

CLINICAL UNDERSTANDING OF PRANAVAHA SROTUS IN AYURVEDA

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ABSTRACT :

Respiratory system is one among the major systems of the body which helps in maintaining the homeostasis of the body. This not only provides the vital oxygen to the blood, but also play a major role maintains the biochemical equation of the blood by excretion of metabolic waste. Clinically understanding this system helps a lot in examination and diagnosing various disorders related to the same. As maximum disorders in the early childhood are related Respiratory system, and thorough clinical knowledge helps in accurate examination and diagnosis. Respiratory system has been compared with *PranavahaSrotus* in Ayurveda for practical purpose and *Shwasa, Kasa, Hikka, Rajayakshma, Urakshata*, and *Pratishaya* are few of the major disease entity related to same. Understanding the morbid states of this system in parameters of Ayurveda helps for application of Ayurvedic knowledge and protocol, hence in diagnosing and treatment as per Ayurveda.

Certain clinical parameters like respiratory rate, rhythm, types palpatory findings, different auscultatory sounds, pressure changes inside the chest cavity, shifting of the apex beat help to analyse Ayurvedic principles under the light of modern science. This definitely helps to have a comprehensive Ayurvedic view, and to get success in Ayurvedic diagnosis and treatment.

Key words: *Shwasa, Kasa, Hikka, Rajayakshma, Urakshata, Pratishaya* biochemical equation

INTRODUCTION: Respiratory system is broadly divided in to two, as upper and the lower respiratory system. The upper respiratory tract is consisting the parts like the nose, nasal cavity, nasopharynx, oral cavity etc while the lower respiratory tract contains Larynx, laryngeal pharynx, trachea, lungs, alveoli etc. Major function of Respiratory system are like conduction of the air, gaseous exchange, pulmonary circulation, excretion of the metabolic waste in the form of carbon dioxide. It also helps to maintain intra thoracic and pleural pressure, pulmonary blood pressure, expansion and compliance of the lung, surfactant action etc. Airways possess a total cross-sectional airway diameter much greater than that of the

trachea. Further the whole control of the respiration is through the respiratory centres present in occipital lobe of the cerebrum through, inspiratory, expiratory, pneumotaxic, apneustic centres. Usually we attribute the Respiratory system to *Pranavahasrotus* in Ayurveda. The word *Prana* has got wide range of understanding. *Prana* is the vital force of the body which imparts life. Being the quality of the *Atma* carry out all physiological biochemical activities of the body, pressure gradient changes, responsible for maintenance of the equilibrium and homeostasis of the body. Ayurveda explains the twelve factors which constitute the *Prana*. That is *prana* can only exist in combination and integrated

function of the 12 factors like *Agni*(body metabolism) *Soma* (fluid system) *Vayu* (nervous control) *Satwa, Raja and tama* (limbic , hypothalamus) the five sense organs in the form *Indriyas* and the structurally in combination of subtle form of the *Pancha Mahabutas*. *Pranayathanas* which are considered as vital areas of body where *Prana* is located and injury to these points may prove fatal. There is also mentioning of *PranaVata* as one of the major type of *Vata* which is present in *Shiras*(cranium) and do the functions of Respiration, deglutition and other body activities and spiritual understandings. Hence *Prana* is related to each cell of the body. The *Moola* of *Pranavahasrotus* is *Hridaya* and *MahaSrotus* which are not directly related with Respiratory system as mentioned by contemporary medical science. Word *Prana* means the vital force of the body which maintain the body. Most of the functions of *PranaVata* which is situated in the head are attributed to Upper motor neuron functions. Further it is told that *Pranavahasrotus* is the area where *PranaVata* moves continuously. Mean while *PranavahaSrotoDusti Laxana* doesn't include disorders like *Shwasa, Kasa, Prathishya* etc. instead look like disturbance of rate and rhythm of respiration controlled by the Respiratory centres of the brain. One can witness CNS depressing drugs also depress the respiration like the *Morphine*, etc. But treatment of *Pranavahasrotus* is explained done as per *Shwasahari Kriya* as *Shawsa* is not only the manifestation of the respiratory system, it can occur in cardiac, metabolic and respiratory and the CNS pathologies. Usually raised hypercapnic and hypoxia begins the expiratory drive followed by inspiration and oxygen is provided to

the tissues, with excretion of carbon dioxide. Respiration is mainly divided in to two parts as external ventilation, and internal ventilation. Inspiration of the air due to negative thoracic pressure with gaseous exchange is called as external ventilation and the entry of oxygen to the blood of pulmonary vessels reaching the cells and production of the heat, energy and water inside mitochondria by the help of the respiratory chain is called as Internal respiration. Thus oxygen in the body is completely utilised. Similarly respiration in Ayurveda also begins with expiration when hypercapnic blood from the peripheral parts of the body with metabolic waste pass through *Nabhi* and moves out through Lungs and *Kanta*. Further fresh air rich in oxygen which is mentioned as *Vishnu Padamrita* or *AmbaraPeeyusha* forcefully enters inside due to negative pressure in the thorax which is also an active process (*Vegata*). This will be followed by gaseous exchange and diffusion of the oxygen to the blood (*Jeeva*) and delivered to cells. One molecule of oxygen and one molecule of glucose inside the crypts of Mitochondria undergo metabolism to produce the ATP, heat and water. This nourishes the whole body and maintain the body temperature. This explanation of the *Shwasa Prakriyaas* per Ayurveda explains complete utilisation of oxygen covering both external and internal ventilation beautifully. Respiration per minute is called as respiratory rate and in normal conditions the respiratory rate in adult ranges from 18-21/ minute. While it is 40-50/ minute in a new born and decreases gradually as the age advances. Book *Shatapatha Brahmana*, and *Amritha Sindhu Upanishad* explains respiratory rate different way. As per this, Inspiration is referred as movement of

Prana Vayu and expiration as movement *Apana Vayu*. Movement of these two *Vata* in the respiratory tract is $100 \times 100 + 800 = 10800$ in 24 hours individually. so the total number of breathing in 24 hours is around 21000. And will be approximately 15 per minute.

Intrathoracic and pleural pressure changes leading different clinical examination findings are also well evident in Ayurveda. In *Maha Shwasa*. Disturbed speech is most commonly seen. Production of the speech is directly associated with recurrent laryngeal nerve, or due to compression of this nerve which is located in the posterior mediastinum. *Urdwa Shwasa* patient presents with upward looking extended posture during expiration to create extra pressure which can overcome negative pressure, as seen in chronic bronchial asthma, emphysema etc. *Chinna Shwasa* one can observe congestion of the eyeball and obstruction to the flow of urine which clearly indicates the pressure changes in thoracic abdominal activity and orbital cavity. In *Tamaka Shwasa* dyspnea in sleeping position and relief in standing or sitting position is quite obvious of pressure changes in thoracic cavity. Predicted time period of formation of the neural tube is during 12 week of gestational period as rightly mentioned in Ayurveda that in the during third month all the body systems are formed in the minute form. Most of organs of Respiratory system are derived from *Matrija Bhava* like *Puppusa*, *Talu* and the *Kloma*. Lungs or *Puppusa* is the product of *Raktha Phenain* embryonic life, *Phena* suggest a low resistant structure filled with air.

The *Moola of Pranavaha Srotusis Hridaya and Maha Srotus* which are not the part of

Respiratory tract as per Modern anatomy. Hence Ayurvedic explanations points towards the range of pathological involvement of the system as commonly in chronic diseases of the respiratory system, heart and liver are involved. *Maha Srotus* or Gastro intestinal Tract share with some portions of Respiratory tract. *Maha Shwasa* one can witness CNS involvement and in *kshudra Shwasa*, the abdomen. Global and observational study oriented approach of Ayurveda

Disturbance of Rate and Rhythm has been examined in many instances as in *Maha Shwasa* there will be long inspiration with forced expiration with help of accessory muscles and more expiratory reserve volume. *Samrudha* is also explained context of *Maha Shwasa* suggest obstructive apneas. Long inspiration with very short expiration is seen in *Urdwa Shwasa*, *Chinna Shwasa* suggests obstruction to respiration with apneas. In *Tamaka Shwasa* increased respiratory rate, an episodic attack of dyspnea with symptoms free interval in-between will be observed While in *Ksudra Shwasa* will not disturbs the daily routines only increases exertion. Different Auscultatory findings can be appreciated during examination of respiratory system. *Durdhuraka* which means a sound produced at the level of *Kanta* may be taken as coarse crepitations. In *Maha Shwasa* where breaths mimics the sound produced by intoxicated bull reflects an expiratory grunt which is seen in end stage disease where patient tries to open up collapsed alveoli's forcefully. Further this also suggest those respiratory sounds audible without the help of stethoscope like strider, grunts, wheeze. *Kshyaja Kasa* where sound resembles like *Paravathaevakujana* which mimic like coarse crepitation.

Shifting of apex beat away or towards the mid clavicular line on the left side of chest -has been evidenced in certain disorders like *Kshyaja Kasa* where patient have a impression of heart being displaced from its original place. Similarly in *Kaphaja Kasa* patient feel the fullness of the chest and can't appreciate presence of the heart in position.

Pain and tenderness of the chest as a palpatory finding can be examined in certain conditions. Pain and tenderness in chest in *Urakshata*, pain like injury to *Marma* as in *ChinnaShawsa*, burning pain in chest as in *Pithaja Kasa*, and *Maha Shwasa*, Pain in *VatajaKasa*, tenderness in *Kshataja Kasa*, Angina like pain in *Kshataja Kasa* Patient of respiratory problem is likely to attain certain abnormal positions due to the diseases process. A patient with *Gambira Hikka* shows abnormal bending of the body and trunk (*Namayanthi*) while *MahaShawsa* patients will have abnormal facial expressions and deviations of the face (*Vikruthaaksha* and *Anayana*). In *Urdwa Shwsa* fixed upward gauze with stiffness of the neck muscles (*Udwadrith-*) is evident. *Vipluthaksha* is the presentation in *Chinna Shwasa*. Looking upward and tendency to attain sitting posture is seen in *Tamaka Shwsa* *Pranayama* is the fourth step in *Patanjali's yoga Sutra*. This is aimed to control the respiration and regularize the same. *Puraka*, *Rechaka* and *Kumbhaka* are the three phases involved in it. As we know compliance of the lung is estimated by different volumes and lung capacities like Tidal volume, In spiratory reserve volume, Expiratory reserve volume, Residual volume, Total lung capacity, Vital capacity etc. Different methods of *Pranayama* help to improve these Volumes and capacity of the lung; hence

these are more useful in constrictive and restrictive disorders of the lung. Modern concepts of Spiro metric methods also constitute small portion of *Pranayama*. So regular practice of *Pranayama* normalizes different lung volumes and capacities and increase gaseous exchange.

CONCLUSION: Examination of respiratory system plays key role in directing towards the right diagnosis. Understading the extent, symptoms and clinical parameters of the same in Ayurveda helps a lot, not only in planning the treatment but also in analyzing the symptomatology to understanding the Ayurveda facets in a better way. There are lot of hidden and unknown facts which depicts the similar explanation of parameters of clinical examination in Ayurveda, and helps in pediatric practice.

REFERENCES:

1. Agnivesha, Charaka Samitha - Kasa chikitsa, 3rd, 4th 5th, part Ayurveda dipika commentaries of Chakrapani datta, and Jalpakalpa Taru sri Gangadhara Kaviratna Kaviraja ; 9th edition edited and revised by Kaviraja shree Narendra natha senguptha, Kaviraja Shree Balaichandra Senguptha published by Chaukhambha Orientalia New Delhi
2. Agnivesha, Charaka Samhitha - Shwasa nidana and chikitsa, 3rd, 4th 5th, part Ayurveda dipika commentaries of Chakrapani datta, and Jalpakalpa Taru sri Gangadhara Kaviratna Kaviraja ; 9th edition edited and revised by Kaviraja shree Narendra natha senguptha, Kaviraja Shree Balaichandra Senguptha published by Chaukhambha Orientalia New Delhi
- 3 Agnivesha, Charaka Samitha - Vimana Stana, Sroto nidana, 3rd, part Ayurveda dipika commentaries of Chakrapani datta,

and Jalpakalpa Taru sri Gangadhara Kaviratna Kaviraja ; 9th edition edited and revised by Kaviraja shree Narendra natha senguptha,Kaviraja Shree Balaichandra Senguptha published by Chaukhambha Orientalia New Delhi

4. Sushruta Samhita Sutra sthana , Sroto Nidana Nidana stana 1st part by Kaviraja Dr. Ambikatanaya Datta Shastri ; 13th edition Published by Chaukhambha Samskritha Bhavan , Varanasi

5. Asthanga Samgraha 1st part by Professor K.R. Shrikantha Murthy ; 2nd edition published by Chaukhambha Orientalia, Varanasi

6. Asthanga Hridaya Tantra Volume 1 and 2 by Professor K.R Shrikantha Murthy 1ST edition Published by Krishna Dasa Academy, Varanasi 1991

7. "Nelsons Text Book of Pediatrics" – book 1 and 2 16th edition by Behrman, Klieg man, Jenson , publishers Harcourt Asia Pvt limited printed in India at Thomas press (I) LTD, NOIDA

8. "Manual of neonatal care" by Arnold .A Fernandez, Jayashree.C.Mondkar Publications from B.I.Churchill Livingstone Pvt Limited

9. "Clinical Paediatrics " by B. Anjaiah;4th edition Published by ParasMedical Publisher, Hyderabad New Delhi

10. " Chavalis Principles and Practice of Pediatrics In Ayurveda " by.Dr. C.H.S. Sastry 2nd revised edition 2015 published by Chaukhambha Vishwa Bharathi Varanasi , India

11. Sharangadhra Samhita , Madyama Khanda of Acharya Sharagadhara by Dr. Smt . Shailaja Srivasthava 2nd edition Chaukhambha Orientalia Varanasi

12 .Yoga sutra Deepika 3/41

13. Shatapata Brahman and Amrita bindu Upanishad,(12/6/2

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