

Respiration in Ayurveda - *Sharangadhara's* Perspective

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Abstract

Ayurveda system of medicine is believed as divine and has eternality in decent to earth. This decent underwent change, fulfilled the needs of the life sciences and refined many times through the philosophical thought of schools to attain the present forms of *Samhita*. This is land mark change where in the then prevailing schools of thoughts (*Darshana*) churned the knowledge obtained in the form of *tri-sutra Ayurveda* much of similarity like the *Tantra* believed to be 6000 to 4000 BC to a more evolved form and converted them into *Samhita* by the end of 300 BC. One such metamorphosis happened, which the historians call as post *Shodala* period or simply the medieval period the post 12th Century AD and this period is learnt as era of *Laghu Trayee*; *Madhava Kara*, *Sharangadhara* and *Bhavamishra* works were composed Madavana Nidana, *Sharangadhara Samhita* and *Bhava Prakasha* respectively; underneath this period the legendary commentaries of *Chakrapanidutta*, *Dalhana*, *Arunadatha* and *Hemadri* for the classical *Bihat Trayee* was at rampant pace and critical scientific analysis went on.

Here is a humble attempt made to sketch out the Respiration system in relevance to its anatomy and physiological relevance by accessing the '*Sharangadhara Samhita and its commentators*'. The opinions of commentaries of *Sharangadhara Samhita* are of importance to arrive at any conclusions.

Keywords

Nabhi, PraanaPavana, Vishnu-padambrita, Ambara-peeyusha, Sharanadhara



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INTRODUCTION

The global scientific perception regarding the understanding of the respiratory system has evolved over 2600 years. The following extract of an article entitled '*the history of*

respiratory gas' is the mirror reflections in the progress of the development of Respiratory System counted on the time line of the works of the western world¹.

Duration	Persons name	Contribution
6 th B.C	Greeks	Pneuma the substance meant breath or soul, and essential for life.
2 nd A.D	Galen	elaborate cardiopulmonary system which stood for 1400 years 1. Pneuma from the lungs mixed with blood in the left ventricle to form vital spirit. 2. Pores in the interventricular septum helps this mixing
13 th AD	Ibn al-Nafis Arab physician	Blood flowed from the right to the left ventricle of the heart
16 th AD	Michael Servetus	Challenged the above statement
17 th AD	Torricelli	atmospheric pressure
	physiologists in Oxford	Clarified the properties of inspired gas that were necessary for life.
	Lavoisier	Clearly elucidated the nature of the respiratory gases, oxygen, carbon dioxide and nitrogen. 1. oxygen was consumed in the lung 2. actual metabolism took place in peripheral tissues proved to be a very elusive concept
20 th AD	Pflüger	1. Controversy about whether oxygen was secreted by the lung. 2. Momentous strides were made on the. A critical development in the was the the
	During and shortly after World War II	Understanding of pulmonary gas exchange, particularly the role of ventilation-perfusion inequality
1960s		Introduction of blood gas electrodes, and these have transformed the management of patients with severe lung disease

On the contrary in *Ayurveda* right from the works of *Brihatrayee* the respiratory system was part of *Koshtha* a collection of 15 visceral organs popularly known as *MahaNimna* functionally and for patho-physiological understanding identified under *AmaPakwashaya*. The vital structures like *phanamarma* which are of subtle nature are identified in the respiratory tract. The component parts of upper and lower

Respiratory are mentioned. If one analyze properly; the dependency of Upper Respiratory tract in producing Lower Respiratory tract manifestations are also dealt under *Nidana-arthakaraRoga*.

In Sharangadhara Samhita the respiratory system is dealt in a small context in a 4 line sloka, this descriptions not only speaks on anatomical aspects but yield fair amount of details on physiological aspects also

MATERIALS

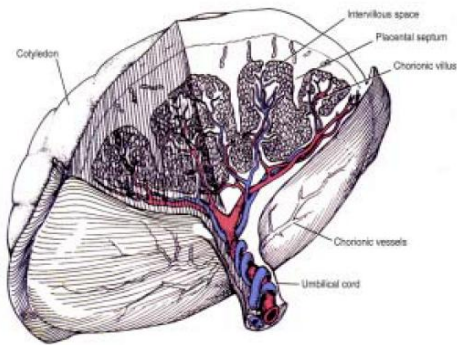
Courtesy: Formation and role of placenta of Joan W. Witkin, PhD

This is a literary exploration on text called Sharangadhara Samhita written in 14th century AD, and critically analyzing the commentaries written in 16th (Deepika) and 18th (Goodartha Deepika) Century AD on Respiration in Ayurveda.

REVIEW OF LITERATURE

Mula:

Nābhisthaprāṇapavanahsprṣtvāhṛtkamalāntaram. 48
Kaṇṭhādbahirviniryātipāturinvishnupādāmṛtam.
Pitvācāambarapīyūṣaṁpunarāyāti vēgataḥ. 49.
Prīṇayandēhamakhilamjīvayañjatharānamam.



Translates to: The *Pranavayu* which is in the *Nabhi*, touching the heart, comes out through the throat to drink *Vishnupadamrta*. After drinking the *Ambarapiyusha*, it comes back quickly into the body to nourish the whole body and to enliven the digestive fire in the stomach².

Deepika (the commentator): *Praanapavana* is *pranaanila* i.e., *pranaashritha-vayu* is to be considered. *Praana* including *Agni*, *Soma* etc, are at *Nabhi*. The *praana* which is of *panchamahaboota* spread through the body. *Praana* residing at *nabhi* is dependent on *Anna* (*Panchabouthika*) etc, and takes all the functions of body, similarly as that of the spokes of a wheel. The *brahmarandra* is at *nabhi* as a wheel represent at the centre supported by 24 spokes of a wheel. As that of spider web the life circulates in such epicenter.

Pancha mahabootha and its relations with praana: The functional of the body are established on the dependent factor of *Praana*. This *praana* is *panchabouthatmaka* in nature and constantly nourished by *Anna* a source of *Pancha mahaboota*.

Sira as a intermediate structures between Nabhija Praana and Shareera avayava: Relation between *Nabhi* and *Shareera* is linked with *siras*. The importance of giving the example of spider and its web is to show the reticular structuring of *siras*.

Brahmarandra and its role in Respiration:

The *shushumna* (spinal cord) possessing *praana* and climbs up to *Brahmarandra*. The embedment of the *praana* is like the

light emitted by crystal of *Spatika*. As the *ushna*, in the form of *praana* at *nabh*. This is of importance as the reaching of *Praana* through *Sushumna* explains the involvement of Nervous System and the nature of nervous conduction.

The circulation pattern of *praana isaasya, nasika* from *Nabhi* through *Hrudaya* similarly as that of mud of the lotus. This *Praana* helps in the production of vocal sound, inhalation and exhalation. This *praana* is detrimental in the *Swasa* and *kasa*. The fate of *Pranaanil* shall have a course to pass through *hrudaya* and *kamalantaram* that is in-between *Hruday* and *pupusha*, in the process of exhalation reaching to *Kantha-mulaSiras produces vocal sounds*. The mentioning of mud and lotus is to differentiate the structural entities that only play supporting role but also to exclude the active involvement in the respiratory gas exchange process.

Having drunk the *Vishnu padam* and the *Brahma-randra-ashritha-amrutha-peeyusha* nourishes. As stated by acharya 'the chakra (Wheel) possessing the 1000 *patras* in *Brahma-randra* has *sudhadhara* (whitishness) and such *sudhasara* with holding and become cause for increasing the deha. *Bharata-mula* considers 'the

brahmarandra is the site of life, as it posses the *Sudha. Trupti* and *geethadi* activities shall get fulfilled.

Having taken the *Vishnupadham* and at *brahmarandra* the nectar present their under goes nourishment. The multi layered *brahma Randra* responsible for nourishment, is credited for *sudhadhara* a location of Life and responsible to mental functions like *Trupti* and speech activity. Above literature suggest a link between the role of *Brhma Randra* and *Vishnupadamritham* bringing *trupti* etc mental functions in the process of nourishment.

The *anila (vata)* present in *ambara (sky)* inhaled at very fast reaches *Brahma-randra* and bring *karya of preenana* there by help in nourishing all the body part i.e., *head to legs*, even the *jeeve* and *jhathara Agni*. *Jeeva* is being cited in the sloka and *jeeva is brahma Randra sthitajathar-anala or pachakaAgni*; which brings strength to the digestive mechanism. The second process of *Brahma Randra* after nourishing the higher mental activity is to bring somatic body nourishment there by inhaled air reaches out to *jeeva*. The *jeeva* if taken as cellular level nourishment then the cellular respiration is defined. If the *jeeva* definition is limited to *brahma Randra sthitajathar-anala or*

pachakaAgni then the kindling of digestive mechanism is accepted. It can be recollected that *seheshanamaoya anugrahanam karothiis* stated in A.H.Su.12/12. Therefore the process of brahma Randra nourishing the deha including Pachaka agni is justified along with cellular respiration.

The consideration of *deha* is to justify the *jeevaanala* hence it is stated separately. *Deha* is a word to be used for *angapratyanga* and its *vibhaga* all are considered. The word *jheevaanila* is to justify the *mula* of such *avayava*. Hence the *jeeva* is different from the *shareera*. Henceforth read separately. As stated by *Charaka* in *Grahaniadhikara*- ‘Life span, complexion, strength, health, enthusiasm, corpulence, lustre, immunity, energy, heat processes and vital breath – all these depend on body –fire. One dies if this fire is extinguished, lives long free from disorders if it is functioning properly, gets ill if it is deranged, and hence *Agni* (digestive fire) is the root cause.

Here the *vayu-karya-satva* are explained. *Praana* as *vata* there in the *hrudayasthavayu* having taken *Vishnupad-amrutham* leaves out through the *kantha* outside the body; having taken *Ambarapeeyusha* repeats and initiates the *vegas*. Touching the *Hrudaya*

kamalanthara (mediastinal?) that which is at *nabhi* the *jatara Agnijeevayathi* i.e., entire body and plans for further activity. If *anvay* is applied as that which is at *nabhi* the *praana* pavana and read then; in humans the *vata* which is there at *nabhi* passes through the *hruday-kamalantara* by touching.

Hrudayais for *praana, gudais* for *apaana, saman* is for *Nabhi* etc, has been dealt; which conflicting the *Nabhi-sthitha-praanapavana*? That which is below the *nabhi* is considered. For this clarification is *Praninam-prananabhithaaspraana siraa Nabhi vayapashraya*; which means in humans the *prana* which is at *nabhi* is as good as that *praana* sited at *shira*. Which only connotes the meaning as that which is situated at *nabhi* but have *avrutha* up to *shira*; the slimily sited in this context is as that of the spokes of the *chakra* being the *nabhi vat*³.

GoodarthaDeepika(the commentator):The *praana* word is used to depict the difference from *praan-vayu* and its *pratyangas*. The word *praana* is having a meaning of that which is carried by *Indriya*, in the form of *jeeva-athma*etc.

Dhanavantari while considering the *sira-varnanam* said ‘the *praana* residing at *nabhi* takes the shelters of *Praana*. It covers up to

sira as that of wheel with its spokes covering the wheel. *Praana* is of five *pranas*, and also read as 10 types as *praana-vayu*etc, as stated ‘the ten types of *vayu* are as *praanavayu*etc, shall be moving as experienced by *vasudeva*. Similarly as per the *Ravana* ‘speculated *praana* once again unwinds ‘the speculated *praana* as 10 types is above of the speculated one which is perceived by *Yogies* and such 10 types reaching out to *Parameshvara-hrudaya* once again under go divisions, so such a divisions are not the faults⁴. *Sira Shareera* are brought in where the *praana* is present as that of spokes and by taking names as *vasudeva*, *Ravana* and *Yogies* the 10 classifications of *vata* is read.

To add up to this the resent writer’s opinions:

Even *Dr Himasagar* commenting on *Pranavata* out of the body correlating to death appears out of context. This is because a system has an input, a process of change or a product to be produced and the expulsion of waste or utility of by product. The Respiratory system when included under the *Amapakwashay* invariably has these components and to be very precise it’s a dynamic process. An input in the form of *Ama*, the involvement of process

‘*punarayativegata*’ energy being generated and the lack of mentioning of waste or by products.

Sharangadhara mention about the *Pranavata* going out of the body from the navel, through the heart for taking the *Vishnupadamrta* or *Ambarapiyusa* only to come back to nourish the body and digestive fire. *Pranavayu* is seated in the chest according to previous statements. But, saying that it is going out from the navel shows that he must be referring to the fetal state. Because the *Nabhi* or the navel is the seat of *Pranasiras*, there is no harm in saying that *Pranavayu* is at the *Nabhi* as supported by *Adhamalla* and *Kasirama Vaidya*. *Vishnupadamrta* and *Ambarapiyusa* can be understood as synonyms of Oxygen, if it can be interpreted thus⁵.

DISCUSSION

The above verses describe the process of Ayurvedic respiration uniquely found in *Sharangadhara Samhita*. The sloka principally speaks on both the inhalation and exhalation as primary respiration process. But the second stanza is the literature pertaining to secondary respiration or the end manifestation of the process of

Respiration. The metabolism or cellular metabolism is dealt.

The simplicity of the subjects, the ability to go to the depth and establishing complex algorithms of respiratory gas exchange are well understood. Besides which the production of the vocal sound the exhalation is used is clearly explained.

If one considers making out *panda-vyakya* of the above explanation in the relevance of *Shareera*-terminology the extract emerges:

Vishnupadamrta and *Ambarapiyusa* can be understood as word equal to the inhaled gases and diffusion of oxygen in to *Nabhi-sthitha-Brhama-randra.Praana-ashritha-vayuisPranahas Agni, Soma* etc, are at *nabhi* and from *nabhi* spreads through the body. *Brahma-randra-sthitha-jathara-anala* and it is *pachaka-Agni*; which brings strength to the digestive mechanism.

The *brahmarandra* is at *nabhi* as a wheel represent at the centre supported by 24 spokes of a wheel. But the other embedment of Brahma Randra is; the *praana* is like the light emitted by crystal of *Spatika* and *geeta-trupti* we need to make one more Brahma Randra situated in brain. The considering of *deha* is to justify the *jeeva-anala* hence being stated separately. *Deha* is a word to be used for *anga-pratyanga* and its *vibhaga* all

are considered. The word *jheeva-anila* is to justify the *mula* of such *avayava*. Hence the *jeeva* is different from the *shareera*.

Paana as *vata* there in the *hrudayastha-vayu* having taken *Vishnu-padamrutham* leaves out through the *kantha* outside the body; having taken *Ambarapeeyusha* repeats and initiates the *vegas* only explains the *exhalation and inhalation*.

Nabhi-sthitha-pranapavana should never be implicated as prana vata in Nabhi, it only means Nabhi sthitha praana possessing Anila etc pancha mahabootha.

INFERENCE

The process of explanation of *punarayativegatha* is intended for the process of kindling the Agni and bringing out energy for the life.

If we look out the entire process of the literature though it depicts the process of ordinary respiration but on myopic analysis it brings about the depth understanding of our *acharyas*. *Kantebahirniryath* spells out the exhalation in process and quick inhalation of Vishnu *padamrutha* and the later on kindling of *agni* speaks by volumes of the respiration occurring at cellular level. *Brahmar* and *raashrithaamruthapeeyusha*, if it is after ramification of the

nabhisthitahaprana into and upto the cellular levels, need to be debated.

It seems Goodartha Kara lost completely the *dhashavidhaprana* and went on establishing *Ravanas* aspects of *nadiparikshaprabheda* for *vathadosha*.

CONCLUSION

1. Pranavayu is being differentiated from other praanas having ashraya of Panchamahaboota
2. 'The *brahmarandra* is at *nabhi* as a wheel represent at the centre supported by 24 spokes of a wheel' only reflects formation and role of placenta in fetal circulation. There is Brahma Randra in the brain bring higher mental functions of Trupti and Geeta adi vak prvruthi.
3. The Anatomical positions of *Hruday* and *pupushawere* known and relation of respiration was established.
4. Having taken the *Vishnupadham* and at *brahmarandra* the nectar present their under goes nourishment is a clear indication that the component of the process of respiration has to dissolve into the circulation in order to nourish.
5. 1000 *patras* in *Brahmarandra* has *sudhadhara* and the *sudhasara* is responsible for the physical activity indicates a process

that convert and become means for physical activity

6. The separation of the words *brahmarandrasthitajatharanalapachaka Agni* and *jeevaanala* by stating *themula* and *Avayava* relations.

7. The *Dehaanila karma* has to be taken for the secondary mitochondrial respiration or cellular respiration.

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