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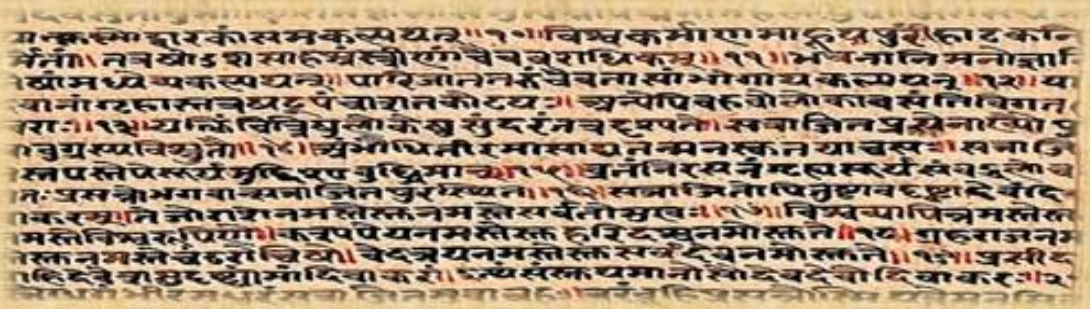

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International Journal for Empirical Research in Ayurveda

A critical review on Nasya procedure in Sharangadhara Samhita: A Scientific Perspective

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ABSTRACT:

Nasya Karma is an ancient Ayurvedic nasal therapy, as described in the Sharangadhara Samhita. It aims to bridge traditional wisdom with modern scientific understanding of nasal drug delivery. The report delineates the traditional protocols for Nasya, including herbal oil preparation, patient preparation, administration techniques, and observed therapeutic outcomes and adverse effects. Concurrently, it integrates contemporary scientific insights into nasal anatomy, physiology, drug absorption mechanisms, and factors influencing nasal drug delivery. The discussion critically interprets traditional concepts through a scientific lens, exploring potential pharmacological bases and identifying avenues for future research to validate and optimize this ancient practice. By bridging these two knowledge systems, a deeper understanding of nasal drug delivery can be achieved, potentially leading to the development of novel, evidence-based therapeutic strategies for a wide range of conditions.

Key words: Nasya karma, Sharangadhara Samhita, Swedana, Basti, Virechan.

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Introduction

Ayurveda, an ancient Indian system of medicine, emphasizes holistic health and disease management through a comprehensive framework of principles and therapies. Panchakarma, a set of five therapeutic procedures, forms the core of Ayurvedic detoxification and rejuvenation, aiming to eliminate accumulated toxins (doshas) from the body. The five karmas, as expounded by great sages and detailed in classical texts like the Sharangadhara Samhita, include Vamana (therapeutic emesis), Virechana (therapeutic purgation), Nasya (nasal medication), Niruha Basti (decoction enema), and Anuvasana Basti (oil enema). Each therapy is meticulously designed for specific therapeutic goals and physiological targets.

Nasal Drug Administration in Ayurveda

Nasya Karma is a specialized Panchakarma therapy involving the administration of medicinal substances, typically herbal oils, ghee, or decoctions, through the nasal passages. Traditionally, it is considered a highly effective treatment for conditions affecting the head (Shiro), neck, and sense organs, as well as for various systemic disorders believed to originate from or manifest in these regions. In Ayurvedic philosophy, the nasal route is considered a direct pathway to the brain and sensory organs, underscoring its unique position and profound therapeutic potential.

The Sharangadhara Samhita, authored by Sharngadhara, son of Shridamodara, is a pivotal and authoritative text in Ayurvedic pharmaceutical science (Bhaishajya Kalpana). Composed around the 13th century CE, it is renowned for its detailed descriptions of drug formulations, therapeutic procedures, and diagnostic methods, making it a crucial reference for understanding the practical application of Ayurvedic principles. Its precise instructions for various treatments, including Nasya, provide a valuable historical and procedural blueprint for scientific investigation into traditional practices.[1]

Traditional Methodology of Nasya (as per Sharangadhara Samhita)

1. Preparation of Nasya Oils

The Sharangadhara Samhita provides specific examples of herbal oils used for Nasya, detailing their preparation. For instance, it mentions that oils are prepared individually from herbs such as Vibhita (Terminalia belerica), Nimba (Melia azadirachta), Kambhari (Gmelina arborea), shiva (Terminalia chebula), Selu (Streblus asper), and Kakini (Trichosanthes tricuspidata). These individually processed oils are specifically indicated for their use as nasal medication to alleviate greying of hair, highlighting a targeted therapeutic application within the broader scope of Nasya. [2]

The instruction to process these specific herbs into oil "individually" suggests a nuanced approach to Ayurvedic pharmaceutical preparation. This method likely aims to preserve the unique active compounds or therapeutic properties of each herb, or to ensure the purity and potency of single-herb oils before their potential combination or specific application. This aligns with modern pharmaceutical principles of producing standardized extracts or single-compound drugs for targeted indications, rather than a generic, multi-herb concoction. It indicates an ancient recognition of specialized formulations for distinct therapeutic outcomes. The focus on individual processing suggests an

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empirical understanding of how to maximize the efficacy of specific plant constituents for targeted conditions, mirroring modern drug development's emphasis on specific active pharmaceutical ingredients (APIs).

Table 1: Key Herbal Ingredients in Nasya Oils (as per Sharangadhara Samhita) and their Traditional Uses.

Herb Name (Sanskrit / Botanical)	Traditional Use in Nasya	Potential Modern Pharmacological Relevance
Vibhita (*Terminalia belerica*)	Alleviate greying of hair	Antioxidant, hair follicle-stimulating, anti-inflammatory properties
Nimba (*Melia azadirachta*)	Alleviate greying of hair	Anti-inflammatory, antimicrobial, hair health-promoting properties
Kambhari (*Gmelina arborea*)	Alleviate greying of hair	Traditional uses related to hair health or general tonic effects
shiva (*Terminalia chebula*)	Alleviate greying of hair	Antioxidant, anti-aging, hair nourishing properties
Selu (*Streblus asper*)	Alleviate greying of hair	Traditional uses related to hair or scalp health
Kakini (*Trichosanthes tricuspidata*)	Alleviate greying of hair	Traditional uses related to hair or scalp health

2. Patient Preparation Protocol for Nasya Administration

The Sharangadhara Samhita outlines a meticulous preparatory protocol to ensure optimal conditions for Nasya administration. The patient is placed in an environment free from wind and dust, a measure crucial for preventing external contamination, irritation, and maintaining a stable environment during the delicate procedure. Prior to administration, the patient must perform cleaning of teeth and take smoke through the nostrils, which may serve to clear preliminary blockages, stimulate nasal passages, or prepare the respiratory tract. External sudation (Swedana) of the forehead and throat is then performed, a practice intended to relax local tissues, promote vasodilation, open channels, and enhance local circulation, potentially aiding absorption.[3] A critical step involves the patient lying flat with the head slightly hanging down, ensuring that the nostrils are posed upwards. This specific posture is designed to facilitate the flow and retention of the medication within the nasal cavity. This highly specific patient posture represents a sophisticated empirical technique to optimize drug delivery. From a modern scientific perspective, this positioning leverages gravity to direct the liquid medication towards the superior and posterior regions of the nasal cavity, specifically the olfactory and respiratory areas. The olfactory region offers a direct pathway to the brain, while the respiratory region is he main site of systemic absorption.[4] By having the5 head hanging down with nostrils pointed upwards, gravity assists in ensuring the

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administered oil flows towards and saturates these critical areas, rather than simply draining out the anterior nares. This maximizes the contact time of the medication with the most permeable and neurologically connected parts of the nasal mucosa, thereby enhancing both systemic absorption and direct nose-to-brain delivery. This ancient instruction demonstrates an intuitive understanding of how to maximize drug contact with target absorption sites, pre-empting modern considerations of gravitational effects on drug deposition and regional targeting within the nasal anatomy. For patient comfort and stability, the hands and legs are spread, and the eyes are covered with a piece of cloth.[5]

3. Administration Procedure, Dosage, and Retention Time

The physician is instructed to administer lukewarm oil in a scheduled dose, ensuring it is delivered "at one stretch" (uninterrupted flow). This is performed with the aid of specialized instruments, which could be made of gold, silver, shells, or any other suitable material based on need and availability. Crucially, during the administration, the patient is strictly advised not to shake the head, and to avoid expressions of anger, speech, sneezing, or laughter. These actions are explicitly stated to "hinder the drug from entering inside and cause cough, cold and diseases of head and eyes". The explicit injunctions against shaking the head, sneezing, coughing, speech, and laughter during Nasya administration are remarkably consistent with modern scientific understanding of factors that compromise nasal drug delivery. Sneezing and coughing are powerful host defense mechanisms that rapidly expel foreign substances from the nasal cavity, thereby drastically reducing the residence time of the drug on the nasal mucosa. Similarly, head movements and vocalization can disrupt the delicate film of medication or inadvertently trigger mucociliary clearance. Mucociliary clearance is a continuous process where cilia move mucus towards the nasopharynx, effectively removing substances from the nasal cavity. Any action that triggers these reflexes or physically displaces the liquid would significantly reduce the drug's contact time with the nasal mucosa, which is essential for absorption. A reduced residence time directly translates to less time for absorption, thus "hindering the drug from entering inside" and leading to suboptimal therapeutic effects or local irritation (cough, cold, head/eye diseases). This demonstrates an ancient, empirical understanding of the critical importance of maintaining drug residence time for optimal absorption and preventing premature expulsion, a concept that is central to the design of modern nasal drug formulations aimed at maximizing bioavailability. [6]The retention time for the nasal medication within the nostrils is specified as 5, 7, or 10 Matras. A Matra is defined as an ancient unit of time, equivalent to the time taken for making a circle of the folded knee with one's hand and snapping one's fingers, or, according to some, the time taken for closing and opening one's eyes once. Following administration, the brim of the nose at the root is gently massaged, and the medicine should under no circumstances be swallowed.

4. Post-Administration Care and Adjunctive Procedures

After the nasal medication is administered, the patient is instructed to sit up and spit out any liquid that has reached the nose

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and throat. This spitting should be directed towards the left, right, and center, not just straight ahead, to ensure complete expulsion of excess liquid. This step is crucial to prevent the swallowing of residual medication, which could lead to systemic absorption via the gastrointestinal tract, bypassing the intended nasal route and potentially causing unintended effects or degradation by hepatic first-pass metabolism.

During this post-operative phase, the patient is advised to avoid feelings of grief, exposure to dust, and anger, emphasizing the importance of a calm and protected environment for optimal recovery and integration of the therapy. Following the spitting, the patient is asked to lie down without sleeping for a duration of 100 seconds. This period of rest, without sleep, may allow for further absorption or stabilization of effects. The document also advises that after nasal purgation, it is beneficial to inhale smoke through the nostrils (Dhoomapana) or perform Kavala (retaining a mouthful of oils or liquids for a certain period). These adjunctive procedures may serve to clear any residual effects, enhance overall therapeutic outcomes, or balance the doshas.

Observed Effects and Management of Nasya (as per Sharangadhara Samhita)

1. Signs and Symptoms of Optimal (shuddhi Yoga) Nasya

Shuddhi Yoga, signifying effective cleansing or properly administered Nasya, is characterized by a set of positive physiological and psychological indicators. The key signs and symptoms include: a feeling of lightness in the mind, clarity in the bodily channels, a noticeable diminishing of the disease for which the therapy was given, and an overall pleasantness of the mind and sense organs. These collective signs are considered indicative of a "properly cleaned head", suggesting that the therapeutic effects have been optimally achieved. The traditional description of "lightness in the mind" and "clarity in the channels" as primary indicators of optimal Nasya aligns remarkably with modern scientific understanding of the intricate connection between nasal health and cognitive function. "Clarity in channels" can be scientifically interpreted as improved patency of nasal passages, leading to enhanced airflow and oxygenation, which directly alleviates symptoms like "brain fog" and improves concentration. Research indicates that nasal obstruction can lead to reduced oxygen intake and poorer sleep quality, both contributing to mental fatigue and reduced cognitive function. Therefore, achieving "clarity in channels" through Nasya would directly address these physiological impediments. The subjective experience of "lightness in the mind" correlates with the reduction of mental fatigue and improved focus observed when nasal passages are clear. Furthermore, the direct nose-to-brain pathway via the olfactory and trigeminal nerves suggests that active compounds in the Nasya oils could have direct pharmacological effects on the brain. These compounds might influence neurotransmitter systems (such as serotonin and dopamine) and limbic regions, thereby contributing to improved mood, reduced anxiety, and enhanced mental clarity. This convergence bridges the subjective experience described in ancient texts with measurable physiological and neurological changes, indicating a sophisticated empirical observation of the therapy's holistic impact. [7]

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2. Signs and Symptoms of Suboptimal (Hinayoga) and Excessive (Atiyoga) Nasya

Hinayoga (Less Effective or Inadequately Administered): This state is characterized by signs indicating insufficient therapeutic effect. Symptoms include pruritus (itching), a sticky feeling in the face, a sensation of heaviness in the head, and dribbling of saliva and phlegm in the mouth and nose. These symptoms suggest that the cleansing or therapeutic action was incomplete or inadequate, potentially due to insufficient dosage, improper administration, or rapid clearance of the medication. Atiyoga (Over Effective or Excessive Administration): This severe state indicates an over-response to the therapy. Symptoms are profound and include: "Excretion of brain secretions (described as displacement of the brain)," accumulation of Vata (one of the three doshas in Ayurveda), incognition or distortion of the senses, and a feeling of hollowness in the head. The description of "excretion of brain secretions (displacement of brain)" as a symptom of Atiyoga is a striking and seemingly unscientific traditional claim.

Management Strategies for Adverse Effects and Over-Oleation[8]

The Sharangadhara Samhita provides specific management protocols for both inadequate and excessive Nasya effects.

Management for Hinaśuddhi (Inadequate Cleansing): In cases where Nasya is less effective, anti-Kapha measures are adopted. This approach aims to counteract symptoms like heaviness in the head, sticky feeling, and excessive phlegm, which are traditionally associated with Kapha imbalance. From a modern viewpoint, these symptoms could be related to insufficient clearance of mucus or inflammatory exudates, and Kapha-reducing measures would aim to dry or clear these secretions. Management for Ati shuddhi (Over Cleansing): For conditions arising from over-cleansing or excessive Nasya, anti-Vata treatment is given. This targets symptoms such as Vata accumulation, sensory distortion, and hollowness in the head, which are attributed to an aggravated Vata dosha. In a scientific context, these symptoms might correspond to excessive drying of nasal mucosa, irritation, or neurological overstimulation, where Vata-pacifying measures (often involving nourishing and grounding therapies) would be employed to restore balance. Management of Over-Oleation Caused by Nasal Medication: Symptoms of over-oleation include: dribbling of phlegm, a sensation of heaviness in the head, and distortion of the sense-organs. Management involves the administration of drying agents in nasal medication. Furthermore, dietary recommendations include avoiding heavy foods, and lifestyle habits should be anti-Kapha (e.g., consuming warm water for drinking, practicing more fasting). This approach aims to counteract the excess unctuousness and phlegm, aligning with principles of restoring physiological balance.

Discussion:

Modern pharmacology increasingly recognizes the nasal route as a promising and efficient pathway for drug delivery due to its unique anatomical and physiological advantages. These advantages include rapid absorption, avoidance of hepatic first-pass metabolism, and the potential for direct nose-to-brain targeting, which is particularly relevant for neurological

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treatments. The nasal cavity's thin and highly vascularized mucosa allows for quick absorption of drug molecules directly into systemic circulation. Furthermore, the olfactory nerve pathways provide a direct route to the brain, bypassing the blood-brain barrier (BBB).[9] Investigating traditional practices like Nasya through a rigorous scientific lens can offer several benefits: it can validate ancient empirical wisdom, uncover novel therapeutic applications for modern conditions, and inform the development of innovative drug delivery systems. This research article aims to bridge the gap between the empirical observations and detailed protocols of Nasya Karma as described in the Sharangadhara Samhita and contemporary pharmacological principles, thereby fostering an evidence-based approach to integrative medicine.[10]Atiyoga, when viewed through the lens of modern science, it strongly suggests an ancient recognition of the direct and powerful connection between the nasal cavity and the brain. Modern research extensively details "nose-to-brain" drug delivery mechanisms, where substances can directly reach the central nervous system (CNS) via the olfactory and trigeminal nerves, bypassing the Blood-Brain Barrier (BBB). This pathway allows for significant amounts of therapeutic molecules to reach the brain and spinal cord.[11]While a literal "excretion of brain secretions" is anatomically incorrect from a contemporary perspective, the traditional description likely refers to severe neurological dysfunction, profound sensory distortion, disorientation, or even unusual nasal discharges that were perceived to originate from deeper, vital structures due to the severity of the accompanying neurological symptoms.[12,13] The symptoms of "incognition or distortion of the senses" and "hollowness in the head" further support the interpretation of a severe neurological impact. This empirical observation, despite its pre-scientific interpretation, underscores the potent and direct neurological impact that excessive nasal intervention can have, validating the traditional understanding of this administration route's profound effects on the "head." The concept of a powerful, direct connection between the nasal cavity and the brain, and its potential for strong (even adverse) effects, was recognized and categorized as a distinct clinical entity (Atiyoga), highlighting the empirical depth of Ayurvedic observations, even when the mechanistic explanation was absent or metaphorical. [14]

Conclusion:

The detailed exposition of Nasya Karma in the Sharangadhara Samhita reveals a sophisticated traditional understanding of nasal drug administration, encompassing meticulous preparation, precise administration techniques, and astute observation of therapeutic outcomes and adverse effects. The traditional protocols, such as the individual processing of herbs for specific indications, the precise patient positioning to optimize drug deposition, and the strict behavioral injunctions during administration, demonstrate an empirical recognition of principles that resonate strongly with modern pharmaceutical science. These include the importance of maintaining drug purity and potency, maximizing drug contact time with the nasal mucosa, and ensuring targeted delivery to relevant anatomical regions for optimal absorption and therapeutic effect.

The observed therapeutic effects of Nasya, such as "lightness in the mind" and

"clarity in channels," find compelling parallels in contemporary research on nasal health and cognitive function, suggesting that ancient observations of improved mental clarity were linked to enhanced respiratory and potentially neuropharmacological processes. Furthermore, the description of severe adverse effects like "excretion of brain secretions" in cases of excessive Nasya, while anatomically metaphorical, underscores an ancient awareness of the potent and direct connection between the nasal cavity and the brain, a concept now extensively validated by modern nose-to-brain drug delivery research.

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