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ANATOMICAL CONSIDERATIONS AND CLINICAL RESPONSE OF SHARPUNKHA KWATH IN ALCOHOL-INDUCED LIVER CIRRHOSIS: A CASE STUDY WITH SPECIAL REFERENCE TO YAKRIT (LIVER)

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ABSTRACT

Alcohol-induced liver cirrhosis is a progressive hepatic disorder characterized by hepatocellular injury, fibrosis, and distortion of hepatic architecture due to chronic alcohol consumption. In Ayurveda, it can be correlated with *Yakrit Vikara* associated with *Raktavaha Srotas Dushti*, where excessive intake of *Ushna*, *Tikshna*, and *Vidahi Madya* leads to *Pitta Prakopa* and impairment of *Ranjaka Pitta*. A 41-year-old male patient with a history of chronic alcohol intake for 7 years presented with generalized weakness, loss of appetite, abdominal discomfort, distension, nausea, icterus, and moderate ascites with a previous history of jaundice and abdominal tapping. Clinical features such as *Agnimandya*, *Balakshaya*, *Karshya*, *Panduta*, *Peetanetrata*, *Peetamutrata*, and *Udarashoola* were observed. Investigations revealed deranged liver function parameters, while ultrasonography showed hepatomegaly, altered hepatic echotexture, fatty changes, cirrhotic features, and ascites. The patient was administered *Sharpunkha Kwath* (*Tephrosia purpurea*) 25 ml twice daily before food for 30 days. Assessment was performed through clinical symptoms, liver function tests, and ultrasonographic findings. Improvement was observed in appetite, weakness, abdominal discomfort, icterus, and overall wellbeing, along with reduction in SGOT, SGPT, bilirubin, and alkaline phosphatase levels. The case highlights the anatomical and functional correlation between *Yakrit* and modern hepatic concepts and suggests the potential hepatoprotective role of *Sharpunkha Kwath* in alcohol-induced liver cirrhosis. Further clinical studies with larger sample sizes are required to establish its therapeutic efficacy.

KEYWORDS: Alcohol-induced liver cirrhosis, Yakrit Vikara, Raktavaha Srotas Dushti, Sharpunkha Kwath, Hepatoprotection, Yakrit Shotha.

INTRODUCTION

The liver, described as Yakrit in Ayurveda, is a vital organ associated with metabolism, digestion, blood formation, and maintenance of physiological equilibrium. Ayurveda identifies Yakrit as the Moola (root origin) of Raktavaha Srotas, indicating its close anatomical and functional association with Rakta Dhatu. Any disturbance in Yakrit function results in impairment of Raktavaha Srotas and manifests as various hepatic disorders.

In modern anatomy, the liver is the largest glandular organ of the human body, located mainly in the right hypochondriac and epigastric regions of the abdominal cavity beneath the diaphragm. It receives a dual blood supply through the hepatic artery and portal vein, making it highly exposed to circulating toxic metabolites, including those generated during alcohol metabolism.

Chronic and excessive alcohol consumption produces progressive structural and functional damage to hepatic

tissue. The disease spectrum ranges from alcoholic fatty liver, alcoholic hepatitis, and finally alcoholic cirrhosis. Alcohol-induced liver cirrhosis is characterized by hepatocellular injury, necrosis, fibrosis, distortion of hepatic architecture, and regenerative nodule formation.

The present case describes the clinical evaluation and therapeutic response of Sharpunkha Kwath in a patient of alcohol-induced liver cirrhosis, with emphasis on anatomical correlation of Yakrit, Raktavaha Srotas, and pathological hepatic changes.

CASE PRESENTATION

Patient Profile

A 41-year-old male patient attended the Kayachikitsa OPD with complaints suggestive of chronic liver disease. The patient had a significant history of prolonged alcohol consumption and was diagnosed with alcohol-induced liver cirrhosis. The patient was a male with a mixed dietary pattern, and no significant occupational history was noted. The presenting condition was chronic hepatic impairment associated with long-term alcohol intake. The demographic profile and clinical background indicated a case of progressive alcohol-related liver disease requiring therapeutic intervention.

History of Present Illness

The patient was apparently healthy until approximately 7 years prior, when he initiated regular alcohol consumption. With continuous and prolonged intake of alcohol, he gradually developed clinical features suggestive of chronic liver disease. He had a history of jaundice 4 years ago, following which his hepatic condition progressively deteriorated, leading to the development of cirrhotic changes and moderate ascites requiring therapeutic abdominal tapping. At the time of presentation, the patient reported generalised weakness for the last 6 months, loss of appetite for 3 months, abdominal discomfort for 3 months, abdominal distension for 2 months, nausea sensation for 1-month, yellowish discoloration of eyes for 1 month, and reduced physical strength for 3 months. These clinical manifestations were suggestive of impaired hepatic function and correlated with Ayurvedic features such as Agnimandya, Balakshaya, Karshya, Panduta, Peetanetrata, Peetamutrata, Udarashoola, and Hṛllāsa observed in Yakrit Vikara.

Past History

The patient had a history of jaundice 4 years prior, for which he received appropriate medical treatment. Following this episode, he gradually developed progressive abdominal distension due to fluid accumulation, suggestive of ascites. The patient was diagnosed with moderate ascites associated with chronic liver disease, and therapeutic abdominal tapping (paracentesis) was performed previously for symptomatic relief. The history indicates progression of alcohol-induced hepatic injury leading to complications of chronic liver cirrhosis, including impaired liver function and portal hypertensive manifestations.

Alcohol Consumption History

The patient had a significant history of chronic alcohol consumption for approximately 7 years, with regular intake of alcoholic beverages. The prolonged alcohol uses eventually resulted in alcohol-induced chronic liver disease with cirrhosis. According to Ayurveda, continuous consumption of Ushna, Tikshna, and Vidahi Madya acts as a causative factor for Rakta Dushti and Yakrit Vikara. The inherent properties of alcohol aggravate Pitta Dosha, disturb the normal functioning of Ranjaka Pitta, and subsequently affect Yakrit (liver) and Raktavaha Srotas, leading to progressive hepatic dysfunction and clinical manifestations of liver disease.

Ayurvedic Clinical Assessment

The patient presented with classical features associated with Yakrit Vikara / Raktavaha Srotodushti.

Classical Feature	Clinical Correlation
Agnimandya	Loss of appetite and impaired digestion
Balakshaya	Generalised weakness and reduced strength
Chardi	Nausea/vomiting sensation
Karshya	Loss of body mass and weakness
Mandajwara	History of mild feverish episodes
Panduta	Pallor
Peetanetrata	Yellowish discoloration of eyes
Peetamutrata	Yellow-coloured urine
Udarashoola	Abdominal discomfort/pain
Hṛllāsa	Nausea sensation

General Examination

On general examination, the patient was found to be in a moderate general condition with reduced body build and poor nutritional status. Clinical examination revealed the presence of pallor and icterus, suggestive of chronic hepatic dysfunction. The patient had complaints of generalised weakness with reduced physical strength. Pedal oedema was assessed during examination as a possible manifestation of chronic liver disease and fluid imbalance.

Parameter	Findings
General condition	Moderate
Built	Reduced

Nutritional status	Poor
Pallor	Present
Icterus	Present
Pedal oedema	Assessed
Generalised weakness	Present

Systemic Examination

Abdominal Examination

Inspection - Abdominal examination revealed distension of the abdomen with clinical features suggestive of ascites. The patient had a previous history of therapeutic abdominal tapping due to moderate ascitic fluid accumulation.

Palpation - On palpation, hepatomegaly was noted. Liver parameters including size, surface, consistency, and tenderness were assessed to evaluate hepatic involvement and structural alteration.

Percussion - Percussion revealed increased abdominal girth with shifting dullness, suggestive of the presence of ascites.

Investigations

Liver Function Test (LFT) - Biochemical investigations revealed deranged hepatic parameters with elevated liver enzymes, indicating hepatocellular injury and impaired liver function associated with chronic alcohol-induced liver disease.

Ultrasonography (USG) Abdomen: USG abdomen showed features suggestive of chronic liver disease, including hepatomegaly, altered hepatic echotexture, fatty changes, cirrhotic alterations, and ascites. These findings indicated structural and functional changes in hepatic architecture due to chronic alcohol-induced injury, fibrosis, and progressive cirrhotic changes.

Anatomical Consideration of Yakrit (Liver)

Location and Relations: Yakrit (liver) is a major visceral organ situated mainly in the right hypochondriac and epigastric regions, extending partially into the left hypochondrium. It lies below the diaphragm and is protected by the lower ribs. The superior surface is related to the diaphragm, right pleura, right lung, and pericardium, while the inferior surface is related to the stomach, duodenum, right kidney, suprarenal gland, transverse colon, and gall bladder. Posteriorly, it is related to the inferior vena cava, vertebral column, and oesophagus. These anatomical relations explain clinical features such as hepatomegaly, right upper abdominal discomfort, and abdominal heaviness in hepatic disorders.

Gross Anatomical Correlation: The liver is anatomically divided into four lobes: right, left, quadrate, and caudate lobes. The right lobe constitutes the major portion and is commonly involved in hepatomegaly. The Ayurvedic concept of *Yakritkhanda* can be correlated with the lobular arrangement of the liver, indicating the classical recognition of its structural divisions.

Microscopic Anatomical Correlation: The functional unit of the liver is the hepatic lobule, consisting of central veins, hepatocytes arranged in hepatic plates, hepatic sinusoids, and portal triads containing branches of the portal vein, hepatic artery, and bile duct. Chronic alcohol consumption causes progressive hepatocellular damage, including fatty changes, hepatocyte degeneration, necrosis, fibrosis, collagen deposition, architectural distortion, and regenerative nodule formation. These pathological alterations gradually impair hepatic structure and function, ultimately leading to alcohol-induced liver cirrhosis.

Pathophysiological Correlation

Modern Perspective - Alcohol-induced liver cirrhosis develops through a progressive sequence of biochemical and structural changes. Chronic alcohol intake leads to continuous exposure of hepatocytes to ethanol metabolites. During ethanol metabolism, acetaldehyde formation and oxidative stress cause cellular injury, inflammation, and disruption of normal hepatic function. The pathological progression can be explained as:

Chronic alcohol intake
↓
Ethanol metabolism in hepatocytes
↓
Acetaldehyde toxicity and oxidative stress
↓
Hepatocyte injury and inflammation
↓
Fat accumulation (hepatic steatosis)
↓
Fibrosis formation
↓
Distortion of hepatic architecture
↓
Alcohol-induced liver cirrhosis

Ayurvedic Perspective - According to Ayurveda, chronic consumption of Ushna, Tikshna, and Vidahi Madya causes aggravation of Pitta Dosha and affects the normal functioning of Ranjaka Pitta, which is associated with Rakta Dhatu metabolism. The continuous pathological process results in Rakta Dushti and Raktavaha Srotas Dushti, eventually producing Yakrit-related disorders. The Ayurvedic disease progression can be correlated as:

Ushna-Tikshna Madya Sevana
↓
Pitta Prakopa
↓
Ranjaka Pitta Dushti
↓
Rakta Dushti
↓
Raktavaha Srotas Dushti

↓

Yakrit Vikara

↓

Yakrit Vriddhi and Jalodara

Treatment Protocol

Intervention - Drug: Sharpunkha Kwath (*Tephrosia purpurea*)

Dose: 25 ml Kwath twice daily before food with warm water.

Duration: 30 days

Pharmacological and Anatomical Rationale of Sharpunkha Kwath

Sharpunkha (*Tephrosia purpurea*) is described in Ayurvedic classics for the management of Yakrit and Pleeha disorders. It is traditionally indicated in conditions involving hepatic enlargement, inflammation, and functional impairment of the liver. Bhavaprakasha mentions the utility of Sharpunkha in Yakrit Shotha, supporting its classical application in hepatic disorders. The pharmacological action of Sharpunkha Kwath can be understood through its potential hepatoprotective effects, including reduction of hepatic inflammation, improvement of hepatocellular function, correction of metabolic disturbances, reduction in hepatic enlargement, and improvement in altered biochemical liver parameters.

In the present case of alcohol-induced liver cirrhosis, chronic alcohol consumption resulted in hepatocellular injury, fibrosis, and architectural distortion of liver tissue. Sharpunkha Kwath may act by targeting these pathological processes through modulation of hepatic inflammation, protection of hepatocytes, and restoration of impaired liver functions. From an Ayurvedic perspective, its action may be correlated with correction of Yakrit Vikara, Raktavaha Srotas Dushti, and Ranjaka Pitta dysfunction, thereby improving the structural and functional integrity of Yakrit. Thus, Sharpunkha Kwath represents a potential hepatoprotective formulation with therapeutic relevance in alcohol-induced hepatic disorders.

Clinical Outcome Assessment

The therapeutic response was assessed before and after treatment for a duration of 30 days following administration of Sharpunkha Kwath (*Tephrosia purpurea*). Assessment was performed based on both subjective clinical parameters and objective investigative parameters to evaluate improvement in hepatic function and associated clinical manifestations of alcohol-induced liver cirrhosis.

Subjective Parameters

Clinical symptoms were assessed before initiation of treatment and after 30 days of therapy. Improvement was observed in symptoms including loss of appetite, generalised weakness, abdominal discomfort, nausea, and icterus. The patient reported improvement in digestive capacity, appetite, physical strength, and overall general wellbeing. Reduction in abdominal heaviness and discomfort was also noted, indicating improvement in hepatic manifestations.

Objective Parameters

Objective assessment was carried out through biochemical and radiological investigations, including liver function tests (LFTs) and ultrasonography (USG) findings. Changes in parameters such as serum bilirubin, SGOT, SGPT, alkaline phosphatase, total protein, albumin, and globulin levels were evaluated before and after treatment. Ultrasonographic evaluation was performed to assess changes in hepatomegaly, hepatic echotexture, cirrhotic changes, and ascites. Reduction in ascites-related symptoms and improvement in hepatic functional parameters were considered indicators of therapeutic response.

RESULTS

After 30 days of treatment with Sharpunkha Kwath, the patient showed improvement in major clinical features associated with alcohol-induced liver cirrhosis.

Observed improvements

- Reduced generalised weakness
- Improved appetite and digestion
- Reduction in abdominal discomfort and heaviness
- Decreased nausea sensation
- Improvement in icterus
- Better physical strength and general wellbeing
- Reduction in ascites-related symptoms

Changes in Liver Function Test Parameters

Liver function tests were evaluated before and after treatment to assess the effect of Sharpunkha Kwath on hepatic biochemical parameters. The baseline investigations revealed deranged liver function, indicating hepatocellular injury and impaired hepatic metabolism. Following 30 days of therapy, improvement was observed in clinical symptoms along with favourable changes in liver function parameters.

Changes in Liver Function Test Parameters Before and After Treatment with Sharpunkha Kwath

Parameter	Baseline Value Before Treatment	Value After 30 Days of Treatment
Serum Bilirubin	1.6 mg/dL	1.1 mg/dL
Direct Bilirubin	0.7 mg/dL	0.4 mg/dL
Indirect Bilirubin	0.9 mg/dL	0.7 mg/dL
SGOT (AST)	268 IU/L	142 IU/L
SGPT (ALT)	307 IU/L	156 IU/L

Alkaline Phosphatase	256 IU/L	168 IU/L
Total Protein	8.7 g/dL	7.9 g/dL
Serum Albumin	5.6 g/dL	4.8 g/dL
Globulin	3.1 g/dL	3.1 g/dL
Albumin/Globulin Ratio	1.8	1.5
SGOT/SGPT Ratio	0.87	0.91

DISCUSSION

The present case highlights the anatomical and functional involvement of Yakrit (liver) in alcohol-induced liver cirrhosis and demonstrates the clinical correlation between Ayurvedic concepts and modern hepatic pathology. Continuous and prolonged alcohol consumption resulted in progressive hepatocellular injury, fibrosis, and alteration of normal hepatic architecture, which was clinically manifested by Agnimandya, Balakshaya, Karshya, Panduta, Peetanetrata, Peetamutrata, Udarashoola, and Hṛllāsa. The deranged liver function parameters and ultrasonographic findings of hepatomegaly, altered hepatic echotexture, fatty changes, cirrhotic features, and ascites indicated structural and functional impairment of hepatic tissue.

Anatomically, hepatomegaly observed before treatment reflected enlargement and pathological changes within hepatic lobules due to chronic alcohol-induced hepatocyte injury and inflammatory changes. The presence of ascites suggested disturbance of portal circulation and progressive alteration in hepatic vascular architecture associated with cirrhosis. Following 30 days of treatment with Sharpunkha Kwath (*Tephrosia purpurea*), clinical improvement was observed along with favourable changes in biochemical parameters, indicating improvement in hepatocellular function. Reduction in hepatic enzymes such as SGOT, SGPT, and alkaline phosphatase suggested decreased hepatocellular stress, while improvement in bilirubin levels indicated better hepatic metabolic and excretory activity.

From an Ayurvedic perspective, the condition can be interpreted as Yakrit Vikara due to Raktavaha Srotas Dushti, where continuous intake of Ushna, Tikshna, and Vidahi Madya leads to Pitta Prakopa, Ranjaka Pitta Dushti, and Rakta Dushti, ultimately affecting Yakrit function. The improvement in clinical symptoms and liver function parameters after administration of Sharpunkha Kwath suggests its role in correcting functional impairment of Yakrit and reducing pathological progression.

Sharpunkha, due to its classical indication in Yakrit and Pleeha disorders, may act through hepatoprotective, anti-inflammatory, and metabolic regulatory mechanisms, thereby supporting restoration of hepatic function. The observed improvement in symptoms, biochemical parameters, and anatomical features suggests the potential role of Sharpunkha Kwath in the management of alcohol-induced liver cirrhosis. Further studies with larger sample sizes and objective imaging-based assessment are required to establish its therapeutic efficacy.

CONCLUSION

This case highlights the anatomical correlation between Yakrit described in Ayurveda and the modern liver, demonstrating the role of hepatic structural and functional impairment in alcohol-induced liver cirrhosis. The clinical improvement observed after administration of Sharpunkha Kwath suggests its potential role as a supportive therapeutic agent in managing chronic hepatic disorders through improvement of hepatocellular function, reduction of symptoms, and correction of altered biochemical parameters. Further clinical studies with larger sample sizes are required to establish its therapeutic efficacy.

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