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A SINGLE CASE STUDY ON THE IMPACT OF AYURVEDIC MANAGEMENT ON TOBACCO ADDICTION

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ABSTRACT:

INTRODUCTION- Smoking poses a serious public health challenge in India and worldwide, impacting nearly 1 billion individuals. It greatly heightens the risk of cancer, stroke, heart disease, lung conditions such as Chronic Obstructive Pulmonary Disease (COPD), tuberculosis, several eye diseases, as well as immune system disorders such as rheumatoid arthritis. Each year, secondhand smoke exposure results in around 400 infant deaths and 41,000 fatalities among non-smoking adults.

MAIN CLINICAL FINDINGS- In this case patient came complaining of redness of oral mucosa, oral ulcer, constipation, indigestion, etc. from last 15 days. He even attempted to stop chewing tobacco but experienced bodily aches, constipation, headaches, indigestion etc. as withdrawal symptoms. **DIAGNOSIS-** Patient was diagnosed with Nicotine addiction.

INTERVENTION- Dushivishari Agad, Medhya Churna, Shivakshar Pachan Churna, Ashwagandha Churna, Triphaladi Gandusha, Khadiradi Gutika, were administered along with Padanshika krama, counselling of the patient and his family members once weekly and 1 hour of yoga daily for one month.

OUTCOME- The treatment given was capable in overcoming the complains and withdrawal symptoms, and even after gradually withdrawing the treatment there was no relapse of symptoms.

CONCLUSION- This case study reports effective management of Nicotine addiction with Ayurvedic treatment solely with no relapse of symptoms.

KEY WORDS: - Smoking, Medhya yoga, Deepana and pachana yoga etc.

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INTRODUCTION:

According to a report by World Health Organization it had been estimated that each year, the tobacco epidemic causes the deaths of more than eight million people which is one of the greatest threats to global health worldwide. This figure includes around 1.2 million deaths as a result of secondhand smoking exposure. Smoking raises the risk of acquiring cancer, stroke, heart diseases, various lung diseases like Chronic Obstructive Pulmonary Disease (COPD) in addition to emphysema and chronic bronchitis.[1] Those who are exposed to secondhand smoking may develop coronary heart disease, lung cancer, and stroke. Acute respiratory infections, middle ear disease and slower lung growth are all conditions that are more common in children who are exposed to secondhand smoke. [2] No level of cigarette exposure is safe, as all tobacco products are equally dangerous. Smoking cigarettes remains the most common form of tobacco use globally. Other marketed products include bidis, cigars, cigarillos, kreteks, roll-your-own tobacco, water pipe tobacco, and various smokeless tobacco options. In India, there are numerous options for smoking and smokeless tobacco, including cigarettes, bidis, gutkas, jaldas, and pan masala. Individuals start smoking or chewing tobacco for a variety of reasons, including peer pressure, stress alleviation, depression, and social media ads that promote smoking. Tobacco usage has substantial economic consequences as well, the cost of treating diseases caused by tobacco use, as well as human resources lost owing to morbidity and mortality all can be linked to tobacco use. Tobacco contains a high concentration of the nicotine alkaloid.[1] The addictive potential of this nicotine is comparable to that of alcohol, cocaine, and morphine. It is a central nervous system stimulant. Although tobacco is a Sthavara (Organic) and a Patra Visha

(Vegetative Poison). Acharya Yogratanakara introduced it to Nighantu Kala. Throughout his text, he discussed both tobacco's medicinal and harmful effects. He explained that when it is used in excess, it can have a number of dangerous side effects, including intoxication, giddiness, vomiting, pitta aggravation and purgation, as well as a diminution of shukra (Sperms). Its Tikshna and Pittavardhaka characteristics cause Mukhapaak (Sarvsar Roga), which is characterized by mouth ulcers, erosion and redness of the buccal mucosa, and burning in the oral mucosa.[3] Case presentation This case study on tobacco withdrawal demonstrates the effectiveness of Ayurvedic treatment.

Patients' information: - A 32 years old male patient resident of Pimpri Pune visited Agad Tantra OPD of Dr. D. Y. Patil College of Ayurveda and research centre. And I was a PG scholar in the Department of Agad Tantra there.

Present Medical History- The patient arrived complaining of burning sensation and redness of oral mucosa, oral ulcers, constipation, anorexia, indigestion, anxiety and depression from the last 15 days. Patient was apparently healthy before 3 Weeks gradually he noticed these symptoms, he even tried to stop Tobacco chewing but he complained of body pain, anxiety, depression, constipation, anorexia and indigestion as withdrawal symptoms. Thus, he sought of taking treatment from our hospital.

Previous history: - He was non diabetic, not a known case of hypertension and did not present symptoms of any other diseases in the past as well. However, he was an auto rikshaw driver, using tobacco for almost 20 years till then. His daily tobacco consumption was approximately 30g (15-20 pouches).

Patients' Personal history: -**Table 1: Patients Personal History**

Name-XYZ	Bala- Madhyama (Average)	Prakriti-Pitta predominant Kaphaja.
Age- 32	Appetite: - Inadequate	BP- 110/90mm of Hg
Sex- Male	Addiction- Tobacco (Gutka)	Pulse- 76/min
Material status- Married	Bowel habit: - Constipated	Height- 183 cm
Occupation- Auto rikshaw driver	Sleep- Disturbed	Weight- 68 kg
Urine- Yellowish	Tongue- coated	Built- Medium
Bowel- Constipated		

DIAGNOSIS:

Investigation: -The patient was diagnosed on the basis of Fagerstrom Nicotine Dependence Scale for Smokeless Tobacco (FTND-ST). [4,5] Scale along with observed results are included in [Table no: -2]. Fagerstrom Nicotine Dependence Scale for Smokeless Tobacco (FTND-ST) comprises of 6

questions. [4,5] Each question is awarded with marks ranging from maximum of 0-3 or minimum of 0-1. The entire number of points obtained is then tallied; a total of 5 or more indicates considerable nicotine dependence, while a score of 4 or less suggests mild to moderate dependence. [4,5]

(Table-2) Fagerstrom Nicotine Dependence Scale for Smokeless Tobacco (FTND-ST). [4,5]

Questions	Answers	Points	Points Obtained
How soon after waking up do you take your first dip?	With in 5 mins	3	2
	6 - 30 mins	2	
	31- 1 hr.	1	
	After 1 hr.	0	
How frequently do you deliberately ingest tobacco juice?	Always	2	0
	Sometimes	1	
	Never	0	
Which chew of the day do you find the most difficult to give up?	The first one in the morning	1	1
	All others	0	
How many cans/pouches do you consume every week?	More than 3	2	2
	2- 3	1	
	1	0	
Do you chew more frequently in the first few	Yes	1	1
	No	0	

hours after waking up than the rest of the day?			
Do you chew even when you're sick and spend most of the day in bed?	Yes	1	1
	No	0	
		Total= 10	7

Scoring Instructions: All these responses are then added. A score of 5 or more indicates a significant dependence, while a score of 4 or less shows a low to moderate dependence. [4,5] Herein a score of 7 was obtained

indicating tobacco addiction. The patient was also assessed on the basis of a specific criteria developed on the basis of obtained signs and symptoms shown in table no- 3

ASSESSMENT CRITERIA- (TABLE NO. 3)

Clinical feature	Symptom	Grade
Instant craving for Nicotine [7]	With in 5 mins	3
	With in 1 hrs	2
	With in 4 hrs	1
	No craving	0
Anxiety	Nearly every day	3
	More than fifty percent of the days	2
	Most of the days	1
	Never	0
Depression	Nearly every day	3
	More than fifty percent of the days	2
	Most of the days	1
	Never	0
Body pain	Bed rest required	3
	Interference with task	2
	Can be ignored	1
	No pain	0
Oral ulcer	No of ulcer 5-10	3
	No of ulcer 3-5	2
	No of ulcer 1-3	1

	No ulcer	0
	Severe anorexia where patient often avoids meals	3
Anorexia [8]	Moderate anorexia where patient sometime avoids meals	2
	Mild anorexia but takes food time to time	1
	No anorexia	0
	Unable to digest small quantity of meals.	3
Indigestion [8]	Unable to digest adequate quantity of meals	2
	Unable to digest excess quantity of meals	1
	Normal digestion	0
	Very severe	3
Constipation [8]	moderate	2
	mild	1
	absent	0

INTERVENTIONS GIVEN: -

Following interventions were given: -

- 1) Patient was given 1 hour yoga and pranayama daily that included 10-15min of meditation with 'Om' chanting, bhastika pranayama, kapalbhati etc. whose duration was increased gradually. [9,10]
- 2) Padanshika krama (The replacement of drugs and tapering method): - Here in the patient is given a substitute for tobacco that will mimic their habit of chewing.
- 3) Shaman aushadies (Medications) and gandush: -

Table: - 4: - Padanshika krama

Addicted Drug	Drug of Replacement	Withdrawal/Day	Method of Withdrawal/Replacement	Period
Tobacco	Haridra [11,12]	D1- D4	Tobacco-4mg + Haridra-2gm	>2week

		D5- D8	Tobacco-3mg + Haridra -2gm
		D9- D12	Tobacco-2mg + Haridra -2gm
		D12- D16	Tobacco-1mg + Haridra -2gm
		D17	Haridra -2gm

Table-5 Shaman aushadies (Medications) and gandush

Drug	Dose	Frequency	Anupana
Dushivishari Agad [13]	2 Tab	BD after food	Lukewarm Water.
Ashwagandha Churna [14,15]	5gm	BD after food	Lukewarm milk.
Shivakshar Pachan Churna [16]	2 tsf	BD with food	first bolus of food
Khadiradi Vati [17]	2 Tab	BD after food	Lukewarm milk.
Medhya Yoga. [18]	2 tsf	BD before food	Lukewarm Water.
Triphaladi Gandush [19]	3 gm	Gandush 2 times daily.	

- Counselling of the patient was also done every weekly wherein the patient was made aware about his present condition and benefits of quitting tobacco use, probable complications he can face during his quitting journey.
- Counselling of the family members were also done about the present conditions of the patient, probable complications he can face and how to deal with the patient.
 - Detail description about these drugs and their probable mode of action are given in the discussion section.

OBSERVATION AND RESULT: - (Table no. 6)

Findings	Before Treatment	7 th day (28 th Dec 2022)	14 th day (11 th Jan 2023)	21 st day (18 th Jan 2023)	30 th day (27 th Jan 2023)
Instant craving for Nicotine	2	2	2	1	1
Anxiety	2	2	1	1	0
Depression	1	1	1	0	0
Body pain	2	1	0	0	0
Oral Ulcer	3	3	2	1	0
Anorexia	3	3	2	1	0
Indigestion	2	1	1	0	0
Constipation	2	1	1	0	0

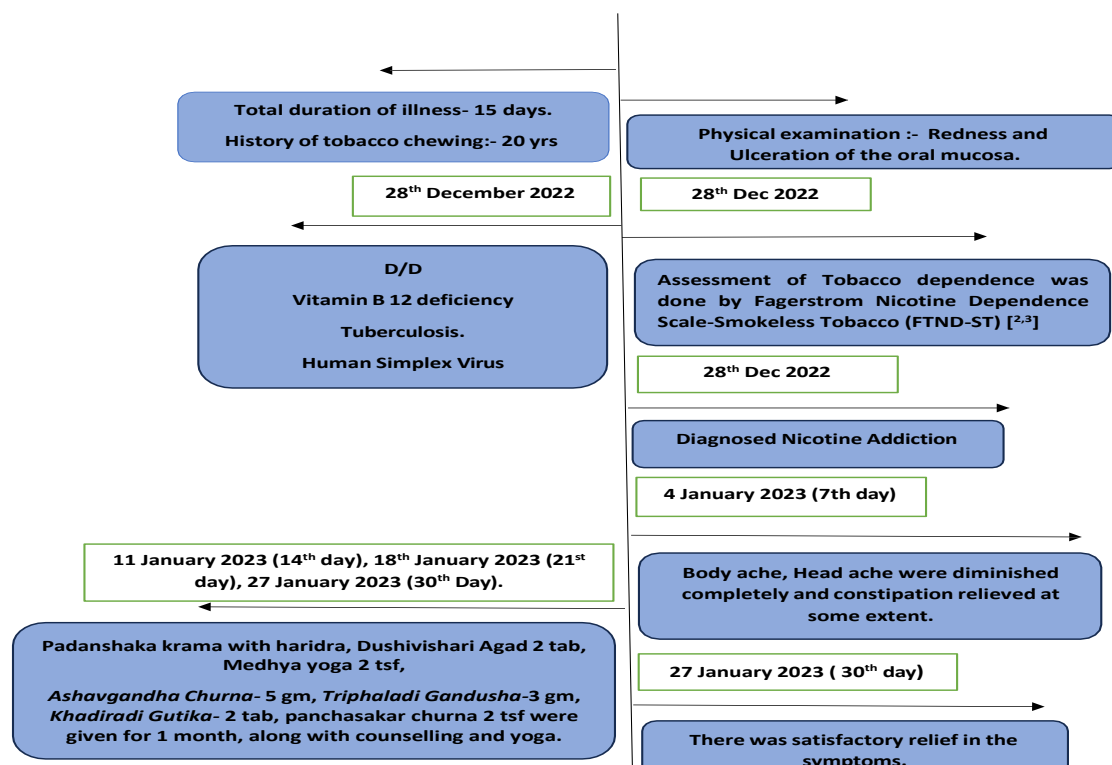
OUTCOME AND FOLLOW-

UPS: - Outcomes were assessed at five time points. The first assessment was done prior to administration of the intervention and the second assessment was done at the end of first week, the third assessment was done on the 14th day, fourth was done on day 21st. and the last assessment on day 30th. Assessment of the tobacco dependence was done on the basis of Fagerstrom Nicotine Dependence Scale Smokeless Tobacco (FTND-ST) [Table-3]. [4,5,6]. A total of 7 points were obtained by the patient. It confirms that the patient was having nicotine dependence. [Table -2] shows the assessment criteria developed on the basis of the observed signs and symptoms, they included Oral ulcer, depression, anxiety, body pain, anorexia, indigestion, constipation along with instant craving for nicotine. Each symptom was graded from ‘0-3’ wherein ‘0’ indicates absence of the symptoms whereas ‘3’ indicates the glorified symptoms. [Table no-

3] shows the ill effects of Chronic tobacco chewing on patient with the help of the signs and symptoms reported by him. Symptoms such as body ache, indigestion, and constipation began to reduce after the first week, and by the 14th day, oral ulcer and redness, anorexia, and anxiety showed improvement. Oral ulcers, anorexia and instant craving for nicotine diminished by the 21st day. By the end of the month, the patient was nearly symptom-free and able to control nicotine cravings. Shown in [Table no: - 6] and [Figure: - 1]. After a month, when the symptoms had fully subsided, the treatment was gradually discontinued because none of the drugs employed were habit-forming, so the patient experienced no difficulties even after complete withdrawal of treatment. However, the patient was instructed to continue to practicing Yoga, pranayama and meditation and regular follow ups every 15th day initially and monthly later on.

TIMELINE: - Timelines of interventions and outcome of the treatment is Figure 1 and Table 6

32 Years male patient came with complains of burning sensation and redness of oral mucosa, oral ulcer etc.



These Ayurvedic formulations along with yoga and counselling exerted symptomatic relief and also helped in reducing withdrawal symptoms along with Nicotine dependence

Figure 1: - Timeline showing details of Ayurvedic management of Nicotine addiction.

DISCUSSION:

Acharya Yogratnakara described tobacco's beneficial and harmful effects in his literature. He explained that when it is used in excess, it can have a number of dangerous side effects, including intoxication, giddiness, vomiting, pitta aggravation and purgation, as well as a diminution of shukra (Sperms). Its Tikshna and Pittavardhaka characteristics cause Mukhapaak (Sarvsar Roga), which is characterized by mouth ulcers, erosion and redness of the buccal mucosa, and burning in the oral mucosa. [2] Based on the aforementioned characteristics of tobacco and the signs and symptoms of its excessive intake, we choose medications that have the opposite toxic impact of nicotine and aid in addiction recovery by easing the symptoms. Other than this Yoga and pranayama were also incorporated for holistic recovery of the patient.

1)Yoga and pranayama: - Yoga is a practice that combines relaxation, physical exercise, stretching, and meditation, aimed at unlocking the body's full potential. It helps reduce tension and stress while enhancing strength and vitality without the use of tobacco. Meditation can produce remarkable effects, rejuvenating both the mind and consciousness. 'Om' chanting has proven to enhance concentration, remove anxiety, stress and increases productivity of the individual.[20] It helped in improving the mental strata of the patient and thus motivating the patient. Moreover, practice of Bhastrika Pranayama (bellows breath) and kapalbhati, practicing them in the morning and at night is beneficial for eliminating nicotine toxins accumulated in the body. [9,19,10]

2)Padanshika Krama: - It was advised by Acharya Charaka, which means small quantity of the addictive drug should be reduced to avoid strong withdrawal symptoms. The abuse drug is gradually replaced with an Ayurvedic medicine which mimic the act of chewing and the abused drug is decreased in 1/4th manner and finally stopped. Herein I have used haridra (Curcuma longa Linn.) for this purpose, although no direct reference is available for using haridra in tobacco, chewing dried harira mimics the act of chewing tobacco and also secretes a juice, and haridra also have anti-inflammatory properties and also helps in relieving the oral ulcers.[10]

3)Dushivishari Agada: - Tobacco use can be compared with the condition of dushivisha as cumulates in the body over a longer period of use, and the free radicals produced also enter in the minute channels of the body and resides there. It does not cause immediate manifestations of symptoms but over the time symptoms like oral ulcer, redness and oral cancer may also occur. Most of the ingredients of Dushivishari Agad have kapha hara, vishagna (antitoxic) properties thus it may be helpful in reversing the toxic effects of tobacco poisoning.[13]

4)Ashwagandha churna: - Ashwagandha possesses Anti-stress, anti-anxiety, and antioxidant properties. It is considered as a rasayana and served as a nervine tonic. [14,15]

5)Shivakshara Pachan Churna- Shivaksharapachana Churna features Haritaki (Terminalia chebula) as "Shiva," known for its exceptional digestive

rejuvenating properties. "Kshara" refers to Sarjikshara, which helps to loosen and eliminate feces from the bowels. "Pachana" relates to Hingvashtak Churna, highlighting its revitalizing effects on the entire digestive system, including digestion, nutrient absorption, and the elimination of wastes and toxins. It stimulates digestive fire, promotes timely bowel movements, and aids in the digestion of Aama accumulated in bodily channels, enhancing liver function. This makes it beneficial for treating conditions like Ajirna (indigestion), Malavarodha (constipation), and Aruchi (lack of appetite or tastelessness). [16]

6)Khadiraadi gutika - acts as an expectorant, astringent, and an oral antiseptic. [17,21]

Table- 8: - Medhya Yoga

Ingredient	Botanical Name	Quantity
Mandukparni [22]	<i>Centella asiatica Linn.</i>	1 part
Bramhi [23]	<i>Bacopa monnieri Linn</i>	1 part
Shankhpushpa [24,25]	<i>Convolvulus prostratus</i>	1 part
Guduchi [26]	<i>Tinospora cordifolia Wild Miers</i>	1part

8)Triphaladi gandush: Triphala alleviates stress, promotes wound healing through collagen sponge formation, and exhibits analgesic, antipyretic, and ulcerogenic properties. Antiseptic gargles and Gandusha are also likely to aid in the treatment and healing of aphthous ulcers, offering both local and systemic benefits.[19]

Moreover, counseling of the patient and his relatives done was very necessary in making them aware of the overall condition. With constant motivation and family's support the was able to recover well. This demonstrates that the above-mentioned

7)Medhya yoga: - Nicotine causes aggravation of pitta. Pitta causes vitiation of rasa. Hridaya is sthan of rasa. Mana and buddhi is also seat of hridaya. So, we have to select any preperation having medhya properties. Medhya yoga [Table-6] includes mandukparni which boosts the brain growth, protects the nervous system, enhances memory power enhances learning capacity, boosts neurodevelopment and have significant stimulating effect on animal as well as clinical study. [22]. Bramhi possesses cognitive and memory boosting abilities.[23] Shankhpushpi is a Nervine tonic, which stimulates the nervous system. [24,25] Finally, Guduchi contains antioxidant qualities and serves as a nervine and general healer. [26]

treatment reduces tobacco's damaging effects, lessens signs and symptoms of addiction to tobacco, and enhances the physical and mental health of the patient.

CONCLUSION:

Patient with tobacco addiction was successfully treated using these Ayurveda principles and medications. It has been determined that these medications aid to reduce addiction and its harmful side effects. Along with all of these, they also enhance wellbeing on the levels of the body, mind, and spirit. furthermore, raises the social and economic status of patients.

FUTURE SCOPE OF STUDY: This is a single case study; however randomized controlled clinical trials can be conducted in the future following these protocols to strengthen its credibility.

PATIENT PERSPECTIVE: After completing the treatment, both the patient and his family reported a significant reduction in symptoms and improved management of tobacco cravings. The patient showed a positive attitude towards himself and others, and counseling for his family fostered their support in his recovery. He was advised to attend follow-ups once monthly and seek immediate medical attention if adverse effects or re-addiction occur.

RESEARCH ETHICS AND PATIENT CONSENT: The patient provided written informed consent and granted permission for the utilization of his clinical data for research purposes and subsequent publication.

STATE OF HUMAN AND ANIMAL RIGHTS: The intervention adhered to the ethical requirements.

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