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EFFECTIVENESS OF *VAMANAKARMA* (THERAPEUTIC EMESIS) IN *MUKHADŪṢIKĀ* (ACNE VULGARIS) – A PRE TEST POST TEST DESIGN

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ABSTRACT

Acne vulgaris is one of the most prevalent chronic inflammatory disorders of the pilosebaceous unit, affecting individuals worldwide, particularly during adolescence and early adulthood. It is characterized by the development of non-inflammatory lesions such as open and closed comedones, as well as inflammatory lesions including papules, pustules, nodules, and cysts. The condition primarily involves sebaceous gland rich areas of the body, such as the face, chest, shoulders, and upper back. Although it is not a life-threatening condition, it can result in permanent scarring, post inflammatory hyperpigmentation, and considerable psychological distress, including reduced self-esteem, anxiety, and depression, thereby significantly impairing quality of life. Due to its high prevalence, multifactorial etiology, and psychosocial impact, acne vulgaris remains a major public health concern. Conventional management strategies for acne vulgaris primarily provide symptomatic relief and are often associated with disease recurrence following discontinuation of treatment. In Ayurveda, acne vulgaris is correlated with *Mukhadūṣikā*, for which *Vamana Karma* is considered the principal line of treatment, aiming to eliminate the vitiated *doṣa* and address the underlying pathology. MATERIALS AND METHODS: This prospective, single arm, pretest–posttest interventional study enrolled 10 participants with a Global Acne Grading System (GAGS) score of ≥19. The treatment protocol comprised *Sadya Snehapāna* with cow's ghee (50 ml daily) administered along with broken rice gruel for 3 days, followed by *Abhyanga, Uṣhma Sweda*, and *Utkleśa Āhāra* for one day. *Vamana Karma* was then performed using *Madanapippalī Cūrṇa, Vacā Cūrṇa, Yaṣṭimadhu Cūrṇa, Saindhava*, and honey. Clinical severity was assessed using the Global Acne Grading System, while the impact on quality of life was evaluated using the Dermatology Life Quality Index (DLQI) questionnaire on 0^{th} and 12^{th} day, no follow-up period was included. Statistical analysis was performed using paired t test. RESULTS: The intervention produced a statistically significant reduction in the GAGS score ($p < 0.05$), indicating its clinical effectiveness in reducing the severity of acne vulgaris. A statistically significant improvement in patients' quality of life was also observed, as evidenced by a reduction in the DLQI score ($p < 0.05$).DISCUSSION: *Mukhadūṣikā i*s predominantly a *Kapha* dominant disorder with the involvement of *Vāta* and *Rakta.Vamana Karma*, being the most effective therapy for the

elimination of *Kapha Doṣa*, helps in breaking this *Samprāpti* by expelling aggravated Kapha along with associated *Vāta* and partially vitiated *Rakta,* considering the *Āśraya Āśrayī* relationship between *Rakta* and *Pitta.* CONCLUSION: The findings of this prospective, single arm, pretest–posttest interventional study indicate that *Vamana Karma* has the potential to reduce the severity of *Mukhadūṣikā* (acne vulgaris) and improve clinical outcomes.

Keywords: *Mukhadūṣikā*, *Vamana Karma*, Acne vulgaris, GAGS, DLQI.

INTRODUCTION: Acne vulgaris is a chronic, inflammatory skin disease of the pilosebaceous unit, characterized by the presence of comedones (open and closed), papules, pustules, and in some cases nodules or cysts, predominantly affecting areas rich in sebaceous glands such as the face, chest, and back. It is a frequently occurring dermatological condition, predominantly affecting adolescents and young adults[1].

The term "acne" is derived from the Greek word *akmē*, meaning *point*, *edge*, or *peak*, which denotes the peak period of life (adolescence) when the disease most commonly manifests[2]. It is estimated to affect 9.4% of the global population, making it the eighth most prevalent disease worldwide[3]. Globally, the age standardized prevalence rate of acne vulgaris in 2021 was approximately 25% higher in young women than in young men[4]. Acne vulgaris affects over 80% of teenagers, and persists beyond the age of 25 years in 3% of men and 12% of women[5]. While acne is not associated with mortality, it is commonly accompanied by considerable physical and psychological morbidity, including permanent scarring, impaired self-esteem, depression, and anxiety[6].

It is a multifactorial disorder of the pilosebaceous unit that develops due to increased sensitivity of the sebaceous glands to circulating androgens, resulting in excessive sebum production. Colonization by *Cutibacterium acnes* further promotes inflammation within the pilosebaceous unit[1]. Its onset and progression are influenced by genetic predisposition[7], hormonal disturbances such as hyperandrogenism, polycystic ovarian syndrome (PCOS), menstrual irregularities, and other endocrine disorders[8], as well as dietary factors including high-glycemic diets and dairy consumption[9], psychological stress, certain medications, environmental pollutants, comedogenic cosmetics, and mechanical irritation. The disease is initiated by the formation of a microcomedo, the earliest subclinical lesion, which subsequently progresses into closed and open comedones and inflammatory lesions such as papules, pustules, and nodules. The pathogenesis involves four principal mechanisms: increased sebum production, follicular hyperkeratinization, colonization by *Cutibacterium acnes*, and activation of inflammatory immune responses, all of which contribute to the development and progression of acne vulgaris[6].

In Ayurveda, acne vulgaris is correlated with *Mukhadūṣikā* or *Yauvanapiḍikā*, which is classified under *Kṣudra Roga* by *Ācārya Vāgbhaṭa, Ācārya Suśruta*, and *Mādhavakara*[10,11,12]. The term *Yauvanapiḍikā* is derived from the Sanskrit words *Yuvan* (youth or adulthood) and

Piḍikā (painful eruption). Ācārya Suśruta describes *Yauvanapiḍikā* as thorn like eruptions resembling the thorns of the *Śālmalī* tree that appear on the face during adolescence due to the vitiation of *Kapha*, *Vāta*, and *Rakta*[10]. *Ācārya Vāgbhaṭa* further elaborates that these are thick, hard, painful eruptions impregnated with *Meda* and occurring over the face of adolescents, for which the term *Mukhadūṣikā* is used[11].Although conventional therapies are effective in controlling acne, recurrence following discontinuation of treatment remains a common clinical challenge[13]. Ayurveda describes several external therapies (*Lepana*) for the management of *Mukhadūṣikā*; however, *Śodhana* therapy, particularly *Vamana Karma*, is considered the principal line of treatment in the classical texts as it aims to eliminate the vitiated *Kapha Doṣa* and address the underlying disease process[14]. Considering the relatively localized nature of *Mukhadūṣikā*, *Sadyasneha* was adopted as the *Purvakarma* of *Vamana* instead of prolonged *Śodhanārtha Snehapāna*. This forms the rationale for evaluating the therapeutic effect of *Vamana Karma* in the management of *Mukhadūṣikā*.

This clinical study included 10 participants with *Mukhadūṣikā* (acne vulgaris) who underwent *Vamana Karma* using *Madanapippalī Cūrṇa*, *Vacā Cūrṇa*, *Yaṣṭi Cūrṇa*, *Saindhava*, and honey. Following the intervention, participants demonstrated a significant reduction in the severity of *Mukhadūṣikā*, accompanied by a significant improvement in quality of life. These findings suggest that *Vamana Karma* may serve as an effective therapeutic modality for the management of *Mukhadūṣikā* while enhancing patients' quality of life.

AIM AND OBJECTIVES

- To evaluate the effectiveness of *Vamana Karma* in reducing the Global Acne Grading System (GAGS) score in participants with *Mukhadūṣikā* (acne vulgaris).
- To evaluate the effectiveness of *Vamana Karma* in improving the quality of life of participants with *Mukhadūṣikā*, as assessed by the Dermatology Life Quality Index (DLQI) questionnaire.

MATERIALS AND METHODS

This prospective, single arm, pretest–posttest interventional study included 10 participants with *Mukhadūṣikā* (acne vulgaris) attending the Outpatient Department of VPSV Ayurveda College Hospital, Kottakkal. Eligible participants with a Global Acne Grading System (GAGS) score of ≥19 were enrolled in the study. Baseline clinical parameters were assessed before the intervention, and the outcome measures were evaluated after completion of the treatment to determine its effectiveness. The study was conducted entirely at the OPD level.

Diagnostic criteria

Based on area factor and lesion grade

Participants with GAGS Score greater than or equal to 19

INCLUSION CRITERIA

- Participants fulfilling the diagnostic criteria
- Participant of age group 18- 40 years
- No gender discrimination
- Participants willing to give informed consent
- Participants fit for *Vamanakarma*

EXCLUSION CRITERIA

- Pregnant and lactating women
- Participants with uncontrolled Hypertension
- Diagnosed cases of Haemorrhagic disorders, Esophageal varices, Liver cirrhosis, Active peptic ulcer
- Tortuous vein in the neck and forehead
- Known cases of Psoriasis, Eczema, Fungal infections, Vitiligo, Urticaria, Asthma, Chloracne
- Participant with known case of Hypothyroidism, PCOD
- Participants with Cosmetic allergy

Ethical considerations

Approval from the Ethics Committee was obtained from the Institutional Review Board (IRB) of VPSV Ayurveda College Kottakkal with approval no. IRB/CL/21/24), dated 27/05/2024. Following approval, the study was registered with the Clinical Trials Registry of India (CTRI) under the registration number CTRI/2024/10/075152.

Informed consent

Informed consent was obtained from all participants prior to enrolment, and a separate case record form was maintained for each participant throughout the study.

Intervention

Vamana Karma was the intervention adopted in this study. No other internal medicines were given as *Samana Auṣadha.* The *Vamana Auṣadha* consisted of *Madanapippalī Cūrṇa*, *Vacā Cūrṇa*, *Yaṣṭi Cūrṇa*, *Saindhava*, and honey (Table 1).

Table 1. Composition of *Vamana Auṣadha*

Sl No	Medicines	Quantity
1	*Madanapippalī Cūrṇa*,	8 gm
2	*Vacā Cūrṇa*	2 gm
3	*Yaṣṭi Cūrṇa*	10 gm
4	*Saindhava*	5 gm
5	Honey	QS

The intervention was carried out in three stages:

1. *Pūrva Karma*
2. *Pradhāna Karma*
3. *Paścāt Karma*

Pūrva Karma

Sadyaḥsneha was administered using cow's ghee at a dose of 50 mL daily, along with broken rice gruel and two pinches of *Saindhava*, for three consecutive days. Following *Sadyaḥsneha*, *Samyak Snigdha Lakṣaṇa* were assessed based on classical clinical criteria; however, no validated assessment tool was used for their evaluation. On the day preceding *Vamana*, *Utkleśa Āhāra*, comprising milk, black gram fritter, milk fudge ,etc.. was administered, followed by *Abhyaṅga* and a hot water bath.

Pradhāna Karma

On the day of Vamana, at 5:30 am, *Abhyaṅga* was performed using *Tila taila*, followed by *ūṣmasweda* and a hot water bath prior to the procedure. Subsequently, a gruel prepared from broken rice, with a small quantity of plain ghee and *Saindhava*, was administered. After a waiting period of 15 minutes, *Vamana auṣadha* was given. After a waiting period of 45 minutes, or as soon as the participant began to vomit, *ākaṇṭha pāna* was carried out using *Yaṣṭi phāṇḍa* the quantity of *Yaṣṭi phāṇṭa* was

administered as required to facilitate *Kapha Cheda* or achieve *Pittanta*. *Lavanodaka* was administered to participants who exhibited *Hīna Vega*.

Paścāt Karma

Following *Vamana karma*, *kavala* with hot water was performed, after which *dhūmapāna* using *Haridrā Varti* was administered. Thereafter, *Peyadi samsarjana krama* was advised, based on the degree of *śuddhi* attained.

Outcome Measures

The severity of *Mukhadūṣikā* was evaluated using the Global Acne Grading System (GAGS)[15] on the 0th day (before treatment) and the 12th day (after treatment). The GAGS score was determined by assessing six anatomical regions (forehead, cheeks, nose, chin, chest and upper back), assigning a factor to each region, grading the lesion present, and calculating the total score by multiplying the regional factor by the lesion grade. The sum of all regional scores constituted the final GAGS score.

The quality of life of the participants was assessed using the Dermatology Life Quality Index (DLQI)[16] questionnaire on the 0th day and the 12th day following *Vamana Karma*. The DLQI is a validated 10 item questionnaire that evaluates the impact of skin disease on various aspects of daily life, with lower scores indicating better quality of life.

Data analysis

The data obtained from the study were systematically organized and entered into an Excel spreadsheet, and statistical analysis was carried out using SPSS version 20.

OBSERVATION AND ANALYSIS

Observed Samyak Snigda Lakṣaṇa

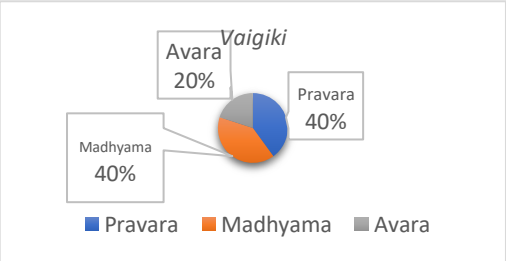
Table no.2 Distribution of participants according to *Samyak Snigda Lakṣaṇa*

Lakṣaṇa	Frequency	Percentage (%)
Vātānulomana	10	100
Agni Dīpana	10	100
Varcas Snigdhata	4	40
Tvak Snigdhata	2	20

Samyak Vamana Lakṣaṇa

1. ***Vaigiki***

Graph no.1 - Distribution of participants according to *vaigiki*



Pravara Śuddhi (7- 8 *Vega*) and *Madhyama Śuddhi* (5–6 *Vega*) were observed in 40% of participants each, while *Avara Śuddhi* (Up to 4 *Vega*) was observed in 20% of participants.

2. ***Mānikī***

Table no.3 - *Mānikī* according to each participant

Sl No.	Volume output (L)	Volume input (L)	Volume inside (L)
1	8.40	8.64	-0.24
2	5.56	7.27	-1.71
3	6.99	7.80	-0.81
4	5.90	6.80	-0.90
5	5.00	5.40	-0.40
6	6.10	7.00	-0.90
7	4.80	5.20	-0.40
8	7.25	8.00	-0.75
9	2.00	3.60	-1.60
10	7.25	8.60	-1.35

3. *Āntikī*

Table no.4 Distribution of participants according to *Āntikī*

Lakṣaṇa	Frequency	Percentage(%)
Pittānta	4	40
Kapha cheda	8	80
Vamana Auṣadha nirgamana	10	100

4. *Laingiki*

Table no.5 Distribution of participants according to *laingiki*

Lakṣaṇa	Frequency	Percentage(%)
Kramāt Kapha Pitta Anila Pravṛtti	4	40
Hṛt Śuddhi	10	100
Pārśva Śuddhi	10	100
Mūrdha Śuddhi	7	70
Indriya Śuddhi	10	100
Mārga Śuddhi	8	80
Laghutvam	8	80

A reduction in the Global Acne Grading System (GAGS) score was observed in all participants following *Vamana Karma*, indicating an overall improvement in the severity of *Mukhadūṣikā* (Table 6). An improvement in the quality of life of all participants was observed following *Vamana Karma*, as evidenced by a reduction in the Dermatology Life Quality Index (DLQI) scores (Table 7).

Table no.6 Comparison of Baseline and Post-treatment GAGS Scores in Individual Participants

Participant	BT	AT
1	21	18
2	25	20
3	29	20
4	29	25
5	35	32
6	23	20
7	28	25
8	27	25
9	33	30
10	25	21

Table no.7 Comparison of Baseline and Post-treatment DLQI Scores in Individual Participants

Participant	BT	AT
1	5	3
2	2	1
3	4	1
4	5	3
5	8	6
6	3	0
7	3	2
8	7	5
9	6	4
10	9	7

Statistical analysis

The data were tested for normality prior to statistical analysis. As the baseline data were normally distributed, pre and post treatment comparisons were performed using the paired *t*-test. A *p* value of <0.05 was considered statistically significant. Both the Global Acne Grading System (GAGS) and Dermatology Life Quality Index (DLQI) scores demonstrated a statistically significant reduction following *Vamana Karma* ($p < 0.05$) (Table 8)

Table no.8 – Effect of *Vamana Karma* on Global Acne Grading System (GAGS) and Dermatology Life Quality Index (DLQI) Scores

Parameter	BT Mean	AT Mean	Mean difference	t Value	DF	P Value
GAGS	27.5	23.6	3.9	6.26	9	0.000
DLQI	5.2	3.2	2	9.48	9	0.000

DISCUSSION: In the present study, *Sadyaḥsneha* was adopted as the method of *Snehapāna* prior to *Vamana Karma*, considering the classification of *Mukhadūṣikā* under *Kṣudra Roga*. Given the relatively localized nature of the

condition, *Sodhananga Snehapāna* may not be essential before *Śodhana*. Hence, *Sadyaḥsneha* was employed to achieve adequate *Snigdhatva* within a shorter duration and facilitate the subsequent *Vamana Karma*. This approach was considered appropriate in view of the nature of the disease and the clinical setting. Following *Sadyaḥsneha*, *Vātānulomana* and *Agni Dīpana*(100%) were the predominant *Samyak Snigdha Lakṣaṇa* observed, while *Snigdhata* of *Tvak*(20%) and *Snigdhata* of *Varcas* (40%) was reported by some participants.

In this study, the *Vaigikī Śuddhi* was predominantly observed in the *pravara* and *Madhyama* categories, with 40% of participants in each category. *Kapha Cheda* was achieved in 80% of participants, indicating effective elimination of the accumulated *Kapha* during *Vamana Karma*. Regarding the *Laingikī Śuddhi*, *Mārga Śuddhi* and *Lāghutva* were observed in 80% of participants while *Mūrdha Śuddhi* was observed in 70%.The predominance of *Kapha Cheda*, along with the attainment of *Mārga Śuddhi*, *Lāghutva*, and *Mūrdha Śuddhi* may indicate adequate therapeutic response to *Vamana Karma*.

The present study demonstrated a statistically significant reduction in the Global Acne Grading System (GAGS) score following *Vamana Karma*. A 14.18% reduction in acne severity was observed after the intervention. The observed improvement may be attributed to the elimination of vitiated *Kapha* and *Pitta Doṣa*, which are primarily involved in the pathogenesis of the disease, thereby reducing both inflammatory and non-inflammatory lesions.

Flow chart no.1 – *Samprāpti* of *Mukhadūṣikā*

Nidāna

↓

Aggravation of *Kapha* and *Vāta Doṣa*[10]

↓

Vitiation of *Rasa, Rakta, Māṃsa* and particularly *Meda Dhātu*[11]

↓

Impairment of *Dhātvagni*, especially *Medodhātvagni*

↓

Excessive production of *Sveda* (*Mala* of *Meda Dhātu*)[17]

↓

Obstruction of *Lomakūpa (Meda* and *Lomakūpa - Mūla of Svedavaha Srotas)*[18]

↓

Srotorodha (*Saṅga* type *Srotoduṣṭi*)

↓

Mukhadūṣikā

Flow chart no.2 - *Samprāpti Vighaṭana* by *Vamana Karma*

Vamana Karma

↓

Uṣṇa, Tīkṣṇa, Sūkṣma, Vyāvayi & Vikāsi Guṇa of *Vamana Dravya*[19]

↓

Penetration into *Sthūla* & *Sūkṣma Srotas*

↓

Doṣa Utkleśana & Expulsion of aggravated *Kapha*

↓

Elimination of associated *Vāta* & partially vitiated *Rakta (Āśraya Āśrayī* relationship between *Rakta* and *Pitta)*[20]

↓

Doṣa Śodhana / Srotoshodhana

↓

Relief of *Srotorodha* in *Svedavaha Srotas*

↓

Clearing of obstruction at *Lomakūpa*

↓

Restoration of *Srotas* function

↓

Dhātu Śuddhi of *Rasa, Rakta, Māṃsa* & *Meda*

↓

Improvement of *Dhātvagni*

↓

Correction of *Dhātu Pāka Vaiguṇya*

↓

Reduction of excessive *Sveda* production

↓

Prevention of further follicular obstruction

↓

Reduction in *Mukhadūṣikā*

The probable mechanism of action of *Vamana Karma* may also be explained through neuroendocrine and immunological modulation. Contemporary studies suggest that acne is not merely a disorder of sebaceous secretion and follicular obstruction but also a chronic inflammatory condition involving cytokines such as IL-1α, IL-1β, IL-6, IL-8, TNF-α, and Th17-related cytokines[21,22,23,24]. Activation of inflammatory pathways by *Cutibacterium acnes*, Toll like receptors (particularly TLR-2), and other immune mediators plays a crucial role in the initiation and progression of inflammatory acne lesions[21,23]. Increased expression of IL-17 and other pro inflammatory cytokines has also been demonstrated in acne lesions, indicating the involvement of adaptive immune responses in disease pathogenesis[24].

In addition, neuroendocrine factors such as stress-related hormones and neuropeptides are known to influence sebaceous gland activity, keratinocyte proliferation, lipogenesis, and inflammatory cytokine production, thereby aggravating acne lesions[22]. Human sebocytes possess receptors for various neuroendocrine

mediators, including corticotropin releasing hormone, melanocortins, β-endorphin, vasoactive intestinal peptide, and neuropeptide Y, which modulate inflammatory responses within the pilosebaceous unit[22]. Therefore, disturbances in neuroendocrine immune interactions may contribute significantly to the inflammatory manifestations of *Mukhadūṣikā*.

In this context, *Vamana Karma*, as a systemic *Śodhana* therapy, may exert its therapeutic effect not only through the elimination of vitiated *Doṣa* and *Srotoshodhana* but also through the modulation of neuroendocrine and immune responses. The procedure may help restore systemic homeostasis, reduce inflammatory mediator activity, and regulate cytokine responses associated with acne inflammation. This explanation is particularly relevant to the present study, as the majority of participants presented with inflammatory lesions. Thus, the beneficial effect of *Vamana Karma* in *Mukhadūṣikā* may be attributed to both the classical mechanism of *Doṣa Śodhana* and its probable immunomodulatory and anti inflammatory effects mediated through neuroendocrine pathways.

The present study demonstrated a 38.46% reduction in the DLQI score following *Vamana Karma*, indicating a marked improvement in the quality of life of the participants. This improvement can be attributed to the significant reduction in the severity of *Mukhadūṣikā*, particularly the inflammatory lesions, which are often associated with pain, cosmetic concerns, and psychological distress. Effective management of the disease likely reduced the impact of skin lesions on daily activities, social interactions, and emotional well being, thereby resulting in a significant improvement in the participant's overall quality of life.

CONCLUSION

The findings of this prospective single arm pretest–posttest interventional study suggest that *Vamana Karma* is effective in reducing the severity of *Mukhadūṣikā* (acne vulgaris), as evidenced by a significant reduction in the GAGS score, while also improving the quality of life of participants, as reflected by a significant reduction in the DLQI score. However, further studies with larger sample sizes and longer follow up periods are warranted to validate these findings and establish the long term therapeutic efficacy of *Vamana Karma* in the management of *Mukhadūṣikā*.

LIMITATIONS

- Variation in reporting *Laingikī* parameters may occur because the assessment is largely subjective and depends on the participant's perception and the clinician's interpretation of symptoms such as *Lāghava*, *Hṛt Śuddhi*, *Pārśva Śuddhi*, *Indriya Śuddhi* etc. This may lead to interindividual variation in assessment.
- Obtaining informed consent was challenging due to the perceived fear, discomfort, and complexity associated with *Vamana Karma*. Participants were often apprehensive about the emesis procedure, dietary restrictions, and preparatory measures, which affected willingness to participate in the study.
- The study relied solely on clinical scoring (GAGS) and quality of life scoring (DLQI) to assess outcomes, without incorporating objective biological markers such as serum androgen levels, sebum

secretion rate, inflammatory cytokine profiles.

- Assessments were done only on Day 0 and Day 12, with no follow-up period. Since acne is a chronic, relapsing condition that often returns after treatment stops, a follow-up period is necessary to check whether the improvement remains consistent over time.
- The study was conducted at a single institution with a limited participant pool. A multicentric approach, involving diverse geographic, dietary, and demographic populations, would be necessary to enhance the external validity and generalizability of these findings.
- Treatment outcomes were evaluated exclusively using the GAGS score, which grades disease based on lesion type and anatomical distribution. This approach does not capture other clinically relevant parameters such as lesion count trends over time, scar formation, pigmentary changes, or recurrence pattern.

RECOMMENDATIONS

- A longer follow up period would help evaluate the durability of the therapeutic effects of *Vamana Karma* and determine whether the reduction in *Mukhadūṣikā* lesions is sustained over time. It would also help assess recurrence rates and the long-term preventive potential of the treatment.
- Performing the study in an inpatient setting would allow better monitoring of dietary regimen, *Pathya-Apathya*, sleep, and procedural compliance. This would minimize external influencing factors and improve standardization of the intervention.
- Inclusion of biochemical markers like mucin, hexosamine, and sialic acid may provide objective quantification of mucus and glycoprotein content in vomitus. This could help scientifically validate *Āntikī Lakṣaṇa*, especially *Kapha Cheda*, and reduce subjectivity in assessment.

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