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Clinical effect of *Matra Basti* and *Vatari Guggulu* in the management of *Amavata (rheumatoid arthritis)*

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Abstract

Amavata is the most crippling of the joint diseases. It occurs throughout the world in all climates and all ethnic groups. Though all the *Doshas* take part in the causation of this disease, *Ama* and vitiated *Vata* play the dominant role. The clinical features of rheumatoid arthritis, such as pain, swelling, stiffness, fever, and general debility, are almost identical to that of *Amavata*. Treatment provides symptomatic relief, but the underlying pathology remains unchecked because of the absence of effective drugs. In the management of *Amavata* all the acharyas have described the sequential employment of *Dipana*, *Amapachan*, *Shodhan*, and *Shaman* therapies. For this study, 118 patients of *Amavata* were randomly divided into two groups. The patients in group A (50 patients) were given *Matra Basti* with *Brihat Saindhavadi Taila* along with *Vatari Guggulu*; the patients in group B (53 patients) were given only *Vatari Guggulu*. All the patients responded favorably to the treatment in both the groups; however, patients treated with *Matra Basti* had better relief in most of the cardinal signs and symptoms of the disease.

Key words: *Vatari Guggulu*, *Matra Basti*, *Amavata*, rheumatoid arthritis, *Vata*, *Brihat Saindhavadi Taila*

Introduction

Amavata is first mentioned as a separate disease in Madhav Nidana, where it is stated that *Mandagni* plays a central role in the manifestation of the disease.[1] This theory is very well supported by the view of Acharya Vagbhatta that the main cause of all diseases is *Mandagni*.[2] Acharya Madhava has described the most characteristic feature of this disease: severe pain similar to a scorpion bite. *Asthi* and *Sandhi* are the chief sites of presentation of the cardinal symptoms such as *Sandhishoola*, *Sandhigraha*, *Sandhi Sotha*, etc. These symptoms resemble the cardinal features of rheumatoid arthritis, i.e., pain, swelling, stiffness, fever, general debility, etc.

Rheumatoid arthritis is a chronic immuno-inflammatory systemic disease that affects mainly the synovial joints, with a possibility of extraarticular manifestations.[3] In the management of *Amavata* sequential employment of *Dipana*, *Amapachan*, *Shodhan*, and *Shaman* therapies have been mentioned.[4] The use of *Eranda Taila* for the treatment of *Amavata* has been emphasized by almost all the ancient *Acharyas*. Guggulu is an established anti-inflammatory and antiarthritic drug and so we selected *Vatari Guggulu*, which has been mentioned in Bhaishajya Ratnavali,[5] for the study.

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Bhava Prakasha[6] has recommended the use of *Brihat Saindhavadi Taila* for *Pan*, *Abhayang*, *Virechan*, and *Basti* in the management of *Amavata*. It is also recommended in Bhaishajya Ratnavali for the management of *Amavata*. I relieves vitiated *Kapha*, *Vata*, and *Ama* by its properties of *Ushna*, *Tiksna*, *Suksma*, *Singdha*, etc. and so it is selected for the *Matra Basti*, the ultimate treatment of *Vata*.

Aims and Objectives

1. To study the etiopathogenesis of *Amavata*
2. To assess the efficacy and mode of action of *Matra Basti* with *Brihat Saindhavadi Taila* and *Vatari Guggulu* in the management of *Amavata*
3. To evaluate the role of *Vatari Guggulu* used alone in the management of *Amavata*

Materials and Methods

Conceptual study: Detailed study of *Amavata* in relation to rheumatoid arthritis along with the review of drugs chosen for *Matra Basti (Brihat Saindhavadi Taila)* and *Shaman* therapy (*Vatari Guggulu*) from all available books and internet was carried out.

Clinical Study: Patients attending the OPD and IPD of the *Panchakarma* and *Kayachikitsa* Department of IPGT and RA, Jamnagar, were enrolled for the study.

Inclusion criteria

Patients having the classical features of *Amavata*, such as pain in the joints (*Sandhishool*), *Sandhigraha* (stiffness in joints), bodyache (*Angamard*), anorexia (*Aruchi*), thirst (*Trushna*), *Shotha*, etc. were randomly selected for inclusion in the study, irrespective of sex, caste, etc. The criteria laid down by the American Rheumatism Association (1998) for the diagnosis of rheumatoid arthritis was used because the signs and symptoms of *Amavata* closely resemble that of rheumatoid arthritis. Thus, rheumatoid arthritis was diagnosed if a patient had had at least four of the following criteria for 6 weeks or more:

1. Morning stiffness
2. Arthritis of three or more joints
3. Arthritis of hand joints
4. Symmetrical arthritis
5. Rheumatic nodules
6. Presence of rheumatoid factor
7. Radiological changes (hand and wrist)

Exclusion criteria

1. Age less than 16 years and more than 60 years
2. Chronicity of more than 10 years
3. Severe crippling deformities
4. Severe hypertension
5. Diabetes mellitus
6. Cardiac disorder, pulmonary tuberculosis, and pregnancy

Management of patients: All the patients of both the groups were given *Shunthi Siddha Jala* for 3 days for the purpose of *Langhan*, *Dipan*, and *Pachan* before starting the treatment.

Group A (*Matra Basti* and *Vatari Guggulu*)

Drug	- *Vatari Guggulu* (oral drug) along with *Matra Basti*
Dose	- 2 *Vati* (500 mg) thrice a day
Duration	- 45 days
Anupana	- Lukewarm water
Matra Basti	- Given with 60 ml of *Brihat Saindhavadi Taila*
Duration	- For 21 days with 3-day intervals every 7 days

Group B (*Vatari Guggulu*):

Drug	- *Vatari Guggulu*
Dose	- 2 *Vati* (500 mg) thrice a day
Duration	- 45 days
Anupana	- Lukewarm water

Method of administration of *Matra Basti*

The procedure of administration of Basti in general can be divided into three stages, as follows:

Purva Karma

The patients were instructed to come after a light diet (neither too *Snigdha* nor too *Ruksha*, and not more than three-fourth of their usual diet).They were also advised to come after elimination of stools and urine. The patients were mainly subjected to local *Abhyanga* and *Mridu Swedana* prior to the administration of *Matra Basti*.

Pradhana Karma

After *Purva Karma*, the patient was advised to lie down in the left lateral position on the *Basti* (enema) table with the left lower extremity kept straight and the right lower extremity flexed at the knee and hip joints. The patient was asked to keep his left hand below the head. *Brihat Saindhavadi Taila* was applied to the anus in a small amount. Sixty milliliters of lukewarm *Brihat Saindhavadi Taila* was taken in an enema syringe and a rubber catheter lubricated with *Brihat Saindhavadi Taila* was attached to the enema syringe. After expelling the air from the enema syringe, the rubber catheter was passed through the anus of the patients up to the length of 4 inches. The patient was asked to take deep breaths and to lie still while the catheter, and the drug, were introduced. The total amount of *Taila* was not administered in order to avoid the entrance of *Vayu* into the *Pakwashaya*.

Pashchat Karma

After the administration of *Basti*, the patient was advised to lie in supine position with the arms and legs spread out freely over the table. Both legs were raised for few minutes so as to raise the waist and gently tapped over the hips. Simultaneously, gentle taps were also given on his soles and over the elbow and palms so that the *Matra Basti* would spread throughout the body and be retained for the required period. After some time the patient was advised to get up from the table and rest in his bed but to avoid sleeping during the day. *Basti Pratyagamana Kala* was noted in each case.

Dietary restrictions

The patients were advised to strictly follow the restrictions with regard to food, food habits, and lifestyle. They were instructed to avoid the possible causative factors of disease and causes for *Agnimandya*.

Follow-up

A follow-up study was carried out 1 month after completion of treatment, when the following laboratory investigations were done:

1) RA factor
2) Biochemical - serum uric acid, cholesterol, total protein, etc.
3) Hematological – Hb (Haemoglobin), TLC (Total Leucocyte count), DLC (Differential Leucocyte count), ESR (Erythrocyte Sedimentation Rate), PCV (Packed Cell Volume), etc.
4) Routine urine analysis

Criteria for assessment:

- Relief in the cardinal signs and symptoms was assessed using a special scoring system
- Improvement in general health
- Improvement in laboratory parameters
- Functional assessment was done by measuring walking time, grip strength, foot pressure, and general functional capacity.
- Degree of disease activity was estimated according to the criteria laid down by American Rheumatism Association (1967).

The obtained data were statistically analyzed.

Total effect of therapy

The obtained results were graded as follows:

Complete remission:	100% relief
Marked improvement:	≥75% relief
Moderate improvement:	50%–75 % relief
Mild improvement:	25%–50% relief
Unchanged:	<25% or no relief

The patients were not given any other therapies other than that advised in the study treatment protocol so to assess effect of these therapies specifically.

Observations

In this study a total 118 patients were registered, out which 103 completed the treatment; 15 patients dropped out.

Of the study subjects 32.20% belonged to the age-group of 41–50 years and 29.66% to the age-group of 31–40 years. The majority were females (79.66%), married (93.22%), and housewives (72.88%). Most of the patients were from the middle socioeconomic class (60.17%), and 50.85% were graduates.

Most of the patients had *Kapha Vata* (dominant) *Pradhana Prakriti* (90.68%). The majority (83.05%) reported *Mandagni* (decreased status of agni), and the others (16.95%) reported *Vishamagni*. Most of the patients (86.45%) had *Madhyamakoshtha* and 7.62% had *Krura Kostha*; 56.78% of the subjects had had the disease for less than 2 years.

Nidana factors like *Vishamasana* (irregular dietary habits) were present in 76.27% of the patients, *Snigdha Ahara Sevana* in 61.02%, *Guru Ahara Sevana* (intake of foods which take longer time for digestion) in 57.63%, *Divaswapna* (sleeping during day time) in 72.88%, *Vegasandharana* in 66.10%, and *Nischalata* (decreased movements of body) in 44.07% of patients. Among the *Manasika Nidana* factors, *Chinta* (worry) was found in the maximum number of patients, (i.e., 44.07%), followed by *Shoka* (grief) in 33.90% of patients.

It was observed that with regard to the cardinal symptoms, the most common one was pain in joints (*Sandhishula*), which was present in 100% of the patients; his was followed by joint stiffness (*Sandhigraha*) (94.07%), swelling in joints (*Sandhishotha*) (71.19%), and tenderness in joints (*Sparshasasahyata*) (46.61%). The proximal interphalangeal (PIP) & Wrist joint each were involved in 80.51% of patients, the knee joint in 72.88%, the ankle joint in 69.49%, the distal interphalangeal joint (DIP) and elbow joint in 55.08% each, the shoulder in 47.46%, the MT in 20.34%, the neck joint in 12.71%, the MC in 10.17%, and the hip joint in 6.78%. It was found that 33.05% of the patients were positive for the RA factor, while the test was negative in 66.95%. In the present study, 85.71% of the patients had no deformity; rheumatoid nodule was observed in 3.39% of the patients, a swan neck deformity was seen in 1.69%, ankylosis in 0.85%, and ulnar deviation in 1.67%.

The maximum time noted for *Basti* retention was 18 hours, while the minimum time was 1.5 hours (mean time 4 hours).

Effect of therapies

In group A (MB and VG), there were a total of 52 patients; 50 were treated with *Matra Basti* of *Brihat Saindhavadi Taila* along with *Vatari Guggulu*, while 2 patients were dropped out of the study. After the treatment of group A, maximum relief in pain in was found by 77.61% in shoulder joint followed by 71.68% in wrist joint [Table 1]. It was noticed that after treatment, maximum relief in *Sandhishotha* was found in Hip joint (86.71%) followed by Knee joint (80.25%)[Table 2]. It was found that stiffness was relieved by 85.18% in metatarsals followed by 80.25% in Knee joint [Table 3]. After the therapy, it was found that maximum relief in tenderness was found in Metatarsals(81.81%) followed by Knee joint (80.32%) [Table 4].

In general, this therapy provided highly significant relief of joint pain (*Sandihshula*) (68.31%), joint pain (*Sandhishotha*) (73.08%), joint stiffness (*Sandhigraha*) (74.12%) and joint tenderness (*sparshasahatva*) (71.79%). General symptoms like bodyache (*Angamarda*), anorexia (*Aruchi*), thirst (*Trishna*), nausea (*Hrillasa*), heaviness of body (*Gaurava*), and fever (*Jwara*) highly significant relief in 84.85%, 79.31%, 100%, 80%, 78.26%, 71.43%, and 72.72% of patients, respectively. On functional assessment, there was highly significant relief in grip strength (21.65%), foot pressure (11.64%), and walking time (13.81%).

In group B (VG), there were 66 patients; 53 patients completed treatment with with *Vatari Guggulu*, while 13 patients dropped out of the study. It was found that maximum relief in *Sandhishula* was found in neck (62.50%) followed by relief in knee joint (53.41%)[Table 5]. It was found that maximum relief in *Sandhishotha* was found in neck (61.54%) and Knee joints(53.41%)[Table 6]. It was found that after the therapy, maximum relief in stiffness was found in Knee joint i.e 51.42% followed by relief in ankle joint i.e 46.67% respectively [Table 7]. After the therapy, it was seen that maximum relief i.e 46.15% was found in metacarsals followed by 45.45% relief in metatarsals[Table 8].

In general, this therapy provided highly significant relief of joint pain (*Sandihshula*) (45.51%), joint swelling (*Sandhishotha*) (42.98%), joint stiffness (*Sandhigraha*) (43.76%), and joint tenderness (*Sparshasahatva*) (38.08%). There was highly significant relief of general symptoms like *Angamarda* (bodyache), *Aruchi* (anorexia), and *Gaurava* (heaviness of body) in 60.71%, 73.91%, 70.83%, and 54.54% of patients, respectively, while there was significant relief of fever (*Jwara*) (57.14%). On functional assessment, there was highly significant relief in grip strength (6.28%), foot pressure (8.74%), and walking time (9.27%)

The mean ESR values before treatment in groups A and B were 46.76 and 42.28, respectively; this was reduced to 46.12 and 39.54, respectively, after treatment. Thus, in group A, there was 1.37% reduction in the ESR, while in group B it was 6.47% [Table 9]. After assessing the overall effect of therapy, it can be seen that marked improvement and moderate improvement was more in group A by 52% and 42% respectively while in group B Marked improvement was only 11.32% and moderate improvement was 28.30% respectively [Table 10].

Discussion

In the present study, 32.20% patients were in the 41–50 years age-group and 29.66% in the age-group of 31–40 years. This study suggests that rheumatoid arthritis mainly affects middle-aged people. In present study, most of the patients were female (79.66%). Literature reports also suggest that the disease is seen predominently in females.

According to Acharya Charaka, *Matra Basti* is always applicable to those emaciated due to overwork, physical exercise, weight lifting, journey on vehicles , indulgence in women, in debilitated person and in those afflicted with *Vata* disorders. *Matra Basti* promotes strength, without calling for any strict regimen of

Table 1: Effect of therapy on *Sandhishula* in different joints (Group A)

Cardinal features	n	Mean score		(%) of relief	SD ±	SE ±	*t*	*P* value
		BT	AT.					
Proximal interphalangeal	43	2.51	0.81	67.59	0.68	0.10	16.36	<.001
Distal interphalangeal	32	2.69	0.78	69.77	0.80	0.14	13.12	<.001
Metacarpals	05	2.80	1.20	57.14	0.55	0.24	6.53	<.001
Wrist	44	2.57	0.73	71.68	0.68	0.10	17.96	<.001
Elbow	35	2.57	0.83	67.78	0.82	0.14	12.55	<.001
Shoulder	27	2.48	0.55	77.61	0.67	0.12	14.82	<.001
Metatarsals	11	2.36	0.54	76.92	0.40	0.12	14.91	<.001
Ankle	38	2.51	0.63	69.12	0.73	0.12	14.65	<.001
Knee	40	2.61	0.47	75.68	0.75	0.12	16.55	<.001
Hip	05	4.00	0.60	55.00	0.98	0.44	05.00	<.01
Neck	08	2.37	0.87	63.16	0.76	0.27	05.61	<.01

Table 2: Effect of therapy on *Sandhishotha* in different joints (Group A)

Cardinal features	n	Mean score		% of relief	SD ±	SE ±	*t*	*P* value
		B.T.	A.T.					
Proximal interphalangeal	34	2.56	0.73	71.26	0.52	0.09	20.43	<.001
Distal interphalangeal	25	2.60	0.64	75.38	0.54	0.11	18.20	<.001
Metacarpals	04	1.00	1.50	60.00	0.58	0.29	5.20	<.02
Wrist	35	2.54	0.63	75.28	0.66	0.11	17.20	<.001
Elbow	28	2.50	0.50	80.00	0.72	0.14	14.70	<.001
Shoulder	22	2.41	0.54	77.36	0.56	0.12	15.60	<.001
Metatarsals	10	2.30	0.90	60.87	0.97	0.30	04.58	<.01
Ankle	31	2.35	0.55	76.71	0.70	0.13	14.30	<.001
Knee	33	2.54	0.49	80.25	0.64	0.11	17.77	<.001
Hip	05	2.80	0.40	86.71	0.55	0.25	09.80	<.001
Neck	07	2.57	1.00	61.11	0.79	0.30	05.28	<.01

Table 3: Effect of therapy on stiffness in different joints (Group A)

Cardinal features	n	Mean score		% of relief	SD ±	SE ±	*t*	*P* value
		BT	AT					
Proximal interphalangeal	43	2.49	0.65	73.83	0.78	0.12	15.35	<.001
Distal interphalangeal	32	2.65	0.66	75.29	0.80	0.14	14.08	<.001
Metacarpals	05	2.80	1.00	64.28	0.84	0.37	4.81	<.01
Wrist	43	2.51	0.70	72.22	0.61	0.09	18.97	<.001
Elbow	34	2.47	0.56	77.38	0.71	0.12	15.65	<.001
Shoulder	26	2.38	0.46	80.64	0.63	0.12	15.62	<.001
Metatarsals	11	2.45	0.36	85.18	0.70	0.21	9.89	<.001
Ankle	37	2.32	0.59	74.41	0.69	0.11	15.18	<.001
Knee	39	2.41	0.46	80.85	0.65	0.10	18.81	<.001
Hip	05	2.80	0.60	78.57	0.44	0.20	11.00	<.001
Neck	08	2.37	1.12	52.63	0.89	0.31	3.99	<.01

diet, and also causes easy elimination of *Mala* and *Mutra*. It performs the function of *Brimhana* and cures *Vatavyadhi*.[7]

When we look at effect of therapies in the *Matra Basti* group, we can see that most of the patients (52%; 26 patients) showed marked improvement, while in the *Vatari Guggulu* group most of the patients (54.72%; 29 patients) showed mild improvement. Thus, both the therapies provided significant relief of the cardinal as well as general signs/symptoms of *Amavata*. However, there was better relief in the *Matra Basti* group than in the *Vatari Guggulu* group. *Basti* is thought to be an ultimate solution for the eradication of *Vata Dosha*, with *Vatari Guggulu* helping to maintain the effect through its *Dipana*, *Amapachana*, anti-inflammatory, and antiarthritic properties.

In the present study, a total of 15 patients dropped out: 13 patients in group A and 2 patients in group B. Patients of group

Table 4: Effect of therapy on tenderness in different joints (Group A)

Cardinal features	n	Mean score		(%) of relief	SD ±	SE ±	*t*	*P* value
		B.T.	A.T.					
Proximal interphalangeal	26	2.38	0.65	72.58	0.60	0.12	14.61	<.001
Distal interphalangeal	19	2.63	0.73	72.00	0.74	0.17	11.20	<.001
Metacarpals	03	2.67	1.00	62.50	0.58	0.33	5.00	<.02
Wrist	27	2.41	0.52	76.46	0.70	0.13	14.06	<.001
Elbow	24	2.37	0.79	66.67	0.88	0.18	8.81	<.001
Shoulder	17	2.35	0.53	77.50	0.63	0.15	11.82	<.001
Metatarsals	09	2.44	0.44	81.81	0.50	0.17	12.00	<.001
Ankle	26	2.27	0.54	76.27	0.60	0.12	14.61	<.001
Knee	26	2.35	0.46	80.32	0.71	0.14	13.56	<.001
Hip	02	2.50	1.00	60.00	0.71	0.50	3.00	>.05
Neck	06	2.17	0.83	61.54	0.82	0.33	4.00	<.02

Table 5: Effect of therapy on *Sandhishula* in different joints (Group B)

Cardinal Features	n	Mean score		(%) of relief	SD ±	SE ±	*t*	*P* value
		BT	AT					
Proximal interphalangeal	42	1.50	1.17	43.75	0.54	008	14.07	<.001
Distal interphalangeal	26	2.61	1.31	50.00	0.55	0.11	12.14	<.001
Metacarpals	07	2.57	1.28	44.44	0.69	0.26	4.38	<.01
Wrist	44	2.52	1.56	37.84	0.64	0.10	9.81	<.001
Elbow	29	2.55	1.31	48.65	0.69	0.13	9.69	<.001
Shoulder	26	2.54	1.35	46.97	0.63	0.12	9.59	<.001
Metatarsals	10	2.80	1.40	50.00	0.52	0.16	8.57	<.001
Ankle	36	2.39	1.36	43.02	0.65	0.11	9.43	<.001
Knee	39	2.26	1.05	53.41	0.69	0.11	10.83	<.001
Hip	02	2.50	2.00	20.00	0.70	0.50	1.00	>.05
Neck	07	2.28	0.86	62.50	0.53	0.20	7.07	<.001

Table 6: Effect of therapy on *Sandhishotha* in different joints (Group B)

Cardinal features	n	Mean score		(%) of relief	SD ±	SE ±	*t*	*P* value
		BT	AT					
Proximal interphalangeal	31	2.55	1.54	39.24	0.52	0.09	10.78	<.001
Distal interphalangeal	18	2.33	1.27	45.23	0.42	0.10	10.76	<.001
Metacarpals	06	2.33	1.17	50.00	0.75	0.31	03.80	<.01
Wrist	31	2.35	1.29	45.20	0.51	0.09	11.57	<.001
Elbow	18	2.27	1.22	46.34	0.80	0.19	05.58	<.001
Shoulder	17	2.18	1.35	37.84	0.63	0.15	05.34	<.001
Metatarsals	07	2.57	1.43	44.44	0.37	0.14	06.73	<.001
Ankle	26	2.08	1.27	38.89	0.63	0.12	06.49	<.001
Knee	27	2.18	1.22	53.41	0.44	0.08	11.45	<.001
Hip	02	2.50	2.00	20.00	0.70	0.50	01.00	>.05
Neck	06	2.16	0.83	61.54	0.52	0.27	06.32	<.01

A were taking *Vatari guggulu*, but those who did not respond well to the treatment left the treatment. Patients of group B were unwilling to continue *Basti* therapy and thus did not complete the treatment.

Patients with seropositive *Amavata* did not respond well as compared to seronegative patients. Also, patients with joint deformities and long-standing disease responded poorly in comparison to others.

Probable mode of action of Matra-Basti: Basti therapy is considered as prime among all the therapeutic measures, especially for management of *Vatavyadhies*, and some physicians accept it as a complete therapeutic measure. *Basti Dravyas* can act as *Vatahara*, *Shulahara*, *Shothahara*, *Srotoshodhaka*, *Yogavahi*, *Agnideepaka*, and *Rasayana*.

Our Acharyas have considered the rectum (*Guda*) as the root of the body (*Mula* of *Sharira*). According to Acharya Charaka: 'As

Table 7: Effect of therapy on Stiffness in different joints (Group B)

Cardinal features	n	Mean score		(%) of relief	SD ±	SE ±	*t*	*P* value
		BT	AT					
Proximal interphalangeal	37	2.38	1.35	43.18	0.50	0.08	12.51	<.001
Distall interphalangeal	25	2.36	1.16	50.85	0.50	0.10	12.00	<.001
Metacarpals	06	2.33	1.33	42.85	0.63	0.26	03.87	<.02
Wrist	39	2.31	1.10	52.22	0.80	0.13	9.40	<.001
Elbow	27	2.22	1.15	45.00	0.55	0.11	9.37	<.001
Shoulder	24	2.17	1.17	46.15	0.51	0.10	9.59	<.001
Metatarsals	08	2.37	1.50	36.84	0.83	0.29	2.96	<.05
Ankle	34	2.20	1.18	46.67	0.58	0.10	10.41	<.001
Knee	35	2.00	0.97	51.42	0.62	0.10	9.85	<.001
Hip	02	2.50	2.00	20.00	0.70	0.50	1.00	>.05
Neck	06	2.17	1.17	46.15	0.63	0.26	3.87	<.02

Table 8: Effect of therapy on tenderness in different joints (Group B)

Cardinal features	n	Mean score		(%) of relief	SD ±	SE ±	*t*	*P* value
		BT	AT					
Proximal interphalangeal	17	2.82	1.88	33.33	0.66	0.16	5.89	<.001
Distal interphalangeal	09	2.44	1.44	40.91	0.71	0.23	4.25	<.01
Metacarpals	05	2.60	1.40	46.15	0.83	0.37	3.20	<.05
Wrist	18	2.55	1.55	39.13	0.48	0.11	8.75	<.001
Elbow	11	2.54	1.63	35.71	0.53	0.16	5.59	<.001
Shoulder	08	2.75	1.62	40.91	0.64	0.23	4.96	<.01
Metatarsals	04	2.75	1.50	45.45	0.50	0.25	5.00	<.02
Ankle	13	2.23	1.46	34.48	0.60	0.17	4.63	<.001
Knee	13	2.30	1.38	40.00	0.27	0.07	12.0	<.001
Hip	02	2.50	2.00	20.00	0.71	0.50	1.00	>.05
Neck	03	2.33	1.33	42.86	1.00	0.58	1.73	>.05

Table 9: Effect on ESR value in groups A and B

	n	Mean score		(%) of relief	SD	SE	*t*	*P* value
		BT	AT		±	±		
Group A	50	46.76	46.12	1.37	9.56	1.35	0.47	>.05
Group B	53	42.28	39.54	6.47	23.0	3.16	0.86	>.05

Table 10: Overall effect of therapy on 103 patients of *Àmavata*

Effects (%)	Group A		Group B	
	No. of patients	Percentage	No. of patients	Percentage
Complete remission (100)	0	0	0	0
Marked improvement (76-99)	26	52.00	6	11.32
Moderate improvement (51–75)	21	42.00	15	28.30
Mild improvement (25–50)	03	6.00	29	54.72
Unchanged (<25)	0	0.0	3	5.66

a tree irrigated in its root attains blue branches with beautiful tender leaves, flowers and fruits in time, and attains a big stature, so too the man with unctuous enema given through the rectum.[8]

On the action of *Basti*, Vagabhatta[9] says the *Virya* of *Basti* is conveyed to *Apana* and then to *Samana Vata*, which may regulate the function of *Agni*. It then goes to *Udana*, *Vyana*, and *Prana*, thus providing its efficacy all over the body. At the same time *Basti* by pacifying *Vata*, restores the disturbed *Kapha* and *Pitta* at their original seats and thus helps in breaking the pathogenesis.

Thus, according to Ayurveda, the *Veerya* (active principle)

of the ingredients used in the *Basti* gets absorbed and then, through the general circulation, reaches at the site of the lesion and relieves the disease.

Modern pharmacokinetic studies have also proved that drug administration via the rectum can achieve higher blood levels of the drug than administration through the oral route due to partial avoidance of hepatic first-pass metabolism. The rectum has a rich blood and lymph supply and drugs can cross the rectal mucosa as they can other lipid membranes. Thus, un-ionized and lipid-soluble substances are readily absorbed from the rectum. The portion absorbed from the upper rectal mucosa is carried by the superior hemorrhoidal vein into the portal circulation, whereas that absorbed from the lower rectum enters directly into the systemic circulation via the middle and inferior hemorrhoidal veins. Thus, administration of drugs in the *Basti* form has faster absorption and provides quicker results.

The rectal wall contains neuroreceptors and pressure receptors which are stimulated by various *Basti Dravyas*. Stimulation results in increase in conduction of sodium ions. The inward rush of sodium ions through the membrane of the unmyelinated terminal is responsible for generating the action potential, influx of ions there by generating action potential. Generally, the action potential is initiated by an increase in permeability to sodium ions. *Saindhava Lavana* present in *Basti* probably generates the action potential and helps in diffusion and absorption of the *Basti Dravyas*.

The drugs, immediately after entering into the *Pakwashaya* (intestine), strike at the very root of vitiated *Vata*. By virtue of their permeability the drugs may increase the normal bacterial flora of the colon and thereby modulate the rate of endogenous synthesis of vitamins B_1 and B_{12} as well as vitamin K, which are normally manufactured by bacterial flora. Vitamin B_{12} may have a role to play in the regeneration and maintenance of nerve cells. *Basti Karma* also reverses the effects of degeneration by enhancing immunity.[10]

Basti therapy may be stimulator for Gastrointestinal tract and also for whole body functions. Regulatory peptides like serotonin, enteroglucagon, and vasoactive intestinal polypeptide (VIP) are produced in the colon. Many of the peptides have a role in the functioning of the basal ganglia and some of the substances among them, such as (Cholecystokinin) and VIP, are stimulators of the dopaminergic neuronal system. It is possible that Basti by stimulating many factors in GIT physiology affects on regulatory functions of these peptides either by moderation or by stimulation. Thus, *Basti Karma* exerts a largely systemic action exerting local action in Gastrointestinal tract by operating through large intestine involving enteric nervous system. *Basti Karma* can activate the autonomic nervous system and thereby help in the evacuation of *Basti Dravya*

Doshavasechana

The effects of *Basti* can be encolonic (acting on the tissue of the colon), endocolonic (acting inside the colon), and diacolonic (systemic action). In the present study, *Brihat Saindhavadi Taila* was used for *Matra Basti*. *Eranda Taila* and most of its contents have basically *Ushna*, *Vata-Kaphashamaka*, *Shothhara* (anti-inflammatory), *Vednasthapana* (analgesic), and *Deepaka* properties. These properties of *Basti Dravya* helps overcome the obstruction and expel the morbid material from the entire body, thus interrupting the pathogenesis of disease. Therefore, we can say that *Basti* plays a pivotal role in the management of *Àmavata*.

Probable mode of action of *Vatari Guggulu*

Vatari Guguulu contains *Erand taila*, *Shudha gandhak*, *Shudha Guggulu*, *Haritaki*, *Bibhitaki*, and *Amalaki* in equal proportions. Maximum drugs of *Vatari gugglu* have *ushna veerya* and *katu vipaka*. Also, it has dominantly *Tikta*, *Katu*, and *Kashaya Rasa*, but it also has a *Vatakapha Shamaka* property. *Amalaki*, *Haritaki*, and *Gandhaka* has *Rasayana* effects, and the antioxidant property *Amalaki* has been proved.

In the pathogenesis of *Amavata*, the prime *Doshas* involved are *Vata* and *Kapha*. In the first stage of disease due to *Mandagni*, formation of *Ama* takes place and, here, *Vatari Guggulu* does *Amapachana* by the properties of *Laghu*, *Ruksha*, *Tikshna Guna*, *Katu*, *Tikta Rasa*, *Ushna Virya*, and *Katu Vipaka*, all *of* which acts against the *Guru*, *Snigdha*, *Pichhila*, etc. properties of *Ama*. Later, the imbalance of *Kapha* and *Vata* is checked by the *Vata Kapha Shamaka* action of the drug. Further, *Ama* formation is stopped by the *Dipaniya* action. It relieves the symptoms of *Sandhishoola* (pain in joints), *Sotha* (swelling), *Aruchi* (dislike for food), etc., by its *Vednasthapana* (analgesic) and *Sothahara* (anti-inflammatory) action. Also the associated symptoms like *Vibandha* (constipation), *Anaha*, etc., are reduced by *Anulomana* and *Virechan Karmas* of the drugs like *Haritaki* and *Erand taila*. Thus, due to its *Deepana-Paachana* and *Vata Kapha Shamaka* properties, it is very suitable for interrupting the pathogenesis of the disease and to combat the main culprits, i.e., *Vata*, *Kapha* (*Ama*), and *Mandagni*, that are the root cause of *Amavata*.

Conclusion

Àmavata is first mentioned in Madhava-Nidana as a separate disease, and a complete picture of its *Nidana*, *Samprapti*, and *Samanya* as well as *Pravriddha Rupa* is given. It is mostly a disease of *Madhyama Rogamarga* with *Chirakari Swabhava*. *Ama* and *Vata* being contradictory in nature make it difficult to plan the line of treatment. In this study, although the improvement was statistically highly significant in both the groups, the *Matra Basti* group (group A) showed comparatively better relief than the *Vatari Guggulu* group (group B). Thus, *Basti* can be thought of as an ultimate solution for the eradication of *Vata Dosha*, after which *Vatari Guggulu* can maintain it by its *Dipana*, *Amapachana*, anti-inflammatory, and antiarthritic properties On comparing the effect of two therapies it can be concluded that *Matra Basti* provides significantly better relief than *Vatari Guggulu* in most of the signs and symptoms of the disease.

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हिन्दी सारांश

आमवात रोग की चिकित्सा में वातारि गुग्गुल एवं मात्राबस्ति का तुलनात्मक अध्ययन

रीटा खग्राम चार्मी मेहता वी.डी.शुक्ला अलंकृता दवे

आचार्य माधव ने सर्वप्रथम आमवात का विस्तृत वर्णन माधवनिदान में किया है। इसको आधुनिक चिकित्सा विज्ञान में रूमेटॉयड आर्थ्राइटिस के साथ तुलना कर सकते हैं। आमवात की चिकित्सा का वर्णन करते हुए आचार्य चक्रदत ने क्रमानुसार लंघन, दीपन, पाचन, शोधन तथा शमन चिकित्सा का वर्णन किया है। आधुनिक चिकित्सा विज्ञान में वर्णित चिकित्सा, सम्प्राप्ति विघटन न करते हुए सिर्फ लाक्षणिक लाभ ही करती है। वर्तमान में कुल ११८ आतुरों को पंजीकृत किया गया। उन्हें सामान्य वितरण पद्धति से दो वर्गों में विभाजित किया गया। वर्ग अ में वातारि गुग्गुलु की २ गोली दिन में ३ बार उष्णोदक के साथ ४५ दिनों तक दी गयी। साथ ही बृहत् सैन्धवादि तैल (६० मिली.) की मात्रा बस्ति २१ दिनों तक दी गयी। वर्ग ब में सिर्फ वातारि गुग्गुल की२ गोली दिन में ३ बार उष्णोदक के साथ ४५ दिनों तक दी गयी। दोनों वर्गों में आतुरों पर औषध के चिकित्सात्मक प्रभाव का अध्ययन विशेष रूप से निर्मित गवेष्णा प्रपत्र के आधार पर किया गया। पाए गए परिणामों से यह साबित हुआ कि वर्ग अ से प्राप्त परिणाम वर्ग ब की तुलना में अच्छे आये। वर्ग अ में उत्तम लाभ ६२ % तथा मध्यम लाभ ४२ % आतुरों में प्राप्त हुआ। वर्ग ब में उत्तम लाभ ११.३२% तथा मध्यम लाभ २८.३० % आतुरोंमें प्राप्त हुआ। इसके द्वारा यह निष्कर्ष निकाला जा सकता है कि मात्रा बस्ति के साथ दी गयी शमन औषध से आमवात में अधिक लाभ मिलता है।