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Review on *etio-pathogenesis* and diagnostic approach of *Amavata.*

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Abstract:

Amavata is a one of the difficult disease for clinicians due to it's *chronicity*, incurability, complications, and morbidity. It is chronic disease as it needs repeated hospitalization so it put economic burden on family members and poor quality life. *Madhavkara* had described *etiopathoganesis* and clinical presentation of the disease briefly before thousands of years. *Amavata* is a *multisystemic* illness can be caused by vitiation of *Vata* and generation of *Ama* in the body which has articular as well as extra articular manifestations. *Rheumatisim* and *Amavata* have great similarities in the clinical presentation. *Amavata* can be clinically identical with any of the rheumatic disorder.

Diagnosis of *Amavata* is not difficult in patient when it's clinical presentation is classical but it may be confusing in a early stage. In *Amavata* most of the clincical features are nominal and categorical there is wide range of clinical signs and symptoms narrated in *Madhavakara* So the diagnosis often made by some degree of subjective interpretation of clinician. To make a valid, reliable, consistent diagnosis of *Amavata* some pathological investigations can be included in the diagnostic criteria of *Amavata*. This study gives insight into review of diagnostic criteria of *Amavata* .

Keywords: *Amavata, rheumatisim, etiopathogenesis*, diagnostic criteria

Introduction:

In this modern era life has become fast, competitive, mechanical and stressful that one could not follow the daily regimen and seasonal regimen which are explained by *Ayurveda*. This results in to vitiation of *dosha* and *agnidusti*. *Mandagni* and *agnidushti* which is impaired status of angi leads to develop various diseases [(1)] one of them is *Amavata* . In case of *Amavata* the clinical features are produced due to *Ama, dosh prakopa*, and *rasadushti* which are

nominal and categorical so clinicians have to assess these sign symptoms with lots of subjectivity . As there are great similarities are seen in the clinical presentation of the *Amavata* and Rheumatisim, *Amavata* can be correlated with *rheumatisim*. So to make a consistent, valid, reliable diagnosis of *Amavata* some pathological investigations must be used which are routinely used for the diagnosis of *rheumtic* conditions. Here attempt has been made to review of the diagnostic criteria of *Amavata* .

Review of literature:

Description of *Amavata* as a complete diseases not found in brihattrayi, *Amavata* has explained by Madhavkara as separate disease in 16th century AD. Madhavakara has narrated the brief etiopathogenesis and clinical presentation of *Amavata* . *Amavata* is a disease of madhyam marga and initially it is disease of rasavaha srotasa but later on it spreads in pranvaha and asthivaha srotasa. The basic root cause of the disease is the *Ama*. *Ama* is fermented or putrefide form of first dhatu(adya-rasa), which was not properly digested due to mandagni. [(2)]. *Ama* may form in the body by two ways acute formation and insidious formation, when *Ama* forms in a acute way the diseases like *visuchika* and *alasaka* may develops[(3)]), but when *Ama* forms gradually diseases like *Amavata* can be develops.

When this *Ama* mix with *dosha* and *dushya* they are termed as sam dosha and s*Ama duhsya*. The diseases which ate produced by s*Ama dosha* and *dushya* are known as s*Ama vyadhi*[(4)] Diseases are produced according to the type of *samdosha (Vatadi)* and site where the dosh-dushya *samurchana* occurs and sign symptoms are produced accordingly. Such diseases should be diagnosed on the basis of clinical manifestations [(5)].

Etiopathogenesis:

Virudh ahar and *virudha chesta* along with *agnimandya* and sedentary lifestyle are the main etiological factors responsible for *Amavata* . Ahar dravyas which have properties opposite to dhatu and which vitiates the *Dosha* but cannot eliminate vitiated *dosha* from body are called as *virudh ahar*[(6)] .

An individual suffering from *mandagini* and having lack of physical activities in his day to day life if indulgence with incompatible eatables (*Virudh ahar)* and *Virudhchesta*, causes vitiation of *vata* and generation of *Ama* in his body. This condition also produced in the body when one indulges in performing strenuous exercise after taking fatty eatables. This *Ama* associating itself with *vata*, moves quickly different sits of *kafa* and fill them and dh*Ama*ni with this vaxy material. This *Ama* again become toxic when it is associated with *vata, pitta, kafa* assuming different colors, blocks tissue pores (*sukshma srotas)* and passages with toxic *Ama* (thick waxy material). At this statge *Ama* and *vata* produces weakness in the body and heaviness in *precordial* area (*Hriday gaurava*) immediately. This *Ama* is responsible for so many distressing diseases in human. Provoked *Ama* with *vata* simultaneously produces the stiffness, swelling, pain in pelvic, shoulder, girdles and other joints of the body this clinical condition is called as *Amavata* .[(7)]

Clinical features of *Amavata* :

S*Aman*ya Rupa of *Amavata* : In prarambhik avastha *Amavata* clinically present with *Angmarda* (Pain all over body), aruchi (loss of taste), trishna (thirst), alasya (lezziness), gaurava(heaviness), jwar(fever), Apaka(indigation), shoonata(Joints swelling)[8] .

Advanced stage of *Amavata* (Pravrudha): In *pravrudha avastha Amavata* clinically presented with joint pain specially at joints *of hastha, pada, sheera, gulfa, trick, janu* etc. There is pain and swelling present wherever *Ama* with *vayu* goes in the joint that joint get affected. Pains can be typically compare with *vrishik danshvat vedna* (scorpion bite pain) associated with agnidorballya(weakness in digestive fire), *prasek* (dribbling of saliva), *aruchi* (anorexia), *gaurava (heaviness), vairasya (ageusia), daha* (burning sensation), *bahumutrata (polyurea),* pain and hardness of abdomen(guarding and rigidity) sleeplessness, thirst, vomiting, giddiness, increased peristalsis movements, abdomen pain- distension and several such difficult symptoms[9] .

Clinical features in association with Dosha:

If *pitta* becomes the predominant *dosha*, there could be *daha* (burning sensation), raga(redness). If *vata* is predominant pain will be very sever and If *kafa* is predominant stimit (feeling of being covered with wet clothes), guru (heaviness), *kandu* (itching sensation) are present[10].

Table: 01 Clinical features of *Amavata*

Vyadhipratyanic	*SAmanya*	*Pravridha*	*In Association to Dosha dushti*		
			Vata	*Pitta*	*Kafa*
Sandhi shool	*Angmarda*	*Saruja-Sandhi Shotha (Axial/peripheral joints)*	*Shooal*	*Daha*	*Staimity*
Sandhi Shostha	*Aruchi*	*Sanchari Vedna*		*Raga*	*Guruta*
	Trishna	*Vrichikdanshavata vedana*			*Kandu*
	Alasya	*Agnidourbalya*			
	Gaurava	*Daha*			
	Jwara	*Bahumutrata*			
	Apaka	*Nidraviparya*			
	Shoonta anganam	*Hridgraha*			
		Antrakujana			
		BhrAma-Murcha			

Rheumatic Fever Arthritis : Rheumatic fever is an auto allergic disease, it is systemic illness nearly always accompanied by arthritis and sometimes by skin rashes, *carditis, sydenham's* chorea .[11]Acute rheumatic fever is a systemic disease of childhood & young adults, often recurrent that follows group A beta hemolytic streptococcal (GABHS) infection. It is a delayed non-*suppurative sequelae* to URTI with GABH streptococci. It is a diffuse inflammatory disease of connective tissue, clinically presented as arthritis, *carditis, corrhea,* subcutaneous nodules and *erythema marginatum* [12].

Individuals of age group 5-15 yrs are more susceptible to Rheumatic fever, girls are more affected, it is uncommon in age group less than 3yrs. It is common in 3rd world countries, environmental factors, overcrowding, poor sanitation, poverty also increases the risk of Rheumatic fever. Incidences are more during fall, winter and early spring.

Arthritis is flitting & fleeting migratory *polyarthritis,* involving major joints commonly involved joints knee, ankle, elbow & wrist, Occur in 80%, [13] .

Rheumatoid *Artheritis*: (RA) is a chronic inflammatory multisystem disease involving articular and extra articular tissues. Cause is still uncertain. Genetic factor, environmental factor, autoimmune factors may responsible for RA. It is characterized by persistent symmetrical arthritis involving peripheral small joints,[14] . Morning stiffness is common PIP (Proximal inter phalangeal), MCP (*metacarpophalangeal*) joints are frequently affected. Joint deformities ,may develop after persistent inflammation [15] . The prevalence of 0.8% of the population(range 0.3% to 2.1 %) and sex ration of women vs men is 3:1 the onset is most frequent during 4th and 5th decades of life [16] .

Articular Manfestations: Symmetrical poly arthritis of peripheral joints, with pain, tenderness, swelling of affected joint, morning stiffness, PIP and MCP joints are involved.

Extra *articular Manifestaions: Cutaneous* nodules, *vasculitis* Pulmonary Nodules, *Pul*. Interstitial disease, bronchitis *pericarditis, Myocarditis* etc [17] .

Table: 02 *Amavata* comparison with Rheumatic fever arthritis, Rheumatoid arthritis, *Seronegative* Arthritis:

	Amavata	Rheumatic fever Arthritis	Rheumatoid Arthritis	*Seronegative* Arthritis
Joint involvement	Generally Starts with Major joint	Starts with Major jt	Starts with Minor joint (PIP and MCP)	Axial joints or Peripheral joints of Both
Migratory Arthritis	Yes	Yes	No	Rarely
Symmetrical	Usually	No	Yes	Usually

joint involvement	asymmetrical			asymmetrical
Cardiac complications	*Hridgaurava Hridgraha*/	*Pancarditis*	*Pericarditis, Myocarditis*	Congestive Heart failure
Patho Investigations	….	ASO /CRP	RA /CRP	Sometimes HLAB-27/ESR/CRP

Ankylosing Spondylitis:

Ankylosing spondylitis is a chronic inflammatory *seronegative* arthritis of unknown cause that primarily involves the axial skeleton, peripheral joints and extra *articular* structures. *Seronegativity* is the absence of *rhuematoid* factor. This disease begins in second and third decade, with men three times more afflicted than *wonen*[18] . There is striking correlation between HLA-B27 and *ankylosing spondylitis*. The disease is mild in women, so men usually present with symptoms. The typical presentation is intermittent bouts of low back pain, dull in character. *Sacroilitis* is the earliest feature with pain in buttocks radiating down the back of the both legs accompanied by low back morning stiffness of few hours duration that improves with activity and returns following period of inactivity. *Nocturnal* exacerbation of pain that forces the patients to get up and move around may be frequents. In some patients bony tenderness may accompany back pain. Common sites of pain *costo-chondral* junction, *spinous* processes, iliac crests, greater *trochanters, ischial tuberosities, tibial* tubercles and heals. Arthritis of peripheral joints other than hip and shoulders is usually asymmetric. Enthesopathy is a hallmark of the disease. In the spine initial inflammatory lesion occurs at the junction of annulus fibrosus of the *intervertebral* disc cartilage and the margin of the bone. Extra *articular* manifestations includes anterior *uveitis*, pulmonary fibrosis and aortic insufficiency that may lead to congestive heart failure [19]. Pathological investigations like HLAB27 is present in 90% of cases.ESR and C-Reactive protein are found raised.

So from above comparison rheumatic fever is closer with *Amavata* than Rheumatoid arthritis and *Seronegative* arthritis. But the Cardinal clinical features of *Amavata* like saruja sandhishotha, etc may be found Rheumatic fever arthritis, Rheumatoid Arthritis, and some forms of *seronegative* arthritis. So *Amavata* can be describe as the

family of diseases like Rheumatic fever arthritis, Rheumatoid arthritis, *seronegative* arthritis *(Ankylosing spondylitis).*

Table no 03: Revised Diagnostic criteria of *Amavata* .

	Clinical features	**Diagnosis of *Amavata***
Major Criteria	1.Symptoms related with *Ama-* Agni *daurbalya, Apaka* etc 2. Symtpoms related with *Vata-Pitta - Kapha prakop-* *Angamard, Daha, Prasek, Gaurav,* 3. *Saruja Sandhi shotha* (Involvement of Axial joints or Peripheral joints or Both/Symmetrical or Asymmetrical presentation)	Essential all three
Minor criteria	1.Daha, 2. *Bahumutrata*, 3.Sanchari *Vedana*, 4.Gatrastabdata, 5.Vrishikdansh*vata* vedna	Desirable but not compulsory
Supportive Criteria (Investigation)	RA, ASO, C**RP,** HLA-B27	Essential any one

Discussion:

Amavata can be describe as the family of diseases like Rheumatic fever arthritis, Rheumatoid arthritis, *seronegative* arthritis (*Ankylosing spondylitis*). There is great clinical similarities are found with rheumatic fever arthritis, rheumatoid arthritis, seronegative arthritis. Common clinical feature is *monoarticular* or *polyarticular*, axial or peripheral joint or both joints may involve, they have *extraarticular* signs and symptoms also, they can produce cardiac abnormality in a different extent. Clincical features of *Amavata* can be categorize as clinical features due to *Ama* and *agnimandya*, clinical features due to *doshaprakopa*, *articular* and extra articular. Pathological investigations like RA, ASO, CRP, HLA-B27 are useful for the diagnosis of *Amavata* . Presence of RA factor in serum gives evidence for *Amavat* (Rheumatoid arthritis type), ASO titre gives evidence for infection of Group A beta *hemolytics streptococi* which produces rheumatic fever. In these disease joints and connective tissues

are affected hence CRP (C-Reactive Protein) will be increase. Human leukocyte antigin-B27 is measured in lymphocytes is useful supporting evidence in a difficult case. It is important to know that may normal people (2% to5%) carry the gene.HLA-B27 is present in 90% if cases of *Ankylosing sypodylitis*.[20]

Diagnosis of *Amavata* is not difficult if patients with typical establishment but may confusing in a early stage due to presence of prominence extra *articular* manifestations. [21] To make a valid, consistent, reliable diagnosis of *Amavata* proper history should be taken, examination of Joint should be done and the diagnostic criteria must be applied as suggested in table no 3. Investigations like Synovial fluid examination, ECG, 2D Echocardiography, X ray of affected joints, X ray chest are useful for study of complications. Final diagnosis should be made by correlation between clinical manifestation and investigation.

Conclusion:

1. *Amavata* is multisystem involving syndrome which has a articular and extra articular manifestations.
2. Clinical features of *Amavata* comprise features of *Ama* and Agnimandya, features of doshaprakopa, rasavaha srotodushti, and sandhivikriti.
3. There is huge range and variation of clinical presentation of *Amavata* is hound in patients.
4. As signs and symptoms of *Amavata* found as nominal and categorical some pathoinvestigations must be used for confirmative and consistent diagnosis.
5. *Amavata* can be clinically correlated with rheumatic fever arthritis, rheumatoid arthritis, seronegative arthritis *(Ankylosing spondylitis)*
6. *Amavata* may be found in association with any one of patho investigations like RA, ASO, CRP, HLA-B27.

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