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# AN APPROACH TO ETIOPATHOLOGICAL DIAGNOSTIC STUDY ON KOSHTASHAKHASHRITA KAMALA OF RAKTAVAHA SROTODUSHTI THROUGH LIVER FUNCTION TEST

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## ABSTRACT

Ayurveda emphasizes the pivotal role of *Srotas* as fundamental channels responsible for the maintenance of normal physiology and the manifestation of disease. *Kamala*, a *Pittaja Nanatmaja Vyadhi* classified under *Raktapradoshaja Vyadhi*, exemplifies *Srotodushti*, particularly involving *Raktavaha Srotas*. Based on *Samprapti*, *Kamala* is categorized into *Koshtashakhashrita Kamala* and *Shakhashrita Kamala*, with the former being predominantly associated with *Pitta* aggravation. **Aim and Objectives:** The present study aimed to evaluate liver function test (LFT) changes in *Koshtashakhashrita Kamala*. The objectives were: (1) to study the etiopathogenesis of *Koshtashakhashrita Kamala*, (2) to diagnose the condition through *Roga-Rogi Pariksha*, and (3) to assess biochemical alterations in liver function parameters. **Methodology:** A clinical observational study was conducted on 60 patients diagnosed with *Koshtashakhashrita Kamala*, selected randomly irrespective of age, sex, religion, occupation, and socio-economic status. A specially designed proforma was used for detailed history taking and clinical examination based on classical Ayurvedic signs and symptoms. Liver function tests,

including serum bilirubin, SGPT, and SGOT, were evaluated. **Results:** The study revealed a significant elevation of total bilirubin, predominantly the direct fraction, indicating hepatocellular dysfunction. Mild to moderate increases in SGPT and SGOT levels were also observed, suggesting primary involvement of the *Yakrit*, the *Mula* of *Raktavaha Srotas*. These findings correlate with *Ranjaka* and *Pachaka Pitta Dushti*. **Conclusion:** Altered liver function parameters substantiate *Raktavaha Srotomula Dushti* as a key pathological factor in *Koshtashakhashrita Kamala* and provide a reliable diagnostic and prognostic basis for planning effective *Chikitsa* aimed at *Samprapti Vighatana*.

**KEYWORDS:** *Koshtashakhashrita Kamala, Raktavaha Sroto mula Dushti, Rakta Pradoshaja Vikara*, Liver Function Test.

## INTRODUCTION

*Ayurveda*, the ancient science of life, emphasizes the balance of *Dosha, Dhatu*, and *Mala* in maintaining health. Disease arises when this equilibrium is disturbed due to improper *Ahara* (diet), *Vihara* (lifestyle), or other causative factors. The concept of *Vyadhi* in *Ayurveda* is not limited to physical derangements alone but encompasses the involvement of *Dosha, Dhatu, Agni*, and *Srotas*, each contributing to the manifestation of disease.

Among the various disorders, *Kamala* is highlighted as a *Varnopalakshita Vyadhi*, classified as a *Pittaja Nanatmaja Vyadhi*[1] and included under *Raktapradoshaja Vikaras*.[2] Based on the *Samprapti, Acharyas* have mentioned 2 types of *Kamala* 1. *Koshtashakhashrita kamala* 2. *Shakhashrita Kamala.*[3] In *Koshtashakhashrita Kamala,* specific *Nidana* that aggravate *Pitta* play a central role in pathogenesis.

In the present era, altered lifestyle and dietary habits, such as Viruddhahara, Ati Ushna, Tikshna Ahara, and Vidahi Annapana, contribute significantly to Pitta vitiation. *Pitta* governs transformation processes in the body, both at the gross and subtle levels, including cellular-level changes. Although *Pitta* is one in essence, it is classified into five types, each distinguished by its specific site of action and physiological functions. Impaired *Ranjaka Pitta* function in the *Yakrit* leads to the appearance of *Dushta Pitta Varna*, typically *Haridrata.* Excessive consumption of *Pittakara Nidana* vitiate *Pitta Dosha*, through the relationship of *Ashraya* and *Ashrayi*, further disturbs *Rakta Dhatu*, particularly affecting its *moola*, the *Yakrit* and *Pleeha*, resulting in the accumulation and vitiation of *doshas* in *Rakta* and *Mamsa Dhatus*. Clinically, this manifests as yellowish discoloration of the eyes, skin,

oral cavity, urine and feces, along with other *Sharirik Lakshana*, defining this *Vyadhi* as *Koshtashakhashrita kamala.*

Modern medicine is rapidly advancing, and laboratory research work has provided the perfect backdrop to the process. Laboratory tests and investigations have become the mainstay of today's clinical Practice and play a great role in diagnostic and prognostic studies. Liver performs numerous functions, including the synthesis of albumin, certain enzymes, bile and its constituents, metabolism of bilirubin, etc. When the liver is diseased, one or more of its functions are impaired, resulting in elevated levels of its constituents.[4] Several biochemical tests are available to assess the functional efficiency of this organ.

The *Moola* of *Raktavaha srotas* are *Yakrit* and *Pleeha*, in which *Yakrit* can be correlated with the liver, and modern laboratory investigations, particularly liver function tests, provide objective parameters to assess the involvement and impairment of this *Raktavaha Sroto Moola*. The abnormal functioning of vitiated *Ranjaka Pitta* and *Rakta Dhatu* at its *Moola* can be better understood through liver function tests.

This study aims to understand the *Samprapti* of *Koshtashakhashrita Kamala*, with special emphasis on *Raktavaha Sroto Moola Dushti* and its clinical significance, with its corresponding changes observed in liver function tests.

**AIM AND OBJECTIVES OF THE STUDY**

1. To study the concept of Etiopathogenesis of *Koshtashakhashrita Kamala*.
2. Diagnosis of *Koshtashakhashrita kamala* through related *Roga Rogi pariksha*.
3. To assess the LFT changes in *Koshtashakhashrita Kamala*.

**METHOD OF COLLECTION OF DATA**

A minimum of 60 Patients suffering with characteristic signs and symptoms of *Koshtashakhashrita Kamala* were selected for the study randomly, irrespective of their religion, education, occupation, sex and socio-economic status. A special proforma is being prepared, which includes detailed history taking, physical signs and symptoms as mentioned in our classics and also changes in the patient's Liver function tests were observed.

**INCLUSION CRITERIA**

1. Patients between the age group of 18 to 70 years.

2. Patients of either gender will be selected.
3. Patients who satisfied the diagnostic criteria.

**EXCLUSION CRITERIA**

1. Patients suffering from other systemic diseases like Diabetes mellitus, hypertension, HIV, TB, etc.
2. Patients suffering from secondary disorders of the liver, like liver cirrhosis, hyperbilirubinemia due to autoimmune disorders, etc.
3. Pregnant ladies.

**RESULTS**

In this observational study, 60 diagnosed patients of *Koshtashakhasrita kamala* were taken who fulfilled the diagnostic and inclusion criteria.

The observed data were recorded in a well-designed case proforma. Total observed data and results are divided in two sections as Demographic data.

**Data related to Disease**

**Table No. 01: Distribution of patients based on Age.**

| Age | Total No Of Patients | IN % |
|---|---|---|
| 18-28 YR | 3 | 5.0 % |
| 29-38 YR | 23 | 39.0 % |
| 39-48 YR | 24 | 40.0 % |
| 49-58 YR | 8 | 13 % |
| 59-70 YR | 2 | 3 % |

**Table No. 02: Distribution of patients based on Gender.**

| Gender | No of pts | IN % |
|---|---|---|
| **Male** | 45 | 75 % |
| **Female** | 15 | 25 % |

**Table No. 03: Distribution of patients based on Socio-Economic Status.**

| Ses | No of pts | IN % |
|---|---|---|
| **Poor** | 15 | 25% |
| **Lower middle** | 37 | 61.66 % |
| **Upper middle** | 7 | 11.66 % |
| **Upper class** | 1 | 1.66 % |

**Table No. 04: Distribution of patients based on Habitat.**

| Habitat | No of pts | IN % |
|---|---|---|
| **Urban** | 50 | 83 % |
| **Rural** | 10 | 17 % |

**Table No. 05: Distribution of patients based on Habits.**

| Habits | No of pts | IN % |
|---|---|---|
| **Tea** | 27 | 45% |
| **Coffee** | 20 | 33% |
| **Smoking** | 18 | 30% |
| **Tobacco** | 12 | 20% |
| **Alcohol** | 20 | 33.33% |
| **Others** | 0 | 0 % |

**Table No. 06: Distribution of patients based on Diet.**

| Diet | No of pts | IN % |
|---|---|---|
| **Veg** | 18 | 30 % |
| **Mixed** | 42 | 70 % |

**Table No. 07: Distribution of patients based on *Agni.***

| Agni | No of pts | IN % |
|---|---|---|
| ***Samagni*** | 0 | 0% |
| ***Mandagni*** | 50 | 83 % |
| ***Vishmagni*** | 10 | 17 % |
| ***Tikshnagni*** | 0 | 0 % |

**Table No. 08: Distribution of patients based on *Kostha./***

| *Koshta* | No of pts | IN % |
|---|---|---|
| ***Mridu*** | 16 | 26 % |
| ***Madhyama*** | 34 | 57 % |
| ***Krura*** | 10 | 17 % |

**Table No. 09: Distribution of patients based on *Purisha Pravriti.***

| *Purisha pravriti* | No of pts | IN % |
|---|---|---|
| **Regular** | 31 | 51.66% |
| **Constipated** | 06 | 10% |
| **Irregular** | 19 | 31.66% |
| **Loose stool** | 04 | 6.66 % |

**Table No. 10: Distribution of patients based on *Prakriti.***

| *Shariraja prakriti* | No of pts | IN % |
|---|---|---|
| ***Vata*** | 0 | 0 % |
| ***Pitta*** | 0 | 0 % |
| ***Kapha*** | 0 | 0 % |
| ***Pitta- vata*** | 36 | 60% |

| | | |
|---|---|---|
| ***Pitta-kapha*** | 18 | 30 % |
| ***Kapha-vata*** | 6 | 10 % |

**Table No. 11: Distribution of patients based on *Sarata.***

| ***Sarata*** | **No of pts** | **IN %** |
|---|---|---|
| ***Avara*** | 13 | 21.66% |
| ***Madhyama*** | 47 | 78.33% |
| ***Pravara*** | 0 | 0% |

**Table No. 12: Distribution of patients based on *Samhanana.***

| ***Samhanana*** | **No of pts** | **IN %** |
|---|---|---|
| ***Avara*** | 13 | 22 % |
| ***Madhyama*** | 40 | 67 % |
| ***Pravara*** | 07 | 11 % |

**Table No. 13: Distribution of patients based on *Satmya.***

| ***Satmya*** | **No of pts** | **IN %** |
|---|---|---|
| ***Avara*** | 25 | 42% |
| ***Madhyama*** | 35 | 58% |
| ***Pravara*** | 0 | 0 % |

**Table No. 14: Distribution of patients based on *Satva.***

| ***Satva*** | **No of pts** | **IN %** |
|---|---|---|
| ***Avara*** | 12 | 20 % |
| ***Madhyama*** | 38 | 63 % |
| ***Pravara*** | 10 | 17 % |

**Table No. 15: Distribution of patients based on *Vyayama Shakti.***

| ***Vyayama shakti*** | **No of pts** | **IN %** |
|---|---|---|
| ***Avara*** | 15 | 25 % |
| ***Madhyama*** | 38 | 63.33 % |
| ***Pravara*** | 07 | 11.67 % |

**Table No. 16: Distribution of patients based on *Viharaja Nidana.***

| ***Vihara*** | **No of pts** | **IN %** |
|---|---|---|
| ***Ati-vyayama*** | 24 | 40% |
| ***Vegavidharana*** | 25 | 41.7% |
| ***Atapa sevana*** | 30 | 50% |
| ***Anala sevana*** | 5 | 8% |
| ***Diwaswapana*** | 30 | 50% |

**Table no.17: Distribution of patients based on *Aharaja Nidana***

| ***Aharaja nidana*** | **No of pts** | IN % |
|---|---|---|
| ***Katu rasa*** | 52 | 86.66% |
| ***Amla rasa*** | 50 | 83.33% |

| | | |
|---|---|---|
| ***Lavana rasa*** | 52 | 86.66% |
| ***Ushna dravya*** | 48 | 80% |
| ***Teekshna dravya*** | 48 | 80% |
| ***Laghu dravya*** | 14 | 23.33% |
| ***Vidahi anna*** | 55 | 91.66% |
| ***Masha*** | 50 | 83.33% |
| ***Kulattha*** | 20 | 33.33% |
| ***Sarshapa*** | 20 | 33.33% |
| ***Matsya*** | 38 | 63.33% |
| ***Aja mamsa*** | 40 | 66.66% |
| ***Avika mamsa*** | 8 | 13.33% |
| ***Harita shaka*** | 20 | 33.33% |
| ***Dadhi*** | 48 | 80% |
| ***Amlaphala*** | 20 | 33.33% |
| ***Madhya*** | 20 | 33.33 % |
| ***Tila anna*** | 20 | 33.33% |
| ***Drava*** | 18 | 30% |
| ***Snigdha*** | 28 | 46.66% |
| ***Viruddha ahara*** | 25 | 41.66% |
| ***Ajirnabhojana*** | 26 | 43.33% |
| ***Vishamashana*** | 47 | 78.33% |

**Table No. 18: Distribution of patients based on *Mansika Nidana.***

| ***Manasika nidana*** | **No of pts** | **IN %** |
|---|---|---|
| ***Krodha*** | 34 | 56.66% |
| ***Shoka*** | 17 | 28.33% |
| ***Bhaya*** | 9 | 15% |
| ***Chinta*** | 32 | 53.33% |
| ***Ersha*** | 0 | 0% |

**Table No. 19: Distribution of patients based on *Lakshana.***

| **Clinical Feature** | **Present (No. of Patients)** | **Present (%)** | **Absent (No. of Patients)** | **Absent (%)** |
|---|---|---|---|---|
| **(Lakshana)** | | | | |
| ***Haridra Varnata* of *Netra*** | 60 | 100% | 0 | 0% |
| ***Haridra Varnata* of *Anana*** | 45 | 75% | 15 | 25% |
| ***Haridra Varnata* of *Nakha*** | 38 | 63% | 22 | 37% |
| ***Haridra Varnata* of *Twaka*** | 26 | 43% | 34 | 57% |
| ***Peeta Varnata* of *Mutra*** | 38 | 63% | 22 | 37% |
| ***Peeta Varnata* of *Pureesha*** | 28 | 47% | 32 | 53% |
| ***Hata Indriya*** | 0 | 0% | 60 | 100% |
| ***Bheka Varna*** | 0 | 0% | 60 | 100% |
| ***Daurbalya*** | 60 | 100% | 0 | 0% |
| ***Aruchi*** | 60 | 100% | 0 | 0% |

| | | | | |
|---|---|---|---|---|
| ***Avipaka*** | 55 | 92% | 5 | 8% |
| ***Sadana*** | 42 | 70% | 18 | 30% |
| ***Tandra*** | 5 | 8% | 55 | 92% |
| ***Daha*** | 31 | 51.66% | 29 | 48.33% |
| ***Trishna*** | 15 | 25% | 45 | 75% |

**Table No. 20: Distribution of patients based on LFT parameters.**

| Parameter | Normal Range | Category / Range | No. of Patients | Percentage (%) |
|---|---|---|---|---|
| **Total Bilirubin (mg/dl)** | 0.5 – 1.2 | 1 – 5 | 45 | 75% |
| | | 5 – 10 | 11 | 18% |
| | | 10 – 15 | 3 | 5% |
| | | 15 – 20 | 1 | 2% |
| | | >20 | 0 | 0% |
| **Direct Bilirubin (mg/dl)** | 0.1 – 0.3 | 0.5 – 2.0 | 45 | 75% |
| | | 2.0 – 4.0 | 11 | 18% |
| | | 4.0 – 6.0 | 3 | 5% |
| | | 6.0 – 8.0 | 1 | 2% |
| | | >8.0 | 0 | 0% |
| **Indirect Bilirubin (mg/dl)** | 0.2 – 0.7 | 0.8 – 3.0 | 45 | 75% |
| | | 3.0 – 6.0 | 11 | 18% |
| | | 6.0 – 9.0 | 3 | 5% |
| | | 9.0 – 12.0 | 1 | 2% |
| | | >12.0 | 0 | 0% |
| **SGOT (IU/L)** | 10 – 40 | 41 – 100 | 10 | 17% |
| | | 101 – 150 | 8 | 13% |
| | | 151 – 200 | 16 | 27% |
| | | 201 – 250 | 20 | 33% |
| | | 251 – 300 | 6 | 10% |
| | | >300 | 0 | 0% |
| **SGPT (IU/L)** | 10 – 40 | 41 – 100 | 11 | 18% |
| | | 101 – 150 | 9 | 15% |
| | | 151 – 200 | 15 | 25% |
| | | 201 – 250 | 21 | 35% |
| | | 251 – 300 | 4 | 7% |
| | | >300 | 0 | 0% |
| **ALP (IU/L)** | 41 – 133 | 41 – 100 | 18 | 30% |
| | | 100 – 150 | 19 | 31% |
| | | 151 – 200 | 22 | 37% |
| | | 201 – 250 | 1 | 2% |
| **Total Protein (g/dl)** | 5.5 – 8.0 | Increased | 4 | 7% |
| | | Normal | 56 | 93% |
| | | Decreased | 0 | 0% |
| **Serum Albumin (g/dl)** | 3.5 – 5.5 | Decreased | 1 | 2% |
| | | Normal | 59 | 98% |
| **Serum Globulin (g/dl)** | 2.0 – 3.5 | Increased | 6 | 10% |
| | | Normal | 54 | 90% |

## DISCUSSION

Discussion constitutes a vital component of any research work, as it facilitates critical analysis, interpretation, and meaningful correlation of observed findings. In Ayurveda, the foundation of discussion is rooted in the principles enunciated in the classical *Samhitas*, wherein knowledge is derived through direct observation (*Pratyaksha*), rational analysis (*Yukti*), and inference (*Anumana*). Through discussion, research outcomes are interpreted in the light of classical references, thereby aiding in the scientific validation and contemporary relevance of Ayurvedic doctrines. Hence, discussion serves as a bridge between traditional wisdom and modern scientific understanding.

*Kamala* is a significant health disorder prevalent worldwide and has been well documented since ancient times. In Ayurveda, *Kamala* is described as a *Pitta Nanatmaja Vyadhi* and is also included under *Raktapradoshaja Vikara*. Classical texts classify *Kamala* broadly into two types: *Koshtashakhashrita Kamala* and *Shakhashrita Kamala*.

In *Koshtashakhashrita Kamala*, the etiological factors (*Nidana*) responsible for aggravation of *Pitta Dosha* play a pivotal role in its pathogenesis. In the present era, faulty lifestyle practices and unwholesome dietary habits, such as intake of *Viruddhahara*, *Ati-Ushna*, *Tikshna Ahara*, and *Vidahi Annapana*, significantly contribute to *Pitta Prakopa*. Owing to the *Drava Guna* of aggravated *Pitta*, impairment of *Agni* occurs, leading to *Agnimandya*. This condition primarily arises due to the vitiation of *Pachaka Pitta*, which governs digestion and metabolic activities.

Since the functional integrity of other subtypes of *Pitta* depends upon *Pachaka Pitta*, its derangement results in secondary impairment of *Ranjaka Pitta*. According to the *Ashraya–Ashrayi Bhava*, vitiated *Pitta* directly affects *Rakta Dhatu*, thereby causing dysfunction of the *Raktavaha Srotas*. The *Yakrit*, being the *Moola Sthana* of *Raktavaha Srotas*, becomes primarily involved in the disease process.

As a result of impaired *Ranjaka Pitta*, the normal transformation of *Rasa Dhatu* into *Rakta Dhatu* is disturbed. This pathological cascade manifests clinically as classical features of *Koshtashakhashrita Kamala*, including yellowish discoloration of the skin, sclera, mucous membranes, urine, and stool, along with other associated *Sharirika Lakshanas*, which are diagnostic hallmarks of the condition.

The data obtained and recorded during the observation process are analyzed, and interpretations are drawn from all possible dimensions through detailed discussion. The discussion involves a comprehensive analysis of various aspects of the problem, ultimately leading to meaningful conclusions. The findings derived from the study conducted on 60 subjects of *Koshtashakhashrita Kamala* are discussed below.

**The discussion is done based on**

1) Demographic Data
2) On Disease (*Koshtashakhashrita Kamala*)
3) LFT Changes

## DISCUSSION ON DEMOGRAPHIC DATA

### AGE

In the present study, the majority of patients (79%) belonged to the 29–48-year age group. This predominance is significant as it corresponds to *Madhyama Vaya*, a period marked by physiological *Pitta Pradhanyata*. Since *Koshtashakhashrita Kamala* is a *Pitta-pradhana Vyadhi* arising from *Raktavaha Srotodushti*, its higher incidence in this age group may be related to dietary indiscretions such as *Amla, Katu, Lavana Ahara*, *Viruddhahara*, and *Madyapana*. However, as cases were observed across all age groups, age alone cannot be considered a definitive causative factor.

### GENDER

Among the 60 patients, 75% were males and 25% females, indicating male predominance. This may be attributed to lifestyle factors such as occupational stress, irregular food habits, smoking, and alcohol intake, which aggravate *Pitta* and *Rakta*. Nevertheless, this observation cannot establish gender susceptibility, as *Koshtashakhashrita Kamala* can affect both sexes equally, and the difference may reflect socio-cultural patterns.

### SOCIO-ECONOMIC STATUS

Most patients belonged to the lower middle class (61.66%), followed by poor families (25%). As the study was conducted in a government hospital, this distribution is expected. Financial stress, *Vishamashana*, *Guru Ahara*, junk food intake, *Ati Vyayama*, and inadequate rest act as *Ahara-Vihara* and *Manasika Nidana*, leading to *Pitta Prakopa* and *Raktavaha Srotodushti*, thereby increasing disease susceptibility.

**HABITAT**

A majority of patients (83%) were from urban areas. Urban lifestyle patterns, industrialization, pollution exposure, and stress may contribute to higher disease occurrence. However, due to limited sample size, these findings cannot be generalized.

**HABITS**

Alcohol consumption, smoking, tobacco chewing, tea, and coffee intake were commonly observed. *Atimadya Sevana* acts as a potent *Pitta-Dushtikara* due to its *Ushna* and *Tikshna Guna*, leading to *Rakta Dushti* and *Raktavaha Srotodushti*. Smoking substances possess *Vyavayi* and *Vikasi* properties causing *Dhatu Shaithilya*. Chewing tobacco, with *Ushna, Tikshna, Ruksha,* and *Laghu Guna,* further aggravates *Pitta* and *Rakta*. These habits act as major *Nidana* for *Koshtashakhashrita Kamala*.

**DIETARY HABITS**

In this study, 70% of patients consumed a mixed diet. *Ati Mamsa Sevana*, having *Ushna, Guru,* and *Snigdha Guna*, leads to *Pitta* and *Rakta Dushti*, predisposing to *Raktavaha Srotodushti*. Even vegetarian diets rich in *Amla, Katu, Viruddha Ahara,* and *Dadhi* can provoke *Pitta*, indicating diet as a significant contributing factor.

**AGNI**

Most patients (83%) exhibited *Mandagni*, followed by *Vishamagni*. Impaired *Agni*, resulting from *Pitta* and *Kapha Dushti*, plays a central role in the pathogenesis of *Koshtashakhashrita Kamala* by disturbing digestion and metabolism.

**KOSTHA**

*Madhyama Kostha* was predominant (57%), followed by *Mridu* and *Krura Kostha*. *Madhyama Kostha*, along with *Pitta Dosha Dushti*, facilitates disease manifestation and allows administration of *Madhyama Matra* and *Madhyama Bala Aushadha* for therapeutic interventions.

**PURISHA PRAVRITTI**

More than half of the patients had normal bowel habits, while others showed irregularity, constipation, or loose stools. This indicates variable involvement of *Apana Vata* and digestive disturbance secondary to *Agni Dushti*.

**SHARIRIKA PRAKRITI**

The majority of patients had *Pitta–Vata Prakriti* (60%), followed by *Pitta–Kapha Prakriti*. As *Koshtashakhashrita Kamala* is a *Pitta-pradhana Vyadhi*, individuals with *Pitta-dominant Dvandwaja Prakriti* are more susceptible.

**SARA**

Most patients showed *Madhyama Sara* (78%) or *Avara Sara* (22%). Reduced *Dhatu Bala* and moderate *Vyadhi-kshamatva* predispose such individuals to *Dosha Prakopa* and disease manifestation, as described in *Charaka Samhita*.

**SAMHANANA**

*Madhyama* and *Avara Samhanana* were predominant, reflecting reduced *Dhatu Bala* and body compactness, thereby increasing vulnerability to *Koshtashakhashrita Kamala*.

**SATMYA**

Most patients had *Madhyama* or *Avara Satmya*, indicating improper dietary adaptability and moderate tolerance, which contributes to disease susceptibility.

**SATVA**

The majority exhibited *Madhyama Satva*. Assessment of *Satva* is essential for counselling and improving treatment compliance, as psychological strength influences disease understanding and cooperation during management.

**DISCUSSION ON NIDANA OF KOSTHASAKHASRIT KAMALA:**

**VIHARAJA NIDANA**

In the present study, *Viharaja Nidana* acted as significant *Viprakrista Nidana* in the pathogenesis of *Koshtashakhashrita Kamala*. *Atapa Sevana* and *Diwaswapna* were observed in 50% of patients, while *Vegavidharana* (42%) and *Ati Vyayama* (41%) were also common; *Anala Sevana* was reported in 8%. *Atapa* and *Anala Sevana*, due to their *Ushna* and *Tejas Guna*, directly aggravate *Pitta* and *Rakta*. *Diwaswapna* leads to *Pitta–Kapha Prakopa*, whereas *Vegavidharana* and *Ati Vyayama* cause *Vata Prakopa*. Collectively, these factors result in *Raktavaha Srotodushti*, precipitating *Koshtashakhashrita Kamala*.

**AHARAJA NIDANA**

*Aharaja Nidana* emerged as the most prominent etiological factor. *Vidahi Anna* (92%) was the commonest dietary cause, producing *Amlapaka* and *Vidagdha Avastha*, thereby

aggravating *Pitta* and *Rakta*. High intake of *Katu* and *Lavana Rasa* (87% each), along with *Amla Rasa* (83%), further contributed to *Pitta Vriddhi* and *Rakta Dushti*. *Madhya Sevana* (50%), owing to its *Ushna, Tikshna,* and *Vyavayi Guna,* was a major causative factor for *Amlapaka* and hepatic dysfunction.

Dietary items such as *Dadhi* (80%), *Matsya* (63%), and *Aja Mamsa* (67%) were frequently consumed and are described as *Bahudoshakara,* leading to *Dosha Prakopa*. Foods like *Kullatha, Sharshapa, Harita Shaka, Amla Phala,* and *Tila Anna* (33% each), due to *Ushna Veerya,* further predisposed to *Pitta–Rakta Dushti*. Additional contributing factors included *Snigdha Dravya* (47%), *Viruddha Ahara* (42%), *Ajirna Bhojana* (43%), and *Vishamashana* (78%), all of which disturb *Agni* and promote *Ama* formation.

According to the principle *"Agnireva Shareere Pittantargata"*, *Agni* resides within *Pitta*. Continuous indulgence in *Ushna, Tikshna,* and *Snigdha Ahara* leads to *Pitta Prakopa* and *Agni Dushti*, resulting in *Pachaka Pitta Dushti* and simultaneous vitiation of *Rakta Dhatu*. This pathological cascade ultimately manifests as *Koshtashakhashrita Kamala*. Notably, *Kshara, Pinyaka, Tila Taila, Atasi, Godha Mamsa, Kurchika, Mastu, Katvara, Sauveera,* and *Bhallataka Asthi* were absent in all patients.

**MANASIKA NIDANA**

Among *Manasika Nidana*, *Krodha* (57%) and *Chinta* (53%) were predominant, followed by *Shoka* (28%) and *Bhaya* (15%). *Krodha* increases *Pitta* and *Rajo Guna,* leading to *Rakta Dushti*, while *Ati Chinta* causes *Rasavaha Srotodushti*. *Shoka* and *Bhaya* further aggravate *Vata* and *Pitta*. These psychological factors act as *Viprakrista Nidana,* emphasizing the role of mental stress in *Pitta-pradhana Vyadhi* like *Koshtashakhashrita Kamala*.

**DISCUSSION ON LAKSHANA OF KOSTHASAKHASRIT KAMALA**

**HARIDRA VARNATA OF *NETRA–TWAKA–NAKHA–ANANA***

In the present study, *Haridra Varnata of Netra* was observed in all patients (100%), while *Haridra Nakha* (63%), *Haridra Twaka* (43%), and *Haridra Anana* (75%) were also common. This reflects *Ranjaka Pitta Dushti,* leading to yellowish discoloration due to circulation of *Dushta Pitta* in *Rakta*. As *Netra* is the seat of *Pitta,* discoloration appears prominently there. In modern terms, this corresponds to scleral icterus and jaundice due to elevated bilirubin in hepatic dysfunction.

**PEETA VARNATA OF *MUTRA* AND *PURISHA***

*Peeta Varnata of Mutra* was observed in 63% and *Peeta Varnata of Purisha* in 47% of patients. This signifies *Pitta Pradhanyata* with increased *Ushna* and *Tikshna Guna* of *Ranjaka Pitta* affecting both *Kostha* and *Shakha*. Clinically, this correlates with increased bilirubin excretion seen in hepatocellular jaundice.

***HATA INDRIYA* AND *BHEKA VARNA***

*Hata Indriya* and *Bheka Varna* were not observed in any patient, indicating that the disease had not progressed to an advanced or severe stage of *Koshtashakhashrita Kamala*.

**DAURBALYA**

All patients (100%) exhibited *Daurbalya*. This occurs due to *Pachaka Pitta Dushti*, leading to impaired digestion, inadequate *Dhatu Poshana*, and *Rakta* and *Mamsa Dhatu Kshaya*, resulting in loss of *Bala*. Modern correlation includes fatigue due to impaired hepatic metabolism, toxin accumulation, and reduced energy production.

**ARUCHI AND AVIPAKA**

*Aruchi* was present in all patients (100%), while *Avipaka* was observed in 91.66%. Both arise from *Pachaka Pitta Dushti*, causing incomplete digestion and impaired taste perception due to *Bodhaka Kapha Dushti*. These features correspond to anorexia, nausea, and dyspepsia seen in hepatic disorders.

**SADANA**

*Sadana* was observed in 70% of patients. It results from *Bala Kshaya* due to *Rakta* and *Mamsa Dhatu Nisarata*, secondary to impaired *Pachaka Pitta* and deficient tissue nourishment. This correlates with physical exhaustion and weakness seen in liver dysfunction.

**TANDRA**

*Tandra* was observed in only 8% of patients, suggesting a non-advanced stage of disease. In Ayurveda, it indicates severe *Pitta Dushti* affecting mental functions. From a modern perspective, it parallels early features of hepatic encephalopathy in advanced hepatic impairment.

**DAHA**

*Daha* was present in 52% of patients, reflecting the *Ushna* and *Tikshna* qualities of *Dushta*

*Pitta*. Clinically, it corresponds to burning sensation and systemic irritation caused by bile salts and inflammatory mediators in jaundiced patients.

**TRISHNA**

*Trishna* was observed in 25% of patients. It arises due to the *Ushna* and *Tikshna Guna* of *Pitta*, causing depletion of body fluids. In modern terms, this correlates with dehydration and metabolic imbalance associated with hepatocellular jaundice.

**DISCUSSION ON LFT CHANGES**

**SERUM BILIRUBIN**

In the present study, all patients showed elevated total serum bilirubin, confirming hepatic dysfunction. Mild to moderate elevation (1–5 mg/dl) was observed in 75% of cases, indicating partial impairment of bilirubin metabolism. Moderate elevation (5–10 mg/dl) was seen in 18%, while severe elevation (10–15 mg/dl) and very high levels (20–25 mg/dl) were observed in 5% and 2% of patients, respectively. No patient exceeded 25 mg/dl, suggesting absence of fulminant hepatic failure. From an Ayurvedic perspective, this reflects *Pachaka* and *Ranjaka Pitta Dushti* at the level of *Yakrit*, the *Moola Sthana* of *Raktavaha Srotas*, correlating with impaired hepatic bilirubin conjugation and excretion seen in hepatocellular jaundice.

**SGOT AND SGPT**

Elevation of both SGOT and SGPT was observed in all patients, indicating hepatic parenchymal injury. Maximum elevation was noted in the range of 201–250 IU/L for SGPT (35%) and SGOT (33%), with moderate elevation (151–200 IU/L) seen in approximately one-fourth of patients. Mild elevation in a few cases suggested early hepatocellular involvement. According to Ayurveda, these enzymatic changes signify functional impairment of the *Yakrit*, the *Moola* of *Raktavaha Srotas*, and support the diagnosis of *Koshtashakhashrita Kamala* as a *Raktapradoshaja Vikara* with hepatocellular pathology.

**ALKALINE PHOSPHATASE (ALP)**

ALP levels showed mild to moderate elevation in most patients, with only 2% showing higher values. This pattern suggests minor cholestatic involvement secondary to hepatic inflammation rather than gross biliary obstruction. In Ayurvedic terms, vitiation of *Rakta Dhatu* and involvement of *Sukshma Srotas* within the *Yakrit* due to aggravated *Pitta* may lead to partial obstruction of biliary canaliculi, correlating with mild ALP elevation seen in

*Koshtashakhashrita Kamala*.

## SERUM PROTEINS

Total serum protein and albumin levels were within normal limits in the majority of patients, indicating preserved hepatic synthetic function. Mild elevation of globulin and decreased A/G ratio in a small proportion suggested early inflammatory changes. From an Ayurvedic standpoint, maintained protein levels reflect relatively preserved *Pachaka Pitta* function, while mild alterations indicate initial *Pachaka Pitta Dushti*, which in chronic states may impair hepatocyte synthetic capacity and metabolic efficiency.

## CONCLUSION

The present study establishes *Koshtashakhashrita Kamala* as a *Pitta-pradhana Raktapradoshaja Vikara* primarily involving the *Yakrit*, the *Moola Sthana* of *Raktavaha Srotas*. It predominantly manifested during *Madhyama Vaya* (29–48 years) with a higher incidence in males, likely due to *Pitta*-aggravating dietary habits, lifestyle factors, and occupational stress. Most patients exhibited *Mandagni*, *Pitta-Vata Prakriti*, and frequent intake of *Amla, Katu,* and *Lavana Rasa*, along with habits such as alcohol, tobacco, tea, and coffee, highlighting the role of *Ahara*, *Vihara*, and *Manasika Nidana*, particularly *Krodha* and *Chinta*, in disease pathogenesis. Classical features like *Haridra Varnata* of *Netra, Twaka, Nakha,* and *Anana*, *Peeta Varnata* of *Mutra* and *Purisha*, *Daurbalya*, *Aruchi*, and *Avipaka* were observed consistently, whereas absence of *Hata Indriya* and *Bheka Varna* indicated early to moderate stages. Liver function tests showed elevated bilirubin, SGOT, SGPT, and mild ALP rise, with largely preserved protein metabolism, reflecting hepatocellular dysfunction. These biochemical changes correlate with *Pachaka* and *Ranjaka Pitta Dushti* at the *Yakrit*, confirming *Raktavaha Srotomula Dushti* as the central pathological factor. Early diagnosis and management are essential to prevent progression to chronic forms like *Kumbha Kamala*, and integrating Ayurvedic principles with modern clinical parameters provides a rational basis for effective *Chikitsa* aimed at *Samprapti Vighatana*.

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