



Critical review study of *Nasasharira*.

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Abstract :

Ayurveda is a branch of science which deals with maintaining the health of the body and treating the disease condition. Our body is the store of many organs. The normality of the organs can be understood by detail knowledge of anatomy and physiology of it. According to Ayurveda, there are total eleven *Indriyas* are present in the body and *ghranendriya* is one of them. *Ghranendriya* is located in the nose. It has predominance of *prithvimahabhuta* and it has *gandha guna*. The main function of nose is olfaction and respiration. Respiration contains inspiration and expiration. Ancient *Ayurvedic Samhitas* has detailed description of structures in the body. The modern science has more detailed description of all the structures due to availability of microscopic techniques. The present study is an attempt to collect the information of anatomy of nose according to Ayurveda and modern science.

Keywords: Ayurveda, *Indriya*, anatomy, *ghranendriya*, *nasa*.

Introduction:

In our Ayurveda and in any medical science, the proper knowledge of all the structures in the body is necessary. Even the Anatomy of smallest structures is also useful to understand the detail information of any disease. With the help of this, we can come to know the function of the specific structure in the body. By using this details of normal anatomical structure and function of a particular organ, the pathology occurring in them can be clearly understood. Keeping this point, *Acharya Charaka* have added separate *Sharirasthana* in the *Charak Samhita*. It is useful for the complete human anatomical knowledge. To get the knowledge of any kind of subject or object, sense Organs are present in our body. They are also known as *Indriyas*. *Indriya* are related to particular organs, such as eyes, nose, tongue, ear and skin. This are called as *nyanendriya*. All organs have specific functions in human body. *Nasa* is an important *nyanendriya*. In *Samhita*, *nasa* is described as *pratyanga* as well as *ghranendriya*. *Nasa* is related to the upper respiratory passage as well as gateway

of the head. In *Ayurvedic Samhitas*, *nasasandhana* information is given. It is indication of knowledge of anatomy of nose.

Aim

To study in detail *Sharir rachana* of *Nasa*.

Objective:

1. To take various references related to *Nasa* in various *Ayurvedic Samhitas*.
2. To understand this information and correlate with modern anatomy of nose.

Material and Methods:

Literature review is done through all available *Ayurvedic Samhitas*, texts, various research papers available in Journals and online data available.

Review of literature –

• **Etymology:**

The word *Nasa* is derived from two words, *nas (dhatu)* and *Ghana (pratyaya)*.¹

• **Formation of *Nasa* –**

In *Charak Samhita* and *Kashyapa Samhita*, it is described that all the sense organs are developed at the third month of gestation.² In modern science, complete and competent description of embryology of nose, origin of nasal bones, cartilage and soft tissue are not found.

• **Composition of *Panchamahabhuta* :**

The *nyanendriya*, *karmendriya* and *ubhayatmaka indriya mana* are originated from *Satvika* or *vaikarika ahankara* and *rajasika* or *tejas ahankara*.³ All the *Indriyas* are formed by combination of five elements with predominance of any

one respective *mahabhuta*.⁴ *Gandha* (smell) is main character of *prithvi mahabhuta*⁵ and *ghranendriya* has a predominance of *prithvimahabhuta*. Nose (*nasa*) is the location of *ghranendriya* (sense organ of smell).⁶

• ***Pramana of nasa* –**

Acharya Sushruta has mentioned *nasa* as *pratyanga* and all *pratyanga* are considered as secondary organs in the body.⁷ The measurements have to be taken by *Anguli pariman* of self. The length of *Nasa* is 4 *angula*⁸ and circumference of *nasaputa* is *tribhaga angula*.⁹ Distance between the two eyes and width of two *nasaputa* (ala) are 2 *angula*.¹⁰ All the measurements are taken in centimetres in modern science. Width of the nose is roughly 70 % of the total length of the nose. The width of alar base is equal to the intercanthal distance. The nares measures 1.5 – 2 cm anteroposteriorly and 0.5 – 1 cm transversely.¹¹

***Marma* :**

Acharya Dalhana has mentioned two *marma* in the *nasa* region¹²

1. *Phana*
2. *Shringatika*

Marma is the some places in the body which has *pranasthana*. The injury to this places may cause serious consequences in the body. There are two *phana marma* in the body and they are situated at the internal side of both *ghranamarga*. There may be loss of sense of smell after injury to this *phanamarma*. There are four *shringatika*

marma situated in the body. They are formed by *siras*, which are related to the tongue, eyes, nose and ears. Four *matraka* and *sira marma* is also located on each side of *kanthnadi* related to *Nasa*.

Description of Aadarsha Nasa –

Charak Samhita gives specific features of ideal nose. Nose should be

1. Straight
2. With even nares
3. Having good nasal bridge
4. The tip of nose should be slightly bent down and well able to breathe.

¹³

Any nose having these features is called as ideal nose and shows normal nasal Physiology and gives sign of healthy and long life.

Acharya Vagbhata gives inauspicious symptoms of nose.¹⁴ *Nasa* is an important and the external part of respiratory system. Due to this, any kind of congenital deformity, trauma or disease of nose which causes change in size, shape or cavity and it is harmful of life threatening. Broad nasal bridge is the sign of hyperphosphatasaemia with mental retardation syndrome and macrocephaly – developmental delay syndrome. The genetic diseases or infectious diseases can cause low nasal bridge which is also called saddle nose. Low nasal bridge is also present in other diseases like *Cleidocranial dysostosis*, Down Syndrome, Fetal alcohol syndrome, Williams syndrome and congenital syphilis.

Our ancient *Acharyas* have used various terms which describes the anatomical structures of the nose.

Nasasthi (bony part)

Acharya Sushruta have given description of three bones in external nose and all they are *tarunasthi*.¹⁵ *Acharya Charaka* mentioned only one bone. This three bones are 2 nasal bones and 1 septal bone. Septal bone consists of ethmoid and vomer bone.¹⁶ Upper 1/3rd part of external nose is comprised of bony part and lower 2/3rd part is comprised of cartilaginous part.

Nasa Sandhi

It is the only one and *sthira* type of *sandhi* present is *nasa* region.¹⁷ It is the joint between two nasal bones. The *tunnasevani* type of *sandhi* is present between cranial and forehead part. It is mentioned in *Sushrut Samhita*. The nose is closely related in head region. Due to this, same type of joint is found in nose. Nose is mainly formed by two parts:

1. Bony part: the part of nose which appears externally. It contains two nasal bones, its joint in the middle and remaining nasal process of frontal bones. This joint between two nasal bones and joint with frontal bones are fixed Joints.
2. Cartilaginous part: It is mainly formed by three cartilage – upper, lower and lateral cartilages.

Nasagra – *Nasagra* is word used in *Sushrut Samhita*. It indicates tip of nose.¹⁸

Nasaputa –

It is the outer part of the nostril means ala of nose. It is mentioned by *Acharya Dalhana*. It is the lowest lateral part of external nose, shaped by alar cartilage and it is covered by skin.¹⁹

Pashi-

Nasa has two *peshi* means muscles.²⁰

Nasavamsa –

Some references are available in classical *Ayurvedic* texts, which has word *Nasavamsa*. It mainly indicates external part of nose which is the nasal bridge. *Acharya Gananath sen* also described *Nasavamsa* as outer part of nasal bones. It covers the nasal cavity by bones and skin. Any boil on nose, thick nasal skin and inflamed resemblance are the fatal signs of *Nasavamsa*. Its length is 4 *angula*.²¹

The nasal septum is composed of cartilage in anterior part and bony part in posterior region. It separates the right and left nasal cavities. The posteriosuperior part of septum and its posterior border is formed by vomer bone. The nasal septum can be divided into three parts,

1. Columellar septum – Formed by medial crust of lower lateral cartilage.
2. Membranous septum – it is consisted of double layer of skin.
3. Septum proper – it is large quadrilateral septal cartilage.²²

Nasikasrota:

Acharya Vagbhata has mentioned the obstruction of airflow due to narrowing of nasal cavity. It is detailed during expression of pathophysiology of *nasikashosh*. Nasal cavity is an irregular space. The space in intranasal cavity depends upon age and gender. The growth of nose is completed at the age of 16. The nasal vestibule lies just outside the naris.²³

***Nasarandhra* –**

Acharya Bhvamishra has used the term *nasarandhra* for nostrils. These are two external openings of nasal cavities. *Acharya Charaka* and *Acharya Sushruta* has mentioned these two nostrils in nine main

external orifices. *Acharya Charak* has also mentioned *nasarandhra* as opening having mala.²⁴

***Ghranendriya* –**

Nasa is the main location of *Ghranendriya*.²⁵ *Acharya Gananathasen* also mentioned the *ghranendriya* as the site of sense of smell. *Acharya Arundatta* mentioned *Ghrana* as a specified part of internal nasal cavity, which is responsible for sense of smell. *Nasika* is the main organ of sense of smell or olfaction. This part contain *shleshma* part. It is the specific amount of mucus. Dryness of it causes abnormality.

According to modern science, the internal cavity has three parts-

1. Nasal vestibule: contains skin and hair follicles
2. Olfactory epithelium: it lines olfactory region includes the root of nasal cavity and the area above superior concha.
3. Respiratory mucosa: it contains lower 2/3rd part of nasal cavity. It is formed by pseudo stratified ciliated columnar, contains plenty of goblet cells and secretes mucus.

Function of nose –

- Nose is used for respiration and sense of smell. In classical *Ayurvedic samhitas*, diseases related to nose like *apinasa*, *nasashosha*. In this diseases, there is obstruction in normal inhalation & exhalation and also changes sense of smell or completely inhibits it.
- *Sanunasika vakyatvam*, indicates role of nose during speech.

Discussion-

The knowledge of Anatomy and Physiology is essential for medical science. Without proper knowledge of this, we can not get the details of normal functioning of organ and any disease, its pathophysiology, its causative factors. Our *Acharyas* have given the detail information regarding sense Organs like development, function and structure. All sense Organs are formed from *Panch mahabhuta*. But it has predominance of one *mahabhuta*. It is according to their functioning. Nose has predominance of *prithvi mahabhuta*. The word Grana is derived from 'ghra' dhatu, means having sense of smell. Nose is the location of *ghranendriya* and *gandha* is the character of *prithvi mahabhuta*, which indicates the function of olfaction related to nose. All the parts of *nasa* is mentioned in *Samhitas*, but *Acharya* have given detail description about them. Bones, muscles and joints are also described, but there is some difference from modern science. The Nose have some delicate structure called as *marma*. *Shringatika marma* can be correlated with the cavernous sinus, while *phana marma* can be associated with the arteries and veins which are responsible for the blood circulation in the nose. The exact position of the *phanamarna* is related to dangerous area of the face. So infection in this region can be fatal to life.

Conclusion:

By viewing of all the above information, it is clear that our ancient *Ayurvedic samhitas* have detail description of anatomy and physiology of the body. They were all aware of all the minute structures in the body. But all these valuable knowledge is scattered. The detail description of human

body organs is present in our *Samhitas*. *Acharya Charaka* has described the further classification of structure in the body. But *Charak Samhita* has less description about the sense Organs. It may be due to lack of availability of microscopic techniques in that time. But in today's era, the microscope help us to see micro structures in the body, which we can not see through bare eyes.

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