

Clinical Research

Clinical efficacy of *Panchamuladi Kaala Basti* (enema) in the management of *Amavata* (Rheumatoid Arthritis)

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Abstract

Amavata (Rheumatoid Arthritis) has been a challenging problem to the medical field. Various treatment protocols are applied in this disease with partial success. In present clinical study, 12 patients of clinically proven *Amavata* (Rheumatoid Arthritis) were treated with *Panchamuladi Kaala Basti* to evaluate its efficacy. All clinical Ayurvediya *nidanadi* parameters and American Rheumatism Association guidelines for Rheumatoid Arthritis were followed. Before treatment and after treatment, analysis was done and results were calculated statistically using paired 't' test. Results obtained are encouraging and indicate the efficacy of *Panchamuladi Kaala Basti* over *Amavata* (Rheumatoid arthritis), exploring many aspects of this clinical entity.

Key words: *Amavata*, *Panchamuladi Kaala Basti*, Rheumatoid Arthritis

Introduction

In *Ayurveda*, it is explained that *Samprapti* (pathogenesis) of almost all the diseases begins with the *Agnimandya*^[1] which leads to formation of *Ama*. This *Ama* is the utmost important causative factor for various diseases. On other hand, *Vata Dosha* is most powerful among three *Doshas* and it controls the other two *Doshas*^[2] as well as it is very difficult for treatment. Therefore, when these two factors (*Ama* and *Vata*) simultaneously take part in the *Samprapti* (pathogenesis), then the resultant disease becomes very difficult to treat.

Amavata is one of the most challenging diseases caused by *Ama* combining with vitiated *Vata Dosha*. The disease *Amavata* belongs to *Abhyantara* as well as *Madhyama roga marga*. The *Samprapti* (pathogenesis) starts in the *Annavaha Srotasa* and then extends through *Madhyama roga marga* with special inclination for *Kapha Sthanas*,^[3] especially *Sandhis* (joints). In such a condition, patient weeps in agony of pain and reduced functional capacity with severe stiffness and crippling deformity of joints, which make them bed ridden.

Having several features similar to Rheumatoid arthritis, *Amavata* is generally compared with this disease. Rheumatoid arthritis is an autoimmune polyarthritis of unknown etiology with symmetrical joint involvement and effects many other systems too. There is no definite cure for the disease.

In *Ayurveda*, many approaches are in practice to treat *Amavata* but still remain a challenging problem. Many research works have been done on this disease, but still there is a need of an effective, safe, and less-complicated treatment. In present study, *Basti Chikitsa* was selected for clinical trials as *Basti* is the major treatment in *Ayurveda* which directly acts over the *Vata Dosha* and many a times is called as *Ardha Chikitsa* or *Sarva Chikitsa*.^[4] Also, *Basti*, especially *Kshara Basti*, is main treatment for *Amavata*.

Aims and objectives

To evaluate the efficacy of *Panchamuladi Kaala Basti* in *Amavata* (Rheumatoid Arthritis).

Materials and Methods

Selection of the patients

Patients in between 16 to 60 years of age, of both genders, religion, etc., having classical signs and symptoms of *Amavata* were selected randomly from the OPD and IPD of Govt. Akhandanand Ayurveda Hospital, Ahmedabad. A total of 12 patients were taken for study, all of them completed the course. However, patients who were suffering from systemic disorders like cardiac disease, Diabetes Mellitus, Hypertension, cancer, Tuberculosis, respiratory diseases, etc., and having chronicity of more than 5 years were excluded.

The patients were mainly diagnosed on classical signs and symptoms of *Amavata* and American Rheumatism Association (ARA) criteria. An elaborate proforma was filled containing clinical history as well as complete general and physical examination of the patients.

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Investigations

Relevant investigations were conducted in every patient, which included routine investigations for blood along with special investigations for Rheumatoid factor, Hemoglobin%, and Erythrocyte sedimentation rate.

Drugs

Following table shows ingredients of *Panchamuladi Kaala Basti* [Table 1].

Method of preparation

Asthapana Basti

Each *Asthapana Basti* was prepared with classical method which is as follows.

First of all, the *kwatha* is prepared as per classical method and kept ready. The *Saindhava* (rock salt) and *Yava kshara* are taken in a mortar to which honey is added. Both are mixed well by triturating. When it is properly mixed, the *Tila taila* (oil) is added and levigating is further continued. To this mixture, *Kalka Dravya* is then added and is mixed well. When these ingredients are emulsified properly by levigating, the *kashaya Dravya* is added and at last *Gomutra* is added, levigating is continued till they get properly mixed.

Anuvasana Basti

Panchamuladi taila was prepared using drugs of *Panchamuladi Basti* as per classical method of *Taila* preparation. For *Taila* preparation, *Eranda taila* was used in place of *Tila taila*.

Dose

- *Asthapana Basti*: Each *Basti* was administered in a dose of 480 ml.
- *Anuvasana Basti*: The 80 ml of *Panchamuladi Taila* was administered in each *Basti*.

Management and duration

Total duration of treatment was 21 days which included *Langhan* for 3 days, *deepan-pachan* for 3 days and *kaala basti* for 15 days.

All the 12 patients taken for the study were kept on *langhana* (fasting) for first 3 days. During this period, they were advised to consume *Mudgayusha* only. Complete fasting was avoided as it may aggravate the *Vata Dosha*. However, *Deepana pachana* was done from day 4 to day 6 with *Trikatu churna* 10 g in 3 divided doses every day along with *Ushnodaka* (lukewarm water) as *Anupana* and patients were advised to consume *Mudga dal* and rice during this period. After that, *Kaala Basti* was performed from 7th day onward for 15 days. Patients were kept on normal hospital diet during this period. The sequence of *Kaala Basti* was as per *Astanga Hrudaya*, that is, a total of 15 *Bastis* with *Anuvasana Basti* 10 and *Asthapana Basti* 5 were administered. The *Anuvasana Basti* and *Asthapana Basti* were administered in sequence of 2 *Anuvasana Basti* in the beginning and then 5 *Asthapana Basti* and 5 *Anuvasana Basti* on alternate days, and 3 *Anuvasana Basti* in the end.

Method of administration of Basti

The procedure of administration of *Basti* was divided into 3 stages.

Purva karma: The patients were advised to consume little

Table 1: Ingredients of *Panchamuladi Kaala Basti*

	Sanskrit name	Botanical name
Kwatha Dravya	<i>Bilwa</i>	<i>Aegle marmelos</i>
	<i>Agnimantha</i>	<i>Premna mucronata</i>
	<i>Syonaka</i>	<i>Oroxylum indicum</i>
	<i>Kashmarya</i>	<i>Gmelina arborea</i>
	<i>Patala</i>	<i>Ptereospermum suaveolans</i>
	<i>Shalaparni</i>	<i>Desmodium gangeticum</i>
	<i>Prushniparni</i>	<i>Uraria picta</i>
	<i>Bruhati</i>	<i>Solanum indicum</i>
	<i>Kantakari</i>	<i>Solanum xanthocarpum</i>
	<i>Gokshura</i>	<i>Tribulus terrestris</i>
	<i>Haritaki</i>	<i>Terminalia chebula</i>
	<i>Vibhitaki</i>	<i>Terminalia bellerica</i>
Kalka Dravya	<i>Amalaki</i>	<i>Embellica officinalis</i>
	<i>Madanaphala</i>	<i>Randia spinosa</i>
	<i>Indrayava</i>	<i>Holarrhena antidysenterica</i>
	<i>Patha</i>	<i>Cissampelos pariera</i>
	<i>Madanaphala</i>	<i>Randia spinosa</i>
Other Dravya	<i>Musta</i>	<i>Cyperus rotundus</i>
	<i>Madhu</i>	
	<i>Saindhav</i>	
	<i>Yava Kshara</i>	
	<i>Tila taila</i> , <i>Eranda taila</i> <i>Gomutra arka</i>	

quantity of light diet before every *Anuvasana Basti*, while every *Asthapana Basti* was administered in empty stomach.

Before administering every *Basti*, local *Abhyanga* with lukewarm *Tila taila* was done on abdomen, thighs, and buttocks for 5 to 10 minutes and after *Abhyanga*, the *Nadi Swedana* was done on abdomen, thighs, and buttocks for 5 to 10 minutes.

On the day of every *Asthapana Basti*, *Basti* was prepared by mixing all the ingredients in their sequence and kept ready.

Pradhana Karma

The patient was advised to lie down on left lateral position on *Basti* (enema) table with right lower extremity flexed on knee and hip joint and left lower extremity straight. The patient was asked to keep his left hand below the head. Oil was applied on anus with cotton dipped in oil.

Anuvasana Basti

The 80 ml of lukewarm *Panchamuladi taila* was filled in enema syringe. Rubber catheter oiled with oil was attached to enema syringe and air was removed. Rubber catheter was introduced into anus of patient up to length of 4 inches. The *taila* was pushed inside leaving little quantity within syringe in order to avoid entrance of *vayu*.

Asthapana Basti

The 480 ml of lukewarm *Basti dravya* was filled in enema can. Rubber catheter oiled with oil was attached to enema can and air was removed. Rubber catheter was introduced into anus of patient up to length of 4 inches. The *Basti dravya* was allowed to move inside leaving little quantity within enema can in order to avoid entrance of *vayu*.

While introduction of catheter and drug, the patient was asked to take deep breath and not to shake his body.

Pashchat karma

After administration of *Basti*, the patient was advised to lie in supine position with hand and legs freely spread over the table. Thereafter, patient's both legs were raised for few minutes so as to raise the waist and gently tapped over the hips. Patient was advised to void the urge of stool whenever he feels so. *Basti Pratyagamana Kaala* was noted after every *Basti*.

Follow-up: All the patients were followed up for 1 month after completion of *Basti Chikitsa*.

Pathyapathya

All the patients were strictly advised to follow the *Pathya* as mentioned in the context of *Amavata* in *Ayurveda* classics.

Criteria for assessment: The results of therapy were assessed on the basis of clinical signs and symptoms mentioned in *Ayurveda* classics. Functional capacity of patients was also assessed and laboratory investigations were repeated at the end of the treatment schedule. All the signs and symptoms were given scoring pattern depending upon severity as below.

Cardinal symptoms

1. *Sandhi ruja* (joint pain)
 - (1) No pain - 0
 - (2) Mild pain of bearable nature comes occasionally - 1
 - (3) Moderate pain but no difficulty in joint movements and requires some *upashaya* measures for relief - 2
 - (4) Slight difficulty in joint movement due to pain and requires some medication and remains throughout the day - 3
 - (5) More difficulty in the joint movements and pain is severe, disturbing sleep and requires strong Analgesic - 4
2. *Sandhi shotha* (joint swelling)
 - (1) No swelling - 0
 - (2) Mild swelling - 1
 - (3) Moderate swelling and present in more than 2 affected joints - 2
 - (4) Excessive swelling over the all affected joints - 3
3. *Stabdghata* (stiffness)
 - (1) No stiffness or stiffness lasting for 10 to 20 minutes - 0
 - (2) Stiffness lasting for 20 minutes to 2 hours - 1
 - (3) Stiffness lasting for 2 to 5 hours - 2
 - (4) Stiffness lasting for 5 to 8 hours - 3
 - (5) Stiffness lasting for more than 8 hours - 4
4. *Ushnata* (heat over the affected joints)
 - (1) Raised temperature when compared with normal body surface - 02
 - (2) Fall in local warmth - 01
 - (3) Normal temperature - 00
 - (4) No change after the treatment - 02
5. *Sparshasahyata* (tenderness about the joints)
 - (1) No tenderness - 0
 - (2) Subjective experience of tenderness - 1
 - (3) Wincing of face on pressure - 2
 - (4) Wincing of face with withdrawal of affected part on pressure - 3
 - (5) Resist touching - 4

General symptoms

- (1) Symptoms observed before treatment - 2
- (2) Some relief after treatment - 1
- (3) Complete relief after treatment - 0
- (4) No improvement after treatment - -2

Overall assessment of the therapy

To assess the overall effect of the therapy, the criteria laid down by ARA were adopted. Results are classified into four groups as listed below:

- (1) Complete remission
- (2) Major improvement
- (3) Minor improvement
- (4) Unimproved

Statistical analysis

Mean, percentage, SD, SE, 't,' and P value were calculated. Paired 't' test was used for calculating 't' value.

Observations

Maximum numbers of patients (41.66%) were in the age group of 41 to 50 years. Maximum numbers of patients (83.33%) were female, were house wives (50%), and belonged to lower middle class (41.66%). Maximum numbers of patients were of *Vata-Pitta Prakriti* (75%), had *Rajasa-Tamasa Prakriti* (58.33%). All the patients (100%) had *Avara Vyayama shakti*, *Abhyavaharana shakti*, and *Jarana shakti*. Maximum numbers of patients had *Mandagni* (83.33%) and *Krura Koshttha* (75%). Fifty percent of patients were RA positive, (50%) had chronicity below 1 year, (58.33%) had gradual onset, and (33.33%) got the disease in 4th decade.

Maximum numbers of patients (58.33%) had *Vata Kapha Doshanubandha*, were indulging in *Virudhaahara*, *Abhishyandi ahara*, and *Snigdhaahara* (91.66%), were consuming *Guru* and *Madhura Ahara* (83.33%), were indulging in *Vishmashana* and *Adhyashana* (58.33%), and were indulging in *Bhojanottara Vyayama* and *Divaswapna* (58.33%).

All (100%) patients gave the history of *Sandhi Ruja* (joint pain), *Sandhi Shotha* (joint swelling), *Sandhi Stabdghata* (Joint stiffness), and 83.33% of patients gave history of *Ushnata* (heat over joint) and *Sparsha asahatva* (tenderness) [Table 2]. All (100%) patients showed the features *Angamarda*, *Alasya*, *Gaurava*, *Apaka*, and *Anga shunata*. *Aruchi* in 83.33% of patients, *Trishna* in 41.66% of patients, and *Jvara* in 33.33% of patients were seen [Table 3]. Proximal interphalangeal and metacarpo phalangeal joints, joints were affected in all (100%) of patients taken for study, knee joints in 83.33%, wrist and ankle joints in 75% of patients, shoulder joints in 66.66% of

Table 2: Distribution of 12 patients of *Amavata* as per cardinal symptoms

Cardinal symptoms	No. of patients	Percentage
<i>Sandhi Ruja</i>	12	100
<i>Sandhi Shotha</i>	12	100
<i>Sandhi Stabdghata</i>	12	100
<i>Ushnata</i>	10	83.33
<i>Sparshasahatva</i>	10	83.33

patients, metatarso phalangeal joints in 25% of patients, and elbow joints in 16.66% of patients were affected.

Results

Highly significant results ($P < 0.001$) were obtained in all the cardinal symptoms *Sandhi Ruja* (42.08%), *Shotha* (73.3%), *Stabdhatta* (70.09%), *Ushnata* (95%), *Sparshasahyata* (100%) [Table 4].

Among general symptoms, highly significant results ($P < 0.001$) were obtained in *Gaurava* (75%), *Angamarda* (70%), *Apaka* and *Angashunata* (66.5%), and *Alasya* (41.5%). Significant results ($P < 0.01$) in *Trishna* (70%), improvement ($P < 0.05$) in *Aruchi* (25%), and 100% results were observed in *Jvara* [Table 5].

Fifty percent of patients showed minor improvement and equal percentage of patients showed major improvement. None of the patients showed complete remission and no one remained unimproved [Table 6].

Discussion

As per age-wise distribution, maximum numbers of patients (41.66%) in this study were in the age group of 41 to 50 years. This is the age wherein *Hani* (deterioration) of *Dhatu*s starts.^[5] This leads to reduced *Vyadhikshamatva* (immunity) during this age. Increased responsibility towards parents, children, and work lead to faulty

dietary habits and increased stress during this age. All these factors contribute towards increased incidence of *Amavata* during this age.

In this study, maximum numbers of patients (83.33%) were females and among them, 50% were house wives. The female and male ratio was 5 : 1. Increased responsibility towards house works and day-to-day family stress may induce *Vata prakopa* and *Agnimandya* and thus results in *Amavata* in females. As per modern medical science, the female: male ratio in Rheumatoid arthritis is 3 : 1 and below 45 years of age the ratio is 6 : 1.^[6]

Data show that 50% of patients had chronicity below 1 year, whereas 25% of patients were between 1 and 3 years, and remaining 25% of patients were between 3 and 5 years. These data signify that people are getting aware regarding importance of *Ayurveda Chikitsa* in this disease, so that they approached early to *Ayurveda Hospital*.

The present study revealed that 91.66% of patients were consuming *Virudhaahara*, *Abhishyandi ahara*, and *Snigdhaahara*, while 58.33% of patients were indulged in *Bhojnotara Vyayama* and 33.33% of patients were indulged in *Divaswapna* and *Nishchalatva*. All these *Nidanas* are specific to *Amavata*.

In all (100%) of patients, the joints were symmetrically involved. PIP and MCP joints were affected in all patients followed by knee joints in 83.33% and wrist and ankle joints in 75% of patients. Arthritis of hand joints (PIP, MCP) and symmetrical joint involvement are among the diagnostic criteria

Table 3: Distribution of 12 patients of Amavata as per Samanya Lakshana

<i>Samanya Lakshana</i>	No. of patients	Percentage	<i>Samanya Lakshana</i>	No. of patients	Percentage
<i>Angamarda</i>	12	100	<i>Gaurava</i>	12	100
<i>Aruchi</i>	10	83.33	<i>Jvara</i>	4	33.33
<i>Trishna</i>	5	41.66	<i>Apaka</i>	12	100
<i>Alasya</i>	12	100	<i>Anga shunata</i>	12	100

Table 4: Effect of Panchamuladi Kaala Basti on cardinal symptoms

Cardinal symptoms	Mean score		% relief	SD	SE	<i>t</i>	<i>P</i>
	BT	AT					
<i>Sandhi Ruja</i>	3.16	1.83	42.08	0.49	0.14	9.5	<0.001
<i>Sandhi shotha</i>	2.25	0.6	73.33	0.51	0.15	10.53	<0.001
<i>Stabdhatta</i>	1.41	0.41	70.92	0.42	0.12	8.33	<0.001
<i>Ushnata</i>	2	0.1	95	0.32	0.10	19	<0.001
<i>Sparshasahyata</i>	1.3	0	100	0.48	0.50	8.69	<0.001

BT-Before treatment, AT-After treatment, SD-Standard deviation, SE-Standard error

Table 5: Effect of Panchamuladi Kaala Basti on associated symptoms

<i>Samanya Lakshana</i>	Mean score		% relief	SD	SE	<i>t</i>	<i>P</i>
	BT	AT					
<i>Angamarda</i>	2	0.6	70	0.55	0.39	26.66	<0.001
<i>Aruchi</i>	2	1.5	25	0.53	0.17	3	<0.05
<i>Trishna</i>	2	0.6	70	0.55	0.39	6.07	<0.01
<i>Aalasya</i>	2	1.17	41.5	0.6	0.17	4.88	<0.001
<i>Gaurava</i>	2	0.5	75	0.52	0.15	10	<0.001
<i>Jvara</i>	2	0	100	-	-	-	-
<i>Apaka</i>	2	0.66	66.5	0.49	0.14	9.5	<0.001
<i>Angashunata</i>	2	0.66	66.5	0.49	0.14	9.5	<0.001

Table 6: Overall effect of Panchamuladi Kaala Basti

Treatment effect	No. of patients	Percentage
Complete remission	0	00
Major improvement	6	50
Minor improvement	6	50
Unimproved	0	00

of rheumatoid arthritis laid down by ARA.

All (100%) of the patients gave the history of *Sandhi Ruja*, *Sandhi Shotha*, *Sandhi Stabdhata* and 83.33% of the patients gave history of *Ushnata* and *Sparshasahatva*. *Sandhi Ruja* and *Stabdhata* are mainly due to *Vata dosha*, whereas *Shotha*, *Sparshasahatva*, and *Ushnata* suggest presence of *Ama*. Above data prove role of *Ama* and *Vata* as chief pathological factors in *Amavata*.

Highly significant results ($P < 0.001$) in all the cardinal symptoms—*Sandhi ruja* (42.08%), *Shotha* (73.3%), *Stabdhata* (70.09%), *Ushnata* (95%), *Sparshasahatva* (100%) prove that *Panchamuladi Basti* is effective in *Amavata*. *Shula* and *Stabdhata* are mainly due to *Vata Dosha* and above data prove that *Panchamuladi Basti* controls *Vata Dosha* and relieves these symptoms. *Shotha*, *Sparshasahatva*, and *Ushnata* suggest presence of *Ama*. Above data proves that *Kshara* property of *Panchamuladi Basti* help in *Ama pachana*, and thus relieves these symptoms.

Probable mode of action of Basti

Panchamuladi Basti in general: *Basti chikitsa* is the prime treatment modality of *Ayurveda*. *Basti* in general and *Kshara Basti* in specific are told as best *Chikitsa* in *Amavata*.^[7] *Panchamuladi Basti* administered through *Pakvashaya* spreads all over the body (head to foot) with its *Virya*^[8] and digests *Ama* with its *Kshara* property and at the same time expels the vitiated *Vata* by targeting it in its *pradhan sthana*, that is, *Pakvashaya*.^[9] The control gained over *Ama* and *Vata* leads to *Samprapti vighatana* of *Amavata*.

Drugs of *Panchamuladi Basti*: Drugs of *Dashmula* mainly control *Vata Dosha* along with *Kapha Dosha* and also aid in *Ama pachana*.^[10] *Yava kshara* and *Gomutra* along with other drugs like *Musta* and *Indrayava* mainly perform *Ama pachana* action. *Eranda taila* in *Panchamuladi taila* also aid in breaking the *Samprapti*^[11] by controlling *Vata Dosha*.

Fifty percent of the patients showed major improvement and equal percentage of patients showed minor improvement. *Amavata*

is a *Kricchrasadhya Vyadhi* and also the duration of treatment was shorter. This could be the probable reason that none of the patients showed complete remission.

Conclusion

Panchamuladi Kaala Basti is proved to be an effective therapy in *Amavata*. By combating *Vata Dosha* and *Ama* (the chief pathological factors), it lead to *Samprapti vighatana* of *Amavata* and hence, highly significant results were achieved in all the cardinal symptoms. Fifty percent of patients showed major improvement and 50% showed minor improvement. Due to limitation of number of cases and duration of the trial, there is a need to conduct further study in this regard on larger sample and for a longer duration to improve this preliminary study.

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