



# Role Of Pippali Rasayan In Respiratory Disorders And Asthma Vyadhi In Child :- A Review

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## Abstract

In Ayurveda Asthma is correlated to Tamaka shwasa. Tamaka swasa symptoms are similar to Bronchial Asthma. Through Ayurveda treatment modalities we can maintain Asthma exacerbation episode free life or we can cure early diagnosed cases or we can reduce the severity of the problem. The aim of Ayurveda is to improve and maintain quality of life. In this scenario Ayurveda treatment modalities and lifestyle advocacies can help the child to fight against Asthma. These treatment modalities and lifestyle advocacies are specific to individual child based on his/her body constitution, personal details related to lifestyle and geographical area where the child is residing. diagnosed respiratory illness in children. It is diagnosed as early as 3 years of age, in some cases depending upon the pathological changes in system; it may take 5 years to brand the child as Asthmatic. Common causes for Asthma are Allergy and infections, in some cases there is genetic predisposition. Pippali is a Rasayana herb which should always be taken in moderation to keep yourself away from its side effects. Its active alkaloid piperine has numerous health benefits specially on respiratory disorders and Asthma.

**Keywords** :- Asthma, Pippali, Ayurveda, Tamakshwas, Pranvaha strotas, Kapha Dosha

## Introduction

Asthma and Respiratory Disorders are common inflammatory obstructive lung diseases which affect many millions of children world wide. While advances in basic and clinical research have led to important advances in drug therapy and improvements in care, both conditions are increasing in prevalence and are associated with considerable morbidity and mortality. Although mortality rates for asthma are relatively low, representing only 1 % of all deaths, it is recognised that in many cases that death could have been. Both conditions cause a significant impairment in quality of life due to impacts on patients' physical and psychological well-being. In addition, the social and economic effects are striking; among the most important are the escalating costs associated with unscheduled medical care, hospitalisations and loss of productivity. Oral and inhaled anti-inflammatory and bronchodilator medications have formed the basis of treatment recommendations for both conditions for the last three decades and despite proven efficacy there is a recognition that therapeutic options are limited and not without adverse effects. Thus there is a need to consider other therapeutic options including phytomedicines which could be used to complement existing treatments. Shwasa is the main disease affecting Pranavaha Srotas. There are five types such as Maha Shwasa, Urdhva Shwasa, Chinna Shwasa, Tamaka Shwasa and Kshudra Shwasa. Tamak Shwasa is also one of them and it is caused by the reverse movement of Vata which permeates the vital airway, causing neck and head and stimulating Kapha to cause Pinasa. Vata created Tamaka Shwasa with a block. Known for its inconsistency

and chronicity, this disease is a threat to humans. In this disease, due to various etiologies, the movement of air in Pranavaha Srotas is blocked and there is difficulty in breathing. Tamaka Shwasa for the definition of bronchial asthma in modern medicine the same as in Ayurveda. Asthma is a major global health problem of our time. diagnosis and treatment are important to minimize further progression. Ayurvedic treatment is a hope for asthma sufferers. Thus, in the present study Tamak Shwasa (Bronchial Asthma) is taken as the subject of intervention with the drug “Pipaladi Leh” mentioned in the “Kashyapa Samhita” under “Khilsthana chapter 10th Antarvarthanai Adhaya

Ayurveda is one of the ancient medicinal culture which has its roots in India. Pippali is also used as home remedy for different health problems. The drug is described in ayurvedic nighantus. The Chikitsa Chatuspad (physician, drug, nurse, patients) has been described by Charaka, in which the Dravya (drug) is very necessary to cure any disease. We can cure any disease by Samprapti Vighatan (pathogenesis), for which it is necessary to choose the special Dravya (drugs). Pippali is a notable medication in Ayurveda. Pippali which tastes pungent. Its botanical name is *Piper longum*. Fruit androots of the plants are used to cure various disease conditions with different types of Anupan (adjuvant), such as Dugdha (milk), Ghrita (ghee), Madhu (honey), Guda (jaggery) and Samanya jala (plain water), Pippali Has been indicated in many clinical conditions like Kasa, Shwasa, Gulma, Arsha, Meha, Pliha, Kushtha, Udar, Shula, Ajirna, Aruchi, Jwara, Trushna, kshaya, Krimi, Pandu, Hrudroga. Many names of Pippali are described in Nighantus based on its different works. At present, through this article, we will find out about Pippali in detail. Literary information available about Pippali in ancient ayurved texts is compiled here.

## BOTANICAL DESCRIPTION OF PIPPALI

It is commonly available in the central Himalayas and Assam region of India. Pippali is a thin fragrant climber creeping jointed stems and fleshy fruits are implanted into the spikes. The Leaves are dark green color. Leaves are heart shaped having dark green color above and pale green below side. Leaves are 5- 9 cm x 3-5 cm, subacute, entire, glabrous, ovate, cordate at the base. Flowers of this plant are monoecious, pendulant spikes and straight. Male flowers are larger than female. Both male and female flowers are borne on different plants. This plant bear blossoms during rainy season. Fruits of this plant are oval shaped consisting of yellowish and orange color and they grow in early winters, drupes are about 1 inch in diameter. Dried fruits are greenish-black to black and cylindrical. Taste is pungent and odour is aromatic. Root are grayish brown colored and longitudinally wrinkled.

## THERAPUTIC USES OF PIPPALI IN VEDIC KALA

Pippali was used as rasayan in the Atharvveda. Atividdha bhesaji, Ksipta bhesaji and Vatikrta bhesaji. According to Sayana, it is helpful in treating Dhanurvata and Akshepaka etc, According to Hindu mythology, Pippali and Amrita (elixir) first appeared in Samudra manthan. According to one instance from the Jaiminiya Bramana, a portion of the saint Vasistha consumed Pippali in order to achieve wealth and health. Pippali and Sarsapakhandha, along with other herbs, are recommended for administration to newborns in the Kouéika dharmasutra. This process is claimed to be Medhya. It is listed as one of Atharva Parisista's Bhesajagana. Vagabhatta indicate specifically for Pliha rogas. According to Keshava Paddhati (26/33- 40) it is indicated for Vata vikaras. Charaka and Susruta have extensively quoted Pippali among the Dashaimani group and ganas respectively. It is quite interesting to note that Vagbhata did not mention it in any of his Vargas (A.H.Su. 15). However he used it in therapeutics extensively. Moreover he also happened to quote Pippali dravya three times (A.H.Chi. 3/133, Ci. 8/45 & Ci. 9/105) against Susruta who quoted only once about Pippali dravya (Su.Chi. 37/36). Charaka did not describe Pippali dravya. But he mentioned about Gajapippali (Ch.Si. 12/39 & Ka. 1/14). Charaka described Vardhamana pippali rasayana where in Pippali in 10 numbers is given on first day to the 10th day in anincreased dosage and tampered to the original dose of 10 fruits on the 19th day. Charaka advised against using Pippali in excessive quantities (or regularly). However it maybe used as Rasayana. In this context Cakrapani Clarifies that the restriction is limited in diet and not for long-term medicinal usage (C.S.Vi. 1/12-13).

## MATERIAL AND METHODOLOGY

There is a mention of Pippali in all the Nighantu. In which various works by Pippali are described. The verse describes the synonyms, action on dosha and properties of Pippali. The e-book, eNighantu and online available data on different websites were used for this study.

### Important Synonyms with their interpretation

Kana - It has fruit of many Kana's or fruits are small berries. Upakulya - That which grows near water or along side water Stream. Shoundi - That which is used with condiments in drinking liquors. Krushna, Kali, Shyamavha, Shyama - Fruits are Black in colour. Ushana - That which gives burning sensation or pain to the tongue. Pippali - One can maintain total health by its intake. Maghadhi, Magadhyha, Magadha, Magadhodbhava, Magadhika - That which is largely grown Magadha region. Vaidehi - Grown in Videhadesha. Chapala: That which consoles. Kola - Its fruit weighs about one kola pramana. Tikshnatandula - Seeds bears Tikshna Guna. Tiktatandula - Seeds have Tikta rasa. Kshudratandul Seeds are small sized. Katubeeja - The fruit have pungent taste. Katuvalli - It is predominant of pungent taste. Bahubeeja - Have lots of seeds. Vrishya- it is used as aphrodisiac. Ushnaphala - Fruit having ushna(heat) guna. Krushnaphala - it has black coloured fruits. Vishva - Used widely. Katukandarasa - Stem has Katu rasa.

## ASTHAMA (TAMAK SHWAS VYADHI) IN AYURVEDA

The disease is called Tamaka as attack of the disease precipitate during night and during the state of attack Dyspnoea becomes so severe that patient feels entering into the darkness.

**Types of Tamaka Shwasa:** Charaka has mentioned two-allied condition of Tamaka Shwasa known as two types or further complication of disease proper i.e., Pratamaka and Santamaka. Sushruta and Vaghbata have only mentioned the name as Pratamaka, which includes clinical manifestation of Santamaka.

**Pratamaka Shwasa:** When Patients suffering from Tamaka Shwasa gets afflicted with fever and fainting, the condition is called as Pratamaka Shwasa. It is suggestive of involvement of Pittadosha in Pratamaka Shwasa. It is aggravated by Udvarta, Dust, Indigestion, Humidity (Kleda), suppression of natural urges, Tamoguna, Darkness and gets alleviated instantaneously by cooling regimens.

As a matter of fact, cooling regimen is one of the causative factors of Tamaka Shwasa but in Pratamaka Shwasa, the patient gets relief by administering cooling agents due to Pitta Dosha involvement.

**Santamaka Shwasa:** When the patients of Pratamaka Shwasa feels submerged in darkness, the condition is called as Santamaka Shwasa. Though Chakrapani has mentioned these two as synonyms of each other Charaka refers them as two different ailments representing two different conditions of Tamaka Shwasa, these two conditions differ from each other according to intensity of attack.

### Nidana (Causative Factors/Risk Factor)

The table below shows comparison between five treatises regarding presence of various risk factors.

#### Poorvarupa [Predisposing signs and symptoms]

When the vitiated Doshas begin to localize, affecting a particular organ or system, certain prodromal symptoms are observed before the full-fledged manifestation of the diseases.

#### Rupa

Rupa means signs and symptoms of the disease. It appears in the 4<sup>th</sup> Kriyakala i.e., Vyaktavastha in which signs and symptoms of a disease are completely manifested. All the symptoms of Tamaka Shwasa described in Ayurvedic texts have been shown in the table below:

#### Cikitsa Sutra (Principle of Treatment)

In the classical texts of Ayurveda, the approach of treatment has been made in the following way.

**1. Nidana Parivarajan:** In all the four types of patients for the treatment, Nidana Parivarjan or avoidance of all types of precipitating or predisposing factors are to be strictly followed. If the precipitating or predisposing factors are not avoided, the Doshas involved in the pathogenesis will further be aggravated and the prognosis will be worse.

**2. Samsodhana:** Charaka emphasized that strong build patient with the dominance of Kapha and Vata should be treated with Samsodhana therapy, i.e., Vamana and Virecana as per necessities. (S.Ci.17/89).

The author of Yogaratnakar has mentioned that except Sneha Basti, all other methods of Sodhana Chikitsa should be adopted in Tamaka Swasa (Y.R.Swa.Ci.1).

Samsodhana Karma should be performed in following steps.

**a. Snehana:** Taila mixed with Lavana should be gently massaged on the chest to loose the tenacious sputum in the channels. (S.Ci.17/71)

**b. Swedana:** Swedana by Nadi, Prastara and Sankara method should be performed by these processes the Kapha which has become inspissated in the patient's body, gets dissolved in the body Srotas, the body Srotas become softened and as a result, the movement of Vata is restored to normal condition. (S.Ci.17/71-72)

**c. Vamana:** To eliminate or expectorate the deranged Kapha, Vamana should be given with proper method with drugs not antagonist to vata. After proper Swedana, Snigdha Odana (rice), with soup of fish or pigflesh and the supernatent of curds may be given to the patients for the Utklesana of Kapha.

There after Vamana should be performed with the help of Madanaphala. Pippali mixed with Saindhava and Madhu. Thus, the vitiated and stagnant Kapha has been expelled from the system, the patient attains ease and body channels (srotas) are purified, the Vata moves through the srotas, unimpeded (C.S.Ci.17/74-76)

**d. Dhupapana:** After Vamana, to eliminate the hidden pathogenic substances i.e., the Dosha which are in the Linavastha (not completely purified), the physician should endeavour to remove it by Dhuma Cikitsa (inhalation therapy) (C.S.Ci.17/77).

**e. Virechana:** as defined by Charaka, is a process in which waste products (Dosa, Mala) are eliminated through lower channels (Adhobhaga) i.e., anus (C.S.Ka.1/4). Though all Virecana drugs are Panchabhautika in constitution, Jala and Prithvi Mahabhuta dominant in their constitution (C.S.Ka.1/5). An ideal Virecana preparation, according to Charaka must have five properties. These Gunas are Vyavayi, Vikasi, Suksma, Ushna and Tikshna (C.S.Ka.1/5).

**2. Samsamana:** The scope of Samsamana therapy in this disease is more wide and practical, which is applicable in all cases in all stages. For the patient who is not eligible for Samsodhana Karma (Durbala), Samsamana therapy should be adopted. Samsamana therapy in this case includes Deepana, Pacana, Kapha Vatasamaka drugs and regimen along with drugs that purity Pranavaha Srotas. Children and old subjects are also managed with Samsamana.

### Brimhana and Rasayana Chikitsa

Recurrent attacks of the illness in a long run tend to debilitate the patient due to depletion of the Dhatu.

This Dhatukshaya further adds to the pathogenesis and prevents from employment of energetic treatment during the attack of Tamak Shwas. Therefore, it is mandatory to maintain the physical strength of the patient by employing Brihana treatment. Further the illness runs a chronic course with persistent nature. This nature of the illness may be best aborted by the administration of Rasayana Chikitsa. In this way the Brihana and Rasayana Chikitsa are said to be beneficial in patients suffering from Tamak Shwas.

In short, sequential administration of Lavana Taila Abhyang, Swedan, diet 'Snigdha'

enough to control 'Rukshana' and balanced enough not to aggravate Kapha. Sadya Vaman (emergency emesis), Dhoomapana followed by Shaman Chikitsa is the treatment to relieve the attack of Tamak Shwas.

Virechan followed by Vyadhihara Rasayana and Brihana Chikitsa is the ideal line of treatment in between the attacks. These procedures are very much efficacious in remitting the symptoms as well as preventing subsequent attacks of Tamak Shwas. Formulations those could act on controlling Vata Kapha and at the same time boost tissue and organ strength, control remodeling and increase immunity against risk factors are selected to treat Tamak Shwas.

### Modern Disease Review

Asthma is a disease of airways that is characterized by increased responsiveness of the tracheobronchial tree to a variety of stimuli resulting in widespread spasmodic narrowing of the air passages which may be relieved spontaneously or by therapy. Asthma is an episodic disease manifested clinically by paroxysms of dyspnoea, cough and wheezing. However, a severe and unremitting form of the disease termed status asthmaticus may prove fatal.

**Prevalence:** Asthma is very common; it is estimated that 5 to 10 percent of the population worldwide is affected. Similar figures have been reported from other countries. Bronchial asthma occurs at all ages but predominantly in early life. About one-half of cases develop before age 10, and another third occur before age 40. In childhood, there is 2:1 male/female preponderance, but the sex ratio equalizes by age 30.

## Etiopathogenesis and Types

Based on the stimuli initiating bronchial asthma, two broad etiologic types are traditionally described: extrinsic (allergic, atopic) and intrinsic (idiosyncratic, non-atopic) asthma. A third type is a mixed pattern in which the features do not fit clearly into either of the two main types.

### 1. Extrinsic (Atopic, Allergic) Asthma

This is the most common type of asthma. It usually begins in childhood or in early adult life. Most patients of this type of asthma have personal and/or family history of preceding allergic diseases such as rhinitis, urticaria or infantile eczema. Hypersensitivity to various extrinsic antigenic substances or allergens is usually present in these cases. Most of these allergens cause illeffects by inhalation e.g. house dust, pollens, animal danders, moulds etc. occupational asthma stimulated by fumes, gases, organic and chemical dusts is a variant of extrinsic asthma.

There is increased level of IgE in the serum and positive skin test with the specific offending inhaled antigen representing an IgE-mediated type 1 hypersensitivity reaction which includes an 'acute immediate response' and a 'late phase reaction'.

- Acute immediate response is initiated by IgE - sensitised mast cells on the mucosal surface. Mast cells on degranulation release mediators like histamine, leukotrienes, prostaglandins, platelet activating factor and chemotactic factors for eosinophils and neutrophils. The net effects of these mediators are bronchoconstriction, oedema, mucus hypersecretion and accumulation of eosinophils and neutrophils.
- Late phase reaction follows the acute immediate response and is responsible for the prolonged manifestations of asthma. It is caused by excessive mobilization of blood leucocytes that include basophils besides eosinophils and neutrophils. These result in further release of mediators which accentuate the above-mentioned effects. In addition, inflammatory injury is caused by neutrophils and by major basic protein (MBP) of eosinophils.

### 2. Intrinsic (Idiosyncratic, Non-Atopic) Asthma

This type of Asthma develops later in adult life with negative personal or family history of allergy, negative skin test and normal serum levels of IgE. Most of these patients develop typical symptom-complex after an upper respiratory tract infection by viruses. Associated nasal polypi and chronic bronchitis are commonly present. There are no recognizable allergens but about 10% of patients become hypersensitivity to drugs, most notably to small doses of aspirin (aspirin-sensitive asthma).

**3. Mixed Type:** Many patients do not clearly fit into either of the above two categories and have mixed features of both. Those patients who develop the disease late tend to be non-allergic. Either type of asthma can be precipitated by cold, exercise and emotional stress.

## Discussion

Description of Shwasa is available in Brihatrayee as well as Laghutrayee. Sushruta has mentioned Tamaka Shwasa as Kapha dominant disease. Out of five varieties, Tamaka Shwasa is having "Swatantra" nature. Kshudra Shwasa may present as a symptom in many conditions & does not require any medication where as Maha, Urdhva & Chinna Shwasa were present at terminal stage. Literary Simulation of Tamaka Shwasa is coincided with the description of bronchial asthma as described in modern literature. Charaka has mentioned two allied conditions of Tamaka Shwasa i.e., Pratamaka & Santamaka. Sushruta & Vaghbata have only mentioned the name of Pratamaka which includes clinical manifestation of Santamaka. Pratamaka Shwasa shows involvement of Pitta Dosha in Pathogenesis. Santamaka Shwasa is a severe condition of Pratamaka Shwasa, when patient feels that he is submerging in darkness. Chakrapani has commented Pratamaka & Santamaka are synonyms but differ from each other in intensity of attack, but Charaka explains them as two different ailments. Various Nidanas were mentioned in Samhita. Charaka has given list of Vata & Kaphaprakopaka Nidana separately. Various risk factors mentioned in modern science are of two types: those which act as predisposing factor and those which cause acute exacerbation of asthma. In the pathogenesis Charaka has explained Pittasthana Samudbhava Vyadhi where as Vaghbata explained as Aamashaya Samudbhava Vyadhi. Chakrapani has quoted that Pittasthana is related with upper part of Aamashaya. But no clear description regarding Pittasthana is available in Samhita. Whether all Pittasthana should be considered or it is confined to only Aamashaya remains controversial. Different opinion & research works are carried out in relation with this topic.

In the pathogenesis, vitiated Kapha and Pratiloma Vayu play an important role & inflammatory condition of airway results due to Saama Vayu (vitiated body humor) which causes Shotha (inflammation) & Srotorodha (obstruction). Hence patients of Tamaka Shwasa should be classified broadly under Vata Pradhana (chronic) & Kapha Pradhana (acute) Samprapti (pathogenesis).

Aacharya has described various guideline principles for management. Among that Nidanaparivarjana plays major role. Various preventive measures are explained which helps in preventing asthma exacerbation as well as development of asthma. Treatment modality mainly includes Shodhana & Shamana therapy. Among Shodhana, Vamana & Virechana have been advised whereas Aacharya Sushruta has contraindicated Sneha Basti. During Vegavastha local Snehana with Salavana Taila & Swedana is advised. Charaka has explained different Management principles according to stages of disease. In Shamana therapy drugs having Kaphahara, Vataghna, Ushna & Vatanulomana properties were described. Charaka has given importance to Brihana therapy rather than Shamana & Shodhana. Brihana therapy is just like Rasayana therapy. Management of Bronchial asthma as per contemporary treatment modalities include use of bronchodilators, corticosteroid, anticholinergics. So, the signs and symptoms of Tamaka Shwasa are similar to that of Bronchial Asthma as mentioned in the modern Medical Science.

**Mode of Action Pipali Rasayan :-** The Shamana Yoga in Shwasa is expected to work on Prana-Udaka and Anna vaha Srotas and should provide Dipana, Pachana, Vatanulomana, Vatakaphahara property. • All these characteristics made these drugs to act on Prana-Udaka and Anna vaha Srotasa so that the Samprapti Vighatana occurs in a systemic manner starting from the Aamashaya where the Dipana Pachana and Agni Guna of these drugs helps in the Pachana of Ama In the body Also Kapha Shamaka Guna will helps in the removing of blocked channels of the body in Srotorodha will be cured and Vatanulomana will be achieved so that the Kupita Vata will attain its Samyaka State and there will be relief in the symptoms of Tamaka Shwasa, Balya Guna of these medicines on the other hand will prevent the Prokopa of Vayu which may occur due to continuous use of Kapha Nashaka Aushadh. The pharmacological studies already reported on the individual drugs, also favours the effectiveness of various contents of Pippali Rasayan in disease bronchial asthma shows following modern properties like Anti-allergic, Anti-inflammatory, Bronchodilator, Expectorant, Immunomodulator, Anti-oxidant and Highly statistically significant results were found in 8 subjective parameters like Shwaskricchrata, Kasa, Pinasa, Parsvashula, Ghurghurukam, Kapha nishtivana, frequency of Shwasavega and Anidra. Statistically significant result was found in objective parameter i.e., total leukocyte count, different leukocyte- neutrophil, different leukocyte count- lymphocyte, different leukocyte count – eosinophils, ESR, AEC, PEFR and SPO2. No statistically significant result was found in 3 objective parameters like hemoglobin, different leukocyte count- monocyte and different leukocyte count- basophils.

## Conclusion

This conceptual study has enlightened various fields from historical review to the recent information about the disease of the modern era. Bronchial asthma is the common respiratory disease of the current scenario which needs preventive and therapeutic approach. Ayurveda through its harmless modalities may be considered as the best approach for bronchial asthma. Through the literature review, we get a clear idea of the disease and an attempt has been made to understand bronchial asthma according to Ayurvedic and as well as modern perspective.

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