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Management of Liver Cirrhosis and Splenomegaly with Herbo-Mineral Formulations - A Clinical Case Study

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ABSTRACT

Cirrhosis of the liver is the last stage of liver disease in which scar tissue replaces healthy tissue by blocking the flow of blood through the organ and preventing it from working as it should. The major pathways leading to cirrhosis are hepatitis, fatty liver, portal and centrilobular fibrosis. In *Ayurveda*, it can be correlated with *Udararoga (Yakrutodara)*. In the present case study, Liver cirrhosis was treated with herbomineral formulations (*Arogyavardhini Vati, Rohitakarista* and *Patolakaturohinyadi Kashayam*) and the result was found very effective on biochemical parameters and other sign and symptoms.

Key words: Cirrhosis, Splenomegaly, Udararoga, Yakrutodara, Fibrosis, Case Report

INTRODUCTION

Cirrhosis of the liver is defined as a fibrosis that is spread out and transforms the liver into structurally abnormal nodules. Data from the GBD Study 2017 indicate that the global number of prevalent cases of decompensated cirrhosis increased from 5.2 million in 1990 to 10.6 million in 2017, corresponding to an increase in the estimated age-standardized prevalence of decompensated cirrhosis from 110.6 per 100,000 population in 1990 to 132.5 per 100,000 population in 2017.^[1] Its management involves high-cost effect for health care system worldwide and the overall prognosis is poor. Liver transplantation as one of the few treatments option bear risks and is largely

unavailable or unaffordable for common patients in many countries, particularly in India. The early symptom of the liver cirrhosis is fatigue and later symptom may be severe and result from liver failure and portal hypertension. When symptoms are present, they are often nonspecific and include weakness, fatigue, muscle cramp, weight loss, anorexia, nausea, vomiting and upper abdominal discomfort which are similar feature of *Yakrutodara*. *Udararoga* is one among the *Ashtamahagada* and *Yakrutodara* is one among *Ashtodara* in which *Daurbalya* (weakness), *Arochaka* (anorexia), *Avipaka* (indigestion), *Malamutra Sanga* (retention of urine and stool), *Chhardi* (vomiting), *Karsya* (weight loss), *Angamarda* (bodyache), *Jwara* (fever), *Udarashoola* (pain in abdomen), *Yakrut Vriddhi* (hepatomegaly) and *Pleeha Vriddhi* (splenomegaly) occurs.^[2] In the present case study, Liver cirrhosis was treated with some herbomineral formulations (*Arogyavardhini Vati, Rohitakarista* and *Patolakaturohinyadi Kashayam*) and this treatment approach has improved condition of the patient greatly by normalize the abnormal biochemical values with improvement in sign and symptoms of liver cirrhosis.

CASE STUDY

This is a case of 67 years old male with history of cholecystectomy before 2 years. After that, gradually

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he suffered from weakness with anorexia, abdominal distension, indigestion, loss of weight, discoloration of skin since 6 months. Then he consulted a physician and was diagnosed with liver cirrhosis and splenomegaly after an USG of whole abdomen and other biochemical investigation (LFT). He had taken the concerned Allopathic medicine but didn't get significant relief so, he came for Ayurveda treatment in the OPD (UHID-20230042777) of PTKLS Hospital, Bhopal (MP) with following complaints; Anorexia, Loss of appetite, Fatigue/weakness, Distention of abdomen, Discoloration of skin, Bitter taste in mouth, Fever, Vomiting since last 6 months.

A recent blood investigation was done and the laboratory tests are found with high value of LFT and USG of whole abdomen had the impression with liver cirrhosis and splenomegaly.

Physical examination

BP - 120/80 mm Hg

Pulse - 78/min

RR - 20/min

No icterus

Temp. - 98.7°F

Pallor - +++

Systemic Examination (GIT)

Inspection - distended abdomen

Palpation - enlargement of liver palpable on right hypochondrium and enlargement of spleen palpable on left hypochondrium of abdomen

Percussion - Dull sound

Investigation

- LFT
- Ultrasonography of whole abdomen

Treatment

Table 1: Shows the treatment schedule of patient.

SN	Name of formulations	Duration	Dose with Anupana
1.	<i>Arogyavardhini Vati</i>	3 Months	250 mg 2BD with water

2.	<i>Rohitakarista</i>	3 Months	20 ml BD with equal amount of water
3.	<i>Patolakaturohinyadi Kashayam</i>	3 Months	20 ml BD with lukewarm water

ASSESSMENT AND RESULT

The diagnosis and assessment of liver disease was done by careful history taking, physical examination and laboratory tests. The initial assessment was done through liver function test and ultrasonography.

Significant result was found in biochemical parameters and other sign and symptoms.

Table 2: Sign and symptoms

Sign and symptoms	BT	AT	Follow up
Weakness	++++	+	0
Wight loss (in Kg)	46kg	53kg	53kg
Distension of abdomen	+++	+	0
Anorexia	++++	0	0
Discoloration of skin	+++	+	0
Vomiting	++	+	0

Table 3: Summarizes the blood profile and ultrasonography before and after treatment (month wise)

Test name with normal range	BT	AT
Bilirubin total (0.2-1.0 mg/dl)	December - 1.1 mg/dl January - 1.1mg/dl February - 0.8 mg%	March - 0.4 mg/dl
Bilirubin Direct (0.0-1.0 mg/dl)	December - 0.21mg/dl January - 0.2 mg/dl	March - 0.2 mg/dl

	February - 0.3 mg%	
Bilirubin indirect (0.1-1.0 mg%)	December - 0.89 mg% January - 0.9 mg% February - 0.5 mg%	March - 0.2 mg%
SGOT (05-35 mg/dl)	December - 46.1 mg/dl January - 47.1mg/dl February - 30.5 U/L	March - 22.3 mg/dl
SGPT (05-45 mg/dl)	December - 51.2 mg/dl January - 50.4 mg/dl February - 55.3 U/L	March - 17.3 mg/dl
Alkaline phosphatase (80-306)	December - 163.7 January - 116.3 February - 50.0 U/L	March - 139.2
Sonography	Early liver cirrhosis Moderate splenomegaly	Liver cirrhosis Mild splenomegaly (as compare to previous scan, spleen size has mildly reduced)

DISCUSSION

Liver cirrhosis is a chronic and progressive disease marked by scarring and fibrosis of the liver tissue. It is frequently the final stage of several liver disorders and is linked with severe liver function decline. Cirrhosis alters the normal structure of the liver, causing it to harden and become nodular, resulting in a variety of issues.^[3]

Liver cirrhosis can be caused by several factors, includes Chronic alcohol abuse. Long-term excessive alcohol consumption is one of the leading causes of cirrhosis.

Chronic hepatitis B or C infections can cause inflammation and liver damage, eventually leading to cirrhosis.

Non-alcoholic fatty liver disease (NAFLD) i.e., accumulation of fat in the liver, often associated with obesity, insulin resistance, and metabolic syndrome, can progress to cirrhosis.

The auto immune condition attacks and damages liver cells, leads to cirrhosis.^[4]

In addition, NAFLD, liver fibrosis or cirrhosis are major causes of morbidity and mortality across the world. Cholecystectomy was associated with 60% higher risk of liver fibrosis and 73.3% higher risk of liver cirrhosis.^[5] In the present study, patient was undergone with Cholecystectomy before 2 years, then after he was diagnosed with liver cirrhosis with splenomegaly. Cirrhosis is classified into four stages that include^[6]:

1. Stage I: Steatosis (The first stage of liver disease is characterized by inflammation of the bile duct or liver)
2. Stage II: Scarring (fibrosis) of the liver due to inflammation
3. Stage III: Cirrhosis
4. Stage IV: Liver failure or advanced liver disease or hepatic failure

SGOT and SGPT are liver enzymes that can indicate liver damage. An SGOT/SGPT ratio greater than 2 is highly suggestive of alcoholic hepatitis and cirrhosis.^[7]

Yakrutodara / Pleehodara is a type of *Ashtodara* is correlated with Liver cirrhosis in which *Aruchi, Agnimandya, Dourbalya, Chhardi, Karsya, Malamutra Sanga, Angamarda, Udarashoola, Yakrut Vriddhi* and *Pleeha Vriddhi* occurs.

Manifestation of *Yakrutodara / Pleehodara* occurs in two ways i.e., *Sthanat Chyutijanya Yakrutodara* and *Vyadhi Karshanajanya Yakrutodara*.^[8] *Atiksankshobha* etc. etiological factors suggest the *Baahya Nidana* are related with *Vihara* and *Agantu Nidana*. *Atisankshobhadi* results in *Abhighata* to *Shareera* and if it happens to *Udara Pradesha*, there is a possibility of *Sthanat Chyuti* of *Yakrut / Pleeha*. Because of the *Agantu Hetu*, *Vyadhi* develops all of a sudden and simultaneously *Dosha Kopa* develops. *Abhighata, Atisankshobha* etc. results in *Vata Prakopa. Sramsana*

is one of the *Vata Prakopa Lakshana*. *Sramsana* refers to *Sthanat Chyuti* (prolapse/dislocation). *Yakrut Vruddhi/Udara* may also take place by *Sonitha Vruddhi*. *Yakrut, Pleeha* are the abord of *Raktavaha Srotas*. When *Vikruta Sonitha Vruddhi* takes place, it is likely to vitiate the *Moola-Yakrut/Pleeha*. The *Dusta Sonitha Vruddhi* takes place because of *Raktadustikara Hetu* and *Dusti* of other *Srotas*. In the *Samprapti* of *Achyuta Yakrut Vruddhi* it is clearly mentioned *Rasa* and *Raktavaha Sroto Dusti* results in *Rakta Vruddhi* there by *Yakrutodara* take place.

Arogyavardhini Vati contains *Tamra Bhasma* (incinerated copper), *Guggulu, Katuki, Triphala* are having *Lekhana* (weight-reducing), *Deepana* (improving digestion and metabolism) and *Medadoshahara* (correcting lipid metabolism and transportation) properties, *Lasuna* (garlic) is having *Avaranahara* (removal of obstruction in micro channels), *Rasayana* (antioxidant) properties, which are useful to correct the underlying pathology of disease and establish the normal physiology. Recent researches on *Arogyavardhini Vati* have proved its anti-dyslipidemic and weight reducing effect. Anti-hypertensive, anti-hyperglycemic, anti - hyperlipidemic and antioxidant effects of *Lasuna* (garlic) are also proven by various researches.^[9]

Arogyavardhini Vati has anti-inflammatory and anti-viral properties. Some of its ingredients also possess anti-bacterial properties. All these properties make it effective in almost all types of liver disorders.

It is an excellent digestive formulation. The anti-flatulent property of this product reduces the formation of gas in the alimentary canal, thus reducing flatulence, bloating and abdominal distension. A higher concentration of the *Katuki* herb, makes this *Vati* a potent appetizer, which increases appetite, stimulates better absorption of nutrients in the body and hence promotes a healthy digestive system.

Presence of bioactive minerals like *Shilajit* not only strengthens the intestinal muscles but also promotes the secretion of bile from the liver that improves peristalsis movement inside the intestines that ultimately facilitate passing of faecal matter from the

body. Regular intake of the herbal pill softens the stools and reduces excessive stickiness of the faecal matter thus prevents chronic constipation.

The host of natural ingredients in this magical formulation increases its therapeutic value as it effectively balances the *tridoshas*, i.e., *Vata, Pitta* and *Kapha*.

Rohitakarista contains *Rohitaka, Pippali, Pippalimoola, Chavya, Chitraka, Sunthi* and *Triphala* which act as a protective agents and protect the liver from damage with its anti-viral, anti-bacterial and anti-oxidant properties^[10].

The chief ingredient of *Patolakaturohinyadi Kashayam* are *Patola* and *Katurohini (Katuki)*.^[11] It is named as *Katuka* or *Katuki* due to its immense bitter taste. It is a rhizome root and used as a bitter tonic for the treatment of the liver disorders. It is cooling, laxative, carminative, digestive, stomachic, cholagogue, hepato-protective, anti-viral, anti-pyretic, immunomodulating, free-radical scavenging, anti-spasmodic and anti-inflammatory. In large doses, it acts like a purgative. Use of *Katuki* is mentioned in ancient classical Ayurvedic treatise, *Charaka Samhita* and *Sushruta Samhita* for the treatment of jaundice and the liver disorders. Scientific studies affirm its anti-inflammatory, the liver protective and bilirubin excretion improving properties.

In addition to this, it is also known to be effective in treating nausea, vomiting, indigestion, ulcers, and several liver disorders like jaundice and fatty liver. These medicinal herbs are '*Pitta*' pacifying and hence their purgative nature removes an increased *Pitta Dosh*a from the body.

Patolakaturohinyadi Kashayam has potent antioxidant properties. It may support for liver cell regeneration, lessen the inflammation, and be advantageous for patients who have liver disorders like cirrhosis, fatty liver, hepatomegaly, etc. Its soothing and purifying quality serve as a liver tonic.

It improves appetite and treats liver conditions by detoxifying the gallbladder and liver. It significantly enables the decrease of elevated liver fat deposition in

cases of fatty liver syndrome and aids in the treatment of splenomegaly as well.

Patolakaturohinyadi Kashayam is a good appetite stimulant with properties that boost hunger, increase digestive fire, maintain excellent digestion, and promote metabolism, and is useful in treating the anorexia. Enhancing digestion and stimulating digestive fluids, also helps with the treatment of illnesses like tastelessness, lack of weight, bloating, etc. The other ingredients are *Dhataki* - a drug which reduced pain, *Neem* - which aid in swelling reduction following an injury. It can inhibit the oxidizing effect of free radicals in living cells and helpful in protecting the liver from infections and aid in improving its functions. *Pippali* improved digestion and food absorption, having a favorable effect on liver function and that mitigate liver damage, lower the level of fats in the body.

The improvement obtained may be attributed to the disease modifying effect of *Ayurvedic* treatment by means of its *Agnivardhaka*, *Deepana*, *Rasayana* and *Virechaka* effect.

CONCLUSION

After completion of the therapy, it can be concluded that the Herbomineral formulations i.e., *Arogyavardhini Vati*, *Rohitakarista* and *Patolakaturohinyadi Kashayam* are effective in the management of Liver cirrhosis & Splenomegaly. The formulations are need to be studied on a large sample size for a better evaluation.

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