

A CONCEPTUAL AND CRITICAL STUDY OF “NASA HI SIRSO DWARAM” W.S.R. TO
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ABSTRACT

Ayurveda is an eternal science & deep ocean of knowledge which help to achieve longevity. It is the science of life & its main aim is to protect the health of the healthy and cure the disease of the diseased person. The development of alternative methods of drug administration has improved the ability of physicians to manage specific problems. When The word ‘Nasya’ is derived from ‘Nas dhatu’ which indicates nose or things useful to nose. Nasya is administered in many diseases and specifically *Jatru urdhwagata rogas*. Nasa is one among the *panch gyanendriya* and its functions are not only limited to Respiration and Olfaction but also considered as a channel way for administration of drugs. The nasal route of administration has been used for different therapeutic and prophylactic purposes for millennia. The drugs, which are administered through the nose, act locally as well as systemically. The dose of drugs required is very minimal. The metabolism of the drug is not required through first passage and the action of the drug is faster and effective. Nose is the entrance way for the *shira*. The medicine that is put into nasal orifice moves in the pathway and shows influence on *shira* by removing out the accumulated *doshas* through this channel way. When drugs administered through nostril reaches *Shringataka (siramarma)* and spreads in *Murdha* (head) taking route of *Netra* (eyes), *Karna* (ears), *Kantha* (throat) stretches the pathological *doshas* from *Jatru urdhwa* and removes them from *Uttamanga*.

KEYWORDS: Nasa, Dosha, Nasya.**INTRODUCTION**

Ayurveda is the oldest medical science which deals with physical and psychological health of the human being. In Ayurvedic literature *Atreya*, *Dhanvantari* and all other communities have made it important the knowledge of body to have undoubtedly for the sake of knowledge. *Ayurveda* is a pervasive medical science of Mind, Body and Spirit. *Shalaky tantra* is one of the branch among the eight branches of *Ashtanga Ayurveda* this is the most important branch of *Ashtang Ayurveda* because it includes such body structure like *Shira*, which conduct the work of whole body. The literary meaning of the word ‘Nasya’ is nose or all the things which are beneficial to the nose. Nose is an important drug delivery route.

The work reveals a better scientific explanation to the concept of the administration of drugs through the nasal

route as it has been well practiced by ACHARYAS. This route of administration was well developed in early days; and has been recognized and practiced by modern physicians since at least the past 20 years. Modern medical science has accomplished advances in the administration of drugs through the nasal route by inhalation of vaporized, nebulised, powdered, or aerosolized drug, as well as by direct instillation¹.

To understand the relevancy of the mode of action/mechanism of Nasya, a gross understanding of the relative anatomy of the nasal cavity is very important. The nasal cavity is bounded by floor, roof, medial and lateral walls. Important anatomical structures for consideration are mainly the floor and the roof.

Aims and Objectives

1. To detailed study the concept of *Nasya karma*.

- To gain knowledge about the *Nasa*, *Shira* and *Urdhwaang*.
- Relationship between the *Nasa* and *Shira*.

MATERIAL AND METHOD

Material - Different *Ayurvedic* Literatures like *Sushruta Samhita*, *Charak Samhita*, *Ashtang Sangraha* evam *Astang Hridaya* etc.

Method

- Study type – Review. Literature related to the title is searched from all authentic *Ayurvedic* scriptures, *Ayurvedic* journals and internet.
- Ancient *ayurvedic* classics were consulted & compiled references out of them for subject to elaborate as well as to understand the process of *nasya* in *ayurvedic* classics.

Nasya Karma - The Ayurvedic Study

The clear description of mode of action of the *Nasya Karma* is not available in *Ayurvedic* classics.

- According to *Acharya Charaka* *Nasa* is the gateway of *shira*. The drug administered through nose as *Nasya* reaches the brain and eliminates the morbid *Dosha* responsible for producing the disease.
- In *Ashtang Sangraha* also *nasa* is described as the gateway of *Shirah*. Hence the drug is administered through nostrils. The drug thus administered reaches the *Shringataka* (*Sira marma*) and spreads in *Murdha* (brain) reaching the *marmas* of *Netra*, *Shrotra*, *Kantha* and *Shiramukha*. It then by virtue of its potency scratches the morbid *Dosha* in supra-clavicular region and expels them from *Uttamanga*².
- Sushruta* has clarified *shringataka marma* as a *Sira Marma* formed by the union of *siras* (blood vessels) supplying to nose, ear & tongue. He further points out that injury to this *marma* will be immediately fatal³.
- Under the complications of *Nasya Karma* *Sushruta* noted that the excessive eliminative errhine might cause *Mastulunga* (CSF) to flow out of the nose⁴.
- In *Sushruta*, *A.H.*, *B.P.* etc detailed descriptions are not found about the mode of action of *Nasya Karma*.
- According to all prominent *Acharyas* *Nasya* is said to be the gateway of *Shira*. It does not mean that any channel connects directly to the brain but they might be connected through blood vessels or through nervous system (olfactory nerve etc.).

To understand the relevancy and the mode of action or mechanism of *nasya*. It is very necessary to know the relative anatomy of the nasal cavity is very important.

THE NOSE - consists of the *external nose* and the *nasal cavity*,

Both are divided by a septum into right and left halves. External nose has bony framework partially bony & partially cartilaginous.

External Nose - The framework of the external nose is made up above by the *nasal bones*, the *frontal processes of the maxillae*, and the *nasal part of the frontal bone*. Below, the framework is formed of plates of hyaline cartilage.

- Dorsum** - prominent ridge separating right & left halves of the nose.
- Root of the nose** - upper narrow end of the nose just below the forehead.
- Tip** - lower end of dorsum is in form rounded tip.
- Nostrils or anterior nares** - at the lower end of the nose, we see right & left nostrils.
- Columella** - two nostrils are separated by a soft median partition.
- Ala** - continuous with the nasal septum which separates two nasal cavities, each nostrils is bounded laterally by ala.

The Nasal Cavity Has

- a floor,
- a roof,
- a lateral wall,
- a medial or septal wall.

The Floor Of Nasal Cavity

- Palatine process maxilla. Horizontal plate palatine bone.
- 5cm long & 1.5cm wide.
- It is concave from side to side & slightly higher anteriorly than posteriorly.

The Roof Of Nasal Cavity

- Narrow, 7cm long & 2mm wide.
- It is formed

Anteriorly beneath the bridge of the nose by the nasal and frontal bones, in the middle by the cribriform plate of the ethmoid, located beneath the anterior cranial fossa, posteriorly by the downward sloping body of the sphenoid. Anterior slope is formed by nasal part of frontal bone.

The roof of Nasal cavity is formed with the superior turbinate and cribriform plate. This is a specific plate which forms the floor of the anterior cranial fossa, having small pores in it. This is the specific area of olfaction formed by the superior turbinate constituted with special mucous membrane; which is called as olfactory membrane.

Lateral Wall Of Nose

- Irregular owing to the presence of three shelves like bony projections called conchae. Increase the surface area of the nose for effective air conditioning of inspired air.
- The lateral wall separates the nose;
- from the orbit above, with ethmoidal air sinuses intervening.
- from maxillary sinus below.

- From the lacrimal sac & nasolacrimal duct in front.

Olfactory Area - It is a small area situated below the cribriform plate of ETHMOID up to SUPERIOR NASAL CONCHA; this area is lined by the olfactory neuroepithelium. Where olfactory receptors are located. The total area of olfaction on each side is about 250mm². This area is very thin and less vascular.

The olfactory area (epithelium) is composed of mainly the following types of cells:

- 1) Supporting (Substantacular cells)
- 2) Receptor cells and,
- 3) Basal cells

Supporting cells are columnar cells which secrete mucous. The Receptor cells are those where one end forms into Axon and the another end facing mucous layer, forms into cilia which perceive the object (i.e., smell). These axons join together to form the olfactory tract and the olfactory bulb⁵.

Olfactory Cells - Olfactory cells are bipolar nerve cell with olfactory hairs on the surface. Beneath the epithelium there are serous nasal glands; which are rich in enzymes. Ducts of these nasal glands open on surface. The gases responsible for odors dissolve in the fluid secretion of the glands and stimulate the olfactory hairs; another end of bipolar nerve (Axons) join together to form the olfactory tract and the olfactory bulb respectively.

Olfactory Nerves - 20 in number, represent central process of olfactory cells. Pass through cribriform plate of ethmoid & make synaptic glomeruli with cells of olfactory bulb. The mitral & tufted cells in the olfactory bulb give off fibers that form the *olfactory tract*. Reach the primary olfactory areas⁶.

Nasaindriya

In ayurvedic classics applied aspect of nasa have been specified for than their anatomical aspect. Classics have mentioned the importance of Ghranendriya (Sensory organs). Acharya CHARAKA has mentioned the sense faculties for nasa.^[7]

Indriya Panch Panchak –

- **Gyanendriya-** Ghranendriya - Fealty of smell
- **Indriyarth-** Gandha - Sense objects
- **Indriyadravya-** Prithvi - Material constituents of sense facul
- **Indriya Buddhi** Gandha jnana (Smell Perception)
- **Indriya Adhisthan** NASA Sense organ of Smell^[8]

Acharya Charaka has mentioned one specific anatomical structure named Munja-, which is like type of grass which acts like Ishika (i.e., like a painter's brush). This "painter's brush" when instilled in the paint, absorbs the paint; in the same way the Munja structure attracts the doshas when stimulated by the particular drug. The

Munja structure can be thought for an olfactory bulb and the Ishika for the numerous neurons join together to form the olfactory tract. These two scholars tried to explain the functional aspects of anatomy of the nose, which simulates with the modern system⁹.

Drug Administration - It is stated in Ayurvedic classics that, there is a very close relationship between the Nasa and Shiras (Brain). Even modern science accepts this concept because the nasal mucosa is the only location in the body that provides a direct connection between central nervous system (CNS) and the atmosphere. Drug administered to the nasal cavity rapidly traverse through the cribriform plate into the CNS by 3 routes.

- 1) Directly by olfactory neurons.
- 2) Through supporting cells and the surrounding capillary bed.
- 3) Directly into the CNS.

Purva Karma (Pre Procedure Measures)

Importance of purva karma in NASYA KARMA is facilitate for drug absorption through nasal neurons and paranasal sinuses. In this the repeated paanitaapa swedana [fomentation by rubbing of palms] causes an impact on blood circulation to head. The vasodilator action over superficial surface of the face facilitates for drug absorption.

Importance Of Posture In Nasya Karma –

- 1) It creates the patency in channels of nasal cavity and naso-pharynx.
- 2) The drug administered; reaches the upper part of the nasal cavity and stimulates the olfactory neurons

Pradhan Karma (Main Procedural Measures)

Where the actual drug is administered should remain for momentary retention of the drug in nasal cavity. The provisions crested by purva karma help in the pradhan karma; so that drug has greater chance of absorption in the air sinuses. As well as providing sufficient time for stimulating olfactory neurons.^[10]

Shringataka Marma Description - During this explanation ;classics have mentioned one more structure; the shringataka marma According to Sushrut it is a confluence of Siras situated in between the veins nursing nose, ear, eye & tongue meet in region of talu (roof of the oral cavity) is formed between basioccipital & petrous bones along with posterior part of the body of sphenoid bone. The mouth of the four of them is Shringatak, they are four in number.

Location Of Shringataka Marma - Exect sthana of the shringataka marma [shiraso antarmadhya murdha] which can be considered for middle cephalic fossa. The middle cephalic fossa is the region which in connection with ethmoid and sphenoid sinuses' consist of meningeal vessels mainly internal carotid artery ;cranial nerve (3rd 4th 5th 6th) and also the optic nerve. The pituitary gland

can be approached through the sphenoidal sinus by transantral and transnasal routes. The naso-pharynx and posteriorly with the brain stem. The above show the shringataka marma[structure consisting four siras in connection with four sense organs and nerve and vessels]^[11]

Paschat Karma (Post Procedural Measures)

The absorption of the drug is also facilitated by the paschat karma followed during the procedure. This starts with mardan (oil massage) over the frontal; temporal; maxillary; mastoid and neck region. After administration of drug; when the drug reaches the distal ends of the air ways; the patient is asked for the nishthivana kriya (spitting out of the medicine). The medicine should reach on the both side of the throat; otherwise the drug absorption doesn't occur in the siras properly.^[12]

Importance Of Post Nasal Massage - The texts have recommended light massage on the frontal, temporal, maxillary, mastoid and on *manya* region. A comfortable massage on the above regions may help to subside the irritation of somatic construction due to heat stimulation. It may also help in removing the slush created in these regions. However, interesting here is regarding *manya* which is a *marma* existing in neck on either side of trachea⁴ which likely to correspond the carotid sinuses of the neck. Pressure applied on the baroreceptors may bring the deranged cerebral arterial pressure to normalcy (Hejmadi S.1985). Because these receptors lying on bed of bifurcation of common carotid artery have a buffering action on the cerebral arterial pressure.^[13]

Drugs Uses In Nasya Karma - The drug used for NAVANA\MARSA NASYA is processed with sneha paka vidhi till mridu paka [preparation of the drug in lipid base] attains. This also has the relevancy in facilitating the stimulation as well as the absorption of the drug. To achieve rapid diffusion through nasal mucosa the lipid soluble drugs are preferred where the mucosal cilia are lipophylic in action.

In humans small particles of size 0.5 to 1.0µm tend to deposit in a naso pharyngeal part. So the particles become finer than mentioned above on undergoing Mrudu paka, which may facilitate the drug absorption at the level of the Naso pharynx.

Duration Of Nasya Karma - The duration of the Nasya karma course ranges from 7-21 days. It differs for each classification of Nasya karma. These many days are needed for the action of the drug and to achieve required symptoms. Because of the quantity of the drug, very minimal and continuous stimulation to the olfactory neurons should facilitate the stimulation of the higher center (i.e., to the cribriform plate of ethmoid to olfactory bulb).

Action Of Nasya Karma - Once this area is stimulated, then this stimulation is continued to the parts of

Amygdala, Hypothalamus, to the parts of Basal Ganglia and to the brain stem also. This whole system is changes, motivation, biological rhythms, and respiratory, circulatory, and endocrine changes.^[14]

DISCUSSION

The Acharya Charak said – NASA HI SHIRASO DWARAM, nasa is gateway of shira because nasa is indirectly connected with the brain centers in the head. Nasya reaches the brain and eliminates the morbid Dosh responsible for producing the disease. In nose present nasal mucosa called Olfactory mucosa lines the upper one third of nasal cavity including the roof formed by cribriform plate & medial & lateral walls up to the level of superior concha. It is thin & less vascular than respiratory mucosa. Contains receptors called olfactory cells. In nose present small area situated below the cribriform plate of ethmoid up to superior nasal concha called olfactory area, where olfactory receptors are present called olfactory cells. They are bipolar nerve cells present with olfactory hairs on the surface form olfactory nerve.

Lateral wall of the nose connected with *ANTERIOR CRANIAL FOSSA* by cribriform plate of ethmoid bone, present sieve like appearance, where fascicles of olfactory nerve passes & make synaptic glomeruli with cells of olfactory bulb. Their mitral & tufted cells in the olfactory bulb give off fibers that form the *olfactory tract* reach the primary olfactory areas like anterior perforated substance, peri – amygdaloid, prepiriform area. Fibers arising in the *primary olfactory cortex* go to the secondary cortex (entorhinal area). located in the uncus & anterior part of the para hippocampal gyrus, They reaches *tertiary olfactory cortex* in posterior part of orbito-frontal cortex then Smell is perceived¹⁵.

CONCLUSION

As told, “*Nasa Hi Shirso Dwaram Ten Tadvyaptam Hanti Taan*”, meaning nose is the gateway of head. Among *panchakarma*, *Nasya* is the main *karma* which for the treating entire diseases of *Jatruurdhwagata*. All of these functions have been suggested in our classics by describing the different types of classification of NASYA KARMA and these classifications can be broadly understood under two headings.

- **Shamana Nasya** [nasal administration for subsiding the toxins.
- **Shodhan Nasya** [Administration for purificatory purposes]

So *Nasya karma* is used both to manage the *Sthanika* (local) and *Sarvadaihika* (general) anomalies and the relevancy of *Nasa hi Shiraso Dwaram* can be proved thus (Nasal route is the direct entry to the CNS).

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