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A Critical Review of Kasa in Classical and Modern Literature

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Conflicts of Interest: Nil

Introduction

Drug review

Shunthyadisamsharkara churna as described in '**BhaishajyaratnavaliArshorogadhikar** will be used in Kasa (KaphajaKasa) Drug review will be carry by literature survey define as:

समशर्कराचुर्ण

शुण्ठीकणाधरिचनागदलत्वगेलंचुर्णीकृतं क्रमविवर्द्धितमूर्ध्वमन्यात् ।

खादेदिदंसमसितंगुदजाग्निमान्थ कासारुचिश्वसनकण्ठहृदामयेषु ।

भै.र.९/३७

Preparation Method

Sr.No	Dravya	*Latin name*	Matra
1	Ela	*Elleteriacardamomum*	1 Tola
2	Twak	*Cinnamomumzeylanicum*	2 Tola
3	Tejpatra	*Cinnamomumtamala*	3 Tola
4	Nagakeshar	*Musuaferrea*	4 Tola
5	Maricha	*Piper nigrum*	5 Tola
6	Pipali	*Piper longum*	6 Tola
7	Shunthi	*Zingiberofficinale*	7 Tola
8	Sharkara	*Sacchrumofficinale*	28 Tola

Pharmaceutical Study

The raw material will be collect from genuine source &ShunthyadiSamasharkaraChurna were prepared by standard method given in Ayurvedic classics.

Sr. No	Name	Latin name	Family	Rasa	virya	Vipak	Guna
1	**Shunthi**	*Zingiberofficinale*	Zingiberaeceae	Katu	Ushna	Madhur	Laghusnigdha
2	**Pipali**	*Piper longum*	Piperaceae	Katu	Anushna	Madhur	Laghusnigdha tikshna
3	**Maricha**	*Piper nigrum*	Piperaceae	Katu	Ushna	Katu	Laghutikshna
4	**Nagakeshar**	*Musuaferrea*	Guttiferaceae	Kashay	Ushna	Katu	Laghuruksha
5	**Tejpatra**	*Cinnamomumtamala*	Lauraceae	Katu	Ushna	Katu	Ushnalaghu
6	**Ela**	*Elleteriacardamomum*	Zingiberaeceae	Katu madhur	Shita	Madhur	Laghuruksha
7	**Twak**	*Cinnamomumzeylanicum*	Lauraceae	Katutiktamadhur	Ushna	Katu	Laghurukshatikshna
8	**Sharkara**	*Sacchrumofficinale*	Gramineae	Madhur	Shita	Madhur	Madhur

Disease review

Ayurvedic view

Kasa

Nirukti (Definition)

The abnormal upward course of morbid PranaVata causing constrictionof the *srotas* of the Netra,Prashta,Ura,Parshva with its forceful expulsion through the mouth either alone or associated with the morbid Kapha generating hoarse sound similar to the one produced by the breaking of the bronze vessel is known as *Kasa*.

Kasa is a disease in which the Vayu attains upward movement and moves above the Kantha and Shira pradesha.

The morbid Prana Vayu expels out of the body through the urdhwa bhaga making a sound is called as *Kasa*.According to Sanskrit English dictionary the word "*Kasa* means cough."

Classification of Kasa

There are 5 varieties of Kasa

These varieties are as follows:

1. Vataja Kasa – caused by Vata Dosha
2. Paittika Kasa – caused by Pitta)
3. Kaphaja Kasa – caused by Kapha) and
4. Kshayaja Kasa – caused by the diminution to the chest or tuberculosis)
5. Kshataja Kasa – caused by the diminution of tissue elements i.e tissue depletion or tubercular bronchitis)

Nidana of Kasa

Pranavaha Srotas is a system which maintains a continuous direct contact with external environment from the first to last minute of life. Thus it is more prone to allergies and infections. *Nidanas* explained in classics can be categorized broadly into two groups, namely

- ***Samanya Nidana***
- ***Vishesha Nidana***
- ***Samanya Nidana***

Samanya Nidana can be further classified as follows.

- ***Aharaja Nidana***

Rookshana

- ***Viharaja Nidana***

Dhoomopaghata

Raja

Ati Vyayama

Vimargagamana of *Bhojana*

Kshavathu Vegadharana

- ***Manasika Nidana***
- ***Vyadhijanya Nidana***

" Pratishyayadbhavet Kasa Kasat Sanjayate Kshaya"

Vishesha Nidana

These are the specific causative factors responsible for the production of individual verities of *Kasa*

Samanya Samprapti of Kasa

Acharya Charaka clearly explained the *Samprapti* of *Kasa* – as downward movement of *Pranavayu* is obstructed; it attains the upward movement along with *Udanavayu.* Obstruction at chest and neck region forces them to get filled up in the channels of head and neck. Then sudden extension/ jerky movement in the areas of *Hanu* (temporomandibular joint), *Manya* (neck), eyes and the whole body followed by severe contraction of thoracic cage and eyes leading to tremendous increase in intra-thoracic pressure, all directed towards glottis. Then sudden opening of glottis resulting in forceful expulsion of air producing a typical sound with the presence or absence of sputum called as *Kasa*

Acharya Sushruta's explanation also go in same line with describing the sound produced as similar to that of sound produced by broken bronze vessel.

Vagbhata's description includes the both above explanations. In *Ashtanga Sangraha* it is clearly described that *Apana Vayu* is obstructed and it attains upward movement. In the *Rasa Sthana* i.e. *Urdhva Amashaya* and *Ura* , it is again obstructed by *Udana Vayu* and both attain *Prokopavastha* and together move towards *Kantha*. The later part of the *Samprapti* is as par with *Acharya* Charaka's explanations.

From the ayurvedic point of view, the *Samprapti* of the disease *Kasa* can be broadly classified into two categories-

1. ***Chayarupa Prakopajanya (Doshaja - Vataja, Pittaja, Kaphaja, Dwandwaja, Tridoshaja)*** here vitiation in *Poshaka Dosha* takes place and the *Samprapti* follows the *Shatkriyakala*.
2. ***Achayarupa Prakopajanaya (Kshayaja and Kshataja)*** - here vitiation of *Poshya Dosha* takes place.

***Poorvarupa* of *Kasa* explained in the classics**

Shooka Poorna Gala	*Sashabda*	*Gala Lepa*
Shooka Poorna Asya	*Vaishamya*	*Talu Lepa*
Kanthe Kandu	*Agnisaada*	*Hridaya Asvasthata*
Bhojyanam Avarodha	*Gala Lepa*	*Kavala Galane Vyatha*

Rupa

The actual signs and symptoms of fully evolved disease along with the cardinal features will be seen in *Vyakta Avastha*, where *Dosha-Dooshya Sammoorchchhana* takes place. With the help of *Rupa*, a disease can be diagnosed with confirmation and management can be planned accordingly. *Rupa* is of two types, namely –

Samanya Rupa

Vishishta Rupa

The signs and symptoms of the disease irrespective of *Doshika* predominance will be explained under *Samanya Rupa*, which includes cardinal signs and symptoms of the disease upon which the disease *Kasa* is diagnosed.

Kasana / Kasa (forceful expulsion of *Vayu* with typical sound as explained earlier)

Dehakshepa (jerky movement of body parts)

Prishtha, Ura and *Parshwa Sthambha* (feeling of tightness)

The signs and symptoms of the disease which represent a particular *Doshika* involvement are *Vishishtha Rupa* of the disease/subtypes of the disease.

Kasa Chikitsa

Management of *Kasa* in children is not discussed in detail anywhere. But detailed description about the line of treatment of individual varieties of *Kasa* in adult has been mentioned by different *Acharya*s. Based on the *Rogi* and *Rogabala* the mode of treatment in children has to be decided. Though both *Shodhana* and *Shamana* therapies are mentioned for *Kasa Roga* in adults, it is wise to adopt *Shamana* line of management in children with *Kasa* unless the condition warrants *Shodhana*.

Avoiding the causative factors is always the first line of treatment. Later specific treatment can be planned according to the *Doshika* involvement. Internal medication should be chosen from vast collection of formulations in classics after considering *Roga-Rogi Bala* and *Samprapti* of the disease.

Modern Review

Cough

Cough is the most frequent symptom of respiratory disease. It is a reflex of lower respiratory tract towards stimulation of cough receptors in the mucosa of the pharynx, larynx, trachea and bronchi by irritants, foreign body or excess secretions. Cough is an explosive expiration that provides a protective mechanism for clearing off the secretions and foreign material from tracheo-bronchial tree.

Definition

Cough is a sudden noisy explosive forcing of air through the glottis, excited by an effort to expel mucus or other matter from the tracheo-bronchial tubes or larynx. **Or** It is to force the air through the glottis by a series of expiratory efforts.

Classification

Cough can be classified by its duration, character, quality and timing. The duration can be either acute (of sudden onset) if it is present less than three weeks, sub-acute if it is present between three and eight weeks and chronic when lasting longer than eight weeks. A cough can be non-productive (dry) or productive (when sputum is coughed up). It may occur only at night (then called nocturnal cough), during both night and day, or just during the day.

A number of characteristic coughs exist, which are diagnostically important in children, even though they have not been found accountable in adults. For example a barky cough is part of the common presentation of croup, while a staccato cough has been classically described with Chlamydia pneumonia.

On the bases of quality of mucous

Dry cough: Minor irritations in the throat can start the cough reflex, even when there is no mucus secretion in the bronchial tree. Such type of cough, which is devoid of expectoration, is named as dry cough.

Productive cough: Cough may be associated with profuse mucus secretion of Bronchial mucosa. The cough that is associated with such type of mucus expectoration is termed as productive cough. The mucus may have drained down the back of the throat from the nose or sinuses or may have come up from the lungs. A productive cough generally should not be suppressed it clears mucus from the lungs

Acute cough - Cough usually lasting for two weeks. It may be because of viral illness or other Infections, GERD, postnasal drip syndrome etc.

Recurrent or persisting cough - cough is a reflex response of the lower respiratory tract to stimulation of irritant or cough receptors in the airways mucosa. The most common cause in children is reactive airways (asthma). Because cough receptors are also present in pharynx, Para nasal sinuses, stomach and external auditory canal the source of persistent cough may sought beyond the lungs. Specific lower respiratory stimuli include excessive secretions, aspirated foreign material, inhaled dust particles or noxious gases and an inflammatory response to infectious agents or allergic processes. Other examples of persistent cough are Habit cough, Bronchiectasis, Hypersensitivity pneumonitis, Endobronchial tumours etc.

Chronic cough - presence of cough for more than seven weeks. It needs a systematic approach to the diagnosis and treatment of these children consists of assessing whether the symptoms are minor problem or life threatening process with the associated symptoms and proper investigations and carefully evaluating the effect of therapy.

Investigations

Laboratory investigations help the paediatrician to confirm the diagnosis, though much can be diagnosed based on the clinical signs and symptoms.

1. Routine blood investigations like TLC, DLC, Hb%, ESR helps to rule out Anemia and esinophilia, etc.=
2. Stool examination for evidence of Helminthes ova.
3. Sputum smears examination.

4. Culture of sputum wherever necessary.
5. Chest Radiograph may help to indicate the presence and extent of inflammation
6. Bronchoscope or laryngoscope may be used to inspect the interior of bronchi and larynx, when a physician can't come to a conclusion with Radiograph.

Treatment

Treatment of cough mainly consists of treating the underlying cause weather infective or non-infective. A productive (useful) cough serves to drain the airway. Its suppression is not desirable, may even be harmful, except if the amount of expectoration achieved is small compared to the effort of continuous coughing. Non-productive (useless) cough should be suppressed. Apart from specific remedies (antibiotics etc), cough may be treated as a symptom (non-specific therapy) with,

- Pharyngeal Demulcents
- Expectorants
- Antitussives
- Antihistamines
- Bronchodilator

Pharyngeal Demulcents

Pharyngeal Demulcents sooth the throat and reduce afferent impulses from the inflamed / irritated pharyngeal mucosa, thus provide symptomatic relief in dry cough arising from throat.

E.g.: Lozenges, cough drops, linctuses containing syrup, Glycerine, Liquorice.

Expectorants (Mucokinetics):

These are the drugs, which increase bronchial secretion or reduce its viscosity, facilitating its removal by coughing. They are believed to loosen cough that becomes less tiring and more productive. There are different varieties of expectorants namely,

1. Directly acting: Sodium and Potassium citrate or acetate, Potassium iodide, Guaiacol, Guaiphenesin, Vasakine, Terpin hydrate.
2. Reflexly acting: Ammonium chloride or carbonate, Potassium iodide, Ipecacuanha (Ipecac).
3. Mucolytics: Bromhexine, Acetyl cysteine, Carbocisteine.

Antitussives

These are cough center suppressants. They act in the CNS to raise the threshold of cough center or act peripherally in the respiratory tract to reduce tussal impulses, or both these actions. It should be used only for dry unproductive cough or if cough is unduly tiring disturbs sleep or is hazardous (hernia, piles, cardiac disease, ocular surgery).

The antitussives may be of two types,

1. Centrally acting
2. Peripherally acting

Centrally acting Antitussives: Centrally acting Antitussives inhibit or suppress the cough reflex by depressing the medullary cough centre or associated higher centers. E.g. Dextromethorphan, Codeine etc.

Peripherally acting Antitussives: Peripherally acting Antitussives may act on either the afferent or the efferent side of the cough reflex. On the afferent side, an Antitussives may reduce the input of stimuli by acting as mild analgesic or anaesthetic on the respiratory mucous, by modifying the output and viscosity of the respiratory tract fluid or by relaxing the smooth muscle of the bronchi in the presence of bronchospasm. On the efferent side, Antitussives may make secretion easier to cough up by increasing the efficiency of the cough mechanism.

Eg. Benzsocaine, hexylcaine hydrochloride, lidocaine, humidifying aerosols and steam inhalation.

Antihistamines

Antihistamines afford relief in cough due to their sedative and anticholinergic actions, but lack selective action for the cough center. They have no expectorant action, may even reduce secretions by anticholinergic action. They have been specially promoted for cough in respiratory allergic states.

Eg: Chlorpheniramine, Diphenhydramine and Prometnazine.

Bronchodilators

Bronchospasm can induce or aggravate cough. Broncho dilators cause an increase in caliber of bronchus or bronchial tube, so that the effectiveness of cough in clearing secretions by increasing superficial velocity of cough. They should be used only when an element of broncho constriction is present and not routinely.

Prevention

It is important to identify and treat the underlying diseases and origin of the cough. Prevention of repeated respiratory tract infections play a major role in reducing cough and making the child to be more active in his curricular as well as in extracurricular activities.

- Avoid smoking and coming in direct contact with dust and allergens.
- Avoid coming in direct contact with people experiencing cough or the symptoms.
- Wash hands frequently during episodes of upper respiratory illness.
- Wear a nasal mask in places of pollution and while attending patients with cough.
- Proper immunization should be administered such as for rubella, measles, pertussis, etc.

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