A LITERARY REVIEW OF KAMALA AND ITS TREATMENT W.S.R. HEPATOCELLULAR JAUNDICE

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ABSTRACT
Ayurveda is ancient medical science. In our ancient samhita, kamala vyadhi is briefly described. Kamala is pittaj nantmaj as well as raktapradoshaja vyadhi. Charakacharya has considered kamala as advanced stage of panduroga. Shushratcharya has considered kamala as a separate disease and also may be due to further complication of panduroga, whereas Vagbhatacharya described kamala as a separate disease. Kamala can be correlated with jaundice in modern medical science. In kamala vyadhi Acharyas has explained Virechana karma. Modern science has limitations in treating kamala vyadhi (jaundice) but ayurvedic literature clearly explained pathology and treatment of kamala vyadhi which shows the specificity of ayurveda.

KEYWORDS: Kamala, Jaundice, Virechana karma.

INTRODUCTION
Ayurveda is an ancient medical science. It has thoroughly described svaathavritta as well as treatment of various diseases. Bhrihattrayeey are three main samhitas which explain the basic principles of ayurveda. They are Charak Samhita, Sushrut Samhita and Vagbhat Samhita (Ashtang Hriday/Ashhtang Sangrah). In our ancient samhitas, Kamala is briefly described. Kamala can be correlated with jaundice in modern medical science. Most of the individual prefer Ayurvedic treatment for kamala. In Ayurveda, Kamala is the disease related with pitta dosha. With Ayurvedic medicines, we can treat and avoid recurrence of kamala. The management of Kamala and its complications along with drug, diet and lifestyle have been mentioned in Ayurvedic classics. Charak Acharya has considered Kamala as advance stage of Pandu roga. When person with panduroga continues intake of pittakar ahar then he may develop kamala[1]. Sushrut Acharya has considered Kamala as separate disease and also may be due to further complication of panduroga[2], whereas; Vagbhat Acharya has described Kamala as a separate disease.[3] Therefore, Kamala vyadhi can be caused by three different samprapti. In which first two samprapti occurs due to partantra dosh prakopa and the third samprapti by swatantra dosh prakopa. Acharya Chakrapani has used the term Bahupitta kamala as the synonyms of koshthashakhshrit kamala and alpapitta kamala as the synonyms of shakhashrita kamala. Kamala is pittaj nantmaj vyadhi[4] and also Rakta Pradoshaj vyadhi.[5] Kamala is compound word (kam+la) means lust or desire. In Kamala there is no any desire to eat or drink. An individual suffers from severe Arochaka, Avipaka, Agnimandya in kamala.

MATERIALS AND METHODS
- Charak Samhita with Ayurved Dipika Commentary by Chakrapani.
- Sushruta Samhita with Nibandhsangraha commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya.
- Ashtang Hriday with commentaries Sarvangasundara of Arundatta and Ayurved rasayana of Hemadri.
- Relevant articles published in various national and international journals.
- Harrison’s principles of internal medicines.

Classification of Kamala

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Kamala Hetu
Charak Samhita—According to Charak Samhita, Kamala is a clinical syndrome which develops after the pandu roga. When a patient of Pandu roga takes excessive paittik ahar-vihar develops bahupittakamalā.\[^{[1,7]}\]

Table 1: Kamala Hetu according to Charak Samhita.

<table>
<thead>
<tr>
<th>Bahupitakkamalā hetu</th>
<th>Viharaja</th>
<th>Manasik</th>
<th>Ruddhapattha kamala hetu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive kshar, anla, lavan, ushna</td>
<td>Ati vayyam</td>
<td>Kama</td>
<td>Excessive intake of raksha guna ahar</td>
</tr>
<tr>
<td>Viruddha anna</td>
<td>Ati maithun</td>
<td>Chinta</td>
<td>Sheeta, guru, madhur rasa ahar</td>
</tr>
<tr>
<td>Vidaqgdha anna</td>
<td>Divaswapna</td>
<td>Bhaya</td>
<td>Ati vayyam</td>
</tr>
<tr>
<td>Asatmya bhojana</td>
<td>Veg vidharana</td>
<td>Krodha</td>
<td>Veg dharan</td>
</tr>
<tr>
<td>Nishpav, masha, pinyaka, tiltail sevan</td>
<td></td>
<td>Shoka</td>
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</tr>
</tbody>
</table>

- **Shushruta Samhita**\[^{[2]}\]—According to Shushruta Samhita, when patient of pandu roga or person affected with other diseases consumes amlaraspradhan and apathyakar ahar develops kamala.
- **Ashtang Hriday**\[^{[3]}\]—According to Ashtang Hriday, when pandurogi or person with excessive pitta consumes pittakar ahar develops kamala.

Samprapti Koshthashashkrita kamalā:\[^{[4]}\]

- **Samprapti Ghataka**
  1. Dosha – Pitta
  2. Dushya - Rakta and Mansa
  3. Adhisthāna- Kostha (mahasrotas) and shakha
  4. Srotas - Rasavaha, raktavaha, annavaha, pūreeshvaha srotas
  5. Srotodushti – Atipravritti, Sanga, Vimarga gamana.

[Diagram of Samprapti Ghataka]

Samprapti Koshthashashkrita kamalā:

1. Dosha – Pitta.
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Rupa of Kamala
Table 2: Kosthashakhashrita kamala lakshanas.

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Haridra netra</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>2.</td>
<td>Haridra twacha</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>3.</td>
<td>Haridra mukha</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>4.</td>
<td>Bidrara naka</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>5.</td>
<td>Haridra mutra</td>
<td>+</td>
<td>-</td>
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<td>6.</td>
<td>Rakta peeta mutra</td>
<td>-</td>
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<td>-</td>
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<td>7.</td>
<td>Rakta peeta mala</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>8.</td>
<td>Daha</td>
<td>+</td>
<td>-</td>
<td>+</td>
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<tr>
<td>9.</td>
<td>Avipaka</td>
<td>+</td>
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<td>+</td>
</tr>
<tr>
<td>10.</td>
<td>Daurbalya</td>
<td>-</td>
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<td>11.</td>
<td>Sadana</td>
<td>-</td>
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<td>12.</td>
<td>Aruchi</td>
<td>-</td>
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<td>13.</td>
<td>Krasha</td>
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<td>14.</td>
<td>Tandra</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>15.</td>
<td>Balakshaya</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>16.</td>
<td>Trisha</td>
<td>+</td>
<td>-</td>
<td>+</td>
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<tr>
<td>17.</td>
<td>Indriyadaurbalya</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>18.</td>
<td>Bhekavarnata</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>19.</td>
<td>Panduvadana</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>20.</td>
<td>Haridra mala</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

Shakhashrita kamala lakshanas[4]
Haridra netra, haridra twaka, haridra mutra, sweta varchas, tilpita varchas, atopa, visthambha, hridaya guruta, daurbalya, alpagni, parshwa arti, hikka, shwas, aruchi, jwara.

Modern View of Kamala[8]
Kamala can be correlated with Jaundice according to their resemblance in signs and symptoms. Jaundice, or icterus, is yellowish discoloration of tissue resulting from the deposition of bilirubin. Tissue deposition of bilirubin occurs only in the presence of serum hyperbilirubinemia and is a sign of liver disease or, less often, a hemolytic disorder. Slight increase in serum bilirubin is best detected by examining the sclera, which have a particular affinity for bilirubin due to their high elastin content. The presence of sclera icterus indicates a serum bilirubin of at least 3.0 mg/dl. As serum bilirubin levels rise, the skin will eventually become yellow in light-skinned patients and even green if the process is long standing; the green color is produced by oxidation of bilirubin and biliverdin. Another sensitive indicator of increased serum bilirubin is darkening of urine, which is due to the renal excretion of conjugated bilirubin. Bilirubinuria indicates an elevation of direct serum bilirubin fraction and therefore the presence of liver disease. Increased serum levels occur when an imbalance exists between bilirubin production and clearance. Bilirubin is the yellow breakdown product of normal heme catabolism caused by body’s clearance of aged RBCs which contain haemoglobin. Bilirubin works as cellular antioxidant. Haemoglobin is broken down to heme and globin portion. The globin portion is a protein that breaks down into amino acids and plays no role in the pathogenesis of jaundice. The heme, on the other hand, undergoes oxidation reaction catalysed by the enzyme oxygenase to give biliverdine, iron and carbon monoxide. Biliverdine yield a yellow pigment called bilirubin (unconjugated). In the liver, the bilirubin is conjugated with glucornic acid to give conjugated bilirubin which is water soluble that can be excreted. Bacteria in the intestine convert the bilirubin into urobilinogen. This urobilinogen is then either converted into stercobilinogen or excreted in the feces or it is reabsorbed by the intestinal cells and taken to the kidneys via the blood to be excreted in the urine. In this way, normally the liver metabolizes and excretes the bilirubin in the form of bile. However, if there is disruption in this normal metabolism production of bilirubin, jaundice may results.

Sadhyasadhnyatwa
According to Charaka Samhita, initial stage of kamala is sadhya. On long standing becomes kriccha sadhya and Kumbha kamala[9] occurs. Kumbha kamala presents with further symptoms like krushna-pita shakruta mutra, raktamutra, shotha, chardi, daha, aruchi, trushna, anaha, moha, nasht aqni is asadhyā. Kumbha kamala with chardi, aruchi, hrullas, jvara, klam, swasa, kasa, atisara considered as asadhyā. According to Sushruta Samhita ,kumbha savha[10] is type of kamala with shopha and parvabheda. Ashtang Hridaya explained that untreated kamala leads to the next stage called kumbha kamala which is kricchasadhyā.[11]

Kamala Chikitsa
The management of disease according to ayurveda can be divided into three parts.
1. Nidana parivarjan
2. Shodana (purification therapy) and shaman (palliative therapy)

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3. Pathyapathya

In Ayurvedic texts scholars with their treasure of knowledge and experience have scientifically explained the principles of management of kamala.

Koshthashakshashritam kamala chikitsa
In management of Kamala, Acharya Charaka has mentioned virechana\(^{[1]}\) (purgation therapy) with mridu and tikta dravyas to eradicate the aggravated pitta dosha and to avoid dhathukshaya mridu shodhana i.e. mridu virechan (mild purgation) is useful in Bahupitta kamala. There treatment of choice for kamala is mridu-virechana as virechana is best therapeutic procedure for pittadosha.

Virechana Karma
Virechana therapy is a type of panchkarma. Virechana means administration of purgative for the purpose of eradicating dosha from the body. It is mainly done to eradicate the aggravated pitta dosha in the body. Before Virechana karma, Snehana should be done as purvakarma. For snehapan medicated tiktarasatkam ghrita should be used.

Ghrita used in Kamala vyadhi for snehapan\(^{[10]}\)

1. Panchgavya Ghrita.
2. Draksha Ghrita.
5. Dadimadi Ghrita.
7. Danti Ghrita.
8. Katukadi Ghritam.

With the help of Vriddi, Vishyandan and Pachana (pak) siddhanta\(^{[11]}\) Ghrita has capacity to bring dosha in koshtha from shakha. Thats why in kamala snehapan with medicated ghrita is useful in Kamala. Swedana is contraindicated in Kamala.\(^{[11]}\)

In Kamala, virechana should be done by tikta and mridu dravya, following are advised by Charaka in Panduroga chikitsa:\(^{[12]}\)

1. Gomutra and Godugdha in equal quantity.
2. Only Godugdha.

3. Eka anjali Mrudwika prayoga (8 pala nearly about 300 gm.)
4. Aragwadhi Phalnajia and Ikshurasa.
5. Triphala kwatha or Guduchi Svarasa or Daruharidra swarasa or Nimbpatra swarasa with madhu in the early hours.
7. Trivrita Churna (one part) and Sharkara (two parts)
8. Amalaki Swarasa and Madhu at morning.

Above mentioned yogas should be used according to prakriti, dosha, dasha, bala, kala and agni. They should be used in small quantity but used repeatedly. After mridu virechana, Anulmana of sanchit dosha occurs and manda agni becomes proper or normal.

Shamana chikitsa
After virechana karma, shamana drugs are to be administered. They can be given as single drugs or compound drugs. The actions of shaman drugs were pittahara or pitta rechana, yakritaa uttejaka (liver stimulant), dipana (appetiser), rakta shodhana (blood purifier), srotoshodhana (channel purifier).

Treatment of shakshashritam kamala\(^{[6]}\)
Ruddhapatha kamala needs different principle of management, since malarupa pitta is in shakha and virechana will not be effective till dosha are brought into koshtha (mahasrotas). Here kapha which obstructs the path of pitta, should be alleviated. The medicines which alleviate kapha, like titara (praride), daksha(cock), sushka mulaka, kalaththa yasha. Madulanga swarasa with honey, pippali, marich and shunthi have to be given. By giving these drugs pitta is brought in koshtha and then pittahara chikitsa should be given.

Duration of treatment (Mukta kamala lakshana)\(^{[6]}\)
Treatment should be continued till the stool of patient acquires the colour of pitta and vayu is alleviated. When pitta reaches swasthana (koshtha) and patient is relieved of upadrava, earlier line of treatment should be resumed.

Management of kumbhakamala
Kumbha kamala is an asadhya or kriccha sadhya vyadhi. Charakacharya has not mentioned any specific treatment.

Sushrutacharya\(^{[2]}\)

1. Swarnmakshika+Gomutra,
2. Shilajatu+Gomutra,
3. Mandura+Gomutra + Saindhava lavana for 1 month,
4. Bibhitaka lavana.

Vagbhatacharya\(^{[13]}\)

1. Shilajatu + Gomutra for 1 month,
2. Swarnmakshik + Gomutra for 1 month.
DISCUSSION

In Ayurvedic literature kamala is described as pittaj nambaja and raktapradoshaj vyadhi. Acharya Charaka describes that kamala advance stage of pandu roga, but Acharya Sushruta has mentioned it as a complication of pandu roga as well as other disease also, where Acharya Vaghata also described it as a separate disease. All most signs and symptoms of jaundice are much more similar to kamala ailments of Ayurveda in various aspects. The classification of Kamala is based on origin and pathology. It is mainly of two types koshthashakhashrita kamala and shakhashrita kamala. Koshthashakhashrita kamala arises due to excess break down of erythrocytes, it is also called bahupittakamala because increase the production of pitta. Shakhashrita kamala arises due to intrahepatic cholestasis, here the cause of kamala is only reduced excretion of bilirubin so called alpapitta kamala. Both types of jaundice are very much close to hemolytic and hepatocellular jaundice of modern medical science.\textsuperscript{14} Since liver is the largest gland, main site of metabolism and detoxification, the diet should be easily digestible and waste materials are better removed from intestine earlier during jaundiced condition. So Ayurvedic treatment contains those medicine that facilitate removal of waste substance from the gutt, kidney and provide instant energy. The treatment of koshthashakhashrita kamala must start with purgation therapy. The basic theory is that no burden be placed on the liver and for that, virechana therapy is recomended. In the process of jaundice development, excessive bilirubin leads to increased production of stercobilin. The virechana procedure with prior snehana helps to remove the excess stercobilinogen and helps in reducing hyperbilirubinemia and ultimately jaundice. The excess removal of stercobilinogen leads to increase the diffusion process of bilirubin to produce stercobilinogen. Excessive bilirubin can be thus diffused into stercobilin and urobilinogen and again removed by the process of virechana karma. In case of jaundice, the nitya virechana thus helps to remove the excess bile from the body. Shakhashrita kamala needs different principle of management, since malarupa pitta is in shakha and hence virechana will not be effective. So by giving the medicines which alleviate kapha and pitta is brought in koshtha and then pittahara chikitsa should be given.

CONCLUSION

In Ayurvedic text, kamala vyadhi is thoroughly described. It helps us to understand the disease pathology very clearly. In the treatment part that is in chikitsa sutra of Shakhshrita kamala Acharya Charaka has explained mrudu virechana karma. Virechan karma shows significant reduction in total bilirubin level and also helps in removal of excessive stercobilinogen from the body as per modern science. Modern science has limitations in treating the kamala vyadhi (jaundice) but Ayurvedic literature clearly explained pathology and treatment of kamala vyadhi which shows the specificity of Ayurveda. But shakhashrita kamala needs different principle of management, virechana is not effective in it. So by giving the medicines which alleviate kapha and pitta is brought in koshtha then pittahara chikitsa should be given.

REFERENCES

5. Ibid, 179.
7. Ibid, 527.
8. Anthony S. Fauci [et al], Harrison’s principles of internal medicine, 17 th edition, 1; 261