



OUTCOME EVALUATION OF PANCHVALKAL KWATH GANDUSHA ON POOR ORAL HYGIENE: A CASE REPORT

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ABSTRACT

Poor oral hygiene is a common complaint of the youth of the present world. Improper time management and lazy behavior toward cleanliness may affect the oral hygiene of an individual. 33% of Indian youth are affected by poor oral hygiene. In this case study, a 32-year-old adult presents with gum swelling, discoloration of teeth, and persistent bad odor from mouth for 2 months, history reflected negligence behavior towards oral care. The patient's present status was quantified on the index of oral hygiene (OHI) having Debris Index (DI) and Calculus Index (CI). OHI before treatment resulted in a score of 3.85 reflecting poor oral hygiene and after doing *Gandusha* (~holding the medicated liquid in mouth) with *Panchvalkal Kwatha* for 30 days, the OHI reduced to 2.67 reflecting fair oral hygiene. *Gandusha* is a conventional treatment method for improving various oral ailments as per Ayurveda while *Panchvalkal Kwatha* (~dry mixture of 5 medicines) has an established antibacterial activity whose effect corrects the swelling and bad odor and continuous use helps in *Lekhaniya* (~therapeutic scrapping) property reduces the debris impacted to give discoloration to the tooth, *Rukshaguna* (~dry property) and *Kashayarasa* (~astringent taste) of all the drugs reduces vitiated *Kaphadosha* resulting in the improved oral hygiene.

Keywords: Oral hygiene Index, Debris Index, Calculus Index, *Gandusha*, *Panchwalkalkwath*

INTRODUCTION

The oral cavity helps people stay hydrated and nutritionally healthy. One of the key activities for keeping the oral cavity healthy and free of infections is to maintain oral hygiene.^[1] Regular brushing is the most popular approach to cleaning the teeth. Dental diseases and poor dental hygiene cannot be prevented with brushing and cleaning agents alone.^[2] Most people are unaware of bleeding gums due to the effects of dental plaque, which affects not only the tooth but also its supporting components.^[3] The fundamental goal of Ayurveda is to maintain optimal health.^[4] Ayurveda texts explain oral hygiene under *Dinacharya* (~daily regimen) and *Ratricharya* (~night regimen) for this purpose.^[5, 6, 7] Oral diseases are not explained under a separate chapter in texts of Ayurveda although symptoms of *Sitada* (~Dantamulagataroga- Diseases of Dental root) resemble poor oral hygiene.^[8]

CASEREPORT

A 32-year-old male patient came to dental OPD of the National Institute of Ayurveda Jaipur on 24 August 2022 with complaints of swelling and discoloration of teeth for 2 months as well as a persistent bad odor coming from his mouth. The patient had never received dental treatment and had improper brushing. His mother is also suffering from the same problem. No history of Hypertension and Diabetic Mellitus. The patient was medically fit and well and had no history of smoking, he drinks alcohol sometimes. He had no history of constipation. He had a normal diet and there was no history of dry mouth. The patient was assessed with simplified Oral Hygiene Index (OHI-S) scoring. Clinical Examination shows the presence of debris and calculus deposits.

Material and Methods- The patient was advised for counseled to maintain proper oral hygiene and to take *Gandusha* with *Panchwalkalkwath* and *Madhu* (~honey) for 30 days.^[9] Details of *Panchwalkalkwath* are mentioned in Table 01.^[10] Complaints of patients were quantified before and after treatment with Simplified (OHI-S) by Green and Vermillion taken to

evaluate the oral hygiene status of the individual whose details were provided underneath.

Oral Hygiene Index – Simplified (OHI-S) by Green and Vermillion was taken to evaluate the oral hygiene status of the individual. This index is simplified to consider only six teeth which will represent all the teeth in the oral cavity. They are 16, 11, 26, 36, 31, and 46. Further, only one surface of each tooth examined will be taken into consideration i.e. facial surface of 16, 11, 26, 31, and the lingual surfaces of 36 and 46.^[11]

Debris Index – Simplified (DI-S) Criteria for scoring debris index. (Table 02)

Calculus Index – Simplified (CI-S) Criteria for scoring calculus index. (Table 03)

OHI-S = DI-S + CI-S

Clinical levels of oral hygiene can be assessed by OHI-S as mentioned in Table 04

ON EXAMINATION: Details of the examination are mentioned in Table 05

RESULTS: The debris index (DI) was counted as 2 and the calculus index (CI) was counted as 1.85 which together resulted in a 3.85 score of Oral hygiene index (OHI) inferred as poor oral hygiene. After 30 days of treatment, complaints of swelling of gums subsided and calculus and debris were reduced substantially. Later on, with the use of *Panchwalkalkwath* the DI score was reduced to 1 and the CI reduced to 1.67 commonly as the OHI score reduced to 2.67 which is stated as fair oral hygiene.

DISCUSSION

Ayurveda the ancient system of medicine mentioned various types of treatment and has a unique way of explaining the mode of action of drugs. The etiology of poor oral hygiene in the present case study is due to improper method of brushing of teeth which leads to accumulation of calculus and debris, due to which resulted in bad breath. The regular use of *Gandusha* with *Panchwalkalkwath* reduced the symptoms of swelling and halitosis. *Gandusha* is a type of *Sho-*

dhanaChikitsa (~eliminative treatment) adopted in *Mukha Pradesh* (~oral cavity).^[12] The oral cavity is the site of *BodhakaKapha* (~a type of *KaphaDosh*), as a result of which applied drug gets absorbed easily and faster and shows speedy recovery than systemic management.^[13] The action of drugs is executed in the body through its pharmacodynamic properties like *Rasa* (~taste), *Guna* (~quality), *Veerya* (~potency), and *Vipaka* (~bio-transformed *Rasa*) along with these *Prabhava* (~nomenclature based on specific action) is the specific property inherited by the drug which cannot be explained, and the principle of treatment in Ayurveda is based on *Samprap-tiVighatana* (~pathogenesis break) which is achieved by relieving *DoshaDushyaSammurchana* (~pathogenesis process). *Gandusha* may also act by increasing the saliva which contains lysosomes and another detoxifying agent which is again helpful in the removal of infection and provide relief from symptoms. The *Kwath* (~decoction) of a drug used in lukewarm condition, *PanchvalkalKwath* suppress bacterial infection due to its antibacterial action, it enhances local immunity of the mouth and improves resistance against infection. The *Kashayarasa* (~astringent taste) of ingredients relief *Sotha* (~swelling), *Vrana* (~wound or ulcers), and *Sodhana* (~purification) effects enhance the healing of damaged teeth and reduce gum problems.^[14] Prolonged and forceful mechanical action during *Gandusha* could play a vital part in dislodging calculus as well as debris from another part of the mouth.

In *Panchvalkal* all the drugs are *Kashya Rasa*, *SheetaVeerya*, *KatuVipaka*, and *KaphapittaShamak*. In *Mukhroga* mainly vitiated *doshas* are *Kapha* and *Rakta*, *Kapha* is vitiated by its *Snigdha* (~oily) and *PichhillaGuna* (~slimmy), and due to *Pitta* and *Rakta* are the same in quality therefore *Rakta* is vitiated by its *Ushna* (~hotness) and *Visraguna* and the vitiated *SnigdhaGuna* (~unctousness) is pacified by the *Rukshaguna* (~dryness) of *Panchvalkal* and *Dravata* (~fluidity) of vitiated *Rakta* is pacified by the *Shosanaguna* of *KashyaRasa*, *Srotoshodhana* (~clearing the body channels) and *Krimiahara* (~wormicidal) property of

the *Katu rasa*.^[15,16] *PanchvalkalKwath* is phytochemically dominant in phenolic group components like tannin, and flavonoids which are mainly responsible for its excellent activities antiseptic, and anti-inflammatory.^[17] Tannins have been reported to have antibacterial potential due to their basic character that allows them to react with proteins to form stable water-soluble compounds, thereby killing bacteria by directly damaging their cell membrane. Due to the properties of the above-mentioned drug, the complaint of swelling and bleeding from gums and halitosis subsided. Through the assessment of the oral hygiene index, we found that debris and calculus were reduced substantially.

CONCLUSION

The present case study showed that *PanchvalkalKashyaGandusha* and oral hygiene measures are very effective in this case. *Panchvalkal* have Antimicrobial Activity due to presence of Tannin, Saponin, Flavonoids, Terpenoids etc. In Ayurveda, the equilibrium of *Dosha* is the main aim of the treatment of disease. So in this disease, *KaphaPittashamak*, *Shothahara*, as well as *KrimiharaDravya*, will be beneficial for the treatment. The *PanchvalkalKwatha* has a wide range of medicinal values Antimicrobial, Anti-inflammatory, Anti-septic, wound purifying, and healing, etc. Despite the limitation of this case in a single patient, this treatment modality may be eye-opening for further studies to effectively manage oral hygiene through Ayurveda.

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Table 1: Content of PanchvalkalKwath

Sr. no.	Drug Name	Botanical Name	RASA	VEERYA	VIPAKA	KARM	GUNA
1	Vata	<i>Ficusbenghalensis</i> Linn.	Kashaya	Sheeta	Katu	Dosha- Kaphapittaghna, Dhatu – Rakta	Guru Ruksha
2	Ashvattha	<i>Ficusreligiosa</i> Linn.	Kashaya	Sheet	Katu	Dosha- KaphapittaghnDhatu – Rakta	Guru Ruksha
3	Udumbar	<i>Ficusreacemosa</i>	Kashaya-	Sheet	Katu	Dosha-	Guru

		Linn.	Madhu			Kphapittasham Dhatu-Rakta	Ruksha
4	Plaksha	Ficusmicrocarpa Linn.	Kashaya	Sheet	Katu	DoshaKaphapittagh- na Dhatu – Rakta	Guru Ruksha
5	Parisha	Thes- pesiapopuolnea Linn.	KashayaTi kta	Mild Ush- na	Katu	Dosha – Tridosaha- ra (Shaman) Dhatu- Rasa raktaVishaghna	Guru Ruksha

Table 2: Assessment of simplified (DI-S) Criteria for scoring debris index

0	No debris or no stains present
1	Debris present up to gingival 1/3rd or crown
2	Debris presents more than 1/3rd but less than 2/3rd of crown
3	more than 2/3rd of crown

DI- S = Total no. of scores/6

Table 3: Assessment of simplified (CI-S) Criteria for scoring calculus index

0	No Calculus present
1	Only Supragingival calculus covering less than 1/3rd of the clinical crown
2	Supragingival Calculus covering more than 1/3rd and or flecks or subgingival calculus
3	Supragingival calculus covering more than 2/3rd of clinical crown or/ and continuous band of subgingival calculus

CI-S = Total no of scores/6

Table 4: Assessment of oral hygiene by OHI-S

Good	0 to 1.2
Fair	1.3 to 3.0
Poor	3.1 to 6.0

Table 5: Details of the examination

EXTRAORAL	INTRA ORAL	HARD TISSUE EXAMINATION
Facial symmetry –Symmetrical	Halitosis – Present	Missing teeth – All teeth are present
Lips – normal	Labial mucosa – No abnormality diagnosed (NAD)	Stains/ Discoloration – Present
Lymph nodes – Not Palpable	Buccal mucosa – NAD	Calculus – Moderate
	The floor of the mouth – NAD	Caries – Absent
	Tongue – NORMAL	Tenderness on percussion – NAD
	Vestibule – NAD	
	Tonsillar pillars and Pharynx – NAD	

Table 6: OHI-S before and after treatment (BT and AT scores):

Scores Before Treatment			Scores After Treatment		
DI	CI	OHI	DI	CI	OHI
16-1	16-1	The total OHI-S score is the addition of CI+DI $2+1.85=3.85$ Reflects Bad oral hygiene	16-1	16-1	The total OHI-S score is the addition of CI+DI $1+1.67=2.67$ Reflects Fair oral hygiene
31-2	31-3		31-1	31-0	
11-3	11-3		11-1	11-2	
26-2	26-2		26-2	26-1	
36-2	36-1		36-0	36-1	
46-2	46-1		46-1	46-1	
Score = $12/6=2$	$11/6=1.85$		Score = $6/6=1$	$7/6=1.67$	

Table 7: Timeline of the patient

24/8/22	The patient came to dental OPD of the National Institute of Ayurveda- the patient had complained of swelling and discoloration of teeth for 2 months and as well as a persistent bad odor coming from his mouth.
24/8/22	The patient was advised to take the <i>Gandush</i> of <i>PanchvalkalKwath</i>
08/09/22	Relief in symptoms of swelling, bad odor, and discoloration of teeth persist
23/9/22	Relief in gum swelling, halitosis, and calculus and debris were reduced substantially.

Figure 1: Oral examination (before treatment) showing gum swelling, discoloration of teeth, calculus



Figure 2: Oral examination (after treatment) showing reduced gum swelling and discoloration of teeth and calculus deposition over teeth

