

**Critical Analysis of AMA and AMAVATA with Special Reference to Rheumatoid Arthritis**

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**Abstract**

The term Ama in Ayurveda simply means undigested food particles. It is produced mainly due to the ill functioning of jatharagni i.e. digestive fire. It is the poor functioning of Agni due to which proper digestion of food doesn't take place leading to formation of Ama. Ama is responsible for the manifestation of almost all diseases most importantly Amavata. The clinical presentation of Amavata closely mimics with the special form of inflammatory arthritis called Rheumatoid arthritis. Rheumatoid arthritis is an autoimmune disease that causes chronic inflammation of the joints. Inflammation of the tissue around the joints and inflammatory arthritis are the characteristic features of rheumatoid arthritis. The Ayurvedic approach for the management of Amavata is the need of present time as no successful treatment is available to cure to this disease. Whatever treatment available gives only symptomatic relief without changing the underlying pathology and with serious side effects. Due to wide prevalence of this disease and lack of effective medicine, the disease has been chosen for the study. Langhana, Svedana, Tikta, Katurasasevan, Dipana, Virechana, Snehan, Basti, Ruksha Sveda etc supported by most of the Ayurvedic classics for the treatment of Amavata.

**Keywords:** Ama, Jatharagni, Amavata, Rheumatoid Arthritis, Autoimmune, Langhana, Svedana, Virechana, Basti etc.

**Introduction**

Ama is a stage which is formed due to poor functioning of Pachakagni i.e. Mandagni. This undigested food material remains as an intermediate product of digestion in Amasaya. The condition in which vitiated Ama and Vata simultaneously lodge in Trika and Sandhi (Joints) leading to stabdhata (Stiffness) of the body is known as Amavata.<sup>1</sup> As per Ayurveda, there are 13 types of Agni, i.e. digestive fire. Ahara is the factor that nourishes Deha, Dhatus, and Ojas and helps in the formation of Bala, Varna etc. But the function of ahara depends for performance of Agni. The Rasa, Rakta, Mamsa etc dhatus are formed due to the proper digestion by Agni. Improperly processed digestive fire leads to improper digestion and metabolism of food particles as a result of which undigested food substances are produced in the form of Ama. This Ama, as an intermediate product of digestion remains in Amashaya. Ama is mostly responsible for causing inflammation in different body parts.<sup>2</sup> Rheumatoid Arthritis is the most common type of autoimmune arthritis which causes pain and swelling along with joint stiffness and decreased movement in multiple joints of the body which is the most disabling type of arthritis.<sup>3,4</sup> The clinical features of Amavata mostly resembles with Rheumatoid Arthritis including joint symptoms along with the general features of RA which are loss of energy, low fevers, loss of appetite etc.

**Definition of Ama and Amavata**

Improperly digested food material in the Amashaya undergoes fermentation and due to its retention for longer duration, results in the formation of Ama. The characteristic features of Ama are

- Sticky in nature
- Foul smell
- Different colours
- Heavy
- Increased sourness.<sup>5</sup>

General Symptoms caused by Ama are

- Obstructions of strotas
- Diminution of strength
- Indigestion
- Disturbance in movement of vata
- Obstruction for urine and stool.

The ama formed is taken up by the simultaneously vitiated vayu specially to the kaphasthanas mainly Amasaya, sandhi, uras, kantha etc. and enters the dhamani by circulation with the help of vata. The condition in which Vitiated Ama and Vata simultaneously lodge in Trika and Sandhi (Joints) leading to Stabdghata(Stiffness) of the body is known as Amavata.

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### **Nidana of Amavata**

Mandagni ( poor digestive capacity), Guru ahara (Heavy meal), Avyayam (Sedentary life style/ lack of physical exercise), Viruddha Ahara (incompatible food particles ie. use of rough, cold, dry, unclean food), Viruddha Chesta ( incompatible physical activities ie. excess physical activities immediately after taking fatty foods and emotional factors such as anger, grief, passion, greed, fear excitement etc).<sup>8</sup>

### **Symptoms of Amavata**

The Pratyatma Lakshana(Main symptoms) are Gatrastabdghata, Sandhishula, Sandhishoth, Sparshasahyata. Samanya Lakshana(General symptoms) are Angmarda, Aruchi, Trishna, Alashya, Gaurav, Jvara, Apaka, Angasunnata. Ruja & shotha in Hasta, Pada, Shiro, Gulpha, Trika, Janu, Uru Sandhi and Vrishchikadanshavatavedana are specific for Amavata.<sup>9</sup>

### **Complications of Amavata**

Upadrava(complications) of Amavata are stated as Jadya(Stiffness), Antrakujana(Blotting), Trit(Dypsia), Chardi(Chardi), Bahumutrata(Polyuria), Shula(Pain), Samkocha(Contraction), Khanjata(Limping) etc.<sup>10</sup>

### **Samprapti of Amavata**

When a person of sedentary habits with poor digestive power indulge in incompatible diet and regimen (Virrudha-ahara – vihar) or does physical exercise immediately after taking fatty food the, the undigested food material, Ama is formed. It is then propelled by Vayu and reaches the Sleshmasthanas. In the sites of Slesma, this Annarasa, gets further vitiated by Vata, Pitta, and Kapha & then it is circulated (all over the body) through the vessels (Dhamani). It then accumulates in the small channels & joint spaces. This makes the patients weak and produces a sense of heaviness & stiffness in their body.

This substance

called Ama is the cause of so many diseases. When this aggravated Ama simultaneously afflicts the Trik and other sandhi pradesha, it makes the body stiff and this condition is known as Amavata.<sup>11</sup>

### **Samprapti Ghatak of Amavata**

Dosha– Tridoshaja, though vata is the prime factor and vyana vayu mostly involved as body movements are mostly regulated by vyana vayu. Kapha is the 2<sup>nd</sup> main dosha involved and as most of the joints are involved, so Sleshak kapha is mostly supposed to be involved.

Dushya- Rasa, Mamsa, Asthi, Majja.

Upadhatu- Snayu, Kandara.

Srotodusti– Sanga, Vimargagaman.

Udbhavsthana (origin) – Ama Pakvasayottha,

Amasaya- Chief site of production of Ama.

Pakvasaya– Mula Sthan of Vata.

Adhistan– Sandhi (Whole body)

Vyadhi Swabhava– Mainly Chirkari<sup>12</sup>

### Sapeksha Nidana of Amavata

Amavata	Sandhivata	Vatarakta	Krostuksirsha
<p>The Pratyatma Laksana(Main symptoms) are Gatrastabdhatata, Sandhishhula, Sandhishoth, Sparshasahyataand. Samanya Laksana(General symptoms) are Angmarda, Aruchi, Trishna, Alashya, Gaurav,Jvara, Apaka, Angasunnata. Ruja &amp; shotha in Hasta, Pada, Shiro, Gulpha, Trika, Janu, UruSandhi and Vrishchikadanshavata vedana are specific for Amavata.<sup>13</sup></p>	<p><b>Vata purna Druti sparsha sotha</b>-Oedema of the joints which on palpation, appears as if it is a leather bag inflated with air</p> <p><b>Prasarana akunchana pravritti vedana</b>- Pain while making efforts for extensions and contraction of the joints.<sup>14</sup></p>	<p>The sites where Vatarakta is manifested are Kara( hands), Pada( feet),Anguli( finfers including toes) and Sarva Sandhi( All joints)<sup>15</sup>. The Uttana type of Vatarakta mostly involves joints and clinical features are <b>Shvayathu</b>- Oedema, <b>Stabdha</b>- stiffness, <b>Kathina</b>- hardness, <b>Antar bhrusha arti</b>- excruciating pain in the interior of the body, <b>Shyava tamra tvak</b>- blackish brown or coppery colouration ( of the skin), <b>Daha</b>-Burning sensation,<b>Toda</b>- pricking pain, <b>Sphurana</b>- twitching sensation, <b>Toda</b>-pricking pain, <b>Sphurana</b>- twitching sensation <b>Pakavan</b>- suppuration of the joints.<sup>16</sup></p> <p>When Vatarakta is both of Uttana (superficial or external) and Gambhira( deep seated variety then there will be more pain and burning sensation in the joints, bones and bone marrow as if cutting them to make the joints curved inwards making the patient lame and paraplegic.<sup>17</sup></p>	<p>Maha Ruja ( Severe pain) in knee joint only, Janusopha( Swelling in the knee) Increased by atavriddhikara nidana and got relieved by snigdha sheeta upachaar.</p>

Amavata in Ayurveda is studied as Rheumatoid Arthritis in Modern Medical science due to the clinical similarities between the two diseases.

**Definition of RA**

Rheumatoid arthritis is a chronic multisystem disease of unknown cause, although there are a variety of systemic manifestation, the characteristic feature of RA is persistent inflammatory synovitis, usually involving peripheral joints in a symmetric distribution. The potential of the synovial inflammation to cause cartilage destruction and bone erosion and subsequent changes in joints integrity is the hallmark of the disease.<sup>18</sup>

**Diagnosis of RA**

Diagnosis of Rheumatoid Arthritis is done on the basis of its cardinal sign and symptoms, Laboratory findings and Differential diagnosis of the disease. American Rheumatism association has given the criteria (1988 – revision) for diagnosis of RA, which can be used as the established criteria for diagnosis

of RA is as follows<sup>19</sup>-

- Morning stiffness(> 1 hr.),
- Arthritis of 3 or more joints area,
- Arthritis of hands joints,
- Symmetrical Arthritis,
- Rheumatoid nodules, Rheumatoid factor,
- Radiological changes.
- Diagnosis of RA should be made with above mentioned four or more criteria.
- Investigations of RA:- Anti-CCP, ESR, CRP, RA-factor, Hb, MRI, Radiographs, Serological tests, Synovial Analysis.

**Differential Diagnosis of Rheumatoid Arthritis<sup>20</sup>**

Rheumatoid Arthritis	Rheumatic Fever	Systemic lupus erythematosus	Degenerative joint disease	Gouty arthritis
Rheumatoid Arthritis is a chronic multisystem disease with systemic connective joint disorder mostly occurring in the age group of 16-70 yrs with clinical features of Pain, swelling, tenderness and stiffness. Diagnostic features of RA are	heumatic fever is characterized by the migratory arthritis, an elevated anti-streptolysin O titer, and prompt response to NSAID specifically	(SLE) is suggested by the presence of the following: <ul style="list-style-type: none"> <li>• Butterfly rash</li> <li>• Discoid lupus</li> <li>• Erythema</li> <li>• Photosensitivity</li> <li>• Alopecia</li> <li>• High anti-DNA titer</li> <li>• Renal disease</li> </ul>	Degenerative joint disease (DJD) is not associated with constitutional manifestations; in contrast to the morning stiffness of RA, the joint pain from DJD is characteristically relieved by rest. Signs of articular	Gouty arthritis is almost intermittent and monoarticular during the early years of its onset; in later years, it can become a chronic polyarticular form of arthritis that resembles

Morning stiffness more than 1-2 hours More than 3 joints involvement , Arthritis of hand joints, presence of Rheumatoid factor, Radiological changes, duration of week or more and synovial swelling at the wrist	aspirin. Carditis and erythema marginatus may be present in some of the cases.	<ul style="list-style-type: none"> <li>Central nervous system (CNS) abnormalities</li> </ul>	inflammation prominent in RA are usually minimal in DJD, and in contrast to RA, osteoarthritis spares the wrist and the MCP joints.	RA.The early history of intermittent monoarthritis and the presence of synovial urate crystals are distinctive features of gouty arthritis.
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### Treatment of Rheumatoid Arthritis<sup>21</sup>

There is no cure for rheumatoid arthritis. Though the medications available are with serious side effects, Only some symptomatic relief is tried when the symptoms are very severe. Medications are-

NSAIDs- Ibuprofen, naproxen sodium. Side effects are stomach irritation, liver and kidney damage.

Steroids- Prednisone. Side effects are thinning of bones, weight gain and diabetes.

DMARDs- Methotrexate, leflunomide, sulfasalazine etc. Side effects are liver damage, bone marrow suppression and lung infections.

Biologic agents- Like abatacept. These drugs increase the risk of infections.

### Chikitsa of Amavata

The line of treatment of Amavata was first described by Acharya Chakradutta.

Bhavaprakasha and Yogaratnakar gave their own contribution after following the guidelines of treatment by Chakradutta. Langhana, Svedana, Tikta, Katurasasevan, Dipana, Virechana, Snehan, Basti, Ruksha Sveda etc are the lines of treatment of Amavata.<sup>22</sup> Medicinal Preparations useful in Amavata are-<sup>23</sup>

- Fomentation should be Ruksha (dry) type using bags of heated sand, or Upanahas (applying poultices) may become even these without use of fats.

- For the patient of Amavata suffering from thirst, drinking water prepared by boiling Panchkola in water is said to be beneficial Yusa (soup) prepared from either dried Mulaka or Panchamula or Kanjika added with powder of Sunthi may also be given.

- Shatapuspa (Anethum sowa), Vacha (Acorus calamus), Vishva (Zingiber officinale), Gokhshura (Tribulus terrestris), bark of Varuna (Crataeva nurvala), Punarnava (Boerhavia diffusa), Devdaru (Cedrus deodara), Prasarini, (Pistacia foetida) and Madanphala (Randia spinosa)- all equal in quantity macerated in sukta or Kanjika and applied as Upnaha (Poultice) is ideal.

- Chitraka (Plumbago zeylanica), Katuka (Picrorhiza kurroa), Patha (Cissampelos pareira), Ativisha (Aconitum heterophyllum), Amrta (Tinospora cordifolia), Devdaru (Cedrus deodara), Vacha (Acorus calamus) Musta (Citrus rotundus), Nagara (Zingiber officinale), and Abhaya (Terminallia chebula), should be made into fine powder and consumed with warm water daily. This is the ideal medicine for Amavata.
- Decoction of Shunthi, Shunthi (Zingiber officinale), Abhaya (Terminallia chebula), Ativisha (Aconitum heterophyllum) and Amrita (Tinospora cordifolia) is a good digestive in Amavata.
- Decoction of Punarnva (Boerhavia diffusa), Brhati (Solanum indicum), Vrdhmana (Eranda) (Ricinus communis), Phanijjaka (Origanum majorana), Murva (Marsdenia tenacissima) and Shigrudruma (Moringa oleifera) is to be used.
- Bathing the painful parts with decoction of Eranda (Ricinus communis), is beneficial, so also licking powder of Pathya (Terminallia chebula), added with and Amrita (Tinospora cordifolia) or consuming Guggulu (Commiphora mukul) along with cows urine or consume paste of Vishva (Zingiber officinale) and Alambusa or of Tila (Cassia indica) and Vishva (Zingiber officinale) all are helpful.
- Decoction of Vishva (Zingiber officinale), Pathya (Terminallia chebula), and Amrita (Tinospora cordifolia) added with Kausika (Guggulu) (Commiphora mukul) consumed warm relieve the pain of the waist, knee and back.
- Pippali (Piper longum), Pippalimula (Piper longum), Chavya (Piper retrofractum), Chitraka (Plumbago zeylanica) and Nagara (Zingiber officinale) made into decoction should be consumed for cure of Amavata.
- Paste of Sunthi (Zingiber officinale) and Vishva Usadhi added to the decoction of Varsabhu (Punarnva) (Boerhavia diffusa) and consumed for seven days cure Amavata.
- Chitaraka (Plumbago zeylanica), Indrayan (Citrullus colocynthis), Patha (Cissampelos pareira) Katuka (Picrorhiza kurroa), Ativisha (Aconitum heterophyllum) and Abhaya (Terminallia chebula) made into fine powder should be administered with warm water for curing Amavata.
- Leaves of Aragwadha (Cassia fistula) fried in Katutaila (mustard oil) consumed before night meals makes the person free from Ama.
- Decoction of Shunthi (Zingiber officinale) and Gokhsura (Tribulus terrestris) consumed in the morning daily relieves pain of the waist.
- Eranda taila cooked with the juice of Prasarini (Pterosida foetida) and consumed mitigates all the Doshas and the best to cure diseases arising from Kapha.

#### **Classic Ayurvedic formulations helpful in Amavata<sup>24</sup>**

Swarasa:-Rasna, Prasarini, Nirgundi etc.

Kwath:- Rasnasaptak, Rasnashmoola, Dasmulyadi etc.

Churna:-Ajmodadi, Vaisvanar, Pachchola etc.

Vati:-Sanjivini, Agnitundi, Amavatari Vati etc.

Guggulu:-Singhnaad, Keshor, Rasnadi, Amritadi Yograj etc.

Rasa:-Amavatavidhvansan, Samirpannag, Amavatari etc.

Asav:-Arista:-Amritarista, Dashmoolarista, Devdarvyadi etc.

Swedan:-Lavan Swedan, Baluka Swedan etc

Diet<sup>25</sup>:- Patients should be given Barley, Punarnava, Garliac, Ginger, along with substances containing wheat and small amount of rice. Fresh buttermilk with Trikatu is advisable. Castor oil is beneficial, two teaspoons of castor oil in Ginger tea every day is advised. Avoid Vata and Kapha increasing foods like Curds, Cheese, Fruits having cold potency (like Banana, Guava, and Cucumber), cold drinks, and working in damp and cold atmosphere.

### **Discussion**

Thus from the above study it is observed that in 'Amavata' there is vitiation of Ama along with aggravation of vata dosha. Ama is formed due to poor functioning of Jatharagni i.e. Mandagni. This undigested food material remains as an intermediate product of digestion in Amasaya. Ama is the leading cause of near about all the diseases. General Symptoms caused by ama are obstructions of strotas, diminution of strength, indigestion, disturbance in movement of vata, obstruction for urine and stool. Heavy meal, sedentary life style/ lack of physical exercise, incompatible food particles, excess amount of food with some psychological factors like anger, fear, greed, and excitement are the main causative factors for Amavata. Vata is also vitiated simultaneously and this vitiated vata carries the Ama visha formed to the Kaphasthanas leading to the symptoms of Amavata mostly Gatrastabdhatata, sandhishhula, sandhishhoth, sparshasahyata. Stiffness & pain in joints are the main symptoms along with other systemic manifestations which mostly resembles the clinical presentation of Rheumatoid arthritis. As per modern medical science there is no specific treatment for Rheumatoid arthritis. Steroids, DMRD's & some other drugs are used for this condition for symptomatic relief only. But there is no need to say that these drugs are having serious side effects. Whereas in Ayurveda keeping in view the concept of Sthanik Chikitsa i.e. treatment principles for kaphasthanas specially Amasaya along with vata pacifying measures give tremendous results in Amavata. Langhana is given 1<sup>st</sup> for Amapachana as Amavata is considered as Amashayottha Vyadhi. After Langhana, treatment principles follows as Swedana, administration of Tikta Katu Dipana dravyas, Virechana, Snehapana & Basti. As vata and ama are simultaneously vitiated in Amavata, along with Amapachana, Vatashamana is also tried to be achieved by through the treatment procedures. The disease courses and the treatment modalities mentioned for Amavata in Ayurveda are highlighted here with their modern counterparts and the Ayurvedic classical measures are focused in this study which provides management in natural way with no adverse effects.

### **Conclusion**

The classical definition of Ama and Amavata, samprapti, sign and symptoms, differential diagnosis, complications and treatment of Amavata are studied systematically from ancient Ayurvedic classics and simultaneously same of its counter part i.e. Rheumatoid arthritis are reviewed from modern texts. By this simultaneous study the similarities between these two diseases are tried to understand so that the treatment modalities mentioned for Amavata can be applied for the patient diagnosed with Rheumatoid Arthritis where modern medical science has very limited scope except symptomatic relief that too with serious side effects. However this article needs further discussion so that a fruitful conclusion can be drawn in near future regarding the treatment of Rheumatoid Arthritis on the basis of research based evaluation.

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