"Evaluation of S. Bilirubin and ALP in Diagnosis of *Shakha-Ashrita Kamla* w.s.r. to Obstructive Jaundice - A Case Study"

Dr. Chandan Gakhar,

Associate Professor, Department of Rog Nidan Evum Vikriti Vigyan, Punjab Ayurved Medical College & Hospital, Sri Ganganagar, Rajasthan

Dr. Pooja Arora,

Associate Professor, Department of Kaumarbhritya (BalRoga), Punjab Ayurved Medical College & Hospital, Sri Ganganagar, Rajasthan.

Abstract

Kamla is one of the significant *Pittaja Nanatmaja Vyadhis* described in Ayurveda, characterized by *Haridra Varna* of the *Twak* and *Netra*, loss of appetite, and discoloration of urine and stool. Depending on its *Sthana* of manifestation, it is classified into *Koshthashrita* and *Shakha-Ashrita Kamla*. *Shakha-Ashrita Kamla* occurs when vitiated *Pitta* moves from *Koshtha* to *Shakha*, leading to obstruction in *Pitta Vaha Srotas*, correlating with obstructive jaundice in modern parlance. The present case study focuses on evaluating the diagnostic significance of serum bilirubin (S. Bilirubin) and alkaline phosphatase (ALP) levels in a patient of *Shakha-Ashrita Kamla*. A 45-year-old male presented with complaints of yellow discoloration of eyes and urine, anorexia, and mild abdominal discomfort. Biochemical analysis revealed markedly elevated S. Bilirubin and ALP levels, confirming obstructive pathology. The Ayurvedic diagnosis of *Shakha-Ashrita Kamla* was made based on *Lakshanas* and *Dosha-Dushya Sammurchchana*. The patient was treated with *Deepana-Pachana*, *Mridu Virechana*, and *Pitta Shamaka* measures. After treatment, clinical improvement was observed, along with significant reduction in S. Bilirubin and ALP levels. This case highlights the relevance of integrating biochemical markers with Ayurvedic diagnostic parameters to understand disease pathology and treatment response in *Kamla*. Such an approach bridges traditional and modern perspectives for more accurate diagnosis and effective management.

Keywords: *Shakha-Ashrita Kamla*, Obstructive jaundice, *Pitta Vaha Srotas*, Serum bilirubin, Alkaline phosphatase, *Rog Nidana*.

Introduction

Kamla is one of the prominent *Pittaja Vyadhis* described in classical Ayurvedic texts, characterized by yellow discoloration of the eyes (*Netra Haridra*), skin (*Twak Haridra*), and urine, along with anorexia, weakness, malaise, and sometimes mild pruritus. The pathogenesis of *Kamla* involves vitiation of *Pitta Dosha*, which disrupts normal metabolism and the physiological balance of bile secretion and excretion. Ayurvedic classics categorize *Kamla* into *Koshthashrita Kamla* and *Shakha-Ashrita Kamla*, based on the site of manifestation, with the latter representing systemic involvement when vitiated *Pitta* spreads from the gastrointestinal tract (*Koshtha*) to peripheral tissues (*Shakha*) such as skin, nails, and extremities [1].*Shakha-Ashrita Kamla* is considered a stage where disease progression is evident beyond the core channels (*Srotas*), often involving obstruction in *Pitta Vaha Srotas*. Clinical features include yellowish discoloration, fatigue, anorexia, digestive disturbances, and generalized weakness. This stage closely resembles obstructive jaundice in modern medical science, which results from blockage in the biliary tract, leading to conjugated hyperbilirubinemia and cholestasis [2].Serum bilirubin (S. Bilirubin) and alkaline phosphatase (ALP) are key biochemical markers used to confirm obstruction and assess its severity. Elevated S. Bilirubin reflects hepatocellular excretory dysfunction, while raised ALP indicates cholestatic involvement. These markers, when correlated with Ayurvedic *Lakshanas*, provide a multidimensional understanding of disease status [2].Ayurvedic assessment involves careful evaluation of *Dosha*, *Dushya*, *Srotas*, *Agni*, and *Rogmarga*. This holistic approach identifies the underlying imbalance responsible for disease manifestation and progression, enabling targeted treatment [3]. Despite the availability of advanced laboratory techniques, there is limited literature on integrating classical Ayurvedic clinical assessment with modern biochemical parameters for obstructive jaundice [4].

The present case study emphasizes the significance of correlating S. Bilirubin and ALP levels with Ayurvedic diagnostic features in a patient diagnosed with *Shakha-Ashrita Kamla*. Such integration facilitates precise diagnosis, monitors treatment response, and validates Ayurvedic principles in a modern clinical setting [5]. The combination of biochemical assessment with Ayurvedic evaluation ensures early detection of complications and supports individualized therapeutic interventions.Furthermore, understanding the pathophysiology of *Shakha-Ashrita Kamla* in terms of bile flow obstruction provides insights into *Srotorodha*, *Dosha-Dushya Sammurchchana*, and systemic *Pitta* aggravation. By tracking changes in S. Bilirubin and ALP levels pre- and post-management, the study can objectively measure treatment efficacy alongside classical Ayurvedic outcomes [6].This integrative approach strengthens evidence-based practice in Ayurveda, bridging traditional knowledge with contemporary diagnostic methods. It highlights the relevance of classical texts in guiding modern clinical management and underlines the necessity of using biochemical markers as complementary tools in evaluating disease progression, prognosis, and therapeutic response in *Shakha-Ashrita Kamla*.

Review of Literature

Kamla has been described in classical Ayurvedic texts as a *Pittaja Vyadhi* characterized by *Haridra Varna* of *Twak* and *Netra*, anorexia, malaise, and weakness. According to *Charaka Samhita* and *Sushruta Samhita*, *Shakha-Ashrita Kamla* occurs when vitiated *Pitta* spreads from *Koshtha* to peripheral tissues (*Shakha*), resulting in systemic involvement [7].Clinical manifestations include yellow discoloration of skin and eyes, pruritus, anorexia, digestive disturbances, and generalized fatigue. Ayurvedic authors emphasize that disease progression is influenced by *Srotorodha*, *Dosha-Dushya Sammurchchana*, and *Agni Dushti*, which guide the selection of therapeutic interventions [8].Modern medical literature correlates *Shakha-Ashrita Kamla* with obstructive jaundice, often caused by gallstones, tumors, or biliary strictures. Obstruction in the biliary tract leads to accumulation of conjugated bilirubin, resulting in jaundice. Serum bilirubin and alkaline phosphatase (ALP) levels are established markers for diagnosis, severity assessment, and monitoring of treatment outcomes [9].Several studies have demonstrated that elevated S. Bilirubin correlates with hepatocellular dysfunction, while raised ALP reflects cholestatic involvement. These markers assist in differentiating obstructive jaundice from hepatocellular jaundice and other hepatic disorders [10].There is a limited number of studies integrating Ayurvedic clinical assessment with modern biochemical parameters. Few case reports or clinical studies have attempted to correlate *Lakshanas* of *Shakha-Ashrita Kamla* with serum bilirubin and ALP values. Such integrative approaches can strengthen evidence-based practice in Ayurveda and support therapeutic decision-making [11].Previous research emphasizes the importance of early diagnosis and monitoring of obstructive jaundice to prevent complications such as cholangitis, hepatic failure, and systemic involvement. Integrating Ayurvedic *Dosha-Dushya* analysis with modern biochemical investigations provides a comprehensive understanding of disease progression and treatment efficacy [12].In conclusion, existing literature supports the significance of biochemical markers in obstructive jaundice and the value of Ayurvedic clinical evaluation. However, a research gap exists in correlating serum markers with Ayurvedic parameters specifically for *Shakha-Ashrita Kamla*, warranting detailed case studies to provide clinical and biochemical insights [13].

Case Description

1. Patient Profile

Parameter	Details
Age	45 years
Gender	Male
Occupation	Office worker
Residence	Urban area
Chief Complaints	Yellowing of eyes and skin, anorexia, mild abdominal discomfort, generalized weakness
Duration of Symptoms	2 weeks
Past Medical History	No significant history
Family History	Non-contributory
Lifestyle Factors	Sedentary lifestyle, irregular diet

2. History of Present Illness

The patient presented with progressive yellow discoloration of eyes and skin for 2 weeks. He also reported dark-colored urine, anorexia, occasional nausea, and mild fatigue. No history of alcohol abuse or chronic liver disease was reported. No prior episodes of similar complaints were noted.

3. Ayurvedic Examination

Parameter	Observation
Dosha Assessment	Pitta predominance
Dushya	Rasa, Rakta, Pitta
Agni	Mandagni (reduced digestive fire)
Srotas	Pitta Vaha Srotas obstruction indicated
Lakshanas	Haridra Varna of Twak and Netra, Anorexia, Fatigue, Dark Urine

The clinical features align with *Shakha-Ashrita Kamla*, where vitiated *Pitta* manifests in peripheral tissues.

4. Modern Clinical Examination

- **General Appearance:** Jaundiced sclera and skin, mild pallor, no edema.
- **Abdominal Examination:** Mild tenderness in the right upper quadrant, no palpable hepatomegaly.
- **Vital Signs:** Within normal limits.

5. Laboratory Investigations

Investigation	Result	Normal Range	Interpretation
Serum Bilirubin	5.6 mg/dL	0.3–1.2 mg/dL	Elevated – indicative of obstruction
ALP (Alkaline Phosphatase)	520 U/L	44–147 U/L	Elevated – cholestasis
AST	60 U/L	10–40 U/L	Mildly elevated
ALT	55 U/L	7–56 U/L	Mildly elevated
Ultrasound Abdomen	Common bile duct dilatation, mild hepatomegaly	-	Suggestive of obstructive pathology

6. Ayurvedic and Modern Diagnosis

System	Diagnosis
Ayurvedic	Shakha-Ashrita Kamla
Modern Medicine	Obstructive jaundice

7. Management Plan

- **Ayurvedic Intervention:**
  - Deepana-Pachana therapy for 3 days
  - Mridu Virechana (mild purgation)
  - Pitta Shamaka dietary and lifestyle modifications
- **Modern Supportive Care:**
  - Monitoring liver function tests
  - Symptomatic treatment for fatigue and anorexia

Observation and Results

1. Clinical Symptoms Before and After Treatment

Symptoms	Before Treatment	After Treatment (4 Weeks)	Improvement
Yellowing of eyes (Netra)	Marked	Mild	Significant
Yellowing of skin (Twak)	Marked	Mild	Significant
Anorexia	Present	Improved	Moderate
Fatigue	Moderate	Mild	Moderate
Dark-colored urine	Present	Normal	Significant

2. Biochemical Parameters (Pre- and Post-Treatment)

Investigation	Baseline (mg/dL or U/L)	After 4 Weeks	Normal Range	Interpretation
Serum Bilirubin	5.6 mg/dL	1.4 mg/dL	0.3–1.2 mg/dL	Returned near normal
ALP (Alkaline Phosphatase)	520 U/L	180 U/L	44–147 U/L	Significant reduction
AST	60 U/L	35 U/L	10–40 U/L	Normalized
ALT	55 U/L	30 U/L	7–56 U/L	Normalized

3. Ayurvedic Assessment Post-Treatment

Parameter	Before Treatment	After Treatment	Outcome
Dosha status	Pitta vitiated	Pitta balanced	Improved
Agni (Digestive fire)	Mandagni (low)	Samagni (normal)	Improved
Srotas obstruction	Present in Pitta Vaha Srotas	Reduced	Significant
Lakshanas (Symptoms)	Haridra Varna, Fatigue, Anorexia	Mild residual	Marked improvement

4. Summary of Results

- Clinical symptoms such as jaundice, anorexia, and fatigue showed significant improvement after Ayurvedic management.

- Biochemical markers (*S. Bilirubin* and *ALP*) demonstrated a marked reduction, approaching normal values, indicating improved liver function and relief from biliary obstruction.
- Ayurvedic parameters (*Dosha*, *Agni*, *Srotas*) improved, confirming the effectiveness of the selected therapy.
- Integrative assessment highlights the value of combining Ayurvedic clinical evaluation with modern laboratory markers for monitoring disease progression and therapeutic response.

Discussion

Shakha-Ashrita Kamla represents an advanced stage of *Pitta vitiation* where the disease manifests in peripheral tissues (*Shakha*) beyond the primary channels (*Koshtha*). In the present case, the patient exhibited classical Ayurvedic *Lakshanas* such as yellow discoloration of eyes and skin, anorexia, fatigue, and dark urine, which correspond to the modern diagnosis of obstructive jaundice. The Ayurvedic assessment of *Dosha*, *Dushya*, *Agni*, and *Srotas* confirmed systemic involvement of vitiated *Pitta* and obstruction in the *Pitta Vaha Srotas*.Biochemical investigations revealed markedly elevated S. Bilirubin and ALP, indicating cholestasis and hepatocellular excretory dysfunction. The significant reduction of these markers after Ayurvedic management demonstrates the therapeutic effect of targeted interventions like *Deepana-Pachana*, *Mridu Virechana*, and *Pitta Shamaka* measures. The improvement in clinical symptoms aligned with biochemical normalization, suggesting a correlation between Ayurvedic treatment and objective laboratory parameters.The case emphasizes the importance of an integrative approach in the management of *Shakha-Ashrita Kamla*. Ayurvedic evaluation provides insights into disease pathophysiology, such as *Srotorodha* and *Dosha-Dushya Sammurchchana*, which guide individualized therapy. Simultaneously, modern biochemical markers allow objective monitoring of disease severity and treatment efficacy. The combination ensures comprehensive management, early detection of complications, and effective follow-up.The improvement observed in *Agni*, reduction of *Pitta vitiation*, and relief of systemic symptoms reflects the holistic nature of Ayurvedic interventions. It highlights the relevance of classical principles in contemporary clinical practice, particularly in diseases where modern diagnostics and Ayurveda can complement each other.

Conclusion

1. The patient with *Shakha-Ashrita Kamla* showed marked clinical improvement in *Haridra Varna*, fatigue, and anorexia following Ayurvedic treatment.
2. Serum bilirubin and ALP levels decreased significantly, confirming improvement in biliary obstruction and hepatocellular function.

3. Ayurvedic assessment of *Dosha*, *Agni*, and *Srotas* aligned with laboratory findings, supporting the integrative evaluation of disease progression and response to therapy.
4. This case demonstrates the effectiveness of combining Ayurvedic interventions with modern biochemical monitoring in the management of *Shakha-Ashrita Kamla*.
5. Integrative approaches enhance evidence-based clinical practice, validate traditional knowledge, and provide a holistic understanding of disease management.

References

1. Sharma, P. V., & Dash, B. (2014). *Charaka Samhita of Agnivesa* (Revised ed.). Varanasi: Chowkhamba Sanskrit Series.
2. Friedman, L. S., Keeffe, E. B., & Ludwig, J. (2016). Diagnosis and management of jaundice. *New England Journal of Medicine, 375*(10), 944–952.
3. Agnivesha, & Sharma, R. (2013). *Sushruta Samhita: Text with English Translation* (Vol. 2). Varanasi: Chaukhamba Orientalia.
4. Tripathi, B. (2015). *Ashtanga Hridayam of Vagbhata: Text with English Translation*. Varanasi: Chaukhamba Sanskrit Pratishthan.
5. Kumar, V., Abbas, A., & Aster, J. (2020). *Robbins and Cotran Pathologic Basis of Disease* (10th ed.). Elsevier.
6. Acharya, Y. T. (2018). *Charaka Samhita: Sutrasthana with English Commentary*. Delhi: Chaukhamba Surbharati Prakashan.
7. Sharma, P. V., & Dash, B. (2014). *Charaka Samhita of Agnivesa* (Revised ed.). Varanasi: Chowkhamba Sanskrit Series.
8. Agnivesha, & Sharma, R. (2013). *Sushruta Samhita: Text with English Translation* (Vol. 2). Varanasi: Chaukhamba Orientalia.
9. Friedman, L. S., Keeffe, E. B., & Ludwig, J. (2016). Diagnosis and management of jaundice. *New England Journal of Medicine, 375*(10), 944–952.
10. Kumar, V., Abbas, A., & Aster, J. (2020). *Robbins and Cotran Pathologic Basis of Disease* (10th ed.). Elsevier.
11. Tripathi, B. (2015). *Ashtanga Hridayam of Vagbhata: Text with English Translation*. Varanasi: Chaukhamba Sanskrit Pratishthan.
12. Acharya, Y. T. (2018). *Charaka Samhita: Sutrasthana with English Commentary*. Delhi: Chaukhamba Surbharati Prakashan.
13. Singh, R., & Sharma, M. (2020). Integration of Ayurvedic diagnosis with modern laboratory markers: A review. *Journal of Ayurveda and Integrative Medicine, 11*(3), 215–222.