



CRITICAL APPRAISAL OF AMAVATA (RHEUMATOID ARTHRITIS) IN CONTEXT WITH AMA, RA FACTOR AND CRP

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ABSTRACT Amavata is a crippling disorder of joint is primarily caused by formation of Ama and vitiation of Vata Dosha. Ama is an undigested product which is formed due to hypofunctioning of Agni and Ahitkara Ahara and Vihara Sevana. Vitiating Vata circulates the Ama all over the body, Ama being homologous to Shleshma shelters in its Sthanah and produces symptoms like swelling, stiffness and tenderness in small and big joints. Amavata can be correlated with Rheumatoid Arthritis due to similarities of its clinical features. Rheumatoid Arthritis involves inflammation of joints due to an autoimmune response where the body immune system attacks its own tissues, particularly the synovium. This inflammation triggers the release of various inflammatory markers like CRP and RA-Factor into the blood stream. Elevated level of CRP and RA-Factor are commonly observed in individual with RA, serving as a marker for the severity of inflammation and disease activity. Similarly, Ama also influences or triggers inflammatory processes in Amavata. Hence this article is an effort to show the association of Ama with RA-Factor and CRP to assess progression and severity in patients of Amavata (Rheumatoid Arthritis).

KEYWORDS : Amavata, Ama, RA-Factor, CRP.

INTRODUCTION

People of present era are so busy with their daily schedule that they are unable to follow a healthy lifestyle. The impairment of *Agni* function result from engaging in unhealthy dietary habits and being unable to adhere to seasonal regime (*Dincharya and Ritucharya*) is root cause for various kind of diseases. *Amavata* which is characterized with *Ama* formation and vitiation of *Vata Dosha* is one of the commonest disorders caused by the impairment of *Agni*. *Madhavakara* was the first who described the feature of *Amavata* in *Madhava Nidana* whereas the treatment is explained by *Acharya Chakradutta*. According to the clinical feature *Amavata* resembles very closely with the Rheumatoid Arthritis. Rheumatoid Arthritis is a chronic progressive autoimmune arthropathy and is characterized by bilateral symmetrical involvement of joint with some systemic clinical features. The prevalence of RA is approximately 0.8% of the Population (range 0.3 to 2.1). The prevalence increases with age and sex differences diminish in the older age group. Women are affected approximately three times more often than men. The age at which the disease most commonly starts is in women between 40 and 50 years of age, and for men somewhat later.

Majority of RA patients show RA-Factor and CRP positive along with increase in numerical range in quantitative analysis. In *Ayurveda*, *Ama* is believed to disrupt the normal functioning of bodily tissue and organs, leading to accumulation of metabolic waste and toxins. In RA chronic inflammation leads to release of pro inflammatory cytokines and activation of immune cells. This inflammatory milieu promotes the production of free radicals such as Reactive Oxygen Species (ROS) and Reactive Nitrogen Species (RNS) by immune cells. This disruption can contribute to the generation of free radical and oxidative stress within the body. Free radicals are responsible for causing cellular damage and thus cause inflammation and deformities in joints. This disease affects mainly young population and the patient are crippled physically as well as mentally due to bad prognosis of the disease. Hence it is one of the most troublesome concerns of the society.

MATERIAL AND METHODS

- For this study literary materials which include reference of *Ama*, *Amavata*, CRP, RA-Factor have been collected through different Ayurvedic and modern texts
- Peer reviewed journal, published research paper and other relevant topic have been collected from various websites.

Concept of Ama

Due to hypofunctioning of *Ushma (Agni)* the *Anna Rasa* is not formed properly and that undigested food (*Apakwa Anna Rasa*) in *Amasya* is termed as *Ama*. It is a pathological entity described in *Ayurveda* which play a major role in the development of several disease related to different parts of our body.

Lakshana of Ama

Obstruction in *Srotas*, diminution of strength, heaviness, disturbance in the normal movements of *Vata*, drowsiness, indigestion, excessive secretions from oral cavity, obstruction for urine and stool, lack of desire towards food and exhaustion.

Amavata:

The *Ama* when combines with *Vatadosha*, enters to *Kostha*, *Trik* and *Sandhi Pradesha* produces stiffness in whole body resulting in a painful disease called as *Amavata*. *Vikunchana of Manya*, *Trika*, *Prishtha*, *Kati* and *Janu* occur with *Shabda* leading to *Gatrastabhdhata*. According to *Madhukosha*, *Vata* and *Kapha* vitiate simultaneously during the pathological process of *Amavata*. There is regular pain in *Kati* (back), swelling in joint (especially hand and foot) and inability to do daily routine work.

Nidana: - In *Madhava Nidana* specific aetiological factors which are responsible for causing *Amavata* has been mentioned.

<i>Viruddha Ahara</i>	Incompatible food or practice of consuming certain food combinations that are believed to be detrimental to health, disrupt digestion and lead to health issues,
<i>Viruddha Chesta</i>	Engaging in contradictory or conflicting actions that disrupt the body balance. Eg- intense exercise after a heavy meal.
<i>Mandagni</i>	Hypo-functional Agni
<i>Nishchalata</i>	Sedentary habits.
Exertion immediately after taking snigdha ahara	

Samanya Rupa of Amavata

<i>Angamarda</i>	Bodyache, Myalgia
<i>Aruchi</i>	Anorexia
<i>Trishna</i>	Thirsty
<i>Alasya</i>	Lethargy
<i>Gourav</i>	Heaviness in body

<i>Apaka</i>	Indigestion
<i>Gatra Stabhdhata</i>	Stiffness in body and joints
<i>Sandhi Sotha</i>	Swelling in multiple joints
<i>Jadyata</i>	Limited movement in joints, weakness in grip
<i>Angavaikalya</i>	Deformities in joints

Rheumatoid Arthritis

RA is a chronic, multisystem disease of unknown etiology. Although there are a variety of systemic manifestations, the characteristic feature of RA is persistent inflammatory synovitis, usually involving peripheral joints in a symmetric distribution. In RA inflammation activates immune cells, such as neutrophils and macrophages, which produces free radical as part of their defense mechanism against pathogens. However, in RA this process becomes dysregulated leading to excessive production of free radical which can directly damage cartilage and bone tissue in the joints.

Ra-factor

An IgG antibody is produced during some infections of joint. Subsequently the antibody alters (reasons unknown) and against it second antibody (usually unknown IgM) is produced. This antibody is called as RF (Rheumatoid Factor) which is present in serum and reacts with IgG coated latex particle. RA test is performed to detect the presence of rheumatoid factor in the serum of the patient with rheumatoid arthritis.

Crp-

CRP is a protein made by the liver. The level of CRP increases when there is inflammation in the body.

DISCUSSION

CRP and RA-Factor are the diagnostic tools for Rheumatoid Arthritis. As discussed above Rheumatoid Arthritis and *Amavata* are similar in their signs and symptoms. free radical and autoantibodies plays primary roles in pathology of Rheumatoid Arthritis similarly *Ama* is a primary pathological factor in *Amavata*.

Comparison of pathophysiology of Amavata and Rheumatoid Arthritis

<i>Amavata</i>	RA
The accumulation of <i>Ama</i> can disrupt the body natural balance and leads to inflammation of joints.	In RA because of prolonged oxidative stress the immune system mistakenly attacks healthy joint tissue leading to the release of pro-inflammatory cytokines and activation of immune cells.
<i>Ama</i> deposits in joint causes blockage and triggers inflammatory response resulting in pain, stiffness and swelling.	Free radicals such as ROS (Reactive Oxygen Species) and Reactive Nitrogen Species (RNS) causes DNA damage, release of enzymes which leads to joint inflammation and degradation.
<i>Ama</i> being sticky and undigested accumulates in the body channels (<i>Srotas</i>) and disrupts normal physiological functions.	Normally, the body has antioxidant defense mechanism to neutralize free radical and prevent oxidative damages. However, in RA this balance between antioxidant and free radical is disrupted by excess production of free radical leading to oxidative stress.

There are various similarities between *Ama*, auto-antibodies and free radical in terms of general definition, properties, types, site of production and mechanism of producing diseases. Their similarities are enlisted below.

- Free radical and auto antibodies cause damage to cell membrane and due to this putrefaction happens and foul smell is generated which is similar to one of the properties of *Ama* described as *Durgandham*.
- Ama* due to properties of *Bahupicchilam* sticks to normal and healthy body tissues very quickly, similar is the case with free radical.
- Free radical, auto antibodies and *Ama* both are inassimilable to body, hence *Ama* is termed as *Asmayuktam*.
- Certain enzymes produce radical as intermediary substances, which are supposed to go into further metabolism, but they somehow jump out of normal metabolic cycle and work as harmful entities. Similarly, *Ama* is an harmful intermediary entity which becomes harmful to the body.

- There is no specific site of production of *Ama* as well as of free radicals.

The entire discussion concludes that Auto antibodies and free radical can initiate inflammatory process in RA likewise *Ama* in *Amavata*. On the basis of these similarities a study or assumption can be made that with increase in severity of *Lakshanas* of *Ama* there will be progressive increase in quantity and quality of Ra-factor and CRP. So, by this comparison we can set *Ama* as a diagnostic tool or inflammatory marker for *Amavata*/Rheumatoid Arthritis

CONCLUSION

Amavata has been named keeping in view two predominant pathological factors viz *Ama* & *Vata*. *Ama* means undigested food which is produced mainly because of *Mandagni*. It stays inside our body and cause many diseases. In our texts we can clearly see that pathogenesis of *Amavata* start after formation of *Ama*. The pathological entity *Ama* produces various *Lakshanas* in our body which resemble with the symptoms produced by the autoantibodies and free radical in case of rheumatoid arthritis. The inflammatory response occur in auto-immune disorders is triggered by *Ama* or antigen at cellular level. Antigen or *Ama* modulate signaling at cellular level leading to incompatible autoimmune responses that damages tissues. Inflammation in RA triggers the release of various inflammatory markers like CRP and RA-Factor into the blood stream. Thus keeping in view the similarity of *Amavata* and RA, the markers used for assessment of RA can be used to assess level of *Ama* in *Amavata* so that progression and affective management for the disease can be planned.

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