



EXPLORING AMA IN DEVELOPMENT OF VARIOUS DISORDERS

Ayurveda

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ABSTRACT

Ama is the root factor in the pathogenesis of several diseases. Formation of *Ama* is the consequences of *Mandagni*. It can be formed at the *Jatharagni*, *Dhatwagni* and *Bhutagni* level. The term *Ama* literally means mal-digested, unprocessed and fermented substance in the body. *Ama* can be compared with auto antigen, toxic substances, free radical, metabolic wastes products. As it works as an auto-antigen thus antigen- antibody complexes formed, in response initiates the inflammatory process and a chain of autoimmune diseases can be started. *Ama* is supposed as *sarva dosha prakopna* because once it is formed, amalgamates with doshas dushyas & malas. The impact of *Ama* is very hazardous to the body. Thus it is very important to understand the concept of *Ama* thoroughly. Once it is formed circulates all over the body and manifest the different diseases. By understanding the production, properties & symptoms of *Ama dosha* diagnosis and management can be done in proper way.

KEYWORDS

Ama, Agni, Auto-antigen, Visha

INTRODUCTION-

The literal meaning of *Ama* is unripened, mal-digested, mal-processed, fermented or non homologous substance. Grossly *Ama* is a generalised term which can be used for all those substances which creates toxicity or injury in the body. The main cause of majority of the diseases are *Mandagni* that results to manifestation of *Ama dosha*. Incompatible diet and erroneous life styles are responsible for vitiation of *Agni* and formation of *Ama*. *Ama* results to a variety of diseases due to its toxic and immune complex like behaviour. *Ama* once formed check the proper nutrition of *dhatu* on one side as well as acts as toxic material on the other side. Because of improper nutrition the immune system of the body is weakened and person become more prone to develop opportunistic infections. *Ama* is non homologous product formed in the body so the body naturally try to get rid of such type of product but simultaneously some part remains in the body, which requires management and if not managed at proper time get absorbed through systemic circulation produces many diseases. *Ama* when intermingled with *dosha* & *dhatu*s, circulates all over the body and causes several systemic diseases. As per view of some Acharyas *Ama* is considered as initial stage of vitiated doshas so keeping this view in mind *Agni* should be considered as prime culprit in development of most of the diseases.

MATERIAL AND METHODS

In *Rigveda* the term *Ama* has been used in varied form like *Amayath* & *Amayatham*. It might be *Acharya Vagbhatta* who first described *Ama* as a separate entity'. *Acharya Charaka* has described *Ama* in many places like in *Charak vimana*, etiology of formation of *Ama*² with fatal nature of *Amavisha*, *Lakshana* and *chikitsa* of *sama grahini* in *Grahini Prakranta* etc. *Acharya Sushruta* has used the term *Ama* under *dosha dhatu malakshayavridhi vinyaniya adhyaya*³ etc *sutra sthana*. *Acharya Madhava* defined the *Ama* in *Amavata nidanam adhyaya*⁴.

AIMS AND OBJECTIVES

- 1) To evaluate the effect of *Ama* in pathogenesis of various ailments
- 2) To correlate the *Ama* with different pathogenic factors.

ETYMOLOGY OF AMA

Ama is originated from the root word *AMA* with *Aa* suffix which means improper or partially digested substance.

DEFINITION OF AMA:-

Due to hypo function of *Agni* the formed *Aadya Dhatu* i.e. *Anna Rasa* persist as undigested. This undigested and vitiated *Anna Rasa* when gets embedded in to *Amashaya* is known as *Ama*⁵.

Due to impoverished strength of *Jatharagni* food is improperly digested is called as *Ama*. Which is accountable for vitiation of all *Doshas*⁶.

ETIOLOGY IN THE FORMATION OF AMA:-

According to several *Acharyas* all factors which are responsible for

impairment of *Agni* are also contribute in the formation. These factors are summarised from almost all over the texts and has described in the given table;

Direct Cause –

- a) Additional amount of diet
- b) Inappropriate diet
- c) Taking meal in improper time

Indirect cause –

- a) Unusual mental condition
- b) Inappropriate life style

Table No.1- Showing nidana of Ama formation

Aharaja nidana	Viharaja Nidana	Mansika Nidana	Others
Atimatra	Nischesta	Kama	Emaciation due to chronic disease
Abhojana	Virudha chesta	Krodha	Adverse seasons habitat and time
Guru bhojana	Ativyayama	Lobha	Genetic Cause etc.
Ruksha	Ativyaya	Moha	
Sheeta	Vega vidharana	Irshya	
Shushka	Vishamshayya shayan	Bhaya	
Apriya	Snigdha Bhojnottara Vyayama	Shoka	
Vishtambhi	Divaswapna	Chinta	
Vidhai	Ratrijagrana	Deenata	
Asuchi			
Viruddha			

1) **Aharaja Nidana:-** Taking excess amount of diet over affects the peristalsis movement of gastric mucosa and gastric juices cannot be mixed well. Empty stomach is overwhelmed by hyperchlorohydrria and results in hindrance in digestion. Heavy meal suppress the *Agni*. *Ruksha Ansha* of food article vitiates the *Vata* and makes *Agni Vishama*. Cold diet suppress the digestive juices, *shushka* diet need more *Agni* to dissociate the food particles. *Apriya Bhojana* loss urges of diet, impure food and *Viruddhara* creates toxicity.

2) **Viharaja Nidana:-** *Nischesta* and *Virudha Chesta* affects the gastric motility and also affects the insulin secretion. *Ativyama* increases heart rate and affects the normal body physiology. *Vega Vidharana* vitiates the *Doshas* and affects the *Agni*, *Divaswapna* vitiates *VK* and *Sarvadosha* according to *Charak* and *Sushruta*

respectively.

3) Mansika Nidana:- Stress reduces the appetite as its affect the hormone called corticotropin hormone. *Chinta* precipitate the hyper chlorohydrina condition. All the mental factors affects the digestive secretions.

CHARACTERISTICS OF AMA:

Avipakvama (Indigested):- The term *Avipakawama* is deals with indigestion. *Apakva Dhatu* or *Anna Rasa Vriddhi* is the consequences of hypo functioning of *Agni* at any level like *Jatharagni*, *Bhutagni*, or *Dhatwagni*.

Asamyuktama (Inassimilable):- Improper digestion of *Anna Rasa* i.e *Ama* makes it non homologous so it can not be properly assimilate in the body.

Durgandham (foul smell):- Inassimiable *Annarasa* remains in its origin place and gets putrefied then become foul ordered.

Bahupicchiliam (Slippery):- Due to liquid and slippery character it is able to covered the channels.

Sadan (languor):- Because *Ama* causes obstruction in the physiological function of the body so *Sadan* occurs.

Snigdhatta (Smooth):- *Ama* resembles with the *Kapha* specially *Sleshaka Kapha* so it gets lodged at the seat of *Sleshaka Kapha* like joints.

Guruta (Heaviness):- Improper digestion, predominance of *Prithavi* and *Jala Mahabhutas* makes it heavy in nature.

Aneka varnayukta (Multicoloured) :- Due to having multiple diet it is multicoloured.

Shulanubhanda (Pain)- It is work as an *Avarana* and interrupted the marga of *Vata* which leads to pain.

Sarvaroga Hetwa (Caused All Diseases):- *Ama* vitiates all the three *Doshas*, *Dhatu*s and *Malas* and works as etiological factor of almost all types of diseases like *Jwara*, *Kasa*, *Atisara*, *Grahini*.

Ashukari (Rapidly Spread):- It is spread all over the body in a sudden time.

Visha Rupata (Poisonous nature):- Fermentation start in the long time standing digestive material which leads to toxicity.

SYMPTOMS OF AMA

1)SROTORODHA (Obstruction in the channels):- *Sama Mala* obstructed the *Sthula* & *Sukshma Channels* of the body⁷ like:-

Pureeshvaha Srotas:- *Sama Mala* obstructed the *Pureesh Vaha Srotas* and causes constipation or incomplete evacuation of bowel.

Mutravaha Srotas
Sveda Vaha Srotas

2)BALBRANSHA (Loss of strength):- *Ama* vitiates all the three *Doshas*, vitiates *Dosha* amalgamated with *Dhatu* and leads to *Dhatupaka*. Due to which there is loss of strength in the body.

3) GAURAVA (Heaviness):- Feeling of heaviness in the body due to improper digestion of *Anna Rasa*.

4) ANILMOODHATA (Impaired activity of Vata Dosha):- Because of obstruction in channel as *Vata* become *Avritta* by *Ama Dosha*, there is improper movement of *Vata Dosha* which leads to pain.

5) ALASAYA (laziness):- Not interested in doing work.

6) APAKTI (Indigestion)s:- Constipation due to *Sama Mala* in *Pureeshvaha Srotasa* leads to *Vigudata* of *Vata* due to which *Apakati* occurs.

7) NISTIVA (Excessive Salivation):- Excessive expulsion of *Mala Rupa Sleshma* throu

gh respiratory system.

8) Malasanga(Constipation):- Excessive formation of *Mala* cease the proper motion and creates *Malasanga*.

9)ARUCHI (Anorexia):- Not willing to take meals.

10)KLAMA (lethargy):- Feeling of exhausted even without doing any work due to improper nutrition .

CLASSIFICATION OF AMA

According to cause and site of formation, *Ama* can be classified as follows:

- 1) *Ama* produced by hypo function of *Agni* it can be due to –
 - i. Hypo function of *Jatharagni*
 - ii. Hypo fuction of *Bhutagni*
 - iii. Hypo function of *Dhatwagni*
- 2) *Prathama Dosha Dusti Janya Ama*
- 3) *Mala Sanchaya Janya Ama*
- 4) *Ama* produced by ingestion of poison /other external factors.

1)Ama produced by hypo function of Agni:- Ingested food first of all acted by *Jatharagni* at G.I.T. level from where it is convey to liver through portal circulation for *Bhutagni Paka*. After that *Dhatwagni Paka* occurs at tissue level.

i. Production of Ama due to Hypo function of Jatharagni :- *Jatharagni* is the supreme in all type of *Agni* as all other *Agni* are part of *Jatharagni*. In the process of digestion it divides the ingested food in to *Sara Bhaga* and *Kitta Bhaga*. Impaired *Jatharagni* forms vitiated *Rasa* in spite of making *Samyaka Aadya Rasa Dhatu*. This vitiated type of *Rasa Dhatu* is considered as *Ama* and causes two type of *Amadosha* which are:-

- Visuchika
- Alasaka

ii. Production of Ama due to Bhutagni Mandata:- *Agni* of *Pancha Mahabhuta* are considered under *Bhutagni*. So it is of 5 types as –

- i. *Parthivoshma*
- ii. *Aapyoshma*
- iii. *Aagnyoshma*
- iv. *Vayavyoshma*
- v. *Nabhas ushma*

Food is also made up of these *Pancha Mahabhuta*. *Bhutagni* pick out their resembling part and digest it. these *Pancha Mahabhutas Agni* are low *Ama* is formed at *Bhutagni level*.

iii) Production of Ama due to hypo function of Dhatwagni – 7 types of *Dhatu*s have their own *Agni* which are as- *Rasagni*, *Raktagni*, *Mamsagni*, *Medagni*, *Asthyagni*, *Majjagni*& *Shukragni*. *Dhatwagni* works on tissue level and transform the nutrient in to assimilable and removable form. According to *Dalhana* & *Chakrapani Dhatwagni Vaisamya* leads to impairment of intermediate metabolism which causes production of incompletely metabolised substances. Which can not be utilised by *Sharirika Dhatu*s .This phenomena leads to *Ama* formation and causes *Amapradosaja Vikaralike* :-

- *Amavata*
- *Prameha*

2)Pratham Dosha Dusti Janya Ama:- According to *Acharya Sushruta Sanchayavastha* is the stage of *Pratham Dosha Dushit Avastha* in which *Doshas* get accumulate at their resides.

3)MALASANCHAYA JANYA AMA:- *Purisha*, *Mutra*, & *Sweda* are forms as a result of *Aahar Pachana*, on the other hand *Sukshma Mala* are formed as a result of *Dhatupaka* the *Mala* of 7 *Dhatu*s are as follows:-

Table No.2- Showing mala of seven dhatu

S.No.	Dhatu	Mala
1.	<i>Rasa</i>	<i>Kapha</i>
2.	<i>Rakta</i>	<i>Pitta</i>
3.	<i>Mamsa</i>	<i>Khamala</i>
4.	<i>Meda</i>	<i>Sweda</i>
5.	<i>Asthi</i>	<i>Kesh</i> , <i>Loma</i>
6.	<i>Majja</i>	<i>Sneha of Asthi</i>
7.	<i>Shukra</i>	<i>Twaka Sneha</i>

Mala starts to collect inside the body, if there is not proper excretion or due to excessive formation of *Malas*. These collected *Mala* causing *Srotorodha* and hampers the normal body function; they also causes inauspicious effect on digestion and metabolism. So that these *Mala* also categorised as *Ama*.

MODERN CONCEPT OF AMA

Through the process of digestion food is transformed from large complex particles in to basic or simple particles. Digestion begin in the mouth and completed at the anus there are many steps are involved through out the process. If there is any steps is prohibited or impaired due to any reason like stress, enzymatic activity, hormonal activity etc. The food is not able to get its simplest absorbable form. This intermediate products or malformed substance in *Ayurveda* can be understand as *Ama* like:-

Impaired metabolism of protein, carbohydrate, & fats leads to formation of uric acid, lactic acid, and ketone bodies.

Incomplete process of bile causes discolouration of stool (*Sama Mala*). In putrefication process formation of indole, sketol, hydrogen sulphide methane etc formed due to formation of *Ama*.

Methaemoglobin which is a intermediate product of haemoglobin etc.

CONCEPT OF AMA W. S. R TO FREE RADICALS

Table No.-3 Showing similarity in *Ama* Vs Free radicals

S.No.	AMA	FREE RADICALS
1.	Mental stress is one of the major cause of <i>Ama</i> formation	Metal stress triggers the formation of <i>Ama</i>
2.	<i>Asanyuktama</i> is the property of <i>Ama</i>	Free radicals show the same tendency as remains in free state
3.	<i>Ama</i> is <i>Pichhil</i> in nature	Free radicals are sticky in nature and in always in search of stability
4.	<i>Ama</i> is <i>Durgandhit</i> in nature	Damage caused by free radicals leads to foul odour
5.	<i>Ama</i> existed in intermediate metabolic state	Free radicals are transient intermediates
6.	<i>Ama</i> is formed inside the body	Free radicals are formed inside the body

AMA W.S.R. TO ANTIGEN

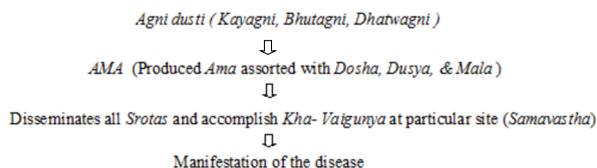
Its non-homologous nature makes it works as antigen, as it forms inside the body so that it can be considered as internal antigen.

Antigens are normally proteins in nature or sometimes is polysaccharides, *Ama* is also correspond to this nature of antigen at the basis of its place of formation.

PATHOGENESIS

Improper digestion of *Anna Rasa* loses its property to narrate the body and leads to putrefying inside the body which accomplish the foul odour and turn out to be non homologous to the body. Due to which *Ama* starts to work as an internal antigen in the body. Slimy nature of *Ama* attracted towards *Sleshaka kapha* as both have similar properties which results its accumulation in joints and manifested as stiffness in the body.

FLOW CHART OF PATHOGENESIS OF AMA



DISCUSSION-

Due to *nidana sevana* when *Agni* of whichever level begin to be *Manda* and *vata* became depraved the main culprit *Ama* is formed. This *Ama* get amalgamated with other *doshas* and reach towards different channels where it causes obstruction. Additionally formed *Ama* and vitiated *kapha* contributes towards improper nutrition of the *dhatu*s, *Alasaya* as well as *oja kshaya*. The dominancy of *guruta* is due to its resembling nature with *kapha dosha*. Additionally *Ama* causes

avarana over *vata* and causes *anilmudhata*. Because of its non homologous nature it remains inassimiable and gets fermented turns to foul smelling and works as foreign or toxic substance, and gives persistent stimulus to initiate the inflammatory reactions. These inflammatory reactions forms a chain in the body and drastically damage the body's own tissue. Because of its *ashukarita* its circulates all over the body very rapidly and demolish the physiological functions of the body.

CONCLUSION-

Ayurveda always focused upon aetiology rather than symptoms. To understand the pathology at micro level it is very essential to understand the culprit very precisely. Preservation and promotion of *Agni* should be main aim behind the management of diseases produced by *Ama*. Subsequently by proper understanding of character, and property of *Ama* we can outstretch the advancement in the pathology and can design a better treatment plan.

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- 8) Table No.1 - showing nidana of *Ama* formation
- 9) Table No.2 - showing mala of seven dhatus
- 10) Table No.-3 showing similarity in *Ama* Vs Free radicals .