

“A comparative study of *Pippali churna* & *Bibhitaka churna* on *kasa* in children”

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Abstract:

A very common clinical condition, *Kasa* (Cough) is one among them increasingly prevalent now days, demanding greater concern over it. Cough occurs because of irritation of respiratory mucosa. Cough is an important defense mechanism of respiratory system and help to bring out the infected secretion from trachea & bronchi. . Cough has broad- spectrum etiology, which ranges from allergens to infections. Cough occurs in association with acute upper respiratory infection, acute pharyngitis, acute bronchitis and chronic sinusitis, all of which rank among the top 10 reasons for visiting family physicians. *Pippali churna* is very effective in curing the *kasa* especially occurred in children explained by *Sarngadhar*, while *Bibhitaka churna* is very effective in curing all the five types of *kasa* explained by *Vagbhat*. Finally after analyzing the efficacy ,*Pippali churna* is more effective than *Bibhitaka churna* in reducing the throat infection & sputum.

Keywords: *Pippali churna*, *Bibhitaka churna*, *kasa*, *Cough*

Introduction:

The prevalence rate of cough is 25% in children which seen all over the world. Cough has broad- spectrum etiology, which ranges from allergens to infections. The cough is considered as a symptom in the modern medicine¹. It is seen associated with many of the systemic disorders. The attack rate of cough in children is very high leading to morbidity and mortality. Sequential administration of the *Snehana*, *Swedana*, *Shodhana*, *Dhoopana*, *Shamana* and *Rasayana* line of treatment forms the complete treatment of *kasa* explained in the Ayurvedic literature². Among these procedures, the *Shamana* line of treatment that includes oral administration of medicine is of almost importance as the administration is very easy and also effective compared to *shodhana* in children. Plenty of research works have been carried out in relation to the *Shamana* treatment as directed in Ayurveda and

their therapeutic effect is proved. Many more herbal combinations are described in Ayurveda and their therapeutic effect in *kasa* is yet to be explored. Considering the above points the present work is undertaken by choosing *Pippali churna* & *Bibhitaki churna* mention in the *Sarngadhar* & *Vagbhat samhita* respectively as a drugs, which has high reputation for curing cough³. *Pippali churna* is very effective in curing the *kasa* especially occurred in children explained by *Sarngadhar*,⁴ while *Bibhitaka churna* is very effective in curing all the five types of *kasa* explained by *Vagbhat*.⁵ By looking at *rasa*, *vipak*, *veerya*, *dosha*, *guna*, *karma* of both the *churna* it appears that both are very effective in combating the signs and symptoms associated with *kasa*.

Aims and Objectives:

1. To find out the etiopathogenesis of *Kasa* in children.
2. To evaluate the effect of *Pippali churna* lehan in reducing *Kasa*.
3. To evaluate the effect of *Bibhitaka churna* lehan in reducing *Kasa*.
4. To compare the effect of *Pippali churna* & *Bibhitaka churna* on *kasa*.

Materials and Methods:

Drugs: *Pippali Churna*:⁵

Pippali churna is very effective in curing the *kasa* especially occurred in children explained by *Sarngadhar*.

मधुना पिप्पलीचूर्णं लिहेत कासज्वरापहम् ।

हिक्काश्वासहरं कण्ठयं प्लीहघ्नं बालकोचितम्

(शा.स.म.सू. ६/८)

Bibhitaka Churna:⁶

Bibhitaka churna is very effective in curing, all the five types of *kasa* explained by *Vagbhat*.

सर्वेषु श्वासक्रसेषु केवलं वा बिभीतकं ।

(वा. चि. ३/१७२)

Method of Preparation:-

Drugs: a) *Pippali Churna*

b) *Bibhitaka Churna*

Pippali churna & *Bibhitaka churna* were prepared in the pharmacy of R.S & B.K.department of our institute. Both the drugs were authenticated and standardized.

Source of Data:Patients :Total 60 patients suffering from *kasa* were selected by clinical examination in the OPD..A general examination was carried out in all patients presenting with *Kasa roga*, which included the examination of heart, lungs, abdomen for liver, spleen etc. and then as per the below mentioned criteria random selection of the patients was made.

Inclusion Criteria:

1. Patients presenting with *Kasa* with two or more symptom described in the context of *Kasa* were selected.
2. Cough less than Fifteen days duration was selected.
3. Patients were selected irrespective of sex, Cast, Occupation and between the age group of 5 - 16 yrs.

Exclusion Criteria:

1. *Kshataja Kasa*
2. *Kshayaja Kasa*

3. Patients having concomitant other systemic disorders like Bronchial asthma, Pneumonia, *Bronchiectasis*, Lung abscess, Foreign body, pertussis etc.
4. *Kasa* associated with *jwara*.
5. Cases of *kasa*, which were ineffectively treated by any other therapies or drugs.

METHODS :

- Group A = 30 cases – Treated with *Pippali Churna* + *madhu*
- Group B = 30 cases – Treated with *Bibhitaka churna* + *madhu*

Written formal consent of parent taken.

The present study includes a sample size of 60 children. All of them and their guardian were made to understand about the study and the informed consent was obtained. Only after getting the informed consent, they were included in the study.

DOSE & DURATION:

Pippali Churna

Dose

- 05-16 Year: 250-800 mg/day. (according to dilling formula)
- Time: Four times in a day.
- Route of administration: Oral route
- *Anupan: Madhu*
- Duration: 08 days

Bibhitaka churna

Dose

- 05-16 Year: 1.5-5 gm/day. (according to dilling formula)
- Time: Four times in a day.

- Route of administration: Oral route
- *Anupan: Madhu*
- Duration : 08 days

Method of study: Initially the vital data like, Name, age, sex, religion, occupation, Education, habitat, diet, socio economic status, type of family was recorded.

Assessment Criteria

1. Assessment was made on the basis of improvement in the clinical features.
2. The assessment was based on the gradation of both Subjective and Objective clinical features before and after treatment.

Subjective Criteria:

1) Number of bouts of cough: The number of bouts of cough in one hour will be noted .

- More than 8 bouts of cough: 03
- 3 to 7 bouts of cough: 02
- Less than 3 bouts of cough: 01
- Absence of bouts of cough: 00

2) Disturbance of sleep:

- Cough always disturbs sleep: 03
- Gets cough before sleeping or wakes the child in the morning: 02
- Cough occasionally disturbs sleep: 01
- Cough not interfering with sleep: 00

Objective Criteria:

Throat Infection:

- Severe Throat Infection: 03
- Moderate Severe Throat Infection: 02
- Mild Throat Infection: 01
- Throat Infection Absent: 00

Added Sounds:

(a) Wheeze:

- Marked Polyphonic wheezing all over the lung field : 04
- Polyphonic moderate wheezing all over the lung field: 03
- Marked Polyphonic wheezing limited to zones: 02
- Mild monophonic wheeze present: 01
- Wheezing absent: 00

(b) Crepitations:

- Scattered all over the lung field: 03

- Distributed here and there in all the zones: 02
- Present in one or two zones: 01
- Absent Crepitations: 00

3. Sputum:

- Kapha- puthi, puya, grathita and offensive: 04
- Thick large quantity of solid white sputum: 03
- Moderately thick slightly yellowish in colour: 02
- Serous expectoration with traces of thick sputum: 01
- No productive cough: 00

4. Laboratory Investigations:

Improvement in laboratory investigation reports will be observed : ESR, AEC.

Observations and Results:

Ahara Sambandhi nidana

Table 01- Showing Ahara Sambandhi nidana in the patients of kasa.

Ahara Sambandhi Nidana	Group A	%	Group B	%	Total	%
Rookshaahara	5	16.7	5	16.7	10	16.65
Sheetaahara	14	60	15	50	29	48.35
Kashayaahara	0	0	0	0	0	0
Katuahara	6	20	5	16.7	11	18.35
Ushnaahara	1	3.3	0	0	1	1.65
Vidahiahara	5	16.7	4	13.3	9	15
Amla ksharaahara	3	10	2	6.7	5	8.35
Guru ahara	11	36.7	10	33.3	21	35
Abhishyandhiahara	13	43.3	11	36.7	24	40
Madhuraahara	12	40	10	33.3	22	36.65
Snigdhaahara	6	20	8	26.7	14	23.35
Alpaaharasevana	3	10	5	16.7	8	13.35
Pramitashana	4	13.3	5	16.7	9	15
Anashana	2	6.7	1	3.3	3	5

Table 02-Vihara Sambandhi nidana

Showing Vihara Sambandhi nidana in the patients of kasa.

Vihara Sambandhi Nidana	Group A	%	Group B	%	Total	%
<i>Rajo upaghata</i>	15	50	12	40	27	45
<i>Dhoomo paghata</i>	12	40	10	33.3	22	36.65
<i>Bhojanasya vimargagamana</i>	1	3.3	3	10	4	6.65
<i>Kshavatu vegadharana</i>	0	0	0	0	0	0
<i>Swapna vicheshta</i>	5	16.7	4	13.3	9	15
<i>Ativyayama</i>	3	10	4	13.3	7	11.65
<i>Sheetavihara</i>	24	80	26	86.7	50	83.33

Type of Kasa

Table 03-Showing the type of Kasa

Type of Kasa	Group A	%	Group B	%	Total	%
<i>Vataja</i>	10	33.3	12	40	22	36.65
<i>Pittaja</i>	6	20	5	16.7	11	18.35
<i>Kaphaja</i>	14	46.7	13	43.3	27	45

Table 04-Showing the Incidence of various associated signs and symptoms among 22 patients of Vataja Kasa.

Signs & Symptoms	Group A	%	Group B	%	Total	%
<i>Shushka kasa</i>	10	100	12	100	22	100
<i>Hruthshoola</i>	5	50	3	25	8	36.36
<i>Parshwashoola</i>	8	80	10	83.33	18	81.81
<i>Shirashoola</i>	9	90	10	83.33	19	86.36
<i>Urashoola</i>	10	100	12	100	22	100
<i>Swarabhedha</i>	5	50	6	50	11	50
<i>Shushka kanta, vaktra</i>	1	10	3	25	4	18.18
<i>Daurbalya</i>	3	30	0	-	3	13.63
<i>Kshobha</i>	4	40	3	25	7	31.81
<i>Moha</i>	0	-	0	-	0	-
<i>Kruchrena kapha shteevana</i>	6	60	8	66.66	14	63.63

Shushkakasa, and *urashoola* was found as *lakshana* in all the 22 patients (100%) of *vataja kasa*. *Shirashoola* & *Parshwashoola* were observed in 19 patients (86.36%) & 18 patients (81.81) respectively. *Swarabhedha* was seen in 11 patients (50%). *Shushka – ura, kanta,*

vaktra and *Kruchrena alpa kaphashteevana* was noted in 4 patients (18.18%) 14 patients (63.63) respectively.

Pittaja Kasa:

Table 05. Showing the Incidence of various associated signs and symptoms among 11 patients of *Pittaja Kasa*.

<i>Signs & Symptoms</i>	Group A	%	Group B	%	Total	%
<i>Peeta nishteevana</i>	4	66.66	3	60	7	63.63
<i>Tiktaasyata</i>	3	50	2	40	5	45.45
<i>Swarabhedha</i>	2	33.33	1	20	3	27.27
<i>Urodhooma</i>	1	16.66	0	-	1	9.09
<i>Trishna</i>	6	100	5	100	11	100
<i>Daaha</i>	6	100	5	100	11	100
<i>Moha</i>	0	-	0	-	0	-
<i>Aruchi</i>	5	83.33	4	80	9	81.81
<i>Bhrama</i>	0	-	0	-	0	-

Trishna and *Daaha* were seen in the 11 patients (100%) of *pittajakasa*. *Aruchi*, *Peetanishteevana*, *Tiktaasyata*, *Swarabhedha* were noted in 9 patients (81.81%), 7 patients (63.63%), 5 patients (45.45%), 3 patients (27.27%) respectively.

Kaphaja Kasa:

Table 06. Showing the Incidence of various associated signs and symptoms among 27 patients of *Kaphaja Kasa*.

Signs & Symptoms	Group A	%	Group B	%	Total	%
<i>Bahula, madhura, snigdh Ghana kaphanishteevan</i>	14	100	13	100	27	100
<i>Manda agni</i>	14	100	13	100	27	100
<i>Aruchi</i>	12	85.71	10	76.92	22	81.81
<i>Vamana</i>	7	50	4	30.76	11	40.74
<i>Peenasa</i>	14	100	13	100	27	100
<i>Shareera guruta</i>	7	50	6	46.15	13	48.14
<i>Asyamadhurata</i>	7	50	6	46.15	13	48.14
<i>Loma harsha</i>	2	14.28	4	30.76	6	22.22

Discussion:

- **Age:** The present study showed that, maximum number of patients i.e 51.67% belonged to the age group of 5 – 8 yrs. This was noted because of excessive playing, maximum exposure to dust, allergens and consumption of cold foodstuffs. As these age group children are more seen mingling with other children of same age, leading to more chances of respiratory tract problems caused by droplet infection.
- **Sex:** *In the present study, it was observed that more number of patients were male children (65%) than female children (35%). This may be because of exposure to dust and allergens during high out door activities of male children.*
- **Diet:** *The study revealed that, maximum patients were belonging to mixed diet (85%). This may be because of usage of more oily, fried and chilly foodstuffs.*
- **Education:** Maximum 54 patients (90%) from Primary school .

Ahara Sambandhi nidana: *Sheeta* (48.35%), *guru* (35%), *madhura ahara* (36.65%) and *abhishyandhi* (40%) were predominantly seen as the *nidana* factor in the present clinical trail. This incidence is as a result of natural likings in children. These *nidanas* are *kapha vardhaka* by nature leading to the disease *kasa*.

Vihara sambandhi nidana: Exposure to cold environment (83.33%), *raja* (45%) and *dhooma* (36.65%) were predominantly seen as *viharaja nidana* in the present study. *Sheeta aharas* like freezed water, cool drinks, ice creams, wet grapes, *banana*, milk & milk

products, *rookshaharas* like *roti*, *chapatti*, and bakery food stuffs made of *goduma* were seen as *nidana* factor for causing *vataja kasa*. *Katu*, *vidahi ahara* up to some extent *amla ahara* were observed as the etiological factors for *pittaja kasa*. *Sheeta ahara*, *madhura ahara* like sweets, *abhishyandhi ahara* like milk & milk products, excessive moistened food stuffs were noted in causation of *kaphaja kasa*. The repeated exposure to similar *nidanas* was seen triggering the disease. The *viharaja nidanas* were seen in starting the *sanchaya* of *doshas*. Sudden aggravation of the disease was noted with exposure to *viharaja nidanas*.

Poorva Roopa: Eliciting the *poorva roopa* was a task in children. As it didn't interfere with the routine work of children, the parents were unaware of these symptoms. The *poorva roopa* mentioned like *kanthe kandoo* (83.33%) was predominantly noticed in the study. It was seen in both *vataja* and *kaphaja kasa*. *Sashabdha* (30%) (abnormal sounds heard during breathing) was seen in *vataja kasa*, where as *agnisada* (36.65%), *arochaka* (45%), *shooka poorana galasyata* (36.65%) and *bhojyanam avarodha* (5%) was observed in *kaphaja kasa*..

Type of Cough: 63.35% patients had productive cough and remaining 36.65% had dry cough. Productive cough was seen in *kaphaja* and *pittaja kasa* and dry cough was seen in *vataja kasa*. As *sheeta*, *snigdha*, *madhura*, *abhishyandhi ahrara sevana* is predominantly seen with the aggravating *nidanas* like *raja* and *dhoomopaghata* caused more of productive cough.

Immunization: 100% immunization was observed in both the groups of patients. It is due to the increased awareness of Immunization.

Prakruti: 31 patients belonged to *kapha-vata prakruti*. 13 belonged to *vata-pitta prakruti* and 16 belonged to *kapha pitta prakruti*. This gives the idea about occurrence of more *kaphaja* and *vataja kasa* in the present study.

Agni: 11(18.35%) patients & 22(36.65%) patients were noted having *teekshna* and *vishama agni* respectively, while 27 patients (45%) had *mandagni*.

Throat Infection: The present incidence shows that maximum number of patients (61.65%) had throat infection associated with *kasa*. This is a common phenomenon in school going children.

Diagnosis: The *kaphaja kasa* (45%) was predominantly seen among the patients of *kasa* in the present study. The second larger being *vataja kasa* (36.65%) and *pittaja kasa* (18.35%) was least to be seen in the study.

Shushka kasa (100%), *parshwa shoala* (81.81%), *ura shoala* (100%) *shira shoala* (86.36%), *swara bhedha* (50%) and *hruth shoala* (36.36%) was elicited in the patients of *vataja kasa*. Eliciting *Kruchrena alpa kaphashteevana* became bit difficult due to swallowing of sputum by the children. In the patients of *pittaja kasa* *peeta nishteevanam* (63.63%), *trishna* (100%), *daaha* (100%) and *aruchi* (81.81%) were predominantly observed. The *lakshanas* like *moha* and *urodhooma* was not seen in any of the patients. *Lakshanas* of *kaphaja kasa* were easily explained by the parents and elicited. *Peenasa* (100%), *mandagni* (100%), *bahula*, *madhura*, *snigdha*, *Ghana kapha shteevana* (100%), *shareera guruta* (48.14%) and *aruchi* (81.81%) were noted in most of the patients. *Asya madhurata*, *vamana* and *loma harsha* were not seen prominently.

Number of bouts of cough: In both the groups 'p' value < 0.001 hence the difference between BT and AT was highly significant. Both the *chrurna* are equally effective in reducing the number of bouts of cough in children.

Sleep Disturbance: In both the groups 'p' value < 0.001 hence the difference between BT and AT was highly significant. The cough disturbing the sleep of the child was reduced within 3 to 4 days of treatment with both the *churna* in all the varieties of *kasa*.

Throat Infection: Group A showed reduction of mean Throat Infection score from 1.07 to 0.23 with p value < 0.001 hence result was highly significant while Group B showed a reduction of mean Throat Infection score from 0.90 to 0.67 with p value < 0.05, which was significant. *Pippali churna* is more effective in reducing the throat infection than *Bibhitaka churna*. The commonly seen throat infections were Tonsillitis and Oro-Pharyngitis.

Wheezing: It was found that there was a reduction of mean Wheezing score from 0.80 to 0.50 with p value < 0.05 in Group A which was significant. While Group B showed a reduction of mean Wheezing score from 0.70 to 0.47, with p value < 0.05 which was also significant. Both the *chrurna* are equally effective in reducing the Wheezing.

Crepitations: In both the groups 'p' value < 0.001 hence the difference between BT and AT was highly significant. Both the *chrurna* are equally effective in reducing the crepitations.

Quality of Sputum: The sputum was seen in *kaphaja* and *pittaja kasa*. There was dry cough in *vataja kasa*. It was found that there was a reduction of mean quality of sputum score from 1.17 to 0.57, with p value < 0.001 in Group A

which was highly significant while Group B showed a reduction of mean quality of sputum score from 1.07 to 0.87, with p value <0.05 which was significant. Hence *Pippali churna* is more effective in reducing the Quality of Sputum than *Bibhitaka churna*.

Laboratory Investigation Values: It was found that there was a reduction of mean AEC score from 366.97 to 233.33, with p value <0.05 in Group A which was significant while Group B showed a reduction of mean AEC score from 344.20 to 263.17, with p value <0.05 which was also significant. Hence both *churna* are equally effective in reducing the AEC. There was a reduction of mean ESR score from 13.10 to 9.27, with p value <0.05 in Group A which was significant while Group B showed a reduction of mean ESR score from 12.67 to 10.53, with p value < 0.05 which was also significant. Hence both *churna* are equally effective in reducing the ESR.

Conclusion:

Sheeta Ahara was nidan in 29 patients. *Madhura Ahara* was found as the cause in 22 patients where as *Guru Ahara* was found as *Nidana* in 21 patients. *Abhishyandhi ahara* and *snigdha ahara* was *nidana* in 24 patients and 14 patients respectively. Maximum of 50 patients had *sheeta vihara* as the *nidana* for *kasa*, Where as *rajo upaghata* and *dhoomopaghata* was found in 27 patients and 22 patients respectively. *Kanthe kandu* was evidently seen in 50 patients as the *poorva roopa* of *kasa*. *Sashabdha* (abnormal sound in lungs) and *agnisada* were seen in 18 patients & 22 patients respectively. *Shooka poorna galaasyata* and *arochaka* was seen in 22 patients & 27 patients respectively. Out of 60 patients from both groups, 22 patient belonged to *vataja kasa*, 11 belonged to *pittaja kasa* and 27 belonged to *kaphaja kasa*. *Pippali churna*

is more effective than *Bibhitaka churna* in reducing the throat infection & quality of sputum.

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