**ABSTRACT:**

**Introduction:** Ayurveda is ancient medical science. In our ancient *samhita*, *kamala vyadhi* is briefly described. *Kamala* is *pittaja nanatmaj* as well as *raktapradosha vyadhi*. Charakacharya has considered kamala as advanced stage of *panduroga*. *Sushrutacharya* 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 aacharyas* 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.

**Aim and Objective:**
- To review the *nidanpanchak*, *Ayurvedic* management of kamala vyadhi.
- To review the *pathyapathy* mentioned in *kamala vyadhi*.

**Methodology:**
Text will be collected from *ayurvedic samhitas* , different websites and journals will be referred.

**Result :**
*Shodhana and shamana chikitsa* are effective in the management of kamala.

**Discussion:**
In *ayurveda nidan parivarjana shamana, shodhana* are the way to treat any disease hence in kamala we should really examine causative factors and then give *shamana and shodhana chikitsa*.

**Keywords:** Kamala, Jaundice, Virechana karma.

**INTRODUCTION:**
In Ayurveda Charakacharya and *Sushrutacharya* obviously recognized the condition like kamala which has great
resemblance with the jaundice of modern medical sciences. Disease kamala is related to liver. The liver plays a major role in the maintenance of metabolic homeostasis. The development of clinically important liver disease is accompanied by diverse manifestation of disordered metabolism. One of such disorders that is characterized by yellow staining of all the tissues due to increased level of bile pigment in circulation. Kamala is considered a purely paitik roga caused by rakta dushti due to vitiated pitta and vise-versa. Kamala has been classified as: Koshthashrita, Shakhashrita. In modern science jaundice is classified in three types: Haemolytic, Obstructive, Hepatocellular. Koshthashrita Kamala which occurs as a result of pitta vridhi in rakta dhatu after the use of its aggravating causes has similarity with the mechanism of pre hepatic jaundice or haemolytic jaundice in which more bilirubin is found in blood due to excessive destruction of R.B.C and is not excreted. Adequately by liver resulting in hyperbilirubinaemia responsible for various symptoms like yellow discoloration of eye, skin etc. Shakhashrita Kamala is produced due to the obstruction of normal pittavaha srotas by kapha and vata, resulting in pitta vridhi in the rakta dhatu. In obstructive jaundice, there is same mechanism in which the bile ducts are obstructed by gall stone or other causes and bile is accumulated in liver, resulting in elevation of blood bilirubin level responsible for yellowness of eye, skin, mucous membrane and stool become clay colored due to lack of bile in the intestine. In Hepatocellular jaundice, when there is complete obstruction of all the bile canaliculi due to their compression by oedematous hepatocytes, jaundice is produced just like shakhashrita kamala. When there is incomplete obstruction or when all the bile canaliculi are not obstructed then it is produced like that of koshthashrita kamala. Therefore the mechanism of hepatocellular jaundice can be compared to koshthashrita kamala or shakhashrita kamala in different individuals depending upon the severity of the disease.

MATERIALS AND METHODS:
1. Charaka samhita with ayurved dipika commentary by Chakrapani.
2. Sushruta samhita with nibandhsangraha commentary of Dalhanacharya and nyayachandrika panjika of Gayadasacharya.
3. Ashtang Hridaya with commentaries sarvangasundara of Arundatta and ayurved rasayana of Hemadri.
4. Relevant articles published in various national and international journals.
5. Harrison’s principles of internal medicines.

Classification of Kamala:
A) Charaka- Koshthashakhashrit, Shakhashrita, Kumbhakamala, Halimaka.
B) Sushruta -Kamala, Kumbhakamala, Halimaka, Laghraka.
C) Vagbhatta- Swatantra, Paratantra, Kumbhakamala, Lagharaka, Aalasa.

Nidana of Koshthashrita Kamala:
1. Aharaja Nidana (Unwholesome diet)
2. Viharaja Nidana (Unwholesome regimen)
3. Manasika Nidana (Psychological factor)
4. Nidanarthakar Roga (Disease causing diseases)

<table>
<thead>
<tr>
<th>Aharaja Nidana</th>
<th>Viharaja Nidana</th>
<th>Manasika Nidana</th>
<th>Nidanarthkar Roga</th>
<th>Other Nidana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive intake of amla, lavan, katu, kshar, ushna, tikshna (intake of hot, spicy and junk food)</td>
<td>Ati vyayam (excessive exercise)</td>
<td>Kama</td>
<td>Pandu roga (anaemia)</td>
<td>Garvisha (slow poision)</td>
</tr>
<tr>
<td>Tila, Sarshapa, Atasi taila</td>
<td>Ati maithun (excessive coitus)</td>
<td>Krodha (anger)</td>
<td>Some types of fever i.e. pittaja jwara, visham jwara etc.</td>
<td>Intake of sneha in contrary period</td>
</tr>
<tr>
<td>Nishpav</td>
<td>Vega vidharana (stoppage of natural urge)</td>
<td>Bhaya (fear)</td>
<td>Paittik visarp</td>
<td>Prakrit pitta prakop kala</td>
</tr>
<tr>
<td>Mansa</td>
<td>-</td>
<td>Irshya (jealousy)</td>
<td>Plihodar</td>
<td>-</td>
</tr>
<tr>
<td>Vidagdha anna</td>
<td>-</td>
<td>Shoka (sorrow)</td>
<td>Yakritodar</td>
<td>-</td>
</tr>
<tr>
<td>Viruddha anna</td>
<td>-</td>
<td>Yakritodar</td>
<td>Hridroga</td>
<td>-</td>
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<tr>
<td>Madya</td>
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<tr>
<td>Kulattha etc.</td>
<td>-</td>
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</tr>
</tbody>
</table>

**Nidana of Shakhashrita Kamala:**
1. Excessive intake of ruksha, shita, guru and madhur ahar.(unwholesome diet)
2. Ati vyayam (excessive exercise)
3. Vega nigraha (stoppage of natural urges )

According to Charakacharya, Kamala is a clinical syndrome which develops after the pandu roga. When a patient of pandu roga takes excessive paittik ahar-vihar develops bahupittakamala. According to Sushrutacharya, when patient of pandu roga or person affected with other diseases consumes amlaraspradhan and apathyakar ahar develops kamala. According to Vagbhatacharya, when pandurogi or person with excessive pitta consumes pittakar ahar develops kamala.

**Samprapti of Koshthashakhhrasha Kamala:**
Pandurogi pittakara aahara vihara sevan-Increased ushna, tikshna guna-Dushta aahara rasa-Pachak pitta dushti and rasa dushthi-Agnimandya-Rakta and mamsa vidaha -Yakrutaagamana-Kosthashrita Kamala.
Samprapti of Shakhashrita Kamala:
Hetu –Vata and kapha prakopa – Rukshaguna pradhan vata dosha gets kaphamurchita - Obstruction of pitta nalika-Vimargagamana of pitta all over –Haridra twacha , Netra , Mootra-
Shakhashrita Kamala.

Rupa of Kamala: A) Kosthashakhshrita Kamala Lakshanas.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Lakshana</th>
<th>Charaka Samhita</th>
<th>Sushruta Samhita</th>
<th>Astha ng Hridaya</th>
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<tbody>
<tr>
<td>1</td>
<td>Haridra netra</td>
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<td>+</td>
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<tr>
<td>2</td>
<td>Haridra twaka</td>
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<td>6</td>
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<td>Rakta peeta mala</td>
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<td>Daha</td>
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<td>9</td>
<td>Avipak</td>
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<td>11</td>
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<td>Haridravarna mala</td>
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</tbody>
</table>

B) Shakhashrita Kamala Lakshanas:
Haridra netra, Haridra twaka, Haridra mutra, Shweta varchas, Tilapishta varchas, Aatopa, Visthambha, Hridaya
guruta, Daurbalya, Alpagni, Parshwa Arati, Hikka, Shwas, Aruchi, Jwara.

Modern View of Kamala:
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 glucoronic acid to give conjugated bilirubin which is water soluble that can be excreted. Bacteria in the intestine convert the bilirubin into urobinogen. This urobinogen 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.

Sadhyasadhyatwa:
According to Chrakacharya, initial stage of kamala is sadhya. On long standing becomes kriccha sadhya and kumbha kamala occurs. Kumbha kamala presents with further symptoms like krushna-pita shakruta mutra, raktamutra, srotha, chardi, daha, aruchi, trushna, anaha, mohu, nasht agni is asadhya. Kumbha kamala with chardi, aruchi, hrullas, jwara, klam, swasa, kasa, atisara considered as asadhya. According to Sushrutacharya, kumbha Kamala is type of kamala with shopha and parvabheda. Vagbhatacharya explained that untreated kamala leads to the next stage called kumbha kamala which is kricchasadhya.

Management of Kamala:
Nidan parivarjana , Samshaman, Samshodhana this is the protocol for management of kamala. Charakacharya has mentioned “Kamale tu virechanam” i.e. purgation therapy with mrudu and tikta dravyas. Sushrutacharya mentioned drug and dieted regimens. Vagbhatacharya quoted “Kamalayam tu pittaghnam Pandurogavirodhi yat” i.e. drugs which pacify pitta and drugs which do not interfere with panduroga should be used.

Samshodhana:
Snehana:
By using medicated ghrita like Panchagavya ghrita, Kalyanaka ghrita, Draksha ghrita, Mahatikta ghrita, Haridradi ghrita and Dadima ghrita etc. Svedana: is contraindicated in kamala.
Virechana: should be done by tikta and mrudu dravya the following are advised by Charakacharya in panduuroga chikitsa.

1. Aragvadha phanta with shunthi, pippali, maricha, bilva, along with the svarasa of ikshu, vidari and amalaki, Gomutra haritaki.
2. Dantimula kalka and guda with cold water.
3. Triphala kwatha with trivrit kalka.

Samshamana:
After Virechana karma, Samshamana drugs are to be administered. They can be given as single drugs or compound drugs. The actions of the samshamana drugs were Pitta hara / Tridosahara Pitta rechana (Choleratic), Yakrid uttejaka (Liver stimulant), Dipana (Appetiser), Rechana (Purgative), Shothahara (Anti- inflammatory), Jwarehara (Anti-pyretic), Rakta shodhana (Blood purifier), Rasayana
(Geriatric), Sroto shodhana (Channel purifier).

Management of Sakhashrita Kamala:
Ruddhapatha Kamala needs different principle of management, since malarupa pitta is in the shakha and virechana will not be effective till dosha are brought into kostha (Mahasrotasa). Here kapha, vata which obstructs the path of pitta, should be treated primarily thereafter pitta should be alleviated. The recipes which alleviate kapha, like katu, ruksha, amla, teekshna and usna drugs have to be administered and do vatashamak chikitsa.

1. Soup of peacock, teetara (partridge), and cock and sushkamulaka, kulattha,
2. Matulunga svarasa with honey, pippali, maricha and sunthi have to be given,
3. By giving these drugs pitta is brought in kostha and then pittahara chikitsa is done.

Management of Halimaka:
- Snehana- Buffalo’s ghee processed with Guduchi svarasa.
- Virechana - Trivrit with Amalaki svarasa,
- Basti - Yapana Basti with madhura dravya.
- Samshamana - Drakshavaleha, Abhayavaleha,
Milk processed with pippali, madhuka and bala according to dosha and bala of the patient.

Samshamana (Preventive) Drugs:
Kutaki (Picrorrhiza kurroa), Kiratatikta (Swertia chirata), Kalmegha (Azadirachta indica), Daruharidra (Berberis aristata), Amrita (Tinospora cordifolia), Bhumyamlaki (Phyllanthus niruri), Triphal (Emblica officinalis, Terminalia bellerica, and Terminalia chebula), Vasa (Adhatoda vasica), Kumari (Aloe vera), Bhringaraja (Eclipta alba), Punarnava (Boerhavia diffusa).

Compound Drugs:
1) Churna - Svarnakshiryadi yoga, Yogaraja, Navayasa churna
2) Gutika - Mandura vataka, Shilajatu vataka
3) Bhashma - Mandura bhasma
4) Svarasa - Triphala, Guduchi, Daruharidra, Nimba patra svarasa
5) Kvatha - Phala trikadi kvatha, Vishaladi phanta
6) Arista- Bijakaristha, Dhatryaristha
7) Avaleha - Darvyadi leha, Dhatrayavaleha
8) Lauha - Nisha lauha, Dhatri lauha, Vidangadi lauha, Navayasa lauha
9) Rasa- Sindurbhushana rasa, Kamalanta rasa
10) Nasya - Karkota mula nasya
11) Anjana with Nisha (Turmeric), Gairika & Amla

Pathya – Apathya:
Pathya:
1. Vamana, virechana, purana sali, yava and godhuma, mudga, masura, adaki-sushka, jangala mansa rasa.
2. Patola, kooshmanda (ripe), unripe kadali, jivanti, ikshu, guduchi, tanduliyaka, lauha bhashma.
3. Punarnava, vartaka, lashuna, palandu, ripe mango, haritaki, amalaki, gomutra, haridra and nagkesara.
4. Buttermilk, souviraka, tushodaka, navanita and chandana.
5. Daha/ Agni karma – 2 inches below umbilicus, between stana and kaksha, hastamula, forehead.

Apathya:
1. Raka mokshana, dhumapana, veganirodha, svedana, sexual intercourse.
2. Shimbi dhanya, hingu, masha, excess drinking of water, tambula, sarshapa, sura.
3. Eating mud, divasvapana,
4. Amla rasa, guru- vidahi padartha, contaminated water, non congenial, un-hygienic diet,
5. Residing in hot climates and exposure of radiant sun, anger, vyayama and strenuous physical and mental activities.

DISCUSSION:
Kamala is a condition where the skin, eye and mucous membrane take yellow discoloration. In modern science jaundice is considered as symptom of liver disorder whereas in ayurveda kamala is taken as disease. In ayurveda, increased intake of oily, spicy, hot and alkaline food, are depicted for aggravation of pitta dosha. The aggravated pitta then impairs the blood and the muscle tissue of the liver, causing blockage in the channels of the liver and thus Pitta is thrown back into the blood leading to discoloration of the eyes and skin. Sleeping in the daytime, excessive physical work, over indulgence in sexual activity, suppressing the natural urges of the body, and psychological factors like fear, anger, and stress can also be causative factors for kamala. This disease is pitta dosha dominating disease so persons those are having pitta prakriti are more prone for getting this disease. So we can escape ourselves from many diseases by taking pathya (wholesome) ahar vihar according our prakriti.

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 Shakhashrita 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, vata and pitta is brought in koshtha then pittahara chikitsa should be given.

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Conflict of Interest: Non

Source of funding: Nil

Cite this article:
"Ayurvedic perspective of Kamala (Jaundice)."
Shashikant B. Laturkar, Kiran S. Bhatia, Jaiswal S. Kashiramji

Ayurline: International Journal of Research In Indian Medicine 2021; 5(1):01-08