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Ayurveda management against Non-Alcoholic Fatty Liver Disease: A Case Report

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ABSTRACT

Fatty liver disease is the accumulation of fat in the liver that can damage the organ and lead to serious health problems. It affects about one in ten people. It is normal for the liver to contain some fat. But if fat makes up more than 10 percent of the liver's weight, it means a fatty liver. This study shows the effectiveness of Ayurvedic medicine and its control measures in the management of Non-alcoholic Fatty Liver Disease, where the size of liver as 17cm was diagnosed through ultrasonography. A 36-year-old patient presented to the OPD of Department of Kayachikitsa, Ch. Brahm Prakash Ayurved Charak Sansthan, New Delhi with complaints of alteration in bowel habit, pain in abdomen and recurrent fever in the last one year. This case was diagnosed as Non- alcoholic Fatty Liver Disease on the basis of ultrasonography (USG) report. The patient was treated with Ayurvedic oral drugs and got satisfactory results. Satisfactory results were noted at the follow up after 2months. This study bear out that fatty liver disease can be successfully reversed with Ayurvedic treatment.

Key words: *Bhumyamalaki, Ayurveda, Aarogyavardhini Vati, Non-Alcoholic Fatty Liver Disease.*

INTRODUCTION

The prevalence of non-alcoholic fatty liver disease (NAFLD), which ranges from 11.2% to 37.2% in the general population, is rising due to an increase in obesity.[1] Between 1990 and 2017, the number of cases with NAFLD worldwide grew from 19.34 million to 29.49 million. East Asia has the most burden, with South Asia, North Africa, and the Middle East that follows.[2]

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Fatty liver disease is classified into:

- Non-alcoholic fatty liver disease (NAFLD)
- Alcoholic Liver Disease (ALD)

Non-alcoholic steatohepatitis (NASH) and non-alcoholic fatty liver (NAFL) are the two different types of non-alcoholic fatty liver disease. A particular type may initially be diagnosed, followed by another.

NAFL stands for non-alcoholic fatty liver with minimal to no inflammation or damage to the liver. Due to liver enlargement, this ailment may cause pain, even though it usually doesn't damage the liver.

NASH A more severe kind of NAFLD is called NASH. It denotes not only excess fat but also inflammation in the liver, possibly even causing harm to the liver. This injury may result in liver scarring. If NASH is not treated, it may eventually result in cirrhosis, which can cause liver cancer if it is not addressed.[3]

The disease *Yakritodar* cited in Ayurvedic treatise has symptomatic similarity with Non-alcoholic fatty liver disease (NAFLD) with symptoms of abdominal

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discomfort, loss of appetite etc. while symptoms of *Yakritodar* includes *Manda Jwara, Agnimandya* etc.

Here is a case report where we treated a patient of (NAFLD). The patient sought Ayurvedic treatment for the same and internal medicine was provided to the patient.

Aim and Objective

To assess the efficacy of Ayurvedic intervention in the management of *Yakritodar* w.s.r. to Non-Alcoholic Fatty Liver Disease.

Materials and Methods

A Single Case Study.

Patient Information

A 36-year-old, female patient visited the OPD of Dept. of Kayachikitsa, Ch. Brahm Prakash Ayurved Charak Sansthan, New Delhi, on 8 April 2022 (I.D. no. 18888) with the complaint of alteration in bowel habit, pain in abdomen with recurrent fever. The patient had this pain for one year. Initially, the patient had fever and alteration in bowel habits which affected her daily activities. With these complaints she went for an USG in which impression of Grade II fatty liver was detected. So, patient consulted at institute OPD for Ayurvedic care for her ailment.

Clinical Findings

The patient took medication on OPD basis. The general condition of the patient was normal, moderate appetite, and tongue appeared coated.

The blood pressure was 110/70 mm Hg,

Pulse rate was 78 per minute, and was full in volume and regular.

The patient had no significant past medical history as well as surgical and accidental history.

None of the family members had any disease related with her disease.

The patient was well oriented to time, date, and place.

There was alteration in bowel habit but no difficulty in micturition.

The body temperature was normal.

No abnormal clinical finding for cardiovascular and respiratory systems were observed on examination. Her abdomen was distended due to fat and was normally moving with respiration. On palpation, no tenderness was found. Dull sounds were recorded during the percussion on the right lumbar region, and Bowel sounds were normal on auscultation. She was presently not on any medication while the Ayurvedic intervention was ongoing. She was very calm and supportive during the treatment.

Ashta Vidha Pariksha

Nadi - 78 beats per minute

Mala - Altered bowel habit with *Sama Mala*

Mutra - 2-3 times a day, normal colour

Jihwa - Coated

Drika - Normal

Sparsha - Sama Sheetoshna (Normal)

Aakriti - Sthoola (Obese)

Shabda - Spashta (Clear)

Samprapti

Hetu/ Nidana Sevana in the form of *Vidahi, Tikshna, Ushna Aahar, Chinta, Vega Dharana* etc. causes aggravation of *Pitta* and *Rakta*, which leads to *Agnimandya* and furthermore vitiation of *Pitta*, *Rakta* and *Kapha*.

Now, all of the above process leads to *Vikrit Meda Sanchaya* (accumulation of vitiated *Meda Dhatu*) either directly or through *Tiryak Gati* of *Ambu* and *Sweda* (caused by *Annavaha* and *Swedavaha Sroto Avarodh*). All of the above process finally leads to *Yakrit Shoth* and hence, *Yakritodara.*

Timeline of Case: is presented in Table no.1 as following:

Table 1: Timeline

Date	Clinical events/ Investigation	Intervention
June 2022	First episode of recurrent alteration in bowel habit.	Home remedies and Antibiotics

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	Accompanied with Fever and pain in abdomen.	
August 2022	Further increase in alteration of bowel habit accompanied with fever. Pain in abdomen. USG Whole Abdomen: Figure-1 Mild hepatomegaly with fatty liver G-II with size of liver equal to 17cm (June 27, 2022) Weight - 80Kg	1) Tab. Bhumyamalaki 2BD 2) Arogya Vardhini Vati 2BD 3) Ark Ajwain 2tsf BD 4) Punarnavadi Mandoor 2BD
September 2022- November 2022	Follow up -1 Improvement in above complaints. Reduction in body weight (Wt. -70Kg)	Tab. Bhumyamalaki 2BD Arogya Vardhini Vati 2BD Giloy ghan Vati 2BD Punarnavasava 3tsf BD with equal amount of water.
December 2022- March 2023	Follow up -2 Improvement in above complaints. USG Whole abdomen was advised.	Tab. Bhumyamalaki 2BD Giloy Ghan Vati 2BD Punarnavasava 3tsf BD with equal amount of water Lashunadi Vati 2BD
April 2023	Follow up -3 No alteration of bowel habits and Fever. No associated complaint. USG Whole Abdomen: Figure 2 Fatty liver G-I with size of liver equal to 13.5cm (April 10, 2023).	Aarogya Vardhini Vati 2BD

Figure 1: Before Treatment

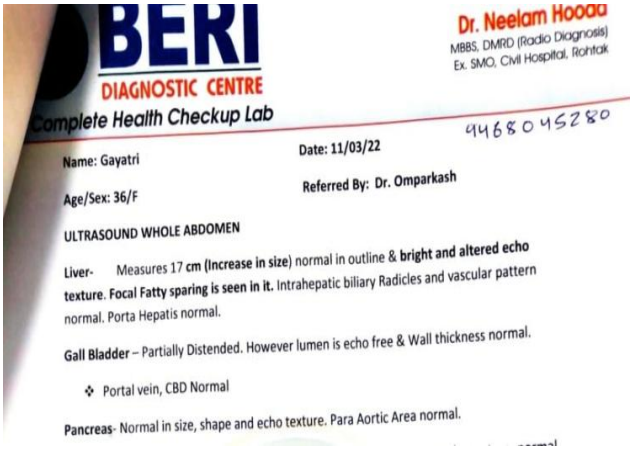
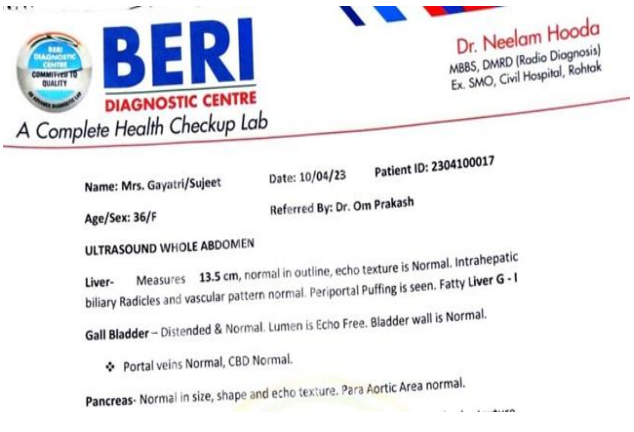

BERI
DIAGNOSTIC CENTRE
Complete Health Checkup Lab
Dr. Neelam Hooda
MBBS, DMRD (Radio Diagnosis)
Ex. SMO, Civil Hospital, Rohtak
Name: Gayatri
Date: 11/03/22
Age/Sex: 36/F
Referred By: Dr. Omparkash
ULTRASOUND WHOLE ABDOMEN
Liver- Measures 17 cm (Increase in size) normal in outline & bright and altered echo texture. Focal Fatty sparing is seen in it. Intrahepatic biliary Radicles and vascular pattern normal. Porta Hepatis normal.
Gall Bladder – Partially Distended. However lumen is echo free & Wall thickness normal.
Portal vein, CBD Normal
Pancreas- Normal in size, shape and echo texture. Para Aortic Area normal.

Figure 2: After Treatment


BERI
DIAGNOSTIC CENTRE
A Complete Health Checkup Lab
Dr. Neelam Hooda
MBBS, DMRD (Radio Diagnosis)
Ex. SMO, Civil Hospital, Rohtak
Name: Mrs. Gayatri/Sujeet
Date: 10/04/23
Patient ID: 2304100017
Age/Sex: 36/F
Referred By: Dr. Om Prakash
ULTRASOUND WHOLE ABDOMEN
Liver- Measures 13.5 cm, normal in outline, echo texture is Normal. Intrahepatic biliary Radicles and vascular pattern normal. Periportal Puffing is seen. Fatty Liver G - I
Gall Bladder – Distended & Normal. Lumen is Echo Free. Bladder wall is Normal.
Portal veins Normal, CBD Normal.
Pancreas- Normal in size, shape and echo texture. Para Aortic Area normal.

Dashvidha Pariksha (tenfold examination of patient) was done for patient assessment. The patient has:

Vata-Kaphaja in *Prakriti,*

Vikriti Pitta - Kaphaja,

Vishama Pramana (anthropometry),

Madhyama Sara,

Madhyam Satva,

Madhyam Satmya,

Avara Aahar Shakti,

Madhyam Vaya,

Avara Vyayam Shakti, and

Avara Bala (strength).

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Diagnostic Assessment

The diagnosis was done based on symptoms and USG findings.

In *Ayurveda*, this condition resembles *Yakritodara*. In USG findings, Liver measured 17cm in size, normal in outline, bright and altered echotexture. In overall impression USG showed Fatty Liver Grade II. There were no signs of fluid accumulation, abnormal pattern of blood flow, sustained increase in temperature or formation of cyst. So, these things were excluded from the differential diagnosis.

Intervention

The patient was given Ayurvedic medication for 9 months with intermittent stoppage. All the interventions are already presented above. *Pathya* (wholesome) and *Apathya* (unwholesome) guidelines mentioned below were followed during the treatment and the follow-up.

Pathya: Plant based diet which is rich in Fruits, vegetables, whole gram and healthy fat.

Maintain a healthy weight, Exercise most of the days of week.

Apathya: Oil fried food, Deep fried items like Sweets, Fries. Bakery items, non-vegetarian diet, Cold drinks.[4]

Milk, milk products, rice items

Follow Up and Outcomes

The patient was observed for improvement in symptoms related to *Yakritodar Roga* and *Medo Roga* on the four-point grading system (none, mild, moderate, and severe).

The changes observed in subjective criteria are depicted in the Table no.2 below. Her condition was satisfactorily stable during the follow-up period of 2 months.

Parameter	Month 1	Month 4	Month 9
***Yakritodar Roga* related signs and symptoms**			
Udarshoola (pain in the abdomen)	Mild	None	None
Sama Purisha	Severe	Mild	None
Jwara (Fever)	Mild	Mild	None
Aruchi (loss of appetite)	Mild	Mild	None
Height, weight, and BMI			
Height (cm)	162	162	162
Weight (kg)	80	70	70
Body Mass Index (BMI)	30.5	26.7	26.7
Obesity-related signs and symptoms			
Ayusho Hrasa (deficient in longevity)	Moderate	Mild	None
Javoparadha (Slow in movement)	Moderate	Mild	None
Krichchavyavaya (difficult to indulge in sexual intercourse)	Moderate	Mild	None
Daurbalyam (weak)	Moderate	Mild	None
Daurgandhya (Bad smell)	Severe	Moderate	None
Swedabadha (much sweating)	Severe	Moderate	None
Ati Kshudha (excessive hunger)	Severe	Moderate	None
Ati Pipasa (excessive thirst)	Severe	Moderate	None

Discussion

The medical profession routinely addresses individuals that have fatty liver. While the majority of incidents do not have significant symptoms, but some may develop towards fibrosis, steatosis, and steatohepatitis.

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Hepatocellular carcinoma may arise in certain contexts. The most frequent cause of liver dysfunction is fatty liver, and fewer cases of non-alcoholic fatty liver disease (NAFLD) appear to progress to chronic liver disease compared to alcoholic fatty liver. In this study, we predominantly used *Bhumyamalaki, Arogyavardhini Vati, Punarnavasava,* and *Samshamani Vati* to treat a non-alcoholic patient with grade II fatty liver. Their probable mechanism of action is outlined below.

Bhumyamalaki *(Phyllanthus niruri*), is *Pitta-Kaphahara, Ruchya* and *Mutrala* with *Madhura-Tikta-Kashaya* in *Rasa, Madhura Vipaka* and *Sheeta Virya*.[5] *Phyllanthus niruri's* antioxidant and hepatoprotective properties may be attributed to the abundance of antioxidative flavonoids, tannins, lignans and terpenes found in the plant.[6]

It contains active ingredients like phyllanthin and andrographolide, which help reduce bilirubin levels. Presumably, P. niruri contains bioagents that stop excessive superoxide synthesis and inhibit lipid peroxidation as a result of chronic hyperglycaemia. Therefore, P. niruri may lessen abnormalities in lipoprotein metabolism, lower cholesterol-phospholipid ratios, regulate damage to biomembranes, and lower lipid peroxidation linked to reactive oxygen species. Additionally, aqueous extracts are superior to methanolic preparations in terms of their ability to normalize ALT levels.

Arogyavardhini Vati is mentioned in *Rasaratna Samucchaya* under *Kushtha Visarpa Rogaadhikara.* It alleviate all types of *Kushtha* (skin disorders) and is *Tridoshaj Jvara Nashaka*. *Katuki (Picorrhiza kurroa)*, being one of the main ingredients of the *Arogyavardhini Vati* has also been studied to assess its effect in liver disorders. *Katuki* is bitter in taste, cooling, removes excessive *Pitta* from the body via colon and helps in restoration of Liver functions by overcoming fatty liver changes.[7]

Punarnavasava is mentioned in *Bhaishajya Ratnavali* under *Shotha Rogadhikara.* Main ingredient is *Punarnava (Boerhaavia diffusa*). As the name suggests *Punarnava (Punah + Nava*). *Punah* means - once again, *Nava* means becoming new. It is *Mootrala* (diuretic), *Sothaghna* (Anti-inflammatory), *Kasahara* (Antitussive), *Jwarahara* (antipyretic), *Rasayana* (rejuvenator). Numerous reports have supported its protective activity on liver diseases.[8]

Samshamani Vati is mentioned in A.F.I (Ayurvedic Formulary of India), Part II. Main Ingredient is *Guduchi (Tinospora cordifolia).* It has hepatoprotective effect due to its rejuvenation property. It also works as strength giving and appetizer.[9] *Guduchi* can be administered as a single agent and is a component in more than a third of hepatoprotective formulas available on the Indian market.[10]

Conclusion

The rate at which non-alcoholic fatty liver disease is affecting society's productive population is concerning. We can infer from the findings that the Ayurvedic treatments employed in this instance have a noteworthy impact on managing non-alcoholic fatty liver disease. The outcomes in this instance are promising and more carefully planned clinical trial could be conducted to see if these interventions work well under comparable circumstances.

Declaration of Patient Consent

Authors certify that they have obtained patient consent form, where the patient has given her consent for reporting the case and other clinical information.

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