

COPD- AN AYURVEDIC PERSPECTIVE

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ABSTRACT

COPD is a preventable and treatable disease which includes chronic bronchitis and emphysema is the fourth leading cause of death. Risk factor include exposure to air pollution, second hand smoke and occupational dusts and chemicals, smoking etc. which are also mentioned in Ayurvedic classics "*Rajasa Dhoomavatabhyam Shitathanambusevanam Rukshanna Vishamashanath*". Though it is impossible to correlate COPD with any single condition of *Pranavaha srotodushti*, but advanced condition of *Doshika kasa* and *Tamaka shwasa* may result in to COPD. As COPD featuring of persistent, progressive cough with tenacious sputum and course of disease is progressive worsening (with exacerbation), which co relate with *Kaphaja kasa* features of *bahula*, *madhura*, *snigdha*, *ghana kapha* and disease if not treated it will develop complication that means, course of disease will be chronic, progressive and worsening.

KEYWORDS: COPD, *Kaphaja Kasa*, *Tamaka shwasa*.

INTRODUCTION

COPD is a disease of increasing public health importance around the world. In India, COPD is the most common lung disorder after pulmonary tuberculosis. The disease is frequently encountered in the middle age group and is rare below the 35 years. Global Initiative for Chronic Obstructive Lung Disease defines COPD as a disease state, characterized by progressive development of chronic airflow limitation that is not fully reversible and it includes chronic bronchitis, emphysema and small airway disease.^[1] Bronchial Asthma and

chronic obstructive pulmonary disease (COPD) are two different inflammatory disorders of the lungs which share a common functional abnormality, i.e., airflow limitation.

In Bronchial asthma, airflow limitation is largely reversible, either spontaneously or with treatment, and does not progress in most cases. On the other hand, airflow limitation in COPD is usually progressive, persistent and poorly reversible. Increased respiratory symptoms and airflow obstruction are resulting from general exposure to dust at work. There are several specific occupational exposures, including cotton textiles dust, coal mining, gold mining has been suggested as risk factors for chronic airflow obstruction.

From Ayurveda point of view COPD can be termed as disorder of *Pranavaha srotas*, as etiological factors and clinical features described in ayurvedic classics for *Pranavaha srotodusti* are nearly similar with those of COPD and occurs usually in conditions of *Kasa* or *Tamaka shwasa*. The pathogenesis of the *Kaphaja kasa* has similarity with the *Tamaka shwasa*. Both are diseases of *Pranavaha srotas*. Both the diseases are rooted with the *Vata* and *Kapha*. Both the diseases are *nidanarthakara roga* when untreated may lead to dreadful diseases like *Shwasa* and *Kshaya*. Both the diseases have chronic course and are debilitating in nature. Yet, they differ in their manifestation. *Tamaka shwasa* is generally episodic. *Kaphaja kasa* is usually continuous interspersed with exacerbations.

AIMS AND OBJECTIVES

To review COPD from Ayurvedic and modern science point of view.

MATERIALS AND METHODS

To fulfil aims and objectives relevant ayurveda and modern literature were searched.

DISCUSSION

These are the methods for the diagnosis of a disease mentioned in *Roga Chatushka* by *Acharya Charaka* i.e., *Trividha Bodhya Sangraha*.^[2]

They are

1. *Samuthana vishesha*
2. *Vikara prakruti*
3. *Adhishtanantarani*

Samuthana Vishesha meant to be *Hetu* or causes that leads to manifestation of a disease. It gives the etiological diagnosis of a disease. *Vikara Prakruti* refers to. It is observed in the form of *lakshanas* seen in the Rogi. *Adhishtana Antarani* refers to *Sthana Vyadhi Swabhava* or seat of disease manifestation. It gives an idea about *Rasadi Dhatus* and *Ashaya* which are involved in manifestation of disease. It can be considered as pathological diagnosis of a disease. *Trividha Bodhya Sangraha* is used to arrive at proper diagnosis of disease.

SAMUTTHANA VISHESHA

Samuthana is the synonym of the term *hetu* or *nidana*. *Nidana* is the one which gives the complete knowledge about the instrumental factors related to *Utpanna Vyadhi*.

Nidana is further categorized into two i.e., *Abhyantara hetu* and *Bahya hetu*. *Abhyantara hetu* derives itself to pathophysiological entity and are integral part of *Samprapti*. *Bahya hetu* acts either as *dosha hetu*, *vyadhi hetu* and *ubhaya hetu*. The causative factors which provoke only *dosha* and not specific to any disease and it includes, *Viprakrishta hetu*, *Vyabhichari hetu*, *Achaya poorvaka hetu*, *Chaya poorvaka hetu*, *Unabhava hetu* and *Kathinya hetu*. The causative factors which result in manifestation of a *vyadhi* are *Vyadhi hetu* and it includes *Pradhanika hetu*, *Utpadaka hetu*, *vyanjaka hetu*. Some etiological factors acts as *vyadhi hetu* as well as *dosha hetu* and are called as *Ubhaya hetu*.^[3]

While considering the *nidana* of *Kasa*, it is illustrated that all the *nidana* included in *Hikka Shwasa adhikara* are to be considered as the *hetu* for *Kasa roga*.^[4] The causative factors responsible for the causation of *Kasa* can be broadly classified as follows.

- *Asatmya indriya samyoga*
- *Prajnaparadha*
- *Parinama*

The cause of diseases relating to both mind and body are *atiyoga*, *ayoga* and *mithya yoga* of *kala*, *indriya artha* and *buddhi* are the cause of *dwayashraya vyadhi* of diseases.^[5]

▪ DOSHA HETU

They produce *Dosha Chaya*, *Prakopa*, *Prashama* and lead to manifestation of disease. In this case the *nidana* like *rooksha*, *vishtambhi*, *vidahi*, *guru*, *abhishyandhi bhojana* etc will be considered as *Dosha Hetu*.

- **Viprakrishta hetu** - *Viprakrishta* is such an aetiology which demands prolonged indulgence, but it may not directly manifest the disease. In case of *Kasa* continuous intake of *nidana* which causes aggravation of *Vata* and *Kapha Dosha* and vitiation of *rasadi Dhatu* are considered as *Viprakristha Nidana*.

Table No-1 Ahara varga.^[6]

<i>Shami varga</i>	<i>Nishpava, Masha</i>
<i>Shooka varga</i>	<i>Godhuma</i>
<i>Mamsa varga</i>	<i>Matsya, Kukkutanda</i>
<i>Shaaka varga</i>	<i>Upodika, Shaluka, Pinyaka, Sarshapa, Kalaya</i>
<i>Phala varga</i>	<i>Tumbi phala</i>
<i>Gorasa varga</i>	<i>Dadhi, Ksheera</i>
<i>Harita varga</i>	<i>Lashuna, Kharahva</i>
<i>Aharayogi</i>	<i>Tila taila, Pippali</i>

- **Vyabhichari hetu** - In *Vyabhichari Hetu, Nidana, Dosha* and *Doosha* will not be capable of producing disease or they may not co-ordinate each other for manifestation of the disease. In this state it may not produce the disease completely or it will produce the disease with *Alpa Lakshanas*. *Vyayama, adhwa, rooksha, vishama ahara* and other similar factors that predispose the illness in patient suffering from *Kasa*.
- **Achaya poorvaka nidana / Una bhava hetu** - *Nidana* such as *raja, dhooma, sheetambu sevana, sheeta sthana* provokes *vata dosha* immediately and these *nidana* can be considered as *Achaya poorvaka nidana* for *Kasa*.
- **Chaya poorvaka nidana / Katinya bhava hetu** - *Vega dharana, vishamashana, ama pradosha* etc will provoke *dosha* gradually and it is considered as *Chaya poorvaka nidana* for *Kasa*.

▪ VYADHI HETU

The *nidanas* which are responsible for the development of specific disease by specific etiology. In this case *sheetapana, sheeta sthana, raja, dhooma, anila, Kasa, pratishyaya, shwasa* acts as *vyadhi hetu*.

- **Pradhanika hetu** - The *Hetu* which produces instant effect like *visha* is called as *Pradhanika Hetu*. In this context *Abhighata* can be considered as *Pradhanika Nidana* and also *Kasa* manifested by *pratishyaya, shwasa, raktapitta, gulma* etc.
- **Utpadaka hetu** - The *nidanas* which favours accumulation of respective *dosha* in respective season due to changes in season. Here due to *shleshmala ahara* and *kashaya, katu, amla, lavana, ushna, ruksha, utkleda, paryushita, abhishyandi, madhura, picchila,*

madya, swapnajagara, dhatu kshaya, vyayama, anila sannirodha, vijjala, alpa kanda, diwa Swapna accumulation of *kapha* takes place acts as *utpada* *hetu*.

- **Vyanjaka hetu** - The *nidanas* which stimulate the development of diseases. In this context *rajah sevana, sheeta, snigdha, dadhi, dhumopaghata, kshavathu sannirodha, sheetambu sevana, sheeta sthana* are considered as *vyanjaka hetu* as they worsen the condition of *Kasa*.

▪ UBHAYA HETU

Consumption of *abhishyandhi, guru, jalaja anupa pishita, dadhi, ksheera* and *vyayama, adhwa, vishama ashana* leads to *kapha prakopa* hence it is *Dosha Hetu* same time it is said to cause the disease.

VIKARA PRAKRITI

ROOPA-The symptoms which are observed in *Kaphaja Kasa* are

Mandagni - The hindrance in the functioning of *jataragni* which is due to the *vridhdha Kapha dosha* in the *amashaya* resulting in the formation of *ama*. So due to the *manda guna* of *malaroopri kapha* the appetite is hampered.

Aruchi - *Kapha vridhdhi* producing lack of desire for the food.

Chardi - *Chardi* is seen due to the excessive act of coughing produced by the vitiated *kapha* there will be increased intra-abdominal pressure leading to the expulsion of the contents from the stomach.

Peenasa and shiro ruja - The portion which affects the *pranavaha srotas* produces *pratishyaya (peenasa)* and that which invades the *shiras* produces *shirashoola*.

Shareera gourava - *Shareera gouravata* feeling is due to the increase in the quality of the *kapha* such as *guru, snigdha, and picchila guna*. This can be understood as heaviness of the body or the heaviness of the chest due to increased secretion due to pathological changes in the *Pranavaha srotas*.

Bahula Madhura snigdha Sandra ghana kapha/ Vaksha sampoornata

Excessive accumulation of *malaroopi kapha* in *ura Pradesha* causes *kapha stheevana* and this *kapha* will be *bahula*, *madhura*, *snigdha* and *ghana gunayukta* and person will feel *Vaksha sampoornata*.

Asya madhuryata - Due to *Kapha dosha vridhhi*, *madhura bhava* of *kapha* is exhibited in the form of *madhura rasa* hence *asya madhuryata*.

Mukha pralepa/Kantopalepa - The *picchila guna vridhhi* of the *kapha dosha* will coating in the *kanta* or *mukha pradesha*.

Lomaharsha - This is due to morbid *vata dosha* involvement.

Kasamano hi aruk vaksha - *Kasamano hi aruk vaksha* i.e., Painful act of coughing which is due to the morbid *vata dosha* which will get *avarana* by the *kapha dosha* in the *Pranavaha srotas*.

Kantha kandu - *Kantha kandu* which is seen in *poorva roopa* of the *Kasa* which is due to *kapha vrudhhi*, will also continue in the *Roopavastha* of *Kaphaja Kasa*.

Swarabheda - *Swarabheda* due to *Udanavayu prakopa* which takes place in the pathological process of *Kaphaja Kasa*.

Sadana - The pathological condition where *Rasa Dhatu* is vitiated by the morbid *Kapha* and *Vata dosha* where there will be deprivation of the nutrition. This hampered *Rasa Dhatu* will fail to do the *poshana* of the other *dhatu* causing *sadana*. In general, *Kaphaja Kasa* being a Chronic illness cause the depletion of the nutrition.

ADHISHTANA ANTARANI

Adishtana antarani refers to the pathological process of the diseases. The word *Adishtana* refers to *sthana / ashaya*. *Samprapti* can be illustrated as *vyadhi janma hetu* and *vyadhi janya hetu*.

SAMPRAPTI^[7]

The *Samprapti* is the one which explains manifested disease i.e., manifestation of the disease is understood by appearance of *Pratyatma lakshana* called as *Vyadhi Janma Samprapti*.

The *Samprapti* is one which explains the genesis of the disease i.e., which explains the pathophysiology of the disease specifically called as *Vyadhi Janya Samprapti*.

Mechanism of Kasa - Vyadhi Janma Samprapti

Prana and *Udana vata* are plays an important role in mechanism of *Kasa* as *prana vata* located in *murdhva* moves downwards to the *kantha* and *uras*, helps in *prakruta uchwasa* and *nishwasa* similarly *udana vata* located in *uras*, travels upwards through *kanta* and *nasika*.^[8]

Due to *nidanas*, *dushta prana vayu* takes *gati* of *udana* and comes out of mouth forcefully in abnormal way producing sound similar to that of cracked bronze vessel. With this we can understand cough as a sudden and variable expiratory thrust of air from the lungs through the air passages associated with phonation which momentarily interrupts the physiological pattern of breathing.

Utpatti of Kasa - Vyadhi Janya Samprapti

The *adhapratiyata* *vayu* i.e *apana vayu* but in this context it is taken as *prana vata* which having movements usually in the downward direction get obstructed due to *nidanadi* factors and later moves to *urdhva srotas*, attains character of *udana vayu* i.e *udana bhavamaapanna*. Further it advances to all the *srotas* of *shiras*, *kantha* and *uras* i.e., larynx and supra laryngeal area, trachea and bronchi, ear canals and ear drums, pleura, pericardium and diaphragm, oesophagus and stomach, vagus nerve stimulation leads to CNS cortical modulation and reaches to cough centre. From *srotas*, sensation reaches to *shiras* and reflex comes which leads to breaking pain and jerking in the whole body particularly causing strain and stiffness in *hanu*, *manya*, *netra*, *prushta*, *uras*, *parshwa* which stimulate the spinal nerve, phrenic nerve and vagus nerve in turn effects expiratory muscles, diaphragm, larynx, trachea and bronchi. At last vitiated *vayu* comes out through the mouth producing sound similar to the broken bronze vessel.^[9]

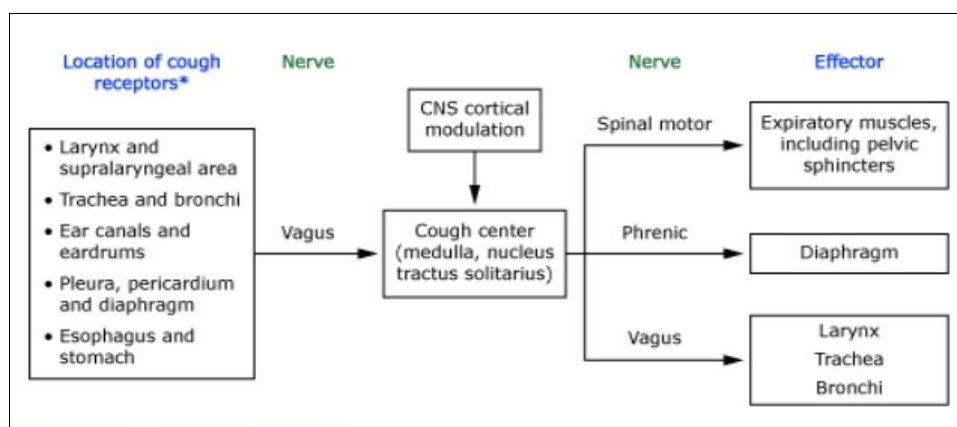


Figure No. 1

Kaphaja Kasa Samprapti

Owing to the *nidana*, *Kapha dosha* will obstruct the *Prana vayu* in *Pranavaha srotas*. As a result, *Prana vayu* takes *gati* of *Udana vayu* and hence manifests as *Kasa*. As *Kapha dosha* obstructs the *Prana vayu*, it is considered as *Kaphaja Kasa*.^[9]

Sapeksha nidana- Shwasa and Kaphaja Kasa

The diagnosis is made based on the detail history taking, physical examination and assisted with relevant investigations. When presenting symptoms overlap with one or more diseases, it becomes difficult in proper diagnosis of the disease.

Kapha prakopa poorvaka vayu obstructs *Pranavaha*, *Annavaha* and *Udakavaha Srotas*, spreads throughout the body and produces *Shwasa*.^[10]

Habitual intake of *kaphaja ahara* leads to aggravation of *kapha* and thereby obstructs the movement of *vata* which gives rise to *Kaphaja Kasa*.^[11]

SHWASA

1. *Dushta vata* vitiates (bronchospasm)
- *pranavaha srotas*
- vitiates *sthanika kapha dosha*
2. Vitiated *kapha dosha* (Mucosal edema)
- Obstruction to *pranavaha gati*
- *Pranavaha vilomagati* as it is trapped in *srotas*
3. *Viparyayakritavata* (Entrapped air)
Results into *sukha* to body after expulsion of *kapha*
Therefore sputum is infrequent and it is intermittent and variable with episodic exacerbation

KAPHAJA KASA

1. *kapha* obstructs *prana vayu* due to *kaphaja ahara*
2. *Tamakah kapha kase* *tu i.e., kapha* may obstructs *vata* and results into breathlessness similar to *shwasa* that is because of *Pitta*
3. Results in to copious, thick tenacious sputum and persistent, progressive worsening with exacerbation

Figure No.2 Vyavachedaka nidana- Shwasa and Kaphaja Kasa.^[12,13,14,15,16]

Table No. 2 Differential diagnosis of Bronchial Asthma and COPD.

Characteristics	Bronchial Asthma	COPD
Age of onset	Usually, < 40 year	Usually, > 40 year
Smoking history	Not casual, but worsens control	Usually more than 10 pack-years
Sputum production	Infrequent	Common
Allergies	Common	Infrequent
Clinical symptoms	Intermittent and variable	Persistent and progressive
Course of disease	Stable (with exacerbation)	Progressive worsening (with exacerbations)
Spirometry results	Often normalize over time	May improve, but do not normalize over time
Airway inflammation	Eosinophilic	Neutrophilic

CONCLUSION

As *kasa* and *shwasa* are *paraspara anubandha vyadhi*, the *sapeksha* and *vyavachedaka nidana* of both are analysed. *Tamaka shwasa* have infrequent sputum production and course of disease is episodic in nature. *Kaphaja kasa* having features like *bahula*, *madhura*, *snigda*, *ghana kapha*, and the course of disease will be chronic, progressive and worsening. As COPD featuring of persistent, progressive cough with tenacious sputum and course of disease is progressive worsening (with exacerbation), it can be co related to *Kaphaja kasa*.

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