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

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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 Vridhi (hepatomegaly) and Pleeha Vridhi (splenomegaly) occurs.² In the present case study, Liver cirrhosis was treated with some herbomineral formulations (Arogyavardhini Vati, Rohitakarista and Patolakuturohinyadi Kashayam) and the result was found very effective on biochemical parameters and other sign and symptoms.

CASE STUDY

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

1. LFT
2. Ultrasonography of whole abdomen

**Treatment**

Table 1: Shows the treatment schedule of patient.

<table>
<thead>
<tr>
<th>SN</th>
<th>Name of formulations</th>
<th>Duration</th>
<th>Dose with Anupana</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Arogyavardhini Vati</td>
<td>3 Months</td>
<td>250 mg 2BD with water</td>
</tr>
<tr>
<td>2.</td>
<td>Rohitakarista</td>
<td>3 Months</td>
<td>20 ml BD with equal amount of water</td>
</tr>
<tr>
<td>3.</td>
<td>Patolakaturoidi Kashayam</td>
<td>3 Months</td>
<td>20 ml BD with lukewarm water</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Sign and symptoms</th>
<th>BT</th>
<th>AT</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weakness</td>
<td>+++</td>
<td>+</td>
<td>0</td>
</tr>
<tr>
<td>Wight loss (in Kg)</td>
<td>46</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Distension of abdomen</td>
<td>+++</td>
<td>+</td>
<td>0</td>
</tr>
<tr>
<td>Anorexia</td>
<td>+++</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Discoloration of skin</td>
<td>+++</td>
<td>+</td>
<td>0</td>
</tr>
<tr>
<td>Vomiting</td>
<td>++</td>
<td>+</td>
<td>0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Test name with normal range</th>
<th>BT</th>
<th>AT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilirubin total (0.2-1.0 mg/dl)</td>
<td>December - 1.1 mg/dl</td>
<td>March - 0.4 mg/dl</td>
</tr>
<tr>
<td></td>
<td>January - 1.1mg/dl</td>
<td></td>
</tr>
<tr>
<td></td>
<td>February - 0.8 mg%</td>
<td></td>
</tr>
<tr>
<td>Bilirubin Direct (0.0-1.0 mg/dl)</td>
<td>December - 0.21mg/dl</td>
<td>March - 0.2 mg/dl</td>
</tr>
<tr>
<td></td>
<td>January - 0.2 mg/dl</td>
<td></td>
</tr>
</tbody>
</table>
CASE REPORT

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

**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.[9]

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 Vridhi and Pleeha Vridhi occurs.

Manifestation of **Yakrutodara / Pleehodara** occurs in two ways i.e., Sthanat Chyuti of Yakrutodara and Vyadi Karshanajanya Yakrutodara.[6] Atisankshobha 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, Vyadi 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 Raktaadustikara Hetu and Dusti of other Srotas. In the Samprapti of Achyuta Yakrut Vruddhi it is clearly mentioned Rosa and RaktaVaha Sroto Dusti results in RaktaVruddhi 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 Medadosahara (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 Patolakurohinyyadi Kashayam are Patola and Katurohin (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, hepatoprotective, 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 Dosha from the body.

Patolakurohinyyadi 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 splenomegalgy 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 *Dhakaki* - 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, loving 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 & Splenomegalgy. The formulations are need to be studied on a large sample size for a better evaluation.

**REFERENCES**


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