

CLINICAL EVALUATION OF AMA IN PATHOGENESIS OF AUTOIMMUNE DISORDERS

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ABSTRACT

Ama is the basic concept of *Ayurveda*. It is an essential factor in the development of pathology. The word *Ama* literally means unripe, uncooked, semi digested or immature, unprocessed, fermented, non homologous substance in the body. Formation of *Ama* depends upon various factors i.e. physical, mental as described in cause of vitiation of *Agni*. Non homologous nature of *Ama* makes it work like an antigen, as it forms inside the body so that it can be considered as auto antigen. In light of modern pathology *Ama* can be correlated as antigen- antibody complex that leads to production of autoimmune disorders like- Systemic Lupus Erythematosus, Rheumatoid Arthritis, Ankylosing Spondylitis, Scleroderma, Auto Immune Thyroiditis etc. in genetically susceptible individuals.

Keywords: *Ama*, *Agni*, Autoimmune Disorders, Rheumatoid Arthritis

INTRODUCTION

Ama is too much important pathogenic factor in production of various diseases so that synonym *Amaya* is used for *Vyadhi*. If *Annarasa* is not properly digested and formed, then outcome of such a digestion is known as *Ama*.¹

It is produced as consequences of the impaired functioning of *Kayagni*² which may depends upon dietic incompatibilities, mental stress as well as genetic predisposition. This vitiated *Ama* circulates all over the body³ and manifested the diseases. Autoimmunity can be defined as the presence of immune responses against self tissue, and is to some extent ubiquitous. These are the major causes of chronic morbidity and disability affecting up to 1 in 30 adults at some time⁴.

The autoimmune disorders form a spectrum, in which the immune response is directs against a single organ or tissue resulting in organ specific disease and on the other hand are diseases in which the autoimmune reaction is against widespread antigen, resulting in generalised or systemic disease. Autoimmunity occurs when the immune system fails to recognise self from non self⁵. Antigen antibody complexes form in autoimmune disorders may be considered under *Ama*. If we consider *Ama* in light of modern pathology, we can correlate *Ama Visha* with presence of elevated serum level of antinuclear antibodies (ANA), anti-ds DNA, RA factor, CRP, LE cells along with circulating immune complexes⁶. These conditions develop due to

altered immune reactivity with persistent antigenic stimulation, which may be response to any exogenous or endogenous autoimmune factors.

MATERIAL AND METHODS- In *Vedic Kala* the term *Amaya & Amayam* has been described in context of diseases originated by toxic substance called *Ama*. In *Samhita Kala* keen description has been found regarding the culprit in many diseases under many contexts like in *Vimana Sthana*, in *Grahini Prakrana* of *Charaka Samhita*, in *Sushruta Samhita Sutra Sthana* 15 and in *Amatisara Prakrana* of Uttara tantra and many other places. In *sangraha kala* there is elaborate description of *Ama* has been found alike in *amavata nidana*, *prakrana* of *Madhav Nidana* and in *Sutra Sthana* of *Astanga Hridaya* along with elucidation of *Sama*. Under 4 types of hypersensitivity reactions type III results from antigen antibody complex mediated reaction which is followed by activation of the complement system and inflammatory reactions resulting in cell injury.⁷

The mechanism of autoimmunity may be immunological, genetic and microbial.

Manifestation of Ama in different Autoimmune Disorders.

Systemic Lupus Erythmetosus- S.L.E is allocated under collagen disorders, under this entity there is abundant nuclear and cytoplasmic auto antibodies are found in plasma. *Amama Vishruptama* concept can be applied here. As semi digested *annarasa* is like an intermediate product which is not proper for absorption or excretion from the body as well. Resulting paltory portion absorb and circulate all over the body channel. Because of it inappropriate form it works as *visha roopa* so that wherever it reaches in body, it is an unrecognisable form so that auto antibodies forms against it.

Scleroderma- Scleroderma is classified under auto immune diseases of connective tissue. Endothelial cell injury plays a major role in this entity. *Ama* also contributes in cell injury with working as free radical, as its properties like *pichilla*, *asansuktama*, *durgandhita*. Endogenous formation with intermediate metabolic state is comparable with free radicals.

Autoimmune haemolytic Anaemia- Autoimmune haemolytic anaemia is caused due to optimisation and complement fc receptor mediated phagocytosis, because the cell are coated with molecules that make them attractive for phagocytes.⁸ When antibodies are deposited on the surface of the cells, they may activate the compliment system. *Dhatwagni mandata janita Ama* can be considered here as an aetiology, particularly *rakta dhatu mandata janita Ama*. *Ama* which forms at tissue level coated the particular site and because of its immiscible forms it cannot absorb and make the particular site attractive for phagocytation or may activate the compliment system by persistent stimulation.

Hashimoto Thyroiditis- Hashimoto Thyroiditis or chronic lymphocytic thyroiditis designated by autoimmune ruination. The whole phenomenon occurs due to present of anti thyroglobulin, TSH receptor antibodies, anti thyroid peroxidase antibodies in blood. In Ayurveda we can consider this event under deteriorated *meda dhatugata Agni*. Such type of *Agni* fails to proper nutrition at this level as formed *annarasa* resides here and start to work as toxic substances. Due to which auto antibody complex forms and destroy the cells.

Inflammatory bowel diseases- Under inflammatory bowel diseases two diseases are incorporated i.e. chron's disease and ulcerative colitis. The impact of these disorders mainly is on bowel. Physiologically immunity response against dietary antigen and commensal flora are less in intestine lumen due to presence of inflammation inhibition mechanism. Psychological factors are one of the major factor in the development of these disorders. If we perceive these disorders in light of *Ayurveda* we can assess the role of *mala sanchaya janya ama* here. As due to improper excretion of *mala*, *mala* starts to collect here which causes *srotorodha* due to which the physiological function become deteriorated, they also causes unpromising impact on digestion and metabolism and site become susceptible as immunity start functioning against this unfavourable substances. As per etiologi- cal factors *mansika nidana* plays significant role in

formation of *Ama* so that it also corresponds in this manner.

Rheumatoid Arthritis- Rheumatoid Arthritis is classified under auto immunological disorders. It is a chronic systemic inflammatory disease which mainly attacks the joints. Rheumatoid Arthritis is prompted by unknown arthritogenic antigen. Clinical features of R.A. shows similarity with *Amavata*, a disease which is mentioned in *Ayurveda*. *Ama* is the pathological factor in this entity. People who have *mandagni* and proceeding with erroneous life style, the huge part of their diet get converted in to *mala roopa kapha bhaga* which circulates all over the body and causes stiffness. *Sandhi* region is the prime site of stiffness because of its resemblance with *sleshaka kapha*. It is said that people who are genetically susceptible are more prone to R.A. these genetically susceptible person can be discerned under the person who have *VK prakriti* and physiologically *manadagni*. Unknown arthritogenic antigen can be understood by this *mala roopa kapha bhaga* which is considered under *Ama*. Because of its *mala roopa* it should be expel out from the body. If it remain inside the body categorised as antigen. Due to similar properties with *sleshaka kapha* which is found chiefly in *sandhi Pradesha* so that the manifestation of the disease normally started from joint region which is self explanatory of unknown arthritogenic antigen of R.A.

Membranous Glomerulonephritis- Membranous Glomerulonephritis is classified under immune complex mediated disease which is idiopathic in nature. It is associated with susceptible genes triggered by antibodies to a renal auto antigen. In *Ayurveda* we can understand this phenomenon under *Mala Sanchaya janaya Ama*. *Mutra* is classified under *sthoala mala*. If this excretory product remain inside the body instead of expelling out from the body it transforms to *sama mutra*. This *sama mutra* affects *mutravaha sansthana* by giving persistent stimulus. On the other hand it causes more vitiation of *Agni* of this tissue level which even magnifies the stimulation by production of more *sama mutra*. As a result body recognise the *sama mutra* as nephritogenic antigen and influence the body to produce antibody against the antigen.

DISCUSSION

Ama is supposed to have different meaning according to their site of formation like *Ama- Annarasa* produced due to deficiency of digestive enzymes in the GIT has given simile of *Ama Visha* by some *Acharyas*. Similarly production of *Mala Sanchaya janya Ama* gets accumulated in the body, degenerates automatically and produces toxic substances which may be considered under antigen antibody complex, these conditions alter immune activity with persistent antigenic stimulation. In this series *pratham dosa dusti janya Ama* described by some author in reference of disease of acute and allergic nature. *Acharya Vagbhatta* has described such type of *Ama* in reference to *sansargaja vyadhi*. In *sansargaja vyadhi* the antagonistic properties of dosha instead of nullifying each other, interact and produce a toxic substances called *Ama* eg. *Usna* properties of *pitta* is opposite to *sheeta* quality of *kapha* and *vata*. *Vagbhatta* has given simile to explain this phenomenon that by mixing *kodrava* and *jala*, a toxic substance is produced⁹. *Acharyas* has mentioned about the 18 incompatible factors of *viruddha ahara* which evoke the *doshas* but not eliminate them from the body¹⁰ and leads to formation of *Ama*. As the opposite properties of dietetic components in context of *dosha viruudha*, *virya viruudha*, *Guna viruudha* etc. counteracts each other and toxin produced. Similarly, *Satmaya Viruddha* diet cannot digested well and leads to formation of *Ama*. From the above it is clear that *sanchaya* of *Ama* in the body leads to production of various types of autoimmune and metabolic disorders.

CONCLUSION

Ama corresponds to internal antigen because of its non homologous nature and site of formation. Other than this its protein or polysaccharides nature also resembles with the properties of antigen. Alike *Ama* normal immune bodies in certain quantity are useful but when they are in excess either be utilised, digested or expel out. While on the other hand altered immune complexes leads to auto immune disorders, which are not absolutely curable and needs to life time management. For management of the same first we should

correct the *Agni* as we can digest the Ama. Dietary restrictions, life style modification and use of immune-modulator drugs can play better role in management of such type of ailments.

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