



Review Article

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Cirrhosis of liver: Review from Ayurvedic literature

Darshana Deka

Senior Consultant (Ayurveda), Regional Ayurveda Research Institute for GID, Guwahati, Assam- 781028 India

ABSTRACT

Cirrhosis is the severe scarring of the liver and poor liver function seen at the terminal stages of chronic liver disease. The scarring is most often caused by long-term exposure to toxins such as alcohol or viral infections. It tends to progress slowly and often does not cause symptoms in its early stages. However, as the function of the liver gradually becomes worse, serious problems can develop. In Ayurveda, Yakrit is considered as an important anga right from the vedic period. Ayurvedic classical references are available regarding the enlargement of Yakrit. The disease Yakrdalyudara has been included in eight types of Udara Roga in Ayurvedic classics. In this article, an effort is made to understand the aetiopathogenesis, sign and symptoms Yakrdalyudara and its management mentioned in classical Ayurvedic texts along with its modern counterpart. There is no need to say that till date, no definite therapy is available in western system of medicine for the management of terminal diseases like cirrhosis of liver. Ayurvedic treatment seems to be very specific including pitta pacifying therapy and purificatory therapy. These measures mentioned in classics are also focused in this study which provide management in natural way with no adverse effects.

Keywords: Ayurveda, Principles, Monographs, Pharmacopeia.

INTRODUCTION

Cirrhosis (derived from the Greek word scirrhos, which means orange or tawny) is a diffuse process of fibrosis that converts the liver architecture into structurally abnormal nodules^[1,2]. It is a slowly progressing disease in which healthy liver tissue is replaced with scar tissue, eventually preventing the liver from functioning properly^[3]. The scar tissue blocks the flow of blood through the liver and slows the processing of nutrients, hormones, drugs, and naturally produced toxins^[4]. It also slows the production of proteins and other substances made by the liver. According to the National Institutes of Health, cirrhosis is the 12th leading cause of death by disease.

An extensive description of hepatobiliary disorders are found in Ayurvedic classics. The distension of abdomen (Udara vrddhi) caused by the functional derangement of liver is known as Yakrdalyudara in Ayurveda. This disease has been described in the chapter of Udara Roga in Ayurvedic classics. The relevant Ayurvedic classical information has been highlighted in this study in relation to cirrhosis of liver in modern medical science.

Cirrhosis of Liver: Cirrhosis is a condition in which the liver does not function properly due to long-term damage. This damage is characterized by the replacement of normal liver tissue by scar tissue. Cirrhosis is most commonly caused by alcohol, hepatitis B, hepatitis C, and non-alcoholic fatty liver disease. non-alcoholic fatty liver disease^[5].

Aetiology: The commonest causes of cirrhosis world wide are alcohol abuse and viral hepatitis (B and C). In urban centres in India, alcohol abuse accounts for more than 50% cases. Hepatitis B accounts for 30-70% of cases, with hepatitis C following in frequency. About 30% of alcoholics also have markers of hepatitis viral infection, the relative contribution of viral infection and alcohol per day for 10-20 years is required for the development of cirrhosis in western populations^[6].

Other causes of cirrhosis are

- metabolic diseases such as alpha-1-antitrypsin deficiency, galactosemia and glycogen storage disorders
- inherited diseases such as Wilson disease and hemochromatosis
- biliary cirrhosis resulting from diseases such as primary biliary cholangitis (PBC) and primary sclerosing cholangitis (PSC)
- toxic hepatitis caused by severe reactions to prescribed drugs or prolonged exposure to environmental toxins

***Corresponding author:**

Dr. Darshana Deka
Senior Consultant (Ayurveda),
Regional Ayurveda Research
Institute for GID, Guwahati,
Assam- 781028 India
Email: dekadarshana07[at]gmail.com

- repeated bouts of heart failure with liver congestion [7]

Pathophysiology :

The cardinal features of cirrhosis is an increase in fibrous tissue, progressive and widespread death of liver cells, and inflammation leading to loss of the normal liver architecture. Following liver injury, stellate cells in the space of Disse are activated by cytokines produced by kupffer cells and hepatocytes. This transforms the stellate cell into a myofibroblast like cell, capable of producing collagen, pro-inflammatory cytokines and other mediators which promote hepatocyte damage and cause tissue fibrosis.

Destruction of the liver architecture causes distortion and loss of the normal hepatic vasculature with the development of nodules, cirrhosis evolves slowly over years to decades, and normally continues to progress even after removal of the aetiological agent.

Cirrhosis can be classified historically into two types

- Micronodular cirrhosis, characterized by small nodes about 1 mm in diameter and seen in alcoholic cirrhosis.
- Macronodular cirrhosis, characterized by larger nodules of various sizes. Areas of previous collapse of the liver architecture are evidenced by large fibrous scars [6].

Clinical Features:

About one third of patients with cirrhosis are asymptomatic as Cirrhosis often has no signs or symptoms until liver damage is extensive. When signs and symptoms do occur, they may include:

1. Weakness and fatigability
2. Spider angiomas (naevi) and palmar erythema are seen in alcoholics
3. Anaemia
4. Ascites
5. Weight loss
6. Encephalopathy
7. Gastrointestinal bleeding [1]

DIAGNOSIS OF CIRRHOSIS

Blood tests

Blood tests can measure liver function and the amount of liver damage. A blood test may be used to measure the levels of the liver enzymes alanine transaminase (ALT) and aspartate transferase (AST) in blood, Gamma-glutamyl transpeptidase, serum alkaline phosphatase, serum bilirubin, prothrombin time as these will be raised if there is inflammation of the liver (hepatitis).

Scans

An ultrasound scan, transient elastography scan, computerised tomography (CT) scan or a magnetic resonance imaging scan may be carried out on the liver.

A transient elastography scan is similar to an ultrasound scan carried out during pregnancy and is sometimes known as a Fibroscan.

These scans can produce detailed images of liver or check liver stiffness to identify any scarring.

Liver biopsy

In liver biopsy a fine needle is inserted into the body, a small sample of liver cells is removed and the sample is sent to a laboratory to examine under a microscope.

The outcome of the biopsy will confirm a diagnosis of cirrhosis and may provide more information about the cause.

Endoscopy

Through endoscopy, any swollen vessels (varices), which are a sign of cirrhosis, can be seen [8].

Complications of cirrhosis

1. Esophageal variceal bleeding
2. Hepatic encephalopathy
3. Hepatorenal syndrome
4. Spontaneous bacterial peritonitis
5. Portal hypertensive gastropathy
6. Infection
7. Hepatocellular carcinoma [5]

Management

Specific medical therapies may be applied to many liver diseases in an effort to prevent the development of cirrhosis as there is no specific treatment for cirrhosis. Once cirrhosis develops, treatment is aimed at the management of complications as they arise. Examples include the following:

- Hepatorenal syndrome - Kidney function usually recovers when patients with cirrhosis and hepatorenal syndrome undergo liver transplantation; patients with early hepatorenal syndrome may be salvaged by aggressive expansion of intravascular volume with albumin and fresh frozen plasma and by avoidance of diuretics
- Hepatic encephalopathy - Pharmacologic treatment includes the administration of lactulose and antibiotics
- Ascites - Treatment can include sodium restriction and the use of diuretics, large-volume paracentesis, and shunts (peritoneovenous, portosystemic, transjugular intrahepatic portosystemic)

Liver transplantation

Liver transplantation should be considered after the first signs of hepatic decompensation [9].

Ayurvedic view

Caraka in the 19th chapter of Sutra Sthana and 13th chapter of Cikitsa Sthana has enumerated 8 types of Udara-Roga, Yakrddalyudara has been mentioned as one type of udara roga there. Similarly Susruta and Bhavaprakaga have also included this disease in eight types of Udara Roga.

Etiology of Udara roga in Ayurveda

1. Intake of excessively hot, saline, Alkaline, Vidahi (which causes burning sensation), sour and poisonous food and drinks (Gara visha)
2. Mithya Samsarjana – Improper Samsarjana krama(diet, drinks and other regimens given to the patient after the administration of Pancha karma therapy)

3. Rooksha, Viruddha, Ashuchi Bhojana – Intake of dry, mutually contradictory and unclean food
4. Pleeha Arsha Grahani Dosh Karshana – Emaciation as a consequence of diseases, like Pliha Splenic disorders), Arsas (piles) and Grahani Dosh (sprue syndrome)
5. Improper administration of Pana Karma therapy, namely emesis, purgation etc.
6. Negligence of treatment of diseases, like Pliha Roga (splenic disorder) and the consequential unctuousness in the body.
7. Karma Vibhramaat – Suppression of the manifested natural urges
8. Vitiating of the channels of circulation
9. Continued presence of Ama (product of improper digestion and metabolism) in the body
10. Intake of irritating food and drinks
11. Over nourishment
12. Obstruction by piles, hair and hard stool masses
13. Ulceration and perforation of intestines
14. Excessive accumulation of vitiated Doshas and
15. Indulgences in serious sinful acts.

Because of the above mentioned factors, different varieties of Udara are manifested, especially in those having Mandagni (low digestion strength) ^[10].

Pathogenesis of Udara Roga

Agnidosha – defective digestion strength and Mala Vriddhi – increase in waste products / morbid matter – These two are the reasons for diseases like Udara (abdominal diseases including ascites).

If there is suppression of Agni (power of digestion and metabolism), and if the person takes Polluted food, this leads to indigestion as a result of which Doshas get accumulated.

This causes vitiation of Prana (a variety of Vata Dosh), Agni (digestive enzymes) and Apana (another variety of Vata, related to expulsion of feces, flatus, urine etc) and obstruction to the upward and downward channels of circulation.

Thereafter, the vitiated Doshas get lodged between the skin and the muscle tissue and cause extensive distension of lower part of abdomen.

This gives rise to Udara roga ^[11].

Rupa

Kukshe adhmana – Distension in the side of the abdomen,

Aatopa – gurgling noise

Pada shopha – oedema in the leg and hands

Suppression of the power of digestion

Slakshna gandatva – smoothness of the chin and

Karshya – emaciation ^[12].

Etiology and Pathogenesis of Plihodara:

Spleen which is located in the left side of the abdomen gets displaced and enlarged because of intake of excessively irritating food, travelling in excess, riding a vehicle, strenuous exercise, over indulgence in sex, lifting heavy weight, walking a long distance and emaciation caused by excessive administration of emetic therapy or by suffering from chronic diseases.

Spleen also gets enlarged because of increase in the quantity of blood as a result of increase in the quantity of Rasa etc. The spleen becomes stony- hard in the beginning of the process of enlargement and [on palpation] feels like a tortoise.

If the treatment of this condition is neglected, it gradually puts pressure and expands over the Kukshi (sides and lower abdomen) and Agni Adhithana (pancreas) as a result of which Pihodara is manifested ^[13].

Signs and symptoms of Plihodara (splenic enlargement) and Yakrutodara (liver enlargement):

Daurbalya -Weakness, Aruchi -anorexia, Vipaka-indigestion, Varcha mutra graha – retention of stool and urine, Tamah pravesha – entering into darkness, Pipasa -excessive thirst, Anga marda -malaise, Chardi -vomiting, Murchha -fainting, Anga sada- prostration, Kasa -cough, Shwasa-dyspnoea, Mrudu jwara -mild fever, Anaha (immobility of wind in the abdomen), Agni nasha -loss of the power of digestion, Karshya – emaciation, Aasya vairasya – distaste in the mouth, Parva bheda -pain in finger joints, Kosta vata shula -distension of alimentary tract by wind and colic pain.

Shyava aruna udara -Reddishness or discolouration of the abdomen and Appearance of net-work of veins having blue, green or yellow colour.

Enlargement of yakrit (liver) on the right upper side of abdomen giving rise to enlargement of the abdomen is known as Yakrddalyudara. The etiology, signs and symptoms and treatment of Yakrddalyudara (liver enlargement) are similar to Pleehodara (splenic enlargement) ^[14].

Treatment of Yakrddalyudara

The patient is given oleation, fomentation, purgation, Niruha Basti, and Anuvasana Basti, as suitable. The patient can also be given Siravyadha treatment (blood letting) on the left arm.

The patient is given the following recipes:

1. Shatpala Ghrita (vide Cikitsa 5: 147 – 148)
2. Pippali Rasayana
3. Abhaya (*Terminalia chebula*) mixed with Jaggery and
4. Recipes of Kshara and Aristas (Alcoholic Preparations)

The following herbal blends are useful in Pleehodar and Yakrddalyudara :

1. 1 part Powder of each of Long pepper, Ginger, Danti, Chitraka, 2 parts of Haritaki and 1 prt of Vidanga is given to the patient with hot water.
2. Vidanga – Embelia ribes, Chitraka – Plumbago zeylanica, Sunthi – Ginger, Ghee, Rock-salt and Vacha (*Acorus calamus* Linn.)- All these herbs are taken in equal quantities, kept over an earthen plates, covered with another earthen plate and the joints is sealed. This is

placed over fire to reduce the ingredients into ashes. Intake of this with milk cures Plihodar (splenic enlargement).

3. Stems of Rohitaka are cut into small pieces. To this, the crushed pulp of Haritaki is added. These ingredients are soaked in adequate quantity of either water or cow's urine and followed to ferment for 7 nights. Intake of this liquid cures Kamala (Jaundice) and many other diseases. After this portion is digested, the patient is given the soup of meat of animals inhabiting arid zone, (Jangala mamsarasa).

4. 25 Palas of bark of Rohitaka and 2 Prasthas Kala is boiled with [8 times of] water [and reduced to 1/4th]. To this, 1 pala paste of pippali – Piper longum 1 Pala Pippali Mula, 1 Pala Ginger 5 Palas of the bark of Rohitaka and 1 Prastha (768 g) ghee is added and cooked this medicated ghee instantaneously cures Pleeha (splenic enlargement), Udara (obstinate abdominal disorder), and Kamala (jaundice). If there is predominance of aggravated Vayu and Kapha in the patient suffering from splenic enlargement then Agni Karma (cauterisation therapy) is administered. If Pitta is aggravated then Jeevaneeya Ghruta, Ksheera, blood-letting, elimination therapies, light purgation therapy and intake of milk are useful.

Such a patient is given food mixed with vegetable soup and meat soup prepared by boiling with digestive stimulants.

After the administrations of therapies, the patient is given Samsarjana Krama (administration of lighter to heavier food gradually) with the help of food ingredients which are easily digestible^[15].

DISCUSSION

In this review article, etiopathogenesis of Yakrdalyudara and its treatment modalities has been studied along with its modern counterpart. Most of the signs and symptoms of Cirrhosis of liver are found in the classical Rupa of Yakrdalyudara, mentioned nicely in ancient Ayurvedic classics. The principle of treatment of Yakrdalyudara in both systems of management are different. As per Ayurveda, Yakrt (liver) is the Raktavaha Srota mula and Pitta is believed to be the Mala of Rakta. So the line of treatment adopted for Yakrtvikaras is to pacify the Pitta Dosa and the classical measures for Raktavaha srota gata rogas are applied. It is evident from the treatment measures that most of the plants used are pittashamak.

Modern medical science has no specific treatment for this disease and most of the procedures are only symptomatic. But the Ancient Ayurvedic treatment seems to be very specific including normal pitta pacifying therapy along with highly specific purificatory therapy like blood letting and purgation therapy.

CONCLUSION

The cardinal features of cirrhosis is an increase in fibrous tissue, progressive and widespread death of liver cells, and inflammation leading to loss of the normal liver architecture. It is a slowly progressing disease in which healthy liver tissue is replaced with scar tissue, eventually preventing the liver from functioning properly. No definite therapy is available till date in western system of medicine for the cure of these diseases. Only some symptomatic treatments for temporary relief are practiced. In Ayurveda distension of abdomen (Udara vrddhi) caused by the functional derangement of liver (Yakrtia Pradusti) is known as Yakrdalyudara. The aetiopathogenesis, sign and symptoms of Yakrdalyudara are nicely mentioned along with its ayurvedic management in classical Ayurvedic texts. Certain herbal drugs described in Ayurvedic classics for the management of such disorders are proved efficacious. Though the modern parameters definitely help in the advanced methods of early diagnosis of such diseases along with the determination of prognosis of hepatic disorders, but for treatment purpose, a bright ray of hope is seen from

Ayurvedic methods of management. The measures mentioned in classics are focused in this study which provide management in natural way with no adverse effects. However this article needs further discussion so that a fruitful conclusion can be drawn in near future regarding management of the terminal diseases of hepatobiliary system like Cirrhosis of liver.

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