

Proposal of a Personalized Panchakarma (bio-purificatory) treatment Algorithm for *Amavata* with special reference to Rheumatoid Arthritis

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Abstract

Personalized care has become an emerging concept in different fields of biomedicine, which has already been established in the field of Ayurveda for ages. By the concept of *Purusham Purusham Veekshya* (individualized or personalized medicine), it makes the researchers and physicians analyze all the factors like *Dosha*, *Dushya*, *Bala*, *Kala*, *Prakriti*, *Anala*, *Vaya*, *Satwa*, *Satmya*, *Ahara*, *Desha* and then plan a personalized treatment protocol for every patient of a particular disease. In contrast to the treatment protocols that are being forcefully used especially in the postgraduate and PhD dissertations which is a kind of one-size-fits-all approach, an algorithm development will help in providing customized treatments that fit each individual. The treatment protocols for managing Rheumatoid Arthritis/*Amavata* are different for each patient when we consider the stage of the disease as well as the predominant *Dosha* involved. As Ayurveda emphasizes the selection of therapies in a more individualized approach with patients considering *Roga Bala* (strength of a disease) *Rogi Bala* (strength of a patient) *Vyadhi Avastha* (stages of disease), here is an attempt to propose an Ayurveda treatment algorithm for the management of Rheumatoid Arthritis by following the principles from *Amavata Chikitsa*.

Keywords : Ayurveda, Algorithm, *Amavata*, *Panchakarma*, Rheumatoid Arthritis

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Introduction

Amavata, one of the most common debilitating diseases, manifests as a result of vitiation of *Vata* and *Ama* by various etiologies. The formation of *Ama* is due to *Agnimandya* (low digestive capacity), followed by *Tridosha Prakopa*, (vitiation of all three *Doshas*) predominantly *Vata*. So, *Ama* and *Vata* are the two leading factors in the etiopathogenesis of *Amavata*. The disease *Amavata* was first mentioned in detail in *Madhavanidana* in the 11th century, which may be due to the increased epidemiology of the disease during the later period. (1)(2)

The manifestation and severity are based on the presence

of *Ama* at different areas. It shows *Koshtagata* symptoms at *Poorvarooopa* level and when it takes *SthanaSamsraya* at *ShleshmaSthanas* it exhibits *Madhyamamargagata* symptoms involving *Asthi* and *Sandhi* causing *Shoola* (pain) and *Shotha* (swelling) Thus, according to *SthanaSamsraya* of *Ama*, causing *Srotoavarodha* and vitiation of *Vata* either at the local or systemic level is the basis of the genesis of pain. *Amavata* is an inflammatory systemic disorder caused by the formation of *Ama* (undigested or intermediate product of digestion or metabolism) and its association with vitiated *Vata* at *Kaphasthana* (joints) and can be simulated with rheumatoid arthritis (RA). Constant use of incompatible food articles and strenuous exercise immediately after

consumption of fatty foods leads to indigestion. This results in the formation of Ama, which gets circulated throughout the body by Vyana Vayu (*Vata*, that is responsible for circulation). This then accumulates at *Shlesmasthanas* (especially at synovial joints) and especially at the *ShleshakaKapha* (subtype of *Kapha* situated in the joints), i.e., in the joints leading to the manifestation of symptoms of the disease. According to Ayurveda *Shamana* (conservative) and *Shodhana* (biological purification of the body), treatments are advised, whereas anti-inflammatory, analgesics, steroids, and disease-modifying anti-rheumatic drugs are required for its management as per modern medicine (4). In light of present-day science, '*Amavata*' word has been used extensively in comparison to rheumatoid arthritis and many more rheumatological disorders in which pain, stiffness and swelling are important clinical manifestations. (5) Convoying with body aches, loss of taste, feeling of heaviness, laziness, fever, swelling of joints, etc. the disease manifests. When *Pitta* also gets associated, it causes burning sensation around the joints. (6) If not treated at the right time, it ends up with deformities like contracture of joints. Rheumatoid arthritis (RA), a disease seen with similar symptoms to *Amavata*, is one of the burning problems of this era.

Amavata looks similar to Rheumatoid Arthritis in its clinical appearance. Step-wise and stage-wise treatment protocol, according to *Chikitsa Sutra* of *Amavata* has been influential in treating Rheumatoid Arthritis. (7)

Rheumatoid arthritis is a chronic, progressive, inflammatory autoimmune condition affecting around 0.5% to 1% of the adult population in developed countries. (8) Rheumatoid arthritis is characterised by inflammation of the synovia of flexible joints leading to joint swelling, stiffness, and tenderness, which can eventually result in cartilage damage, bone erosions, and joint destruction; this may lead to disability, decreased productivity, and increased health expenditure. RA has similar clinical features of *Amavata* in Ayurveda, in which vitiated *Vata* and *Ama* cause *Shoola* (pain) and *Shotha* (swelling) in joints. The treatment protocol of *Amavata* includes *Shodhana* and *Samana Chikitsa*. Depending upon

the stages (*Sama Avastha/ Nirama Avastha*) and *Doshas* involved, many measures like *Langhana*, *Valuka Swedana*, *Upanaha Sweda*, *Deepana*, *Snehapana*, *Virechana*, *Anuvasana Basti*, *Asthapana Basti* and *Rasayana* mentioned in *Chikitsa Sutra* of *Amavata* has been found effective in the management of RA. (9)

As Ayurveda emphasizes the selection of therapies in a more individualised approach with patients, an Ayurveda treatment algorithm is being proposed for the management of RA by following the principles from *Amavata Chikitsa*. (10) The treatment protocols for managing Rheumatoid Arthritis will be different to each patient considering the stage of the disease as well as the predominant *Dosha* involved.

Aims

To propose a Personalized Panchakarma treatment algorithm for the management of RA by following the principles from *Amavata Chikitsa*.

Objectives

To study the role of *Vyadhi Avastha* (stage of disease), *Roga* and *Rogi Bala* in choosing different treatment modalities in the management of RA considering *Amavata Chikitsa*

Materials and Method

Brihatrayis and *Laghutrayis* were searched to find the possible treatment modalities suitable for the management of RA by giving due importance to *Amavata Chikitsa*. (11)(12) Different Databases like PubMed, Scopus, Dhara, and Google Scholar were searched using keywords like Rheumatoid Arthritis, *Amavata*, *Langhana*, *Deepana*, *Pachana*, *Rukshana*, *Snehapana*, *Virechana*, *Shodhana*, *Niruha Basti*, *Anuvasana Basti*, *Kshara Basti*, *Kshara Vaitarana Basti*, *Pinda Sweda*, *Valuka Sweda*, *Lepa*, *Rasayana*, with the help of Boolean operators 'AND', 'OR' and 'NOT'. Filters like Clinical trials, within 5 years and free full text were applied.

Outcomes and Discussion

Among the articles searched, 25 were found to be relevant.

A possible treatment algorithm considering all factors of *Amavata* giving due importance to all stages of disease was prepared. Based on *Samanya Amavata Lakshana*(13)(common symptoms of *Amavata*)proper *Ama* assessment and those patients who satisfy ACR/EULAR classification criteria,(14) the disease may be diagnosed as *Amavata*.

So according to *Sama* (*Dosha* associated with *Ama*) or *NiramaAvastha*(the stage which is devoid of *Ama*) based on the level of presence or absence of *Ama*, treatment differs. Again, *Sama Avastha*(*Dosha* associated with *Ama*) is further subdivided into *Alpa Ama*(mild association with *Ama*)*Madhyama*(moderate association with *Ama*) and *Prabhuta*(severe association with *Ama*) based on the level of *Ama* present in the patient.(15) 28 symptoms from *Amavata Lakshana* (common symptoms of *Amavata*) has been taken into consideration and it will be graded by using a self-graded Likert Scale. ACR/Eular Criteria will also be considered in *Roga Pariksha* along *Amavata Lakshana*. Both *Amavata Lakshana* and ACR criteria can constitute *Roga Bala*. *Ama* assessments will be done as per validated tool by Rohit et al. (dissertation work done by Dept of *Roga Nidana* and *Vikriti Vijnana*, AIIA), in which values from 0-40 is considered as *Nirama Avastha*, scores from 41-80 is considered as *Alpa Ama*, scores from 81-120 is considered as *Madhyama Ama*, and the scores between 121- 160 will be considered as *Prabhuta Ama*. Rogi Bala assessment will be the *Dasha Vidha Pariksha* except *Vikriti Pariksha* which can be done according to the scale developed by Dr. Sanjeev Rastogi. So each of *Ama* Assessment, *Roga Bala* and *Rogi Bala* Assessment will be calculated separately and if the value falls between 0-33 % will be considered *Avara*, 34-67 % will be considered *Madhyama*, and cumulative percentage above 67 % will fall under the group of *Prabhuta*. (table no: 1) Then as per Table 2, *Chikitsa* can be chosen according to the calculated *Roga Bala* (ACR criteria and *Amavata* symptoms), *Rogi Bala* (*Dasha Vidha Pariksha* except *Vikriti Pariksha*) and *Ama* assessment.

If the patient has *Alpa Ama Lakshanalakshanas*(mild association with *Ama*),*Upavasa*(fasting) with *DeepaniyaYavagu*(the gruel made of herbs which

increases metabolism) can be administered till appearance of *NiramaLakshana*. *Swedana*(sudation therapy) can be done if *Janga*, *Parva*, *AsthiShoola*(pain in calf muscles, joints and bones)or *Vata Sleshmatmaka Shoola*(pain exhibiting the features of both *Vata* and *KaphaDosha*) is present. *Lepa*(external application of medicines in the form of a paste) also can be done if *Shoola*(pain) and *Shotha*(swelling) of joints are present. If *Madhyama Ama Lakshana*(moderate association with *Ama*) is found, then *Deepana Pachana*(process by which digestion and metabolism gets enhanced) medicines can be administered along with *Upavasa*, *Yavagu*, *Swedana* and *Lepa* till the attainment of *Nirama Lakshana*. *Swedana* can be done in those with *Madhyama Ama Lakshana*if associated with *Janga*, *Parva*, *Asthi Shoola* or *Vata Sleshmatmaka Shoola*. *Lepa* can also be done if *Shoola*and *Shotha* of joints are present. In *Prabhuta Ama* condition, the patient can be subjected to *Kshara Basti*(therapeutic enema) (16)(17)for 8 days will be done. along with *Kshara Basti Swedana*(if *Janga*, *Parva*, *Asthi Shoola* or *Vata Sleshmatmaka Shoola*) *Deepana-Pachana Aushadi* and *Yavagu*(combination of sudation therapy, medicines and gruel to enhance digestion and metabolism) is administered till *Nirama Lakshana*. Again, in *Prabhuta Ama Lakshana*, *Lepa* also can be done if the patient has *Shoola* or *Shotha* in joints.(18) A physician can choose *Rasnadi Lepa* external application for the joints if it is associated with *Soolanubandha* (pain associated), *Kottamchukkadi Lepa*(18)can be applied if it is *Sthabdanubanda* (associated with stiffness), if *Dahanubanda*(associated with burning sensation)*JadamayadiLepa*(19)may be applied till the attainment of *Nirama Lakshana*. *Rasnadilepa* can be continued even after *Nirama Lakshana* attainment till *Shoolaprasamana*

Once *Niramata* is attained, then the patient can be subjected to *Snehapana* (therapeutic intake of medicated unctuous substance)with *ShatpalaGhrita*as it is meant for *Srotovishodhana*as well as *Agnideepana*(20) in *ArohanaMatra* (daily increasing dose)starting with 30 ml and thereafter increasing the dose every day by calculating the time taken for digestion of *Sneha* for 7 days or until *SamyakSnigdhaLakshana*obtained. After assessing *SamyakSnigdhaLakshanas* (symptoms attained after

proper oleation therapy) for three days of *VishramaKala* (gap days prior to *Shodhana*), *Sarvanga Abhyanga* (therapeutic oil massage) with *Brihat Saindavadi Taila* followed by *Sarvanga Bashpa Swedana* (therapeutic steam bath) with *Dashmoola Kwatha* can be done. *Kapha Avridhikara Ahara* (foods which does not increase *Kapha Dosha*) like lemon juice, rasam and sambar may be advised during *Vishrama Kala* (gap days prior to *Shodhana*), after *Sarvanga Abhyanga* (therapeutic oil massage) and *Bashpa Swedana* (therapeutic steam bath). After this *Virechana Karma* (4) (therapeutic purgation) may be performed by administering *Gandarahastadi Eranda Taila* (dose may be ranged from 20-40 ml, 40-60ml and 60-80 ml for *Mridu*, *Madhyama* and *Krura Koshta* respectively) on the third day. After *Virechana Karma* (therapeutic purgation), *Samyak Shodhana Lakshana* (symptoms attained after proper

therapeutic purgation) may be assessed, and *Peyadi Samsarjana Karma* (dietary regimen for restoration of metabolism after *Shodhana*) has to be advised as per *Shuddhi*. After *Peyadi Samsarjana Karma*, *Snigdha Churna Pinda Sweda* (sudation therapy using bolus made of different medicated powders) with *Brihat Saindavadi Taila* along with *Yoga Basti* (3 *Kshara Vaitarana Basti* (21) and 5 *Saindavadi Anuvasana* (22) – a combination of 3 medicated decoction enema and 5 medicated oil enema) can be done for eight days. After attainment of *Nirama Avastha*, The use of *Nadi sweda* (whole body or even locally) along with other procedures will also help in improving the signs and symptoms of the disease. After completion of the intervention patient can be followed up to double the number of days following the rules and regulations of *Parihara Kala* (period of therapeutic restrictions). (11) (Fig I)

Table : 1

Domains		Scores/individual %	Cumulative %	Avara/Madhyama/Pravara
ROGA BALA 1-33% - Avara 34-66 %- Madhyama 67-100 %- Pradhana	ACR Criteria			
	Vikriti Pariksha/ Amavata Lakshana			
ROGI BALA (as per Dr. Sanjeev Rastogi scale) 1-33% - Avara 34-66 %- Madhyama 67-100 %- Pradhana	Prakriti			
	Sara			
	Samhanana			
	Pramana			
	Satmya			
	Satwa			
	Ahara Shakti			
	Vyayama Shakti			
	Vaya			
AMA ASSESSMENT SCALE (As per the validated tool by Dr. Rohit et al) 0-40 – Nirama				
41-80- Grade I/ Avara				
81-120 – Grade II/Madhyama				
121-160- Grade III/ Prabhuta				

Table : 2

<i>Sl No</i>	<i>Ama Level</i>	<i>Roga Bala</i>	<i>Rogi Bala</i>	<i>Chikitsa</i>
1.	Nirama	Avara	Avara	Nirama Chikitsa
2.	Nirama	Avara	Madhyama	Nirama Chikitsa
3.	Nirama	Avara	Prabhuta	Nirama Chikitsa
4.	Nirama	Madhyama	Avara	Nirama Chikitsa
5.	Nirama	Madhyama	Madhyama	Nirama Chikitsa
6.	Nirama	Madhyama	Prabhuta	Nirama Chikitsa
7.	Nirama	Prabhuta	Avara	Nirama Chikitsa
8.	Nirama	Prabhuta	Madhyama	Nirama Chikitsa
9.	Nirama	Prabhuta	Prabhuta	Nirama Chikitsa
10.	Avara	Avara	Avara	Langhana
11.	Avara	Avara	Madhyama	Langhana Pachana
12.	Avara	Avara	Prabhuta	Langhana
13.	Avara	Madhyama	Avara	Langhana Pachana
14.	Avara	Madhyama	Madhyama	Langhana Pachana
15.	Avara	Madhyama	Prabhuta	Langhana Pachana
16.	Avara	Prabhuta	Avara	Langhana
17.	Avara	Prabhuta	Madhyama	Langhana Pachana
18.	Avara	Prabhuta	Prabhuta	Doshavasechana
19.	Madhyama	Avara	Avara	Langhana
20.	Madhyama	Avara	Madhyama	Langhana Pachana
21.	Madhyama	Avara	Prabhuta	Langhana Pachana
22.	Madhyama	Madhyama	Avara	Langhana Pachana/
23.	Madhyama	Madhyama	Madhyama	Langhana Pachana
24.	Madhyama	Madhyama	Prabhuta	Langhana Pachana
25.	Madhyama	Prabhuta	Avara	Langhana Pachana
26.	Madhyama	Prabhuta	Madhyama	Langhana Pachana
27.	Madhyama	Prabhuta	Prabhuta	Doshavasechana
28.	Prabhuta	Avara	Avara	Langhana
29.	Prabhuta	Avara	Madhyama	Langhana pachana
30.	Prabhuta	Avara	Prabhuta	Doshavasechana
31.	Prabhuta	Madhyama	Avara	Langhana
32.	Prabhuta	Madhyama	Madhyama	Langhana pachana
33.	Prabhuta	Madhyama	Prabhuta	Doshavasechana
34.	Prabhuta	Prabhuta	Avara	Langhana
35.	Prabhuta	Prabhuta	Madhyama	Langhana pachana
36.	Prabhuta	Prabhuta	Prabhuta	Doshavasechana

Fig I: Treatment Algorithm proposed for *Amavata*

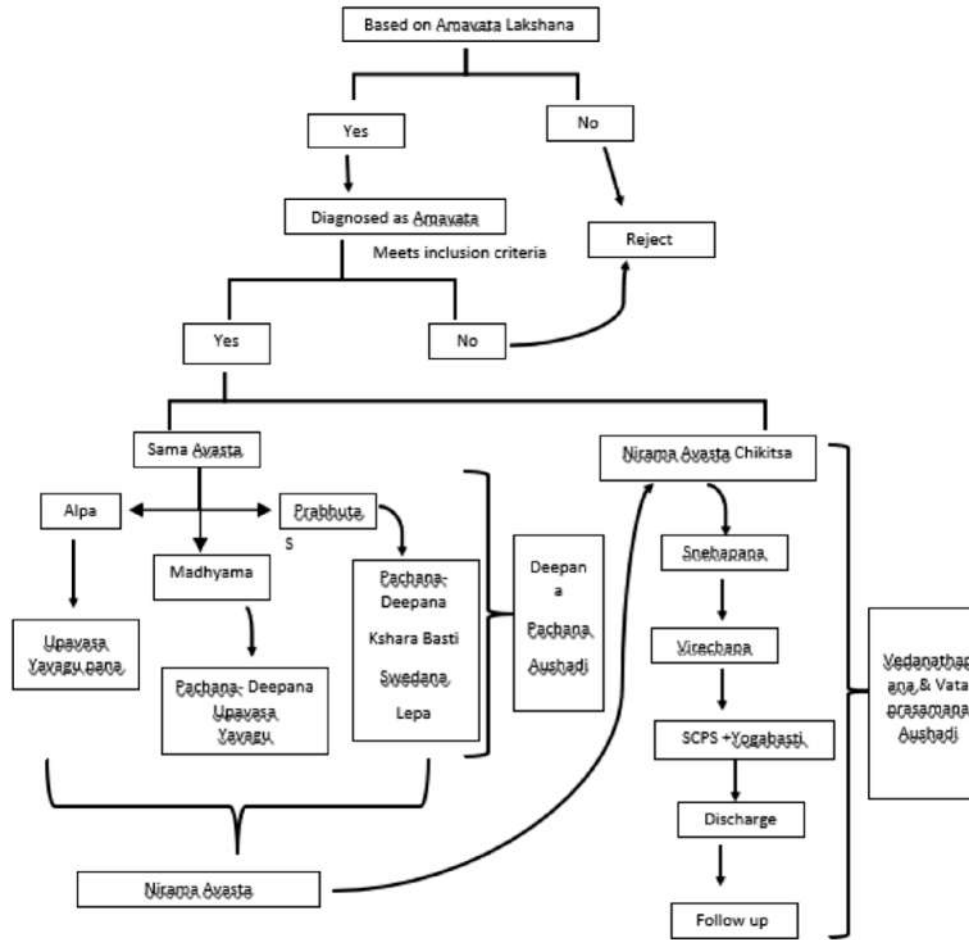


Table 3: Choice of medications needed for therapies

Pachana- Deepana Aushadi- First line of internal medication (selected according to Yukti of Physician)				
Sl. No	Medicine	Dose	Frequency	Duration
1.	Mustachurna	5g	TID	Till NiramaLakshana
2.	Agnitundivati	2 tab	TID	
3.	TrikatuChurna	5g	TID	
4.	BhaskaralavanaChurna	5g	TID	
5.	AjamodadiChurna	5g	TID	
6.	HingwashtakaChurna	5 g	TID	
7.	Vaiswanarachurna	5 g	TID	
8.	HinguvachadiChurna	5 g	TID	
9.	SudarshanaChurna	5 g	TID	

Swedana- For Alpa, Madhyama&Prabhuta Ama condition if Janga, Parva, AsthiShoola or VataSleshmatmakaShoola is present			
	Type	Condition	Duration
1.	Dasamoola Kashaya Dhara	VataKaphajacondition when patient complains of tenderness and pain	Till NiramaLakshana
2.	DhanyamlaDhara	PittanubandaAmavata-Daha Raga associated	
3.	ValukaSweda(11)	VataKaphaja condition without tenderness and more of stiffness	
Lepa – Alpa, Prabhuta and Madhyama Ama if associated with Shotha and Shoola			
	Type	Condition	Duration
1.	Rasnadilepa	Shoolanubandawith or without Sama	Till ShoolaPrasamana, can be continued even after attainment ofNirama
2.	Jadamaya dilepa(19)	Dahanubanda	Till NiramaLakshana
3.	Kottamchukkadi lepa	Sthabdanubanda	Till NiramaLakshana
Niruha Basti – in Prabhuta Ama condition- Till NiramaAvastha			
		Duration	
1.	Kshara Basti(11)(17)	Till NiramaLakshana – Patients can be divided into Pravara, Madhyamaand Avaraaccording to Roga and Rogi Bala	
Snehapana – When Niramata is attained after assessing Lakshana			
1.	ShatpalaGhrita(20)	ArohanaMatra starting with 30 ml and there after increasing the dose everyday by calculating the time taken for digestion of Sneha for 7 days or until SamyakSnigdhaLakshana obtained.	
Virechana – After SamyakSnigdhaLakshana is achieved in Nirama condition(11)			
1.	GandarvahastadiErandaTaila	dose may be ranged from 20-40 ml, 40-60ml and 60-80 ml for Mridu, Madhyama and KruraKoshtarespectively after consideringRogiBala and RogaBala.	
SnigdaChoorna Pinda Sweda – with BrihatSaindavadi taila(23)for 8 days			
Yoga Basti(11) for 8 days along with SCPS According to Roga and Rogibala			
1.	KsharaVaitarana Basti- 3 days		
2.	Anuvasana Basti – SaindavadiTaila – 5 days		

List of choices to the physician

SamanaAushadi - Vedanasthapana

- *RasnerandadiKashayam(24) – KruraKoshta*
- *RasnasaptakamKashayam(24)– MriduKoshta*
- *DasamoolaKashayam(25)– Madhyama koshta*

- *MaharasnadiKashayam – Vatahara, Shoola-prasamanatwa* after *Nirama* attainment
- *SimhanadaGuggulu(26)(27)- SthabdaAnubanda*
- *YogarajaGuggulu(26)– ShoolaPradhana*
- *KaisoraGuggulu(28) – DahaAnubandha*

Conclusion

The world is looking forward into a new concept of personalised standard care after the emergence of different fields of biomedicine. But this concept of individualised medicine has been well established in the field of Ayurveda. The treatment aspects of *Amavata* is a wide area and it differs from patient to patient, physician to physician and even according to geographical area, indicating that varieties of practices are existing. This is an attempt to create personalised standard care including *Shodhan* therapy for *Amavata* patients based on existing evidences. So clinical trials should be conducted to validate these kind of treatment algorithms.

Author contributions

All authors have contributed for the preparation of the article and accepted responsibility for the entire content of this manuscript and approved its submission.

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