

## CONCEPTUAL REVIEW ON AMA AS PER AYURVEDA AND CORRELATION WITH MODERN SCIENCE: A REVIEW

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### ABSTRACT

*Ama* is a *Sanskrit* word which means undigested food materials. The concept of *Ama* is the most important and fundamental principle in understanding the physico-pathology of the diseases. In *Ayurvedic* classics *Ama* which is the product of metabolic defect. It is formed due to improperly metabolized by product of food at *jatharangi* level, *Bhutagni* level and responsible for the development of various disease. Its importance is also reflected by the word *Amya*, which is a synonym given to *vyadhi*. Etiological factors also play an important role in manifestation of substances that is called *Ama*. *Ama* is not a single entity but is a generalised term, which can be applied to many

malformed substances in the body i.e free radicals. It brings the disease. In modern physiology, *Ama* can be correlated with deadly Free radicals. Free radicals are atoms, ions or molecules that contain one or more unpaired electron, which requires neutralization by free radical scavengers. The majority of free radicals that damage biological systems are oxygen free radicals, and these are known as "Reactive oxygen species". Thus it exists in incomplete metabolic state which is also the state of *Ama* described as *Avipaka* (incompletely metabolized). This *Ama* is responsible for the production of various diseases. In the same way, free radicals are also found to be root cause of many diseases. The aim of this paper is to study concept of *ama* in *Ayurveda* aspect and its correlation with modern science.

### INTRODUCTION

The term *Ama* is derived from the root "Am" with the suffix "ninj" which mean, 'the substance which undergoes digestion and associated changes is *Ama*'.<sup>[1]</sup> The unprocessed or

undigested food particle is *Ama*. In which substances produces pain or creates pressure on *Srotomukha* and accumulates on the *Srotomukha* is called *Ama*.<sup>[2]</sup>

When *Ama* mixes with *Vata* then it accumulate in abdominal cavity and disturbs functioning of colon and Joints. The symptoms of *Vataj ama* are dry mouth, astringent taste, constipation, dry skin, bloating, pain and arthritis.

When *Ama* mixes with *Pitta Dosha* then it accumulate at middle abdominal and affects functioning of small intestine and liver. When *Pittaj ama* circulates with blood, it becomes sour and acidic in nature and imparts bitter taste in mouth. This conditions causes heartburn, diarrhoea, nausea and acid indigestion. When *Kapha* mixes with *Ama* then it accumulate in stomach and chest, *Kaphaj Ama* possess foul smelling, create a salty taste in mouth, suppress appetite, sinus congestion and tenderness. Disturbed dietary habits, improper sleeping.<sup>[3-7]</sup>

As per *Ayurveda*, the disturbance or deviation in the equilibrium of *Dosha-Dhatu-Mala* causes the diseases. The proper knowledge for correcting them cannot be obtained without understanding the depth of pathology. *Ama* is an important factor in pathology of any disease. This concept resembles with contemporary concept of free radical theory. Due to diminished digestive fire (*Agni*), the first *dhatu*, namely *Rasa*, does not form properly so it remains in the *Amashaya* (stomach) for a long time and undergoes fermentation. This state of *Rasa* is creating *Ama*.

## AIM AND OBJECTIVES

1. To study the concept of *Ama* as per *Ayurvedic* aspects.
2. To study correlation of *Ama* with modern science.

## Review of literature

### Definition of “*AMA*”

According to different *Acharyas* various definition of *Ama* available in different *Samhitas*. Some of them are:

1. Due to not proper functioning of *Agni* the first *Dhatu*-“*Rasa*” or chyle is not properly digested, and *Anna rasa* undergoes putrefaction being retained in the *Amashaya*. This *Rasa* is called as *Ama*.<sup>[8]</sup>
2. Due to *Nidana Sevana* when *Agni* is vitiated it becomes less amount of the digestible food and this undigested food after getting fermented converted into toxical substance.<sup>[9]</sup>

3. The undigested foods which has not undergone *Vipaka*, leading to *Durgandha* (bad smelling), and in large in quantity with *picchil* (sticky) and which leads to *Gatrasadana* is called *Ama*.<sup>[10]</sup>

### Role of agni in *aam utpatti*

In the process of digestion main role of *Jatharagni* but other dependent *Agni* i.e. *Dhatwagni* and *Panchmahabhutagni* act on it and the food is then turned into absorbable material. When there is vitiation of *Jatharagni*, its power decreases and the *Agnimandya* develops. *Agni* and *pitta* has close relation, so whenever there is increase in *Drav Guna of Pitta*, it reduces the *Ushna* and *tikshna Guna* of *Pittantargat Agni* and hence *Agnimandya* develops and *Aam Utpatti* takes place. Whenever there is vitiation of *Kapha Dosha* with increased *Manda Guna*, it also reduces the digestive fire and *Agnimandya* develops which may further responsible for production of *Aam*. So whatever may be the reasons, wherever there is *Agnimandya*, it leads to *Aam Utpatti* and various disorders.<sup>[11]</sup> *Aam Utpati* is natural tendency of *Agnimandya*, though the *Samprapti* includes *Doshadushyasammurcchana*, *Aam* is responsible for the *Doshasang*. Because without *Doshasang*, *Khavaigunya Vikarnirmiti* does not place. The *Doshas* without *Aam* and vitiation does not cause diseases and perform their *karmas* without any obstruction.

### Signs & Symptoms of *AMA*<sup>[12]</sup>

Signs and Symptoms of *Ama* as below:

***Srotorodha:*** Clogging of channels

***Balabhransha:*** Decrease strength of immunity

***Gaurav:*** Heaviness in the body and head.

***Anila mudhata:*** Abnormal or flow of *Vata*

***Alasya:*** Lethargy

***Apakti:*** Indigestion

***Nisthiva:*** Excessive salivation

***Malasanga:*** Obstruction of urine, stool and waste product in the body

***Aruchi:*** Lack of desire towards food.

***Klama:*** Exhaustion

***Arti:*** Restlessness

***Vistambha:*** Constipation

***Vidaha:*** Burning sensation.

**Pathological factors associated with AMA**

The various pathological factors (*Samprapti-Ghatak*) associated with *Ama* are as given below:

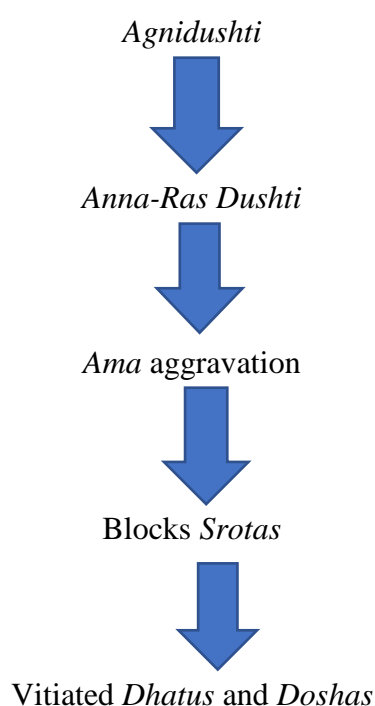
**Hetu:** *Agnidusti*

**Adasthan:** *Mahasrotas, Viseshta Grahani*

**Dosa:** *Tridosha*

**Srotas:** *Annavah, Purisvah*

**Dusya:** *Anna, Ras*

**Pathological aspects of AMA**

The *Ama* produced by low level of *Jatharagni* and *Bhutaagni* possess heavy and sticky nature therefore blocks channels of body. The *Ama* when combined with *Doshas* termed as *Amavisha* which can causes chronic illness. The pathological events associated with *Ama* are as follows:

Blocks minute channels thus affect circulatory process.

- *Ama* aggravates *tridosha*
- Disturbs nutritional supply to the tissue
- Diminishes potency of *dhatus*

### Concept ama in modern view

*Ama* is considered as an accumulation of *Mala* (egests and metabolic by products) in the body during process of digestion and metabolism leading to development of various ailment. *Ama* lines the walls of the bowel impeding absorption and assimilation of nutrients. This toxic material *Ama*, can be viewed as a foreign toxic substance by the body and the immune system can react by forming antibodies to it, giving rise to antigen-antibody complexes and resulting in immune disorders. During the physiology there is accumulation of impurities and toxins, from inside the body come internal metabolic and cellular waste products, such as free radical damaged cells and tissues and from outside come external impurities such as pesticides (from food & water), pollutants (from air) and toxins that occur naturally in foods. All these are collectively referred to as *Ama*. In modern parameters, *Ama* is supposed to be free radicals. It is a molecule that contain unpaired electron, they are unstable chemical formed in the body during metabolism and cause degenerative changes also diseases. *Ama* in the blood vessels can be understood as the accumulation of lipids and other substances in the walls of the blood vessels in results of blockage, in the joints Stiffness and so on.<sup>[13]</sup>

According to *Susruta*, a disease is produced in six steps i.e. *Sanchaya*, *Prakopa*, *Prasara*, *Sthanasamsrya*, *Vyakti* and *Bhedadvstha*.<sup>[14]</sup> In case of diseases produced by *Ama*, *Sanchaya* of *Ama* is first step. It happens due to impairment of *Agni* at that place. Similar is the case with free radicals. At certain site due to impairment in action of free radical scavengers, increased production of free radicals takes place. When this *Sanchaya* or accumulation is in small amount it does not cause any harmful effects, but if treatment is not given, this *Sanchaya* exceeds the threshold. Then it starts producing minimal symptoms, this is the state of *Prakopa*. After this state, *Ama* goes into circulation; same is the case with free radicals.

Now this *Ama* requires a site for creating disease in form of *Khavaigunya*<sup>[15]</sup> which should be considered as weakness in any body tissue where *Ama* may be *Sthanasamsrya*, or many adhere with this tissue or cells. In case of free radicals also, they look for a site, which is weak and can easily take part in electron exchange with them. Therefore depending upon this site of *Khavaigunya* different diseases are produced in different manner from same root cause, i.e. *Ama* or free radicals. This is the stage of *Sthanasamsrya*. Now symptoms of diseases become clear. All pathologies described in modern science are from this stage. In modern science, stages earlier to this are rarely considered. After this stage, pathology at

gross level becomes visible. If even at this stage the disease is not treated it leads to complications, which are described in *Ayurvedic* classics as *Updravas*.

## MATERIALS AND METHODS

This study has been done based on review of *Ama* in *Ayurvedic* aspects, Published research work and modern literature. The possible correlation has been made between *Ayurveda* aspects and modern science.

## DISCUSSION

In simple words, *Ama* means unripe, uncooked and undigested. In the medical context however the term *Ama* refers to events factors and resultants which follow, arises and results respectively as a consequence of *kayagni* not functioning properly. In the development of pathology, *Ama* is an essential factor. The synonym of disease i.e. The condition produced by *Ama* is called as *Amya*.

There are some views suggesting that free radical are pathologically correlated with *Ama*. In this regard it is said that property and manifestation of free radicals are similar to those of *Ama*. Free radicals are unstable chemicals formed in the body during normal metabolism or exposure to environmental toxins such as air, food and water pollution. Certain toxic substances like heavy metals also produce free radicals. *Ama* is also said to be produced from *vishaja dravyas*. Free radicals are unstable chemicals formed in the body and can cause degenerative changes and other diseases like cancer, myocardial infraction etc.

## CONCLUSION

From above classical and modern texts following conclusion can be drawn:

*Ama* is not a single entity but it is a generalised term that can be applied to many malformed substances in the body. For the causes of various diseases *Ama* is responsible. Similarly free radicals have also been implicated as the root cause of diseases.

In modern science *Ama* may be referred to be free radicals which intermediate by product of metabolism which have tendency block the micro channels of different systems of the body.

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