

Clinical Entity of *Amavata*

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Abstract

Amavata is described in detail as a distinct clinical entity by Acharya Madhavakara in Madhavanidana. It is a disease of *Madhyama roga marga* affecting *Asthisandhi* in which the pain is similar to that of scorpion bite. Since many years, most of scholars have correlated *Amavata* to rheumatoid arthritis as described in modern science. But clinically, *Amavata* can be correlated to many other types of arthritis like reactive arthritis, ankylosing spondylitis and SLE (Systemic lupus erythematosus). Thus, through this study of those various disorders, the authors want to highlight the fact that *Amavata* is not only limited to the understanding of rheumatoid arthritis, but it can be understood in a much broader manner.

Key words: *Amavata*; Rheumatoid arthritis; Ankylosing spondylitis; SLE .

Introduction

When *Ama* and *Vata* simultaneously get vitiated and enters into the *Trika* and *Sandhi* finally leading to *Stabdhatata* (stiffness) of the body, the condition is known as *Amavata*[1]. It can be understood that *Amavata* is a disease in which joint swelling and stiffness are found. Till today, in researches as well as in textbooks of Kayachikitsa, most of the scholars have correlated *Amavata* with rheumatoid arthritis only. But on the basis of clinical symptoms, *Amavata* can be correlated not only to rheumatoid arthritis, but various other forms of arthritis like ankylosing spondylitis, reactive arthritis, SLE (Systemic lupus erythematosus).

Conceptual study

Concept of *Amavata*

The word "*Amavata*" is derived from two words- *Ama* and *Vata*. *Ama* is defined as a product produced due to hypofunctioning of *Agni* in which the first dhatu i.e. *Rasa dhatu*, is not formed properly[2]. It is said to be the root cause of all diseases[3]. There may be different forms of *Ama* as described by different Acharyas, like *Malasanchaya* (collection of morbid waste products in the body) or first state of *Doshadushti*[4]. This *Ama* is further converted into *Amavisha* and spreads throughout the body and mixes with *Dosha* producing a wide range of symptoms[5]. Thus, it can be understood that when *Ama* mixes with *Vata Dosha* and does *Sthansamshraya* in *Asthisandhi*, it produces a complex multisystem disease called *Amavata*.

• Rheumatoid arthritis

It is a chronic, immunoinflammatory, systemic disease that affects mainly synovial joints with possibility of extra-articular manifestations[8].

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• **Rupa of Amavata in Ayurvedic Classics**

Sr.	Rupa	Ha.Sa	Ma.Ni.
1	Angamarda	-	+
2	Aruchi	-	+
3	Trishna	-	+
4	Angagaurava	-	+
5	Angashunata	-	+
6	Agnisada	-	+
7	Praseka	+	+
8	Alasya	-	+
9	Staimitya	-	+
10	Asyavairasya	-	+
11	Apaka	+	+
12	Daurbalya	-	+
13	Kandu	-	+
14	Chhardi	-	+
15	Bahumutrata	-	+
16	Hridgraha	-	+
17	Angavaikalaya	+	-
18	Bhrama	-	+
19	Nidraviparyaya	-	+
20	Hasta, Pada, Shiro, Gulpha, Trika, Janu Sandhi Ruja and Shotha	+	+
21	Kukshishula and Kukshikathinya	-	+
22	Jadyata	-	+
23	Murchcha	-	+
24	Trikashula	+	+
25	Utsaha hani	-	+
26	Jvara	+	+
27	Daha	-	+

Pathogenesis of RA[9]:

The earliest change is swelling and congestion of the synovial membrane and the underlying connective tissues, which become infiltrated with lymphocytes, especially (CD4T

cells), plasma cells and macrophages. Effusion of the synovial fluid into the joint space takes place during active phase of the disease. Hypertrophy of the synovial membrane occurs with the formation of lymphoid follicles resembling an immunologically active lymph node. The inflammatory granulation tissue (pannus) is formed, spreading over and under the articular cartilage which is progressively eroded and destroyed. Later, fibrous adhesions may form between the layers of pannus across the joint space and fibrous or bony ankylosis may occur. Muscles adjacent to the inflamed joints atrophy and there may be focal infiltration with lymphocyte. Subcutaneous nodules have a characteristic histological appearance. There is a central area of fibres, fibrinous exudates and cellular debris, surrounded by a palisade of radially arranged proliferating mononuclear cells. The nodules have a loose capsule of fibrous tissue. Similar granulomatous lesions may occur in pleura, lung, pericardium and sclera. Lymph nodes have numerous germinal centre & plasma cells in the sinuses. Immunofluorescence shows that plasma cells in the synovium and lymph nodes synthesize rheumatoid factors.

• **Ankylosing spondylitis (AS)** - It is derived from root of *ankylos* meaning stiff and *spondylos* meaning vertebrae. It is chronic, inflammatory arthritis and autoimmune disease[29]. Ankylosing spondylitis is a long-term disease that causes inflammation of the joints between the spinal bones and the joints between the spine and pelvis. It affects more males than females[30]. Complete fusion results in complete rigidity of the spine, a condition known as "bamboo spine"[31].

A study was carried out in Sweden on iron overload in granulocytes and platelets in 29 patients of ankylosing spondylitis, and abnormal accumulation of iron in granulocytes and platelets in patients with ankylosing spondylitis observed. The same phenomenon has also been observed in other studies on patients with rheumatoid arthritis and other connective tissue diseases. These observations extend the list of evidence for

Correlation of *Amavata* with Rheumatoid arthritis

<i>Amavata</i>	Ankylosing spondylitis
<i>Sandhi Shula- Trika pradeshe sthanshamshrya</i>	Pain in entire spine and referred to buttocks and thigh[30]
<i>Sandhi Shotha</i>	Inflammation in joints[30]
<i>Sparshasahyata</i>	Bony tenderness[30]
<i>Stabdhata</i>	Severe stiffness is the hallmark of the disease[30]
<i>Daurbalya</i>	Generalised fatigue[30]
<i>Hritagraha</i>	Cardiovascular disease like aortic incompetence ,mitral incompetence, cardiac conduction defects, pericarditis[30]
<i>Angavaikalyata</i>	Bamboo spine[30] Spinal fusion varies in its extent, but in a few patients results in marked kyphosis of the dorsal and cervical spine that can interfere with forward vision. This may prove incapacitating, especially when associated with fixed flexion contractures of hips or knees[30]
<i>Jadya</i>	“Question-mark posture” found in patients due to inability to bend[30]
<i>Anyani Updravani</i>	Vertebral fractures, quadriplegia, cauda-equina syndrome[30]

altered iron metabolism in chronic inflammation[32].

Correlation of *Amavata* with AS: In *Amavata*, it is described that whenever vitiated *Dosha* are lodged in *Trika Sandhi*, the signs and symptoms of *Amavata* are seen. *Trika Sandhi* is explained by different authors as follows:

- a. Kati-Manya-Ansa Sandhi(Shoulder gridle)[33,34].
- b. Sroni-Khanda Abhaya (hip joint)[35].
- c. Bahu-Grivasthi Traya Sang-hati (Scapular region)[36].

From the above description, it can be understood that *Trika Sandhi* encompasses vertebral column and hip joint which is mainly affected in Ankylosing spondylitis.

Co-relation of *Amavata* with Ankylosing spondylitis

- **SLE (Systemic lupus erythematosus)**

Systemic lupus erythematosus is a multisystem autoimmune disorder. It primarily affects women mainly between the ages of 20-40. The systemic disease includes production of antinuclear antibodies (ANA; mainly targeting the nucleic acid guanosine), generation of circulating immune complexes and activation of the complement system. SLE causes a characteristic rash accompanied by inflammation of connective tissue, particularly joints, throughout the body. Kidney, lung and vascular damage are potential problems resulting from SLE. The cause of SLE is unknown. However, one theory ties the cause

of SLE to a type of immune reaction known as Type III. It is based on the fact that Type III (immune complex) reactions involve antigens, antibodies (IgA or IgM) and complement. When certain ratios of antigen to antibody occur, the complexes are small and escape phagocytosis. The complexes become trapped in the basement membrane under the endothelium of blood vessels, activate complement and cause an inflammation. Type III reactions include systemic lupus erythematosus (SLE) and rheumatoid arthritis[47]. Arthritis is the commonest feature of SLE found in 72-92% of Indian patients[48].

- **Reactive arthritis**

Reactive arthritis is predominantly a disease of young men with a sex ratio of 15:1 and is

Correlation of SLE with *Amavata*

Sandhi Shula	Most people with SLE have intermittent polyarthritis, varying from mild to disabling[37]
Sandhi Shotha	soft tissue swelling and tenderness in joints, most commonly in hands, wrists, and knees[37]
Sparshasahyata	Tenderness in the joints[37]
Gatra Stabdhata	Mild morning stiffness[37]
Raga	Lupus dermatitis with slightly raised, scaly hyperpigmented erythematous rims[37]
Jvara	Fever[37]
Daurbalya	Weight loss leading to weakness[37]
Utsahahani	Fatigue[37]
Murchcha	Diffuse central nervous disturbances like coma, organic brain syndromes[37]
Hritagraha	Pericarditis, Myocarditis, endocarditis[37]
Angavaikalyata	Deformities that do occur result from tendon inflammation and damage rather than from bone erosion ('Jaccoud's arthropathy')[37]
Mamsa-Shosha	Myositis with clinical muscle weakness, biopsy evidence of muscle necrosis and inflammation can occur[37]
Anyani Updravani	Nephritis, focal motor and sensory defects[37]

possibly the most common cause of inflammatory arthritis in men aged 16-35; however, it may occur at any age[1]. Reactive arthritis refers to acute non purulent arthritis complicating an infection elsewhere in the body. It is a spondyloarthritis which usually follows enteric or urogenital infections. It occurs predominantly in individuals with Histocompatibility antigen HLA-B27[2]. Reactive arthritis has been associated with gastrointestinal infections like

Shigella, *Salmonella*, and *Campylobacter* species and other micro organisms, as well as with genitourinary infections (especially with *Chlamydia trachomatis*). Recent evidence indicates that a preceding *Chlamydia* respiratory infection may also trigger reactive arthritis. About 10% of patients do not have a preceding symptomatic infection. Inflammation of joints, axial skeleton, skin, mucous membranes, gastrointestinal tract, and eyes may occur[3].

Central role of *Ama* in the disease *Amavata*

Co-relation of Reactive arthritis and *Amavata*

Sandhi Shula	Arthritis is usually quite painful[40]
Sandhi Shotha	Joint swelling[40]
Sparshasahyata	Acute pain and tenderness[40]
Gatra Stabdhatata	Tense joint effusions are common, especially in the knee. Patients often cannot walk without support[40]. In chronic arthropathy low back pain and stiffness from sacroiliitis are common[40]
Jwara	Fever[40]
Daurbalya	Malaise and weight loss[40]
Utsahahani	Fatigue[40]
Murchcha	Seizures, meningoenephalitis[40]
Hritagraha	Cardiac abnormalities (aortic incompetence, conduction defects, pleuro-pericarditis)[40]
Angavaikalyata	Dactylitis or sausage digit ^[1]
Anyani	
Updravani	Peripheral neuropathy (foot drop, ulnar neuritis) ^[2]

It is clear from the description of *Amavata* that *ama* plays key role in the pathogenesis of *Amavata*. While understanding *Ama*, many authors have correlated *Ama* with free radicals which are responsible for the development of autoimmune diseases. Free radicals are important mediators in the complex pathogenesis of acute and chronic inflammatory reactions[16].

Ama can be correlated with free radicals as under[17].

- Free radicals exist in incomplete metabolic state which can be correlated with *Ama* described as *Avipakwam*.

- *Asanyukatama* state of *Ama* correlated with inassimilable state of free radical which exists in Free State.

- *Durgandhama* can be correlated by putrefaction of damaged cells generated by free radicals.

- Due to *Bahupicchilam* property of *Ama*, it gets stuck to the *Srotas* or body tissue; similarly free radicals quickly attack the healthy molecule of the body to seek stability in their structure.

It has been reported that the antioxidant capacity of synovial fluid is low in patients with rheumatoid arthritis. A similar mechanism may be suggested for AS: since the

protein content of synovial fluid is mainly composed of albumin, it may be the major source of free thiols for synovial fluid as well as plasma, and thiols may be the most important component of the antioxidant system in synovial fluid. Therefore, thiol oxidation may lead to decrease in antioxidant defence of synovial fluid in AS patients. ^[18] Likewise, the role of free radicals in the development of SLE, ankylosing spondylitis and reactive arthritis have also been proven by various studies[19-22]. Thus, we can understand that all the above mentioned diseases should be considered as *Amavata*.

Conclusion

There are various forms of arthritis which are similar in signs and symptoms to *Amavata*. The authors have practically observed that when the line of treatment of *Amavata* is applied in patients of ankylosing spondylitis, reactive arthritis, SLE and rheumatoid arthritis, improvement in signs and symptoms is found. Thus, we can say that *Amavata* should be understood in a broad manner covering all the above types of arthritis, i.e rheumatoid arthritis, ankylosing spondylitis, SLE and reactive arthritis.

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