Research Article

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MANAGEMENT OF AMAVATA (RHEUMATOID ARTHRITIS) BY APPLICATION OF AYURVEDIC PRINCIPLE

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ABSTRACT

Amavata (RA) is a major musculoskeletal joint disease described in Ayurveda. Swelling, pain, and stiffness in the ankle, knee, hip joints, wrist, elbow, and shoulder are the clinical manifestations of Amavata. The peak incidence of onset of RA is in persons 30 to 60 years old, but no age is immune. According to Yogaratnakara, treatment of Amavata should be started with Langhana (fasting) followed by Dipana (improving appetite), Pachana(improving digestion), Swedana (fomentation therapy), Virechana (Purgation) and Basti (medicated enema) sequentially. Present study aimed to access thisAmavataChikitsa Sutra (principle of treatment of RA). Present work was done in three groups on 15 patients suffering from RA. The treatment was divided into two stages viz Stage I; in which Langhan (systematic fasting) and Dipana pachana medicine were used and Stage II; in which Nitya Virechan karma with Eranda Tail 25 ml at night and Basti karma with Bruhata saidhavadi tail was given. All three groups showed statistically high significance (P = <0.001) effect in the symptom spontaneous pain over the joints, mobility of the joints, grip strength and tenderness at joint. The significant effect on these symptoms strongly indicates positive effect of applied interventions. Effect observed in Hb % and ESR in group A are highly significant (P = <0.001) than group B and C. The observed significant effect of therapy in studies population indicates that the concept mentioned for treatment of management of Amavata is very effective.

Keyword: Amavata, Rheumatoid Arthritis, Langhana, Dipana, Pachana, Swedana, Virechan, Basti

INTRODUCTION

In Ayurveda, musculoskeletal joint diseases are included under the heading Amavata Sandhivata and Vatarakta that are characterized by pain and swelling of the joints. Based on similarity in symptoms these diseases can be correlated to rheumatoid arthritis (RA), osteoarthritis (OA), and gouty arthritis, respectively.[1]

Ayurveda has described Amavata (RA) as a chronic disorder with clinical manifestations of joint swelling, pain, and stiffness in the ankle, knee, hip joints, wrist, elbow, and shoulder. The worldwide incidence of RA ranges from 0.3 to 1.5% which is two to three times higher in females compared to males. Most commonly the peak incidence of onset of RA is found in persons of 30 to 60 years old group, however it is also evident that no age is immune for this disease.[2] The severity of RA may range from mild oligoarticular illness of a brief duration and very little or no joint damage to polyarthritis with marked functional impairment.

RA is commonly treated by Non-steroidal anti-inflammatory drugs (NSAIDs). It is known that these drugs are gives symptomatic relief and do not modify disease progression.[3]Such drugs may cause adverse gastrointestinal effects that may range from mild dyspepsia and heartburn to ulceration of the stomach and duodenum, and fatal consequences.[4] Hence, the use of NSAIDs has been controversial issue.[5] In a survey, 27% of the patients suffering from arthritis in the U.S. had used complementary alternative medicine therapies (CAM).[6] In a recent survey in India, 43% had used CAM therapies.[7] However in Ayurveda a different concept of RA management has been mentioned by Acharya Yogaratnakara. According to this concept treatment of RA should be started with Langhana (fasting) followed by Dipana (improving appetite), Pachana (improving digestion), Swedana (fomentation therapy), Virechan (Purgation)and Basti (medicated enema) sequentially.[8] These sequential five steps are narrated as Amavata Chikitsa Sutra (principle of treatment of RA). Ayurveda include few such principles which need to be scientifically evaluated, therefore present work was planned to study Amavata Chikitsa Sutra on clinical ground.

MATERIALS AND METHODS

Patients suffering from Amavata were selected from OPD and IPD of Kayachikitsa department of MGACH & RC, Salod(H), Wardha (Maharashtra). Selected patients were divided into two stages. Treatment of selected 15 patients was continued in each stage. The treatment modules are as per given below. Total duration of the study was15 days. The study is carried out as per International conference of Harmonization-Good Clinical Practices Guidelines (ICH-GCP) or as per Declaration of Helsinki guidelines. (IEC no. DMIMS(DU)/IEC/2012-13/690)

Statistical Analysis: Statistical analysis of obtained results was done by applying paired "t" test.

Stage I [Purvakarma (Initial procedures)]

In this stage, Langhan (systematic fasting) and Dipana pachana medicine like Nagaramotha churna 5 gm before meal twice a

day for seven days along with Sarvang bahya snehana by using Dashamool Taila and Bashpa sweda before administration of Basti was done. Duration of this stage was 7 days.

Stage II [Pradhana karma (Chief procedure)]

In stage II, Nitya Virechan karma with Eranda Tail 25 ml at night and Basti karma with Bruhata saidhavadi tail 50 ml daily after meal was done. Total duration of therapy in stage II was 8 days.

Inclusion Criteria

Patients suffering from Amavata between age group 20 to 50 years, having symptoms such as pain and swelling at joint along with recurrent fever, loss of appetite, heaviness in body and gave consent to participate in this work were included. The patients who satisfied the criteria laid down by the American Association were also included in this study.

Exclusion criteria

Patients below age 20 and above 50 years, having history of systemic diseases such as Pulmonary Tuberculosis, Excessive Blood Loss, Chronic Alcoholism, Hemophilia and unwilling to give consent were excluded from this study.

Intervention

According to the Ayurvedic concept of treatment of RA, treatment was started with Langhana (fasting) followed by Dipana (improving appetite), Pachana (improving digestion), Swedana (fomentation therapy) and Basti (medicated enema) sequentially. These interventions, their duration and dose of medicines are as per given below;

Assessment Criteria

Subjective criteria
Symptoms of Amavata mentioned in Madhava Nidana such as pain all over body (joints), loss of taste, thirst, lack of enthusiasm, heaviness, fever, indigestion and swelling of the body parts.[9]Symptoms of Rheumatoid Arthritis lead by American Rheumatoid association (ARA)[10].

Objective criteria
Patients are diagnosed on the basis of symptoms of Amavata and criteria as approved by ARA, 1987 revision such as spontaneous pain over joints, early morning stiffness, mobility of joints, joint swelling, grip power and joints tenderness.

Laboratory assessments
Laboratory investigations such as Hb %, ESR (erythrocyte sedimentation rate), RA titer, ASO titer and C Reactive Protein were done in selected patients before beginning treatment and after completion of treatment.

OBSERVATIONS AND RESULTS

All three groups showed statistically high significance (P = <0.001) effect in the symptom spontaneous pain over the joints (Table 1), mobility of the joints (Table 2), grip strength (Table 3) and tenderness at joint (Table 4). The significant effect on these symptoms strongly indicates positive effect of applied interventions. Highly significant (P = <0.001) effect in Hb % and ESR is observed in group A, while in group B, statistically non significant result is detected in Hb % and the effect on ESR is significant but less compared to group A. In group C, significant effect is seen in Hb % and ESR but this effect is also comparatively less than group A. (Table 5)

Before treatment, RA factor test was positive in 8, 5 and 1 patient and 2, 1 and completely negative in group A, B and C respectively. ASO titer was also observed negative after treatment in one patient in group B. In group A, B and C; 5, 6 and 4 patients had positive C reactive protein before starting the treatment, out of them 3, 2 and 1 patient were detected negative for C reactive protein after treatment. (Table 6) Overall effect of therapy indicates statistically significant result in the management of Amavata in all three studied groups.

Table 1: Effect of therapy on spontaneous pain over the joints in studied groups

Group		N	Mean	Std Dev	SEM	P value
A	**BT**	15	3.333	0.617	0.159	P = <0.001**
	AT	15	0.667	0.488	0.126	
	Difference	15	2.667	0.724	0.187	
B	**BT**	15	3.667	0.488	0.126	P = <0.001**
	AT	15	0.333	0.488	0.126	
	Difference	15	3.333	0.488	0.126	
C	**BT**	15	3.6	0.507	0.131	P = <0.001**
	AT	15	0.4	0.507	0.131	
	Difference	15	3.2	0.414	0.107	

BT: Before Treatment, AT: After Treatment

Table 2: Effect of therapy on mobility of the joints

Group		N	Mean	Std Dev	SEM	P value
A	**BT**	15	10.267	2.658	0.686	**P = <0.001****
	AT	15	19.8	3.212	0.829	
	Difference	15	-9.533	3.204	0.827	
B	**BT**	15	7.667	2.582	0.667	**P = <0.001****
	AT	15	21.8	3.59	0.927	
	Difference	15	-14.133	2.2	0.568	
C	**BT**	15	9.333	1.759	0.454	**P = <0.001****
	AT	15	22.667	2.582	0.667	
	Difference	15	-13.333	2.44	0.63	

* Statistically significant, ** Statistically high significance, BT: Before Treatment, AT: After Treatment

Table 3: Effect of therapy on grip strength

Group		N	Mean	Std Dev	SEM	P value
A	**BT**	15	22	10.142	2.619	**P = <0.001****
	AT	15	66	12.984	3.352	
	Difference	15	-44	14.541	3.754	
B	**BT**	15	16.667	4.88	1.26	**P = <0.001****
	AT	15	67.333	10.998	2.84	
	Difference	15	-50.667	9.612	2.482	
C	**BT**	15	16	5.071	1.309	**P = <0.001****
	AT	15	68	14.243	3.677	
	Difference	15	-52	12.071	3.117	

** Statistically high significance, BT: Before Treatment, AT: After Treatment

Table 4: Effect of therapy on tenderness at joint

Group		N	Mean	Std Dev	SEM	P value
A	**BT**	15	3	0.535	0.138	**P = <0.001****
	AT	15	0.467	0.516	0.133	
	Difference	15	2.533	0.516	0.133	
B	**BT**	15	2.867	0.834	0.215	**P = <0.001****
	AT	15	0.267	0.458	0.118	
	Difference	15	2.6	0.632	0.163	
C	**BT**	15	3.2	0.561	0.145	**P = <0.001****
	AT	15	0.533	0.516	0.133	
	Difference	15	2.667	0.488	0.126	

** Statistically high significance, BT: Before Treatment, AT: After Treatment

Table 5: Effect of therapy on Hb % and ESR

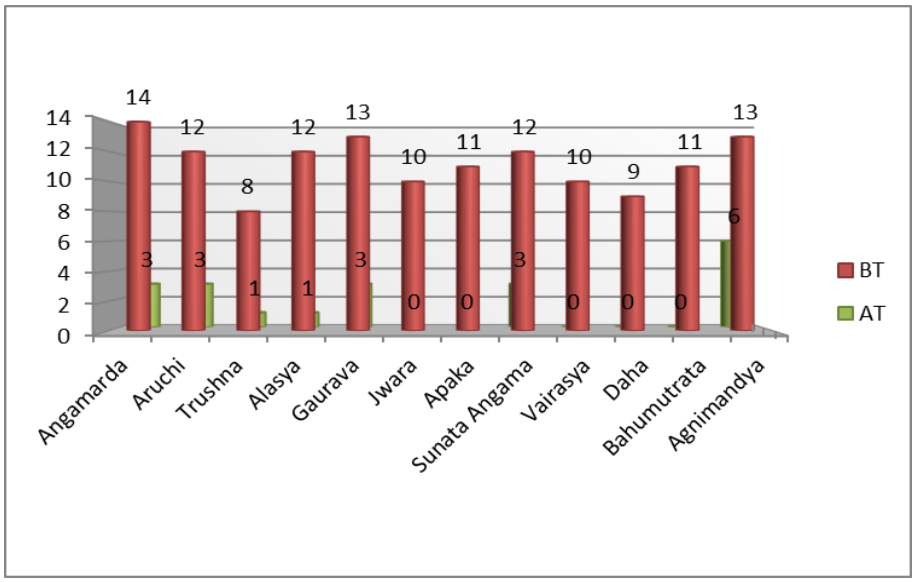
Group	Parameter		N	Mean	Std Dev	SEM	P value
A	**Hb %**	**BT**	15	10.993	1.528	0.395	P = <0.001**
		AT	15	12.62	1.414	0.365	
		Difference	15	-1.627	1.437	0.371	
	ESR	**BT**	15	54.867	30.201	7.798	P = <0.001**
		AT	15	34.4	22.953	5.926	
		Difference	15	20.467	13.737	3.547	
B	**Hb %**	**BT**	15	12.56	2.37	0.612	P = 0.253
		AT	15	13.193	1.558	0.402	
		Difference	15	-0.633	2.057	0.531	
	ESR	**BT**	15	58.467	41.411	10.692	P = 0.003*
		AT	15	42.2	32.311	8.343	
		Difference	15	16.267	17.838	4.606	
C	**Hb %**	**BT**	15	12.287	1.641	0.424	P = 0.013*
		AT	15	13.067	1.669	0.431	
		Difference	15	-0.78	1.056	0.273	
	ESR	**BT**	15	47.467	23.228	5.998	P = <0.001**
		AT	15	31.933	16.968	4.381	
		Difference	15	15.533	13.223	3.414	

* Statistically significant, ** Statistically high significance, BT: Before Treatment, AT: After Treatment

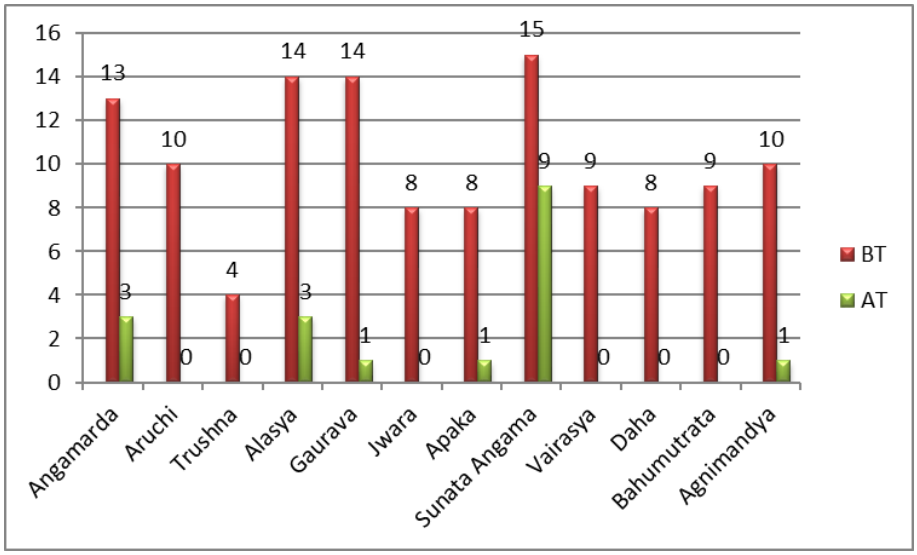
Table 6: Observation of RA-Test, ASO titer and C-Reactive protein in studies groups

No. of Patient	Group A						Group B						Group C					
	RA-Test		ASO titer		C-Reactive protein		RA-Test		ASO titer		C-Reactive protein		RA-Test		ASO titer		C-Reactive protein	
	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
1	-	-	-	-	+	+	+	+	-	-	+	+	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
3	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
5	-	-	-	-	+	-	-	-	+	+	+	+	-	-	-	-	+	-
6	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
7	+	+	-	-	-	-	+	+	-	-	+	+	-	-	-	-	-	-
8	+	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	+	-	+	-	+	-	-	-	-	-	+	+
10	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-
11	+	-	-	-	-	-	+	-	-	-	+	+	-	-	-	-	-	-
12	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-

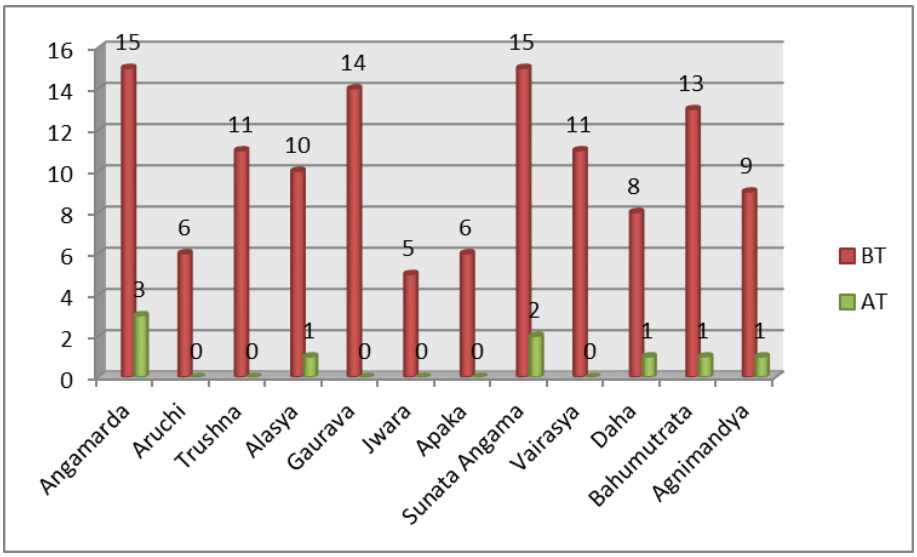
BT: Before Treatment, AT: After Treatment



Graph 1: Observations of subjective parameters in group A



Graph 2: Observations of subjective parameters in group B



Graph 3: Observations of subjective parameters in group C

DISCUSSION

According to Ayurveda, poor digestive power is root cause of formation of Ama (metabolic toxic waste materials) which is key factor in Pathogenesis of RA. Physically resembles of Ama with Kaphatends to deposit in Kapha predominant locations, primarily the joints. When this vitiated Ama causes blockage in the normal functioning of Vata Dosha and manifest in the form of joint swelling, pain, tenderness and recurrent fever, then the disease is termed as Amavata.

Incompatible diet, poor digestion, and sedentary habits are the etiological factors in the pathogenesis of Amavata.[11]Weak digestive power results in poor digestion which again leads to the formation of Ama in the intestine. The formed Ama gets absorbed and distributed to all parts of the body. Doshas react with Ama and both get vitiated which is considered as sever condition as it is responsible for developing all types of diseases in the body.[12]

According to conventional medicine the factors involved in pathogenesis of RA are genetic susceptibility, primary exogenous arthritogen, autoimmune reactions in joint components and mediators of the joint damage.[13] Langhana literally defined as whatever is capable to reduce the body is known as Langhana.[14] As per Ayurvedic point of view, indigestion is the major cause of the disease Amavata and thus for normalizing digestion mechanism, proper rest to digestive system is needed which can be done by systematic fasting. Therefore, Langhana is the foremost step in treatment of Amavata. Moreover, it is understood that if digestive system is not working properly then it may affect absorption of medicines and thus result in low effect. It is known that in low function of digestive system is common diseased condition. Therefore, providing a digestive medicine and stimulating digestion is expected to avoid deficiency of necessary cellular components as well as to increase strength of body. The medicines which have these properties are narrated under Deepan-Pachana category in Ayurveda. In present work Nagaramotha churna which having Tikta, Katu, Kashaya Ras, Katu Vipaka and Shita, Laghu, Ruksha Guna and useful for Pitta-Kaphaghna drug was utilized for Deepan-Pachana purpose.[15] Nagaramotha churna also have Anti-inflammatory, Antimicrobial, Antispasmodic, Anti-diarrhoeal and Anti-obesity actions which are also expected during management of Amavata.[16]Previous work has also evaluated efficacy of Dipan-Pachan in Amavata.[17]

Swedana (fomentation therapy) is defined as whatever cures stiffness, heaviness and coldness of body is Swedan or fomentation therapy.[18]Bahya Snehana i.e. Abhyanga also have similar actions. These therapies are recommended to provide relief from joint pain and swelling. It can be interpreted that few portion of medicament utilized for Abhyanga and Swedana purpose get absorbed through skin in reach to systematic circulation and produces actions mentioned in classical texts and can be correlated to analgesic and anti-inflammatory activity.[19]

Basti is chief Panchakama procedure used in Ayurveda. The pharmacodynamics of systemic effect of Basti may be understood through absorption mechanism, concept of system biology, neural stimulation mechanism, and excretory mechanism.[20] The active principles of the Basti drugs may be absorbed by active transport and diffusion because they are mainly water soluble and other nourishing Basti contain hypo-osmotic solution facilitating absorption into the blood. All the cells/ tissue in the body are inter connected, Basti by eliminating morbid content of large intestine will definitely put a positive impact on the other system of body help in maintaining health as whole. Neurogastroenterology helps us to understand relation between gut's brain and CNS by this we can explore systemic effect of Basti easily. The cleansing action of Basti is related with the facilitation of excretion of morbid substances responsible for the disease process into the colon, from where it is evacuated. Pharmacodynamics outcome of Basti Karma may be due to functioning of the one or combined effect of all the four mechanism.[21] Considering these actions Bruhata saidhavadi tail Basti in stage II was administered.

Virechana (Purgation therapy) is regarded as the best one among all the therapeutic measures for Pitta i.e. the factors responsible for enzymatic actions at cellular level.[22]Yogindranatha Sen mentions that during shodhana process doshas become 'Dravibhuta' (Liquify), so that they can be expelled out easily. By evaluating the number of Vega during shodhana, one can understand the proportion of Doshas, which are liquefied. During shodhana if Vegas produced are more in number, then it indicates that doshas in the body are having more Drava guna. One can easily understand that if liquid property is increased in excess then it enters the Amasaya. Hence, more and more weakening of Agni will happen. Thus, during the Uttama Vaigiki Shuddhi, Agni will use more time to return to normal position, so maximum days (8 days) are attributed to it. Hence, the Samsarjana Krama is arranged in proportion to Suddhi done during shodhana.[23]There is no reference but few Ayurveda pioneers claims that Virechana karma helps in treating Auto-immune diseases such as Amavata. Therefore, in stage II, Eranda taila Virechana was given. Castor oil is extracted from the attractive and ornamental Castor seeds by cold press method. It is one among the most commonly used oil since the pre-historic times for cleansing the colon, reproductive system and as a powerful detoxifying agent.[24] Eranda Taila have valuable therapeutic properties such as Anti-inflammatory, emmenagogue, anti-infectious, anti-rheumatic, fungicidal, laxative, immune stimulant, insecticidal, anti-viral, labor inducing, anti-allergic, anthelmintic, rejuvenative, anti-aging, germicidal, disinfectant, and analgesic are the major remedial attributes.[25,26]

CONCLUSION

Langhana, Dipana pachana, Sarvang bahya snehana, Nitya Virechan karma and Basti karma have significant impact in not only treating Amavata but also reducing its complications. The observed significant effect of therapy in studies population indicates that the concept mentioned for treatment of management of Amavata is very effective. However, as the studied sample size was small hence similar studies on larger sample size are needed for establishing strong scientific evidence of efficacy of concept of management of Amavata.

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