z value	Asymp. Sig. (2-tailed)
BLEEDING AT BLEEDING BT	Negative Ranks	30 ^a	15.50	465.00	-	0.0001
	Positive Ranks	0 ^b	.00	.00	5.031 ^b	
	Ties	0 ^c				
	Total	30				
BLEEDING FU1 BLEEDING BT	Negative Ranks	30 ^d	15.50	465.00	-	0.0001
	Positive Ranks	0 ^e	.00	.00	4.995 ^b	
	Ties	0 ^f				
	Total	30				
BLEEDING FU2 BLEEDING BT	Negative Ranks	30 ^g	15.50	465.00	-	0.0001
	Positive Ranks	0 ^h	.00	.00	4.995 ^b	
	Ties	0 ⁱ				
	Total	30				
BLEEDING FU3 BLEEDING BT	Negative Ranks	30 ^j	15.50	465.00	-	0.0001
	Positive Ranks	0 ^k	.00	.00	4.968 ^b	
	Ties	0 ^l				
	Total	30				

Wilcoxon sign rank test showed reduction in inflammation between BT and AT, follow-up 1, follow-up 2 and follow-up 3 in subjects, which is highly significant at all stages $P < 0.0001$ [Bonferroni Correction]. Below table makes it clear that 28 patients got reduction in inflammation after treatment and 2 patients had symptoms persisted throughout all follow-ups.

Table no : 3 shows ranking of inflammation

Inflammation Ranks		N	Mean Rank	Sum of Ranks	Z value	Asymp. Sig. (2-tailed)
INFLAMMATION AT INFLAMMATION BT	Negative Ranks	28 ^a	14.5	406.00	-4.750 ^b	0.0001
	Positive Ranks	0 ^b	0	.00		
	Ties	2 ^c	.00			
	Total	30				
INFLAMMATION FU1 INFLAMMATION BT	Negative Ranks	28 ^d	14.5	406.00	-4.714 ^b	0.0001
	Positive Ranks	0 ^e	0	.00		
	Ties	2 ^f	.00			
	Total	30				
INFLAMMATION FU2 INFLAMMATION BT	Negative Ranks	28 ^g	14.5	406.00	-4.714 ^b	0.0001
	Positive Ranks	0 ^h	0	.00		
	Ties	2 ⁱ	.00			
	Total	30				
INFLAMMATION FU3 INFLAMMATION BT	Negative Ranks	28 ^j	14.5	406.00	-4.714 ^b	0.0001
	Positive Ranks	0 ^k	0	.00		
	Ties	2 ^l	.00			
	Total	30				

Wilcoxon sign rank test showed reduction in gingival recession between BT and AT, follow-up 1, follow-up 2 and follow-up 3 in subjects, which is significant at all stages. Below table shows that gingival recession of 6 patients resolved completely after treatment and 24 patients had persistence of gingival recession.

Table no : 4 shows ranking of gingival recession

Gingival Recession Ranks		N	Mean Rank	Sum of Ranks	Z value	Asymp. Sig. (2-tailed)
GINGIVAL RECESSIO AT GINGIVAL RECESSIO BT	Negative Ranks	5 ^a	3.00	15.0	-2.236 ^b	.025
	Positive Ranks	0 ^b	.00	0		
	Ties	2		.00		
	Total	5 ^c				
		30				
GINGIVAL RECESSIO FU1 GINGIVAL RECESSIO BT	Negative Ranks	5 ^d	3.00	15.0	-2.236 ^b	.025
	Positive Ranks	0 ^e	.00	0		
	Ties	2		.00		
	Total	5 ^f				
		30				
GINGIVAL RECESSIO FU2 GINGIVAL RECESSIO BT	Negative Ranks	5 ^g	3.00	15.0	-2.236 ^b	.025
	Positive Ranks	0 ^h	.00	0		
	Ties	2		.00		
	Total	5 ⁱ				
		30				
GINGIVAL RECESSIO FU3 GINGIVAL RECESSIO BT	Negative Ranks	6 ^j	3.00	21.0	-2.449 ^b	.014
	Positive Ranks	0 ^k	.00	0		
	Ties	2		.00		
	Total	4 ^l				
		30				

Wilcoxon sign rank test showed reduction in gum discolouration between BT and AT, follow-up 1, follow-up 2 and follow-up 3 in subjects, which is highly significant at all stages $P < 0.0001$ [Bonferroni Correction]. Below table makes it clear that 20 patients got reduction in gum discolouration after treatment and 10 patients had symptom persisted throughout the follow up.

Table no : 5 shows ranking of gum discolouration

Gum Discolouration Ranks		N	Mean Rank	Sum of Ranks	Z value	Asymp. Sig. (2-tailed)
GUM DISCOLOURATION AT GUM DISCOLOURATION BT	Negative Ranks	20 ^a	10.50	210.00	- 4.099 ^b	0.0001
	Positive Ranks	0 ^b	.00	.00		
	Ties	10 ^c				
	Total	30				
GUM DISCOLOURATION FU1 GUM DISCOLOURATION BT	Negative Ranks	20 ^d	10.50	210.00	- 4.099 ^b	0.0001
	Positive Ranks	0 ^e	.00	.00		
	Ties	10 ^f				
	Total	30				
GUM DISCOLOURATION FU2 GUM DISCOLOURATION BT	Negative Ranks	20 ^g	10.50	210.00	- 4.099 ^b	0.0001
	Positive Ranks	0 ^h	.00	.00		
	Ties	10 ⁱ				
	Total	30				

GUM DISCOLOURATION FU3	Negative Ranks	20 ^j	10.50	210.00	-	0.0001
GUM DISCOLOURATION BT	Positive Ranks	0 ^k	.00	.00	4.099 ^b	
	Ties	10 ^l				
	Total	30				

Wilcoxon sign rank test showed reduction in halitosis between BT and AT, follow-up 1, follow-up 2 and follow-up 3 in subjects, which is highly significant at all stages $P < 0.0001$ [Bonferroni Correction]. Below table makes it clear that all 30 patients got reduction in halitosis after treatment and it was sustained throughout all follow-ups.

Table no : 6 shows ranking of halitosis

Halitosis Ranks		N	Mean Rank	Sum of Ranks	Z value	Asymp. Sig. (2-tailed)
HALITOSIS AT	Negative Ranks	30 ^a	15.50	465.00	-	0.0001
HALITOSIS BT	Positive Ranks	0 ^b	.00	.00	5.066 ^b	
	Ties	0 ^c				
	Total	30				
HALITOSIS FU1	Negative Ranks	30 ^d	15.50	465.00	-	0.0001
HALITOSIS BT	Positive Ranks	0 ^e	.00	.00	4.966 ^b	
	Ties	0 ^f				
	Total	30				
HALITOSIS FU2	Negative Ranks	30 ^g	15.50	465.00	-	0.0001
HALITOSIS BT	Positive Ranks	0 ^h	.00	.00	4.966 ^b	
	Ties	0 ⁱ				
	Total	30				
HALITOSIS FU3	Negative Ranks	30 ^j	13.00	465.00	-	0.0001
HALITOSIS BT	Positive Ranks	0 ^k	.00	.00	4.966 ^b	
	Ties	0 ^l				
	Total	30				

Wilcoxon sign rank test showed reduction in pain between BT and AT, follow-up 1, follow-up 2 and follow-up 3 in subjects, which is highly significant at all stages $P < 0.0001$ [Bonferroni Correction]. Below table makes it clear that 25 patients got reduction in pain after treatment and 5 patients had symptom persisted throughout all follow-ups.

Table no : 7 shows ranking of pain

Pain Ranks		N	Mean Rank	Sum of Ranks	Z value	Asymp. Sig. (2-tailed)
PAIN AT	Negative Ranks	25 ^a	13.00	325.00	-	0.0001
PAIN BT	Positive Ranks	0 ^b	.00	.00	4.513 ^b	
	Ties	5 ^c				
	Total	30				
PAIN FU1	Negative Ranks	25 ^d	13.00	325.00	-	0.0001
PAIN BT	Positive Ranks	0 ^e	.00	.00	4.484 ^b	
	Ties	5 ^f				
	Total	30				

PAIN FU2	Negative Ranks	25 ^g	13.00	325.00	-	0.0001
PAIN BT	Positive Ranks	0 ^h	.00	.00	4.484 ^b	
	Ties	5 ⁱ				
	Total	30				
PAIN FU3	Negative Ranks	25 ^j	13.00	325.00	-	0.0001
PAIN BT	Positive Ranks	0 ^k	.00	.00	4.484 ^b	
	Ties	5 ^l				
	Total	30				

Wilcoxon sign rank test showed reduction in sponginess between BT and AT, follow-up 1, follow-up 2 and follow-up 3 in subjects, which is highly significant at all stages $P < 0.0001$ [Bonferroni Correction]. Below table makes it clear that 19 patients got reduction in sponginess after treatment and 11 patients had symptom persisted throughout all follow-ups.

Table no : 8 shows ranking of sponginess

Sponginess Ranks		N	Mean Rank	Sum of Ranks	Z value	Asymp. Sig. (2-tailed)
SPONGINESS AT	Negative Ranks	18 ^a	9.50	171.00	-	0.0001
SPONGINESS	Positive Ranks	0 ^b	.00	.00	4.066 ^b	
	Ties	12 ^c				
	Total	30				
SPONGINESS FU1	Negative Ranks	19 ^d	10.00	190.00	-	0.0001
SPONGINESS BT	Positive Ranks	0 ^e	.00	.00	4.185 ^b	
	Ties	11 ^f				
	Total	30				
SPONGINESS FU2	Negative Ranks	19 ^g	10.00	190.00	-	0.0001
SPONGINESS BT	Positive Ranks	0 ^h	.00	.00	4.185 ^b	
	Ties	11 ⁱ				
	Total	30				
PSPONGINESS FU3	Negative Ranks	19 ^j	10.00	190.00	-	0.0001
SPONGINESS BT	Positive Ranks	0 ^k	.00	.00	4.119 ^b	
	Ties	11 ^l				
	Total	30				

Wilcoxon sign rank test showed reduction in moistness between BT and AT, follow-up 1, follow-up 2 and follow-up 3 in subjects, which is highly significant at all stages $P < 0.0001$ [Bonferroni Correction]. Below table makes it clear that 15 patients got reduction in moistness after treatment and 15 patients had symptom persisted throughout all follow-ups.

Table no : 9 shows ranking of moistness

Moistness Ranks		N	Mean Rank	Sum of Ranks	Z value	Asymp. Sig. (2-tailed)
MOISTNESS AT	Negative Ranks	15 ^a	8.00	120.00	-	0.0001
MOISTNESS	Positive Ranks	0 ^b	.00	.00	3.873 ^b	
	Ties	15 ^c				
	Total	30				

MOISTNESS FU1	Negative Ranks	15 ^a	8.00	120.00	-	0.0001
MOISTNESS BT	Positive Ranks	0 ^b	.00	.00	3.873 ^b	
	Ties	15 ^c				
	Total	30				
MOISTNESS FU2	Negative Ranks	15 ^a	8.00	120.00	-	0.0001
MOISTNESS BT	Positive Ranks	0 ^b	.00	.00	3.873 ^b	
	Ties	15 ^c				
	Total	30				
MOISTNESS FU3	Negative Ranks	15 ^j	8.00	120.00	-	0.0001
MOISTNESS BT	Positive Ranks	0 ^k	.00	.00	3.873 ^b	
	Ties	15 ^l				
	Total	30				

Paired T-test was performed to evaluate the significant difference in mean value of plaque index. It was observed that there is significant difference in mean values of before (2.0333) and after treatment (0.4000) and it was maintained during follow-up 1 (0.3667), follow-up 2 (0.3667) and follow-up 3 (0.3000). The result was statistically highly significant with $p < 0.0001$.

Table no : 10 shows ranking of Plaque Index

Parameters	BT mean score	AT mean score	Mean	SD	SE	t value	Df	Sig. (2-tailed)
Plaque Index BT	2.0333	0.4000	1.63333	0.61495	0.11227	14.548	29	0.0001
Plaque Index AT								
Plaque Index BT	2.0333	0.3667	1.66667	0.66089	0.12066	13.813	29	0.0001
Plaque Index FU1								
Plaque Index BT	2.0333	0.3667	1.66667	0.66089	0.12066	13.813	29	0.0001
Plaque Index FU2								
Plaque Index BT	2.0333	0.3000	1.73333	0.63968	0.11679	14.841	29	0.0001
Plaque Index FU3								

Paired T-test was performed to evaluate the significant difference in mean value of gingival index. It was observed that there is significant difference in mean values of before (1.700) and after treatment (0.2333) and it was maintained during follow-up 1, follow-up 2 and follow-up 3 (0.2000). The result was statistically highly significant with $p < 0.0001$.

Table no : 11 shows ranking of Gingival Index

Parameters	BT mean score	AT mean score	Mean	SD	SE	t value	Df	Sig. (2-tailed)
Gingival Index BT	1.7000	0.2333	1.46667	0.50742	0.09264	15.832	29	0.0001
Gingival Index AT								
Gingival Index BT	1.7000	0.2000	1.50000	0.50855	0.09285	16.155	29	0.0001
Gingival Index FU1								
Gingival Index BT	1.7000	0.2000	1.50000	0.50855	0.09285	16.155	29	0.0001
Gingival Index FU2								
Gingival Index BT	1.7000	0.2000	1.50000	0.50855	0.09285	16.155	29	0.0001
Gingival Index FU3								

Paired T-test was performed to evaluate the significant difference in mean value of pocket probing depth. It was observed that there is significant difference in mean values of before (1.500) and after treatment (0.4667) and it was

maintained during follow-up 1(0.4667), follow-up 2 (0.4667) and follow-up 3(0.4000). The result was statistically highly significant with $p < 0.0001$.

Table no : 12 shows ranking of Pocket Probing Depth

Parameters	BT mean score	AT mean score	Mean	SD	SE	t value	Df	Sig. (2-tailed)
Pocket Probing Depth BT Pocket Probing Depth AT	1.5000	0.4667	1.03333	0.49013	0.08949	11.547	29	0.0001
Pocket Probing Depth BT Pocket Probing Depth FU1	1.5000	0.4667	1.03333	0.49013	0.08949	11.547	29	0.0001
Pocket Probing Depth BT Pocket Probing Depth FU2	1.5000	0.4667	1.03333	0.49013	0.08949	11.547	29	0.0001
Pocket Probing Depth BT Pocket Probing Depth FU3	1.5000	0.4000	1.10000	0.54772	0.10000	11.000	29	0.0001

Paired T-test was performed to evaluate the significant difference in mean value of oral hygiene index. It was observed that there is significant difference in mean values of before (1.800) and after treatment (0.3667) and it was maintained during follow-up 1(0.3667), follow-up 2 (0.3667) and follow-up 3(0.3333). The result was statistically highly significant with $p < 0.0001$.

Table no : 13 shows ranking of Oral Hygiene Index

Parameters	BT mean score	AT mean score	Mean	SD	SE	t value	Df	Sig. (2-tailed)
Oral Hygiene Index BT Oral Hygiene Index AT	1.8000	0.3667	1.43333	0.50401	0.09202	15.577	29	0.0001
Oral Hygiene Index BT Oral Hygiene Index FU1	1.8000	0.3667	1.43333	0.50401	0.09202	15.577	29	0.0001
Oral Hygiene Index BT Oral Hygiene Index FU2	1.8000	0.3667	1.43333	0.50401	0.09202	15.577	29	0.0001
Oral Hygiene Index BT Oral Hygiene Index FU3	1.8000	0.3333	1.46667	0.50742	0.09264	15.832	29	0.0001

Before treatment



After treatment



Figure 1: Comparison of before and after treatment

Discussion

Dantapupputaka is due to vitiated blood, hence bloodletting by pracchana (minor pricking) was done to achieve purification in its tarunavastha (immature stage). Nasya with arimedadi taila which is indicated in mukha rogas was adopted to strengthen the gingiva, meanwhile panchalavana yavakshara pratisarana was done. Kshara having chedana (excision), bedhana (incision) and lekhana (scraping) property which can break the bacterial colonization and thus helps in reduction of plaque accumulation. Yava kshara has Kashaya rasa, ushna, teekshna guna, sheeta veerya, katu vipaka

and it pacifies kapha and pitta dosha. Its gradual but sustained chemical action removed the debris from the site and it helps in the formation of healthy granulation tissue. Its antibacterial activity helps to control the infection and reduce the bacterial density which leads to speedy recovery of the disease. Here kshara is mixed with honey which act as a catalyst and promotes wound healing. Due to gingival massage during Pratisāraṇa, gingival epithelial cells are stimulated which leads to regeneration of gingiva thus helping in keratinization. It also helps in mechanical removal of food particles. It improves the gingival tone, surface keratinization and gingival circulation. This brings an overall improvement in the gingival health due to modulation of the gingival host defence mechanism. Among panchalavanas, Samudra lavana (Sea salt) and bida lavana (Ammonium salt) have analgesic property, which helps in reduction of dantashoola (toothache).

Arimedadi taila gandoosha is indicated in mukha rogas. Various drugs in arimedadi taila have vranashodana (wound cleansing) and ropana (wound healing) property which help in reducing the gingival bleeding. The oil of Cassia flowers (arimeda) contain benzaldehyde, salicylic acid, methyl salicylate, benzyl alcohol which are responsible for its astringent, demulcent action, therefore useful in controlling bleeding gums. Panchavalkalatwak (combination of 5 astringent drugs like *Ficus bengalensis*, *Ficus glomerata*, *Ficus religiosa*, *Thespesia populanea*, *Ficus lacor*) khadira (*Senegalia catechu*), manjishta (*Rubia cordifolia*), swetachandana (*Santalum album*), raktachandana (*Pterocarpus santalinus*) and yashtimadhu (*Glycyrrhiza glabra*) used in arimedadi taila improves complexion by its varnya property and helps in reduction of gum discolouration. Tila taila (sesame oil) is having antimicrobial property which helps to strengthen the gingiva.⁹⁻¹² The emulsification and saponification effect of tila have added the plaque reduction effect. Yashtimadhu (*Glycyrrhiza glabra*) used in arimedadi taila prolongs the thrombin and fibrinogen clotting time and increased plasma recalcification duration. Thus mild to moderate amount of bleeding in subgingival calculus may be controlled to a good extent. Tila and yashtimadhu used in arimedadi taila are rich in calcium and it preserves the root around tooth and gums. Gandusha generates antioxidants which damage the cell wall of microorganisms and kill them. This will coat the teeth and gingiva and inhibits bacterial co-aggregation and plaque formation. Thus plaque building bacteria responsible for dental caries, gingivitis, periodontitis and bad breath are removed from the oral cavity.

Conclusion

The clinical trial was conducted to see the effectiveness of rakthamokshana, panchalavana yava kshara pratisarana, arimedadi taila nasya and gandusha in periodontitis. Treatment results showed significant reductions in both subjective criteria (bleeding, inflammation, gum discolouration, gingival recession, pain, halitosis, sponginess, moistness) and objective criteria (plaque index, gingival bleeding index, pocket probing depth, oral hygiene index). This study is statistically significant and hence can be taken as a better alternative for the treatment of periodontitis.

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Patient Consent

The patients voluntarily gave his/ her consent to have their case documented and published.

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