

A REVIEW OF AYURVEDIC HEPATOLOGY AND INFERENCES FROM A PILOT STUDY ON KALMEGH (ANDROGRAPHIS PANICULATA) INTERVENTION IN HEPATIC DISORDERS OF VARIABLE ETIOLOGY

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Abstract

Ayurveda has many propositions to hepatobiliary diseases which are akin to modern understanding of hepatology. Besides elaborate clinical descriptions of various hepatic conditions, Ayurveda further proposes many herbal, herbomineral and dietary interventions to prevent and to manage such conditions. Kalmegha(*Andrographis paniculata*) is a trusted drug from Ayurvedic repertory which is variously used in many hepatic conditions. We had gone through a pilot study to evaluate its role in various hepatic conditions and found that it has a beneficial role in hepatocellular pathologies.

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Introduction :

Hepatology is the branch of medicine which deals with the diseases of liver and biliary tract. Never in the history of mankind the liver has had been exposed to serious damage as it is now. Indiscriminate use of systemic drugs like tetracycline, paracetamol, antitubercular drugs, oral contraceptives of hormonal origin, chemicals used as food preservatives and agro chemicals are threatening the integrity of the liver. Further addiction to alcohol and other such preparations have aggravated the problem. Undernutrition and malnutrition are important causes of damage of liver in the developing countries due to scarcity of food. Thus liver is not expected only to perform a wide range of physiological functions, but it has also to protect itself against the environmental hazards, toxic medicines and chemicals. In spite of tremendous scientific advancement in the field of hepatology in recent years, more problems have been added rather than solved. Hence hepatology has emerged as a major discipline of medicine with in a short period.

The major clinical manifestation of liver disorders is jaundice. In spite of having extra-ordinary capacity of regeneration in this organ, a slight ignorance may lead to fatal complications with grave prognosis. There is no rational therapy yet available in western conventional medicine for the cure of these diseases. Usually supportive measures are practiced. Although the entity of liver as an organ and its function is not elaborated in Āyurvedic texts, a number of clinical conditions simulating different liver diseases as known today are

described in Āyurvedic classics and subsequent writings. In order to organise and to further develop this area of clinical medicine, it has been felt necessary to collect and codify the relevant literature from Āyurvedic texts and to treat the same critically to evolve a viable discipline of Clinical Hepatology in Āyurveda so that the useful therapeutics available in Āyurveda may be fruitfully generalized and extended to the care of patients suffering from different liver diseases. The present review will highlight the conceptual background and scope of its future clinical applications.

Āyurvedic literature replete with various recent references which testify the effect of Āyurvedic medications for the treatment of liver disorders such as *Kāmalā*, *Yakṛtgata doṣa*, *Yakṛt Vṛddhi* and *Yakṛddālyudara*.

Classification of Liver Diseases :

Āyurvedic literature has description of different liver diseases in different contexts. They can be classified as follows -

1. Pratyakṣa (Direct) :
 - (a) Yakṛt vṛddhi (Hepatomegaly)
 - (b) Yakṛddālyudara (Cirrhosis of Liver)
 - (c) Yakṛtgata Doṣa (Chronic Hepatitis)
2. Apratyakṣa (Indirect) :
 - (a) Kāmalā (Jaundice)
 - (b) Halīmaka (jaundice complicated with fever)
 - (c) Pānaki (Jaundice complicated with Diarrhoea)

- (d) Kumbha Kāmalā (Jaundice complicated with ascites and Oedema)
- (e) Alasa (Chronic Hepatitis)
- (f) Lāgharaka (Chronic Hepatitis)
- (g) Lodhara (Chlorosis)

In Āyurveda distension of abdomen (Udara vṛddhi) caused by the functional derangement of liver (*Yakṛtia-Praduṣṭi*) is known as *Yakṛddālyudara*. This disease in Āyurvedic literature has been described along with *Plīhodara* in the chapter of *Udara Roga*. Bhāva Prakāśa has mentioned an independent disease known as *Yakṛta-vṛddhi* in addition to *Yakṛddālyudara*. The relevant literature is being reviewed here to highlight the concepts of these diseases.

DIRECT LIVER DISEASES:- There are number of direct liver diseases in Ayurveda, which are described as here under.

Yakṛta vṛddhi (Hepatomegaly) :

Caraka in the 19th chapter of Sūtra Sthāna and 13th chapter of Cikitsā Sthāna has enumerated 8 types of Udara-Roga, *Yakṛddālyudara* has been mentioned indirectly there. Similarly Suśruta and Bhāvaprakāśa have also included this disease indirectly in eight types of *Udara Roga*.

Caraka Samhitā : In Caraka Samhitā a reference is available regarding the enlargement of *Yakṛta* (liver). After describing the symptomatology of *Plīhodara* it has been mentioned that the causes, symptoms and treatment of enlargement of liver which is situated in right side of the abdomen are similar to that of *Plīhodara*. While describing the treatment of *Plīhodara* it has been further referred that the treatment of the disorders of *Yakṛta* (liver) are similar to that of *Plīhodara*.

Suśruta Samhitā and Others : Suśruta, first time gave the specific nomenclature to this disease as *Yakṛddālyudara* and briefly defined this disease. It has been mentioned that the disease caused by *Praduṣṭi* of *Yakṛta* which is situated in right side is known as *Yakṛddālyudra*. But specific symptomatology and treatment of this disease have not been described except mentioning that in this disease *Śirāvedha* of right arm should be carried out.

No further new contribution seems to have been made in the knowledge of this disease by the authors of Aṣṭāṅga

Śaṅgraha, Aṣṭāṅga Hṛdaya, Mādhava Nidāna and Śāraṅgadhara samhitā, who have mostly carried over the knowledge of previous texts.

Bhāva Prakāśa : The contribution of Bhāvaprakāśa in increasing the knowledge base of hepatology is worth mentioning. In this book a specific chapter (33rd, Madhya Khanda Cikitsā-Prakaraṇa) on *Plīhāyakṛddādhikāra* in addition to the general chapter (41st Madhya Khanda Cikitsā Prakaraṇa) of *Udarādhikāra* has been dealt with. From the descriptions available in these chapters it seems that the enlargement of the spleen or liver which do not cause enlargement of the abdomen may be termed as *Plīhā-vṛddhi* and *Yakṛta-vṛddhi*. Both these clinical entities have been described in the chapter of *Plīhayakṛddādhikāra*. The enlargement of the spleen or liver if causes enlargement of the abdomen also, then these clinical entities are known as *Plīhodara* and *Yakṛddālyudara* respectively and these have been dealt with in *Udarādhikāra*.

It is obvious from the foregoing that though the *Plīhā-vṛddhi* and *Plīhodara* have been described in detail Yet the indirect attention has been paid to the causes and symptomatology of *Yakṛta-vṛddhi* and *Yakṛddālyudara* in Āyurveda literature. Therefore, on the basis of symptoms and signs of *Plīhā-vṛddhi* and *Plīhodara*, symptoms and signs of *Yakṛta-vṛddhi* and *Yakṛddālyudara* may be constructed, as follows :

Symptoms and Signs of Yakṛta-vṛddhi (Hepatomegaly) : In addition to the enlargement of *Yakṛta* (liver) the patients of *Yakṛta-vṛddhi* have the symptoms of *Kapha* and *Pitta doṣa*. In addition to these, the patients may have *Manda-jvara* (mild fever), *Manda-agni* (diminished digestive process), *Kṣīna-bala* (weakness) and *Ati-pāṇḍu* i.e. extreme anaemia (Bhāvaprakāśa, Madhya-Khanda, Cikitsa Prakaraṇa, 33:2, 3).

Bhāvaprakāśa has described four types of *Plīhā-vṛddhi* and from this the symptoms and signs of four types of *Yakṛta-vṛddhi* viz., *Raktaja yakṛta-vṛddhi*, *Pittaja yakṛta vṛddhi*, *Kaphaja yakṛta-vṛddhi* and *Vātaja yakṛta-vṛddhi* may be derived as follows:

Raktaja Yakṛta-vṛddhi : The patients of *Raktaja* type of *Yakṛta-vṛddhi* may have the symptoms of *Klama* (tiredness), *Bhrama* (giddiness), *Vidāha* (burning sensation), *Vaivarṇya* (discolouration), *Gātra-gaurava*

(heaviness in the body), *Moha* (unconsciousness) and *Raktodara* (bleeding in the abdomen).

Pittaja Yakṛt-vṛddhi : The symptoms and signs like *Jvara* (fever), *Pipāsā* (thirst), *Dāha* (burning sensation), *Moha* (unconsciousness), *Pīta-gātra* (Yellow colour of the body) may be attributed to Pittaja Yakṛt-vṛddhi.

Kaphaja Yakṛt-vṛddhi : Thick (*Sthūla*), hard (*Kaṭhina*) and heavy (*Gaurava*) enlarged liver with mild pain in liver area (*Yakṛt*) are the signs and *Aruci* (loss of appetite) is the symptom of Kaphaja Yakṛt-vṛddhi.

Vātaja Yakṛt-Vṛddhi : The patients of Vātaja Yakṛt-vṛddhi may have *Udāvarta* and may feel pain all along the liver area. The patients of this disease also feel stiffness in *Koṣṭha* daily (*Nityamanaddha Koṣṭhah*).

Yakṛddālyudara (Cirrhosis of Liver) :

As mentioned earlier signs and symptoms of *Plīhodara* have been described in detail in all the Āyurvedic texts. As the symptoms and signs of *Yakṛddālyudara* are the same as that of *Plīhodara*, therefore following symptoms and signs may also be constructed for *Yakṛddālyudara* on the basis of *Plīhodara*.

Symptoms of Yakṛddālyudara : *Daurbalya* (weakness), *Arocaka* (loss of appetite), *Avipāka* (indigestion) *Varco-mūtra-graha* (retention of faeces and urine), *Tamaḥpraveśa* (feeling of darkness in front of eyes), *Pipāsā* (thirst), *Aṅgamarda* (dull ache in the body), *Chardi* (vomiting), *Mūrccha* (unconsciousness), *Aṅgasāda* (fatigue of extremities), *Kāsa* (cough), *Śvāsa* (dyspnoea), *Mṛdu-jvara* (mild fever), *Ānāha* (distention of abdomen), *Agnināśa* (diminished digestive power), *Kārśya* (emaciation), *Āsya-vairasva* (tastelessness in the mouth), *Parvabheda* (pain in joints), and *Koṣṭha-vāta-sūla* (pain in abdomen due to *vāta*), may be the symptoms of *Yakṛddālyudara* (Caraka Cikitsa 13:38).

Signs of Yakṛddālyudara : Caraka mentions appearing of *Nīla* (bluish), *Harita* (greenish), *Hāridra* (deep yellow) coloured lines (may be veins) on the abdomen as the signs of this disease. The normal colour of the abdomen also changes to abnormal (*Vivarṇya*) and it may become *Aruṇa* (red) (Caraka Cikitsā, 13:38). Suśruta mentions *Ati-pāṇḍu* (severe anaemia) as one of its signs (Suśruta Nidāna, 7:15:16).

Aṣṭāṅga Saṅgraha has described three types of *Plīhodara* (*Aṣṭāṅga Saṅgraha Nidāna*, 12:29). From this description the signs of *Vātika*, *Paittika* and *Kaphaja* types of *Yakṛddālyudara* may be postulated as follows :

Vṛtika Yakṛddālyudara : *Vṛtika* type of *Yakṛddālyudara* patients may have in addition to other general signs and symptoms, *Udāvarta*, *Rujā* (dull pain) and *Ānāha* (constipation and distention).

Paittika Yakṛddālyudara : In addition to other general symptoms and signs, the patients of *Paittika Yakṛddālyudara* may have *Moha* (unconsciousness), *Tṛṭā* (thirst), *Dahana* (feeling of burning sensation) and *Jvara* (fever).

Kaphaja Yakṛddālyudara : The patients of *Kaphaja Yakṛddālyudara* among the others may have the symptoms of *Gaurava* (heaviness), and *Aruci* (loss of appetite) and their liver may be found hard (*Kaṭhina*).

Yakṛt gata doṣa (Chronic Hepatitis):

The symptoms and signs as described of chronic hepatitis in western medicine resemble with a condition when the morbid Doṣas are situated in *Yakṛt*. Therefore, it has been given the name of *Yakṛt-gata-doṣa*. The classics describe five kinds of *Plehadōṣa* (*Panca Plehadōṣāh*).

INDIRECT LIVER DISEASES : There are certain such disorders which are discussed thoroughly by our classical Ācāryās, but their direct pathological relationship with liver has not been mentioned. They are as follows :-

Kāmalā (Jaundice):

The *Kāmalā* is one of those clinical entities, conceived in Ayurveda, whose description appears to be the most comprehensive and comparable to the current concepts of the subject. Although the root Sanskrit meaning of the word *Kāmalā* does not appear to have a relevant bearing with the actual pathogenesis of this disease, it throws a wider light on pathophysiology in general. The word *Kāmalā* is interpreted as, "*Kutsitam Mala Yasmin Roge Saḥ Kāmalā Rogah*". As a matter of fact the continued metabolic activities in the body lead to the formation of a series of breakdown products. These products may have to play a beneficial role in the body, while some other might have no beneficial effects. All such products of systemic metabolism may be considered

as *Malas*. Thus it would be seen that *Malas* as conceived in Āyurveda does not necessarily mean a waste-product requiring immediate excretion. This is why the *Malas* have been given the status of *Dhātūs*, which are supposed to be the supporters of living body. Normally, there is constant production of *Mala* (degraded byproducts) as a result of complex metabolic activities. As mentioned above the *Dhātūrūpa Malas* are beneficial to the body and need not be excreted immediately. They may have some physiological sustaining role of play. But at the same time these *Malas* when get accumulated in excess or are converted into certain harmful forms, they should be considered “*Kutsita Malas*” warranting immediate excretion. If such altered *Malas* are not removed from the body they become the basis of causation of a disease. Here in reference to the production of *Kāmalā Roga*, it may be understood that the basic pathophysiology of this disease consists of the over accumulation or alteration of certain metabolic factors, which are *Malas* in nature.

In this context it appears convincing to consider Bilirubin as the basic factor. As pointed out elsewhere, Bilirubin is a waste product of haemoglobin metabolism. It is under constant production in the body and even normal organisms possess a known amount of this agent in the body. In this stage it cannot be considered “*Kutsita*”. But whenever there is abnormal increase in the level of Bilirubin either due to over production or due to disordered excretion, a disease state develops which can be called *Kāmalā* as would be discussed further.

In the light of the known pathophysiology of Jaundice as compared to the *Samprāpti* of *Kāmalā Roga*, it may be specified that the word *Mala* in relation to *Kāmalā* (Jaundice) means stercobilinogen in gastrointestinal tract, urobilinogen in urinary tract and bilirubin in systemic circulation. This is consistent with the clinical manifestations as may be observed in the form of presence of yellow-colour in the blood, urine, or stool, depending upon the type of disturbance.

Therefore, the above definition of *Kāmalā Roga* seems to have more nearer resemblance to the modern term of Jaundice. It is to be noted here that the word

Kāmalā is much more ancient than that of Jaundice in historical perspective.

Aetiology (Nidana) of *Kāmalā Roga* :

In Āyurveda classics the *Nidāna* or *Hetu* (aetiology) of *Kāmalā* has been described as below :

(1) Caraka describes *Kāmalā* as a sequelae of *Pāñḍu Roga* (anaemia). This appears to be a statement based on clinical similarity between these two diseases. The pathophysiological similarity between two diseases may be a subject of continued discussion. However, *Pāñḍu* (anaemia) may precipitate *Kāmalā* through different mechanisms.

i) By excessive use of life style and dietetic factors responsible for producing *Pāñḍu* or anaemia (*Pāñḍukta Nidāna Sevanam*).

ii) Excessive use of factors which may excite the *Pitta* in a patient of *Pāñḍu Roga* (anaemia), whose *Pitta* activity is already deranged (C.Ci. 16/34).

It may be quite relevant to discuss the role of *Rakta* (blood) in the pathogenesis of *Kāmalā Roga* in this context. As a matter of fact *Rakta* is an essential constituent of human body. Āyurveda conceives that *Pitta* or the bile is a waste product of *Rakta* (blood). It is an established fact of the current modern knowledge, that the bile pigment is the waste product resulting from haemoglobin breakdown. The Iron released from this breakdown is stored in the liver and the global fraction joins the protein pool of the body and remains available for the manufacture of new Haemoglobin. The Bilirubin is carried in the circulation to the liver from where it is secreted in the body and undergoes enterohepatic circulation. The *Rakta* (blood) is a basic factor in the production of *Mala Rūpa Pitta*. Thus aetiology of *Kāmalā* depends upon the occurrence of a defect in and around the sites mentioned above.

(2) Apart from *Pāñḍu Roga*, *Kāmalā* may develop in association with other diseases too, or it may develop as an independent entity. Suśruta, the father of ancient Indian surgery has accepted *Kāmalā* (Jaundice) not only as one of the complications of *Pāñḍu Roga* (Aneamia) but also in association of other diseases. Ḍalhānacārya, the renowned commentator on Suśruta Saṁhitā has explained the word “*Āmayānte*” by saying - “*Āmayānte Pāñḍu Rogānte Anyarogānte Ca*”. This preserves the

secret of their observations in the purest and richest essence.

The same idea has also been clearly depicted by Vāgbhaṭṭa in his classical treatise (A. H. : 13/17).

In special reference to inborn errors Caraka and Mādhavakar, the great ancient Indian Ācāryas have remarked prudently on the clinical appearance of *Kāmalā* (Jaundice) in new born babies.

They have shown the subjective and objective manifestations of this disease associated with the underlying defects in the mother's milk and have exactly correlated to the baby who sucks it (C.Ci 30/235, M.N.B.R.M.2).

Classification of *Kāmalā* Roga :

According to various Ācāryās *Kāmalā* can be classified as follows (Table -1):-

Table -1 : Classification of *Kāmalā* Roga

S.No.	Name of the Worker	Type of <i>Kāmalā</i>
1.	Caraka	(i) Koṭṭhāsrita <i>Kāmalā</i> (ii) Ḥākhāsrita <i>Kāmalā</i>
2.	Suśruta	(i) Halīmaka (ii) Pānaki (iii) Kum̄bha Hayam or Kumbha Sahwa (iv) Lāgharaka (v) Alasākhyā
3.	Vṛgbhaṭṭa	(i) Swatantra <i>Kāmalā</i> (ii) Paratantra <i>Kāmalā</i>

Above mentioned description indicates that the classification of Caraka is very scientific and is comparable with the modern classification.

Pathogenesis (*Samprāpti*) of *Kāmalā*:

Pitta Dosa : In the twentieth chapter of Sūtrasthāna, Caraka has described the *Nānātmaja* diseases of *Vāta*, *Pitta* and *Kapha*. The specific diseases of a particular *Doṣa* which cannot be produced without involving that particular *Doṣa* are known as *Nānātmaja* diseases of that *Doṣa*. *Kāmalā* has been included in the 40 *Nānātmaja* diseases of *Pitta* described there. It means *Pitta Doṣa* is always involved in *Kāmalā* and without its involvement *Kāmalā* can not be produced.

Rakta in the Pathogenesis of *Kāmalā* : In the twenty-fourth chapter of Sūtrasthāna, Caraka has described *Śoṇitaja Roga* i.e. diseases caused by *Rakta*.

Here *Kāmalā* has not been included in the *śoṇitaja Roga* (Caraka Sūtra, 24:11-16). Further in the 28th chapter of Sūtra Sthāna, Caraka has described the diseases caused by the *Doṣas* when they are situated in morbid state in seven *Dhātus*. *Kāmalā* has been included in the diseases caused due to the morbid *Doṣa* situated in *Rakta Dhātu* (Raktapradoṣajjāyante. Caraka Sūtra, 28:11-13). It is clear from the above observations that *Kāmalā* is not a *Raktaja Roga* but when morbid *Pitta Doṣa* involves the *Rakta* then *Kāmalā* may be produced. *Rakta* is particularly involved in the *Samprāpti* of *Koṭṭhāsrita Kāmalā*.

Mānsa in the Pathogenesis of *Kāmalā* : Mānsa also involves in the pathogenesis of *Koṭṭhāsrita Kāmalā*. Caraka mentions when the patient of anaemia indulges in the *Paittika Āhāra* and *Vihāra*, then morbid *Pitta* causes *Dagdha* of *Rakta* and *Mānsa* and produces *Kāmalā*, specifically *Koṭṭhāsrita Kāmalā*.

Samprāpti (Pathogenesis) of Ḥākhāsrita *Kāmalā* : *Samprāpti* of *Śākhāsrita Kāmalā* differs from *Koṭṭhāsrita Kāmalā*. Caraka mentions that *Kapha-sammūrcchita-Vāyu* throws away *Pitta* from its normal place and thus *Śākhāsrita Kāmalā* is produced. Further, it is mentioned that the passage of *Pitta* is obstructed by the *Kapha* and due to this *Śākhāsrita Kāmalā* is produced. Therefore, it has been suggested that while treating this disease, first *Kapha* should be treated to remove the obstruction in the passage of *Pitta*. It is clear from these observations that in *Śākhāsrita Kāmalā*, *Kapha* and *Vāyu* are also involved.

Clinical Features of *Kamala Roga* :

Caraka has described following clinical features of *Kāmalā Roga*. (C.Ci.16/35-36) (Table 2)

Table -2 : Clinical Features of *Kamala Roga*

S.No.	Sanskṛt	English
1.	Hāridra-netratā	Yellowness of eyes
2.	Hāridra-twak	Yellowness of skin
3.	Hāridra-nakha	Yellowness of nails
4.	Hāridra-ānana	Yellowness of face
5.	Rakta-Pīta Sakṛta	Yellow stool with blood
6.	Rakta-Pīta Mūtra	Yellow urine with blood
7.	Bheka Varṛatā	Frog like complexion
8.	Hatendriya	Exhausted senses
9.	Dāha	Burning sensation
10.	Avipāka	Indigestion
11.	Daurbalya	Weakness

12.	Sadana	Laxity of the body (fatigue)
13.	Aruci	Anorexia
14.	Karṣita	Emaciated

Different Clinical Stages of Kāmalā:

Halīmaka, Loṅhara, Lāgharaka, Alasa and Pānakī and Kumbha Kāmalā : *Halīmaka* is a clinical entity first described by Caraka in the 16th chapter of *Cikitsā Sthāna*. It has been described there that apart from the other symptoms when a patient of *Pāṅḍu Roga* develops *Harita* (greenish), *Pīta* (yellowish) etc. colour of the body, then this disease is called *Halīmaka*. Cakrapāṇi Datta while commenting on these verses has indicated that *Lāgharaka* and *Alasa* described by Suśruta are the synonyms of *Halīmaka*. Further Cakrapāṇi while commenting on the same verses, has also indicated that *Pānakī*, a disease described by other authors, is a particular stage of *Kāmalā*.

Suśruta, in the 44th chapter of the *Uttara Tantra* while describing the diagnosis and treatment of *Pāṅḍu Roga*, has also described *Lāgharaka* (*Alas*) and *Halīmaka*. Dalhaṇa has commented separately on the verses describing *Lāgharaka* (*Alasa*) and *Halīmaka*. This indicates that Dalhaṇa is of the view that *Lāgharaka* (*Alasa*) and *Halīmaka* are the two different clinical entities. But according to him both *Lāgharaka* (*Alasa*) and *Halīmaka* may occur after the *Pāṅḍu Roga* or *Kumbhasahya* i.e. *Kumbha-Kāmalā*. This shows that *Lāgharaka* (*Alasa*) and *Halīmaka* have something common. Further it has been mentioned by Dalhaṇa that the *Pānakī* described by other Tantras is a particular stage of *Kumbha-sahya* i.e. *Kumbha-Kāmalā*.

Vāgbhaṭṭa has also described *Halīmaka* in the 13th chapter of *Nidāna Sthāna* after describing the diagnosis of *Pāṅḍu Roga* and *Kāmalā*. It has clearly been mentioned there that *Loṅhara*, *Halīmaka* and *Alas* are the synonyms. The description of *Halīmaka* is about the same as that of Caraka.

Yogarātnākara has also described *Halīmaka*, along with *Pāṅḍu Roga* and *Kāmalā*. In addition to it a clinical entity named as *Pānakī* has also been described. In this disease apart from other symptoms the patient develops *Pīta* (yellowish) colour inside (*Antah*) and outside (*Bahira*) of the body. It is important to note here that the eyes of the patient of *Pānakī* remains *Pāṅḍu* (pallor).

So it is clear from the foregoing discussion that there is some controversy over the clinical entities of *Halīmaka* (*Loṅhara*), *Alas* (*Lāgharaka*) and *Pānakī*. Some Acāryas suggest that they are the synonyms to each other while others described them as separate clinical entities. However, from clinical point of view one thing is common that they all occur either after *Pāṅḍu Roga* or *Kāmalā*. So again careful clinical history and differentiation between the *Pīta* (yellowish) colour of these diseases and *Hāridra* i.e. deep yellow colour of *Kāmalā* will help to reach the underlying disease. A brief symptomatology of above mentioned diseases are given below.

Features of Halīmaka : Mādhavakāra mentioned that when patient of *Pāṅḍu Roga* (anaemia) develops green, black or yellow discolouration (of skin), loss of strength and vigour, sleepiness; sluggish digestion, mild fever, loss of libido, bodyache, burning sensation, thirst, anorexia and giddiness; he should be diagnosed as suffering from *Halīmaka* disease, which is due to (the vitiation of) *Vāta Pitta* (C.Ci.16/132, 133).

Features of Lāgharaka and Alasākhyā : *Kumbha Kāmalā* associated with fever, bodyache, giddiness, malaise, drowsiness and emaciation is called *Lāgharaka* and *Alasākhyā* (Su.U.44/3).

Features of Pālakī (Pānakī) : Suśruta has mentioned the following symptoms of *Pālakī* viz *Santāpa* (pyrexia), *Bhinnavarcasa* (loose motions), *Vahirantasca Pīta* (yellow discolouration of external and internal parts of body), *Pāṅḍunetra* (Pale eyes) (S.U.44).

Singh R.H. (1982) has mentioned in his book “Āyurveda Nidana evam Cikitsā Ke Siddhanata” that *Halīmaka* and *Pānakī* are not independent diseases rather they are considered as two different complicated stages of *Kāmalā Roga*. He suggest that *Kāmalā* complicated with fever and diarrhoea be diagnosed as *Halīmaka* and *Pānakī* respectively.

Features of Kumbha-Kāmalā (Kumbhasāhva or Kāmalā) : *Kumbha-Kāmalā* is a clinical condition described by most of Āyurvedic texts after the description of *Koṣṭhāśrita Kāmalā*. According to Cakrapāṇi *Kumbha-Kāmalā* is a particular stage of *Koṣṭhāśrita Kāmalā*. By close perusal of all the Āyurvedic literature available on *Kumbha Kāmalā* it can be postulated that a long standing (Kalantar according to Caraka) case of

Koṣṭhāśrita Kāmalā when develops oedema and pain in joints (*Śopha* and *Parva-bheda* according to Suśruta) ultimately becomes difficult to cure (*Kṛcchra*) then this condition is known as *Kumbha-Kāmalā*. Thus it is clear that *Kumabha-Kāmalā*, an advance stage of *Koṣṭhāśrita Kāmalā* is very important from the clinical point of view. It should always be in the mind of the attending physician that any ignorance or delay in the treatment of *Kāmalā* either on the part of physician or the patient may lead to *Kumbha-Kāmalā*, which is difficult to cure.

Singh R.H. (1982) has suggested that *Kumbha-Kāmalā* is a state of *Kāmalā* complicated with oedema, which may result from long standing *Kāmalā Roga*.

Ayurvedic management of Liver diseases: Inferences from a Clinical study

The principle of management of these diseases differs in Ayurveda, from western modern medicine. *Yakṛt* (liver) is supposed to be the seat of *Raktavaha Srotasa* and *Pitta* is believed to be the *Mala* of *Rakta*. Hence the line of treatment adopted for the *Yakṛt-Rogas* comprise of the measures used for the pacification of *Pitta Doṣa*. Therefore, it is evident from the treatment measures described in classical texts, the maximum herbs are bitter (*Tikta*) is taste, which pacify the *Pitta Doṣa*.

This article presents the clinical evaluation of *Kalmegha* (*Andrographis paniculata*) in the management of 180 patients of hepatic disorders. *Kalmegha* is an Ayurvedic herbal drug used for liver disorders for a long time. *Kalmegha* is comparable to *Bhūnimba* of classical period which is an ingredient of many classical herbal preparations viz *Phalatrikadi kaṣaya* (A.H.C. 16/13) commonly used for *Kāmalā* (Jaundice). However, in recent years a creditable work has been done on certain other drugs prescribed for liver diseases in Ayurveda by Chopra and Nadkarni (1955). *Kalmegha* is one of them along with a few others. Certain other clinical studies have also been conducted on this drug in liver diseases (Chaudhuri, 1978 & Tomar et al. 1981). This drug was used in decoction form in the dose of 25 ml thrice daily (equivalent to the 40 gm of the crude drug) for three weeks.

180 patients of certain *Yakṛt-Rogas* (liver diseases) have been studied in this series- It includes 136 patients of *Koṣṭhāśhakhāśrita Kāmalā* (hepatocellular faundice), 18 patients of *Śākhāśrita Kāmalā* (obstructive jaundice), six patients of *Kumbha Kāmalā*, twelve patients of

Yakṛtgata-Doṣa (chronic hepatitis) and eight patients of *Yakṛddālyudara* (hepatomegaly with generalised distention of abdomen).

The response of treatment was assessed on clinical as well as biochemical parameters. The following criteria was used for categorising the results.

CURED : Complete relief in signs and symptoms and normalization of altered liver function tests.

IMPROVED : Either marked improvement in signs and symptoms and improvement in altered liver function tests.

UNCHANGED : No improvement in signs and symptoms or in altered liver function tests.

Therapeutic Observations:

Kalmegh has cured 90% patients of *Koṣṭhāśhakhāśrita Kāmalā* (hepatocellular jaundice), 22.2% patients of *Śākhāśrita Kāmalā* (obstructive jaundice), 66.6% patients of *Kumbha Kāmalā* and 83.3% patients of *Yakṛtgata Doṣa* (Chronic hepatitis) while it improved remaining 10% patients of *Koṣṭhāśhakhāśrita Kāmalā* (hepatocellular jaundice), 33.3% patients of *Kumbha Kāmalā* and 16.6% patients of *Yakṛtgata-Doṣa* (chronic hepatitis). *Kalmegha* showed no effect on the patients of *Yakṛddālyudara* and 77.8% patients of *Śākhāśrita Kāmalā* (obstructive jaundice).

There were no side effects during the course of treatment with this drug. The results of this study lead to the conclusion that *Kalmegha* (*A paniculata*) has good role in the treatment of *Koṣṭhāśhakhāśrita Kāmalā* (hepatocellular Jaundice), *Yakṛt-gata Doṣa* (chronic hepatitis) and *Kumbha Kāmalā*. On this basis *Kalmegha* (*Andrographis paniculata*) may be recommended for the treatment of these disorders. The results were unsatisfactory in cases of *Śakasrita Kāmalā* i.e. obstructive jaundice and *Yakṛddāludara* (cirrhosis of liver) (Table 3).

Table 3 : Therapeutic Observations of *Kalmegh* upon *Kamala*

	Clinical Groups	Cured	Improved	Unsatisfactory
1.	<i>Koṣṭhāśhakhāśrita Kāmalā</i> (Hepatocellular jaundice)	90%	10%	Nil

2.	Śakhaṣṛta Kāmalā (Obstructive jaundice)	22.2%	-	77.8%
3.	Kumbha Kāmalā (Chronic non obstructive jaundice)	66.6%	33.3%	Nil
4.	Yakṛta Doṣa (Chronic hepatitis)	83.3%	16.6%	Nil

Conclusion:

Thus Ayurveda literature presents an extensive description of hepatobiliary diseases and their Ayurvedic Management. Ayurvedic hepatology is a rich component. Certain herbal drugs described in Ayurvedic classical texts for the management of such disorders are proved beneficial. Apart from Kalamegha (Andrographis paniculata) certain other drugs like Kutaki (Picrorrhiza kurroa), Bṛngaraja (Eclipta alba), Dāruharidra (Berberis aristata) and Kakamachi (Solanum nigrum), are effective in various *Yakṛt Rogas* (liver diseases). Results of the clinical trials on these drugs are encouraging, warranting further studies for main stream use.

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