

CRITICAL ANALYSIS ON PATHOPHYSIOLOGY OF RHEUMATOID ARTHRITIS VIS-À-VIS AMAVATA – A REVIEW ARTICLE

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Abstract- Amavata is a Rasavaha sroto dusti vikara. It is mainly due to impairment of jataragni and dhatwagni, resulting in production of ama. Whenever ama gets associated with vitiated vata along with other doshas it gets localized in shleshmasthanas (sandhis). Initially the patients presents with angamarda, aruchi, trushna, alasya, gourava and jwara. When disease progresses, symptoms like saruja shopa in joints of hasta-pada-shira-gulpha-trika-januuru, bahumutrata, grahani dosha, bhrama murcha are seen indicating severe morbidity¹. The disease Amavata simulates with Rheumatoid arthritis.

Rheumatoid arthritis (RA) is a systemic autoimmune, inflammatory rheumatic disease with progressive course affecting articular and extra-articular structures resulting in pain, disability and mortality².

Worldwide annual incidence and prevalence rate of RA is 3 cases per 10,000 populations and 1%, respectively, with onset typically between the ages of 30 and 50 years, and with a high prevalence in women. Several genetic and environmental (micro biota, smoking, infectious agents) factors contribute to its pathogenesis³.

In presence study review of ancient literature related to Amavata have been done to furnish the nidana (etiology) & Samprapti (pathogenesis) done from various text, Collection, Critical understanding and interpreting the Pathophysiology of Rheumatoid arthritis with Amavata is essential treasure for present day Ayurveda practice.

Key Words: Amavata, Rheumatoid arthritis, Samprapti and Pathophysiology

INTRODUCTION:

Amavata is a Rasavaha sroto dusti vikara. It is mainly due to impairment of jatar-agni and dhatwagni, resulting in production of ama. Whenever ama gets associated with vitiated vata along with other doshas it gets localized in shleshmasthanas (sandhis). Initially the patients presents with angamarda, aruchi, trushna, alasya, gourava and jwara. When disease progresses, symptoms like saruja shopa in joints of hasta-pada-shira-gulpha-trika-januuru, bahumutrata, grahani dosha, bhrama murcha are seen indicating severe morbidity¹. The disease Amavata simulates with Rheumatoid arthritis.

Rheumatoid arthritis (RA) is a systemic autoimmune, inflammatory rheumatic disease with progressive course affecting articular and extra-articular structures resulting in pain, disability and mortality².

The concept of Ama dosha in Amavata. The various antibodies formation in Rheumatoid arthritis is collected and analyzed in the disease Amavata.

OBJECTIVES:

- 1) To review the classical literature of nidana and samprathi of Amavata from various ayurvedic texts, journals & website and other relevant source.
- 2) To review western science literature of Rheumatoid arthritis from various ayurvedic texts, journals & website and other relevant source.
- 3) Critical understanding and interpreting the Pathophysiology of Rheumatoid arthritis with Amavata.

MATERIALS AND METHODS:

Concept of Ama:

Ama means the substance which remains uncooked or improperly digested or not converted into the suitable material for the body. Jatharagnimandya, adhya dathu (rasa dhatu) is not formed properly leading to one form of amotpatti. Ama is also the accumulation of mala. Ama is considered to-be early stages of dosha dusti. Ama dosha is considered as maha and ghora visha. These all forms of ama are the prime factor involved in the pathogenesis of the disease Amavata. Thus aharaja nidanas includes such as excessive consumption of guru, snigdha and picchila gunayukta ahara, madhura rasa yukta ahara and abhishyandi ahara. Viruddha ahara, abhojana, ajeerna bhojana, atibhojana, asaattmya ahara sevana and vishamashana along with manasika karanas which leads to mandagni and production of ama and prakopa of doshas.

Ama is that which is avipaka (improperly digested), asamyuktam (viscious), durgandam, bahu pichilum and sadanam sarva gatanam. When doshas dhathus and mala associates with ama lead to sama conditions. That sama conditions of dosha dathu and mala are capable of producing many diseases.

PATHOPHYSIOLOGY OF AMAVATA IN AYURVEDA:

In Amavata the various form of ama which is accumulated in amashaya, or in dathu or in mala sanchaya form or in the form of dosha dusti form gets mixed up with vitiated vata dosha along with other dosha and becomes further prakupita. The ama along with vata dosha and other doshas enters into rasayanis. In rasayanis, ama mixes with rasa and further gets vitiated. In this state, rasagni will not be in a position to digest the vitiated rasa. Hence rasadhātu paka becomes impaired. As a result of which dhatu mala, the kapha gets increased in a vitiated form and moves to shleshma sthanas and sandhis it will lead to sandhishoola, sandhishotha and sandhishthabhdhata

When amadosha along with adhya rasa dhatu gets vitiated and circulates through rasavaha dhamanis, it will lead to hrutgourava, dourbalya, angamarda aruchi, ,alasya and jwara⁴.

In Amavata as ama gets accumulated in the joints leads to restriction in movement of joint, pain, tenderness, swelling in affected site or joint.

PATHOPHYSIOLOGY OF RHEUMATOID ARTHRITIS (RA):

Rheumatoid arthritis is an autoimmune inflammatory disease primarily characterized by synovitis which is accompanied by extra-articular organ involvement, such as interstitial pneumonia, in addition to clinical symptoms including pain, swelling, stiffness of multiple joints, fever, and malaise⁵.

Prominent immunologic abnormalities include immune complexes produced by synovial lining cells and in inflamed blood vessels. Plasma cells produce antibodies (eg, rheumatoid factor [RF], anticyclic citrullinated peptide [anti-CCP] antibody) that contribute to these complexes, but destructive arthritis can occur in their absence. Macrophages also migrate to diseased synovium in early disease; increased macrophage-derived lining cells are prominent along with vessel inflammation. Lymphocytes that infiltrate the synovial tissue are primarily CD4+ T cells. Macrophages and lymphocytes produce pro-inflammatory cytokines and chemokines (eg, tumor necrosis factor [TNF]-alpha, granulocyte-macrophage colony-stimulating factor [GM-CSF], various interleukins, interferon-gamma) in the synovium. Released inflammatory mediators and various enzymes contribute to the systemic and joint manifestations of rheumatoid arthritis, including cartilage and bone destruction⁶.

DISCUSSION:

In Amavata the various form of ama which is accumulated in amashaya, or in dathu or in mala sanchaya form or in the form of dosha dusti form gets mixed up with vitiated vata dosha along with other dosha. This concept can be better analyzed with Citrullination is mediated by peptidyl-arginine deiminase (PAD), which converts arginine to citrulline. It is a physiological post translational modification involved in brain development, apoptosis, epidermal differentiation, and chromatin regulation. Here the various metabolism like Citrullination is mediated by peptidyl-arginine deiminase (PAD), which converts arginine to citrulline can be considered as improper form of dhatu because of ama.

Membranolytic damage caused by host perforin (in the joint) and bacterial pore-forming proteins (in extra-articular sites like gut and lungs) can induce PADs activation and hypercitrullination. These processes finally cause the superfluous production of ACPAs. The molecule such as PADs can be considered as dosha dusti gata ama. This dosha dusti form ama, will not convert arginine to citrulline. These proteins along with activated vikruta Vyana Vayu (PAD) causes ACPAs and also by virtue of its Vishakari guna of ACPAs it quickly moves to all kapha sthanas i.e sandhis, through Hridaya and Dhamanes. This Vidhagada Ama, in kapha sthana is further contaminated by doshas and assumes different colours, because of the Atipichhilata. On the dhamanies with the other doshas such as kapha and pitta it facilitates sroto abhisyanda and srotorodha causing sthanasmsraya manifested stabdhata (stiffness), sandhisula (joint-pain), sandhishotha (swelling), Angamarda(bodyache), Apaka(indigestion), Jwara (fever), Anga gourava. The formation of ACPAs, RA Factor and inflammatory mediators can be considered as various mala sanchaya rupi ama leads to various symptoms by damaging tissues damage.

CONCLUSION:

'Ama' is produced by agnimandya of both Jatharagni, mala sanchaya rupi, dosha dusti gata and Dhatwagnis. Ama and vitiated vata along with other doshas simultaneously and disease is manifested mainly in joints of hasta, pada, sira, trika, gulpha, janu and uru. The main symptoms produced are Angamarda Aruchi, Trishna, Alasya, Gouravam, Apaka & Shotha.

Rheumatoid arthritis is an autoimmune disease that causes pain, swelling, and stiffness in the joints, and may cause severe joint damage, loss of function, and disability.

The pathophysiology and the samprathi mentioned in Ayurveda have similar mechanism in the manifestation of the disease.

The signs and symptoms of Rheumatoid arthritis and the lakshnas mentioned in Ayurveda for amavata has similar in the onset.

Hence the disease amavata and Rheumatoid arthritis have similar samprathi lakshana and nidanas. The assessment criteria and diagnostic criteria for amavata can be considered from Rheumatoid arthritis.

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