



Case Report

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MANAGEMENT OF GRADE II NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD) THROUGH AYURVEDA: A CASE REPORT

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ABSTRACT

Non-alcoholic fatty liver disease (NAFLD) is one of the most common liver diseases caused by the accumulation of extra fat (lipids) in the liver. In the majority of cases, this may go unnoticed and not result in any major consequences but may sometimes lead to liver damage. In Ayurveda, this can be termed as Yakrit vikar (~liver disorder) which is associated with Medoroga (~fat related disease). In the present case, a 58-Year-old female patient with symptoms of grade- II fatty liver disease visited Ayurvedic Hospital. Hematological analysis revealed deranged lipid profile, including total cholesterol (227.4 mg/dl), low density lipoprotein (139.0mg/dl) and triglycerides (166.0mg/dl). The patient was provided with Ayurveda treatment for forty-five days after obtaining written consent. Assessment was done based on signs and symptoms [like, Agnimandya (~digestive insufficiency), Udaradhmana (~abdominal distension), Aruchi (~anorexia), Apakti (~indigestion), Malavishtambha (~constipation), Shirashoola (~headache)] and hematological parameters and Ultrasound before and after treatment. Changes in the ultrasound were seen, along with improvements in the hematological parameters and clinical signs and symptoms of the disease. The present study suggested the comprehensive and safe approach of Ayurveda treatment in managing liver disease.

Keywords: Ayurveda, Fatty Liver, Medoroga, Non-Alcoholic Fatty Liver Disease (NAFLD), Yakrit vikar

INTRODUCTION

Non-Alcoholic Fatty Liver Disease (NAFLD) is characterized by the presence of macro vesicular changes without inflammation (steatosis) and lobular inflammation in the absence of significant alcohol use inside the liver. The pooled prevalence of NAFLD is approximately 38.6%. It is higher in hospital-based data as compared to community-based data (40.8% vs. 28.2%).¹⁻² NAFLD can be further classified as Non-Alcoholic Steatohepatitis (NASH) and Non-Alcoholic Fatty Liver (NAFL) or steatosis. The accumulation of excess fat in the Liver, known as steatosis, involves more than 5% Liver parenchyma, with no hepatocyte damage.³ Steato-hepatitis is a necro-inflammatory condition, or inflammation of the liver due to excess fat.⁴ Based on available data, the cornerstones of managing Non-Alcoholic Fatty Liver Disease (NAFLD) include controlling weight and diet in addition to reducing cholesterol levels using a combination of medications. However, no medication has been approved by the Food and Drug Administration for NAFLD till now.⁵ The most common cause of death in NAFLD is cardiovascular disease.⁶⁻⁷ In Ayurveda, NAFLD can be correlated with Yakrit vikara (~liver disorder) and Medoroga (~fat related disease).⁸ The ancient text of Yogratnakar described that Vidahi (~spicy) and Abhishyandi ahara (~food that blocks the channels) creates Rakta-kapha dushti inside the body which in turn causes Yakritodara (~hepatomegaly) when got accumulated.⁹ Considering the long term complications and associated co-morbidities with no standard treatment, the present study with Ayurveda approach of managing Yakrit vikara was initiated to observe its effect and safety in the management of liver disease (NAFLD).

Patient Information

A 58-year old female presented in the Kaychikitsa OPD in Ayurveda Hospital on 02/11/2022. She has complaints of pain in abdomen, loss of appetite, indigestion, generalized bodyache, and weakness since last four months. According to her, she was asymptomatic four months back. Gradually she developed all these symptoms and visited a nearby clinic for its management. She took general medicines for these complaints and got no relief from there. Then, she was diagnosed as having Grade- II fatty Liver by Ultrasound (USG-Whole abdomen) done on 30/10/2022.

According to the patient's past medical history, she is taking tablet Atenolol 50mg once daily for hypertension since last five years. History of allergy to drug, diet or medications was not reported. As per surgical history, she underwent a cholecystectomy in 2017. No significant family history of the patient is obtained.

Clinical Findings

The patient had a BMI of 29.6, a weight of 64 kg, and a height of 147 cm, indicating overweight as per World Health Organization (WHO) criteria. On Examination, the patient was well oriented, stable and conscious. As per personal History, the patient is having pure vegetarian diet with history of excess intake of spicy, oily, and fatty food as well as irregular mealtimes and duration. Sleep was sound and normal. No history of any addiction was found. On vitals examination, Temperature – 98.6° F, BP - 160/90mm Hg, Pulse-78/min, Respiration rate- 20/min. On Gastro-intestinal (GIT) examination, mild distension of abdomen on inspection and non-tenderness on palpation was found. No abnormal findings such as Ascites/ Hepatomegaly/ Splenomegaly

were noted during clinical examination. Other systemic examinations like respiratory system and cardiovascular system was found to be normal. The Ayurvedic Ashtavidha parikshana (~Eightfold Examination) was also done in which, Nadi (~Pulse) was Niyamit (~regular), Mala (~Stool) Kathina, Mutra (~Urine) Samyaka, Jivha (~Tongue) Saama, Shabda (~Speech) Spashta, Sparsha (~Touch) Samshitoshna, Druka (~Vision) Nirmala, Akriti (~Posture) was Sthoola.

Diagnostic Assessment

Raised echotexture in liver suggested of grade- II fatty liver as per Ultrasound (USG) findings was considered as objective parameter. [Figure 1] Subjective assessment was done on the basis of signs and symptoms like, Agnimandya (~digestive insufficiency), Udaradhmana (~abdominal distension), Aruchi

(~anorexia), Apakti (~indigestion), Malavishtambha (~constipation), Shirashoola (~headache) were also considered for diagnosis.¹⁰⁻¹¹ Hematological parameters like Complete Blood Count (CBC), Liver Function Test (LFT), Kidney Function Test (KFT), Thyroid Profile were found to be within normal limits. Lipid profile was deranged with Serum cholesterol - 227.4 mg/dl, Serum Triglyceride - 166.9 mg/dl, Low Density Lipoprotein (LDL) - 139.0 mg/dl. [Fig. 2] On the basis of subjective and objective parameters, Yakrit vikara (~liver disorder) associated with Medoroga (~fat related disease), i.e. Non-Alcoholic Fatty Liver Disease (NAFLD) grade II was diagnosed.

Timeline- The detailed timeline of the present case is mentioned in Table 1.

Table 1: Timeline of the Ayurveda treatment

| SN | Date and Day | Medication | Dose Frequency and Indication | Duration | Investigations and Results |
|----|---|------------------------------|---|----------|--|
| 1. | Day 1 - 1 st visit (02/11/2022) Before Treatment | Navayas lauha (125mg) | 1 Tab Twice Daily, with water after food | 15 Days | Raised Echotexture in Liver in USG and deranged Lipid profile, Mild to severely deranged subjective parameters |
| | | Rohitakarishit | 20ml Twice Daily, with equal amount of water after food | | |
| | | Chitrakadi vati (125mg) | 2 Tab. Twice Daily, with water after food | | |
| | | Triphala guggulu (250mg) | 1Tab Thrice Daily, with water after food | | |
| | | Aarogyavardhini vati (125mg) | 1Tab Twice Daily, with water after food | | |
| 2. | Day 15- 2 nd visit (17/11/2022) Day 30 - 3 rd Visit (02/12/2022) | Same treatment was followed | Same | 15 Days | Not done. |
| 3. | Day 45 - 4 th Visit (17/12/2022) After Treatment | No treatment | None | 15 Days | Normal Echotexture in Liver in USG and normal Lipid profile. Mild change in subjective parameters. |
| 4. | Day 60- 5 th Visit Follow-Up (31/12/2022) | No treatment was given | N/A | - | Normal Objective and Subjective parameters |

Therapeutic Intervention: After obtaining written informed consent from the patient, she was provided with Ayurvedic medication for 45 days with a regular interval of 15 days. [Table 1] The follow-up was done after 15 days of the completion of the treatment.

Assessment: The assessment was done before and after the treatment based on presenting complaints of the patient, subjective parameters⁹ and USG findings before and after treatment i.e. after 45 days.

RESULTS

Follow-Up and Outcomes

After Completion of treatment, no raised echotexture in the liver as evident in Ultrasound, revealing Grade II fatty liver turned to normal. [Table 2] [Figures 1 and 2] Marked improvement in the subjective parameters was also reported. The before treatment (BT) score of Agnimandya, Aruchi, Apakti and Malavishtambha indicates severe effect, which after treatment changed to mild effect with after Treatment (AT) score 0. [Table 3]

Table 2: Change in Radiological findings (U.S.G. Whole Abdomen)

| S. No. | Parameters | Before treatment (30/10/2022) | After treatment (17/12/2022) |
|--------|--------------------------------|--|--|
| 1. | USG | Raised echo texture in liver showing grade II fatty liver. | No raised echo texture in the liver. Normal U.S.G. impression. |
| 2. | Lipid profile | | |
| | Serum cholesterol (in mg/dl) | 227.4 | 168.7 |
| | Serum Triglycerides (in mg/dl) | 166.0 | 152.5 |
| | LDL (in mg/dl) | 139.0 | 110.4 |

Table 3: Changes in subjective parameters of the patient

| S. No. | Subjective Parameter | Before treatment (Day 1) (02-11-22) | After Treatment (Day 45) (17-12-2023) | On Follow-up (Day 60) (31-12-2022) |
|--------|--------------------------------------|-------------------------------------|---------------------------------------|------------------------------------|
| 1 | Agnimandya (Digestive insufficiency) | Severe (3) | Mild (1) | None (0) |
| 2 | Udaradhmana (Abdominal distension) | Mild (1) | None (0) | None (0) |
| 3 | Aruchi (Loss of appetite) | Severe (3) | Mild (1) | None (0) |
| 4 | Apakti (Indigestion) | Severe (3) | Mild (1) | None (0) |
| 5 | Malavishtambha (Constipation) | Severe (3) | Mild (1) | None (0) |
| 6 | Shirshoola (Headache) | Mild (1) | None (0) | None (0) |
| 7 | Weight (In Kg) | 64 | 60 | 59 |

At the level of Agni, all the drugs in Chitrakadi vati have Deepan and Pachan properties. The Katu, Tikta rasa, Laghu and Tikshna guna helps in enhancing and maintaining a balanced Jatharagni. All these properties together help in eliminating the Strotorodha caused by Aam and also controls the aggravated Kapha, and hence Kaphavatahara in action.¹⁴ Arogyavardhini vati is mentioned under the context of Yakrit vikar (liver disorders).¹⁵ Navayas lauha and Rohitakarishtha contains drugs which have Deepan and Pachana properties.¹⁶⁻¹⁷ These control the aggravated Kapha and enhance metabolism and are also act as hepato-protective and antioxidant. Triphala guggulu acts by virtue of its Lekhniya property.¹⁸ Triphala eliminates the extra fat and toxins from the body (Aam) and Guggulu helps in reducing blood cholesterol level. Thus, the management of the patient was also

focused to improve metabolism, as well as to provide hepato-protective and antioxidant properties resulting in removal of fat deposited in the liver as evident by ultrasound. A daily laxative in the form of Triphala churma is given to the patient for complete evacuation of bowel which is an important line of treatment in managing Medoroga and Udararoga (abdomen-related disorders). The beneficial effects of satisfactory bowel evacuation were observed in this case. These findings highlight the usefulness of Ayurvedic interventions in the management of non-alcoholic fatty liver diseases.

The present study was conducted in accordance with ICMR National Ethical Guidelines for Biomedical and Health Research involving Human Participants.¹⁹



Figure 1: Before and After Treatment Ultrasound reports of the patient

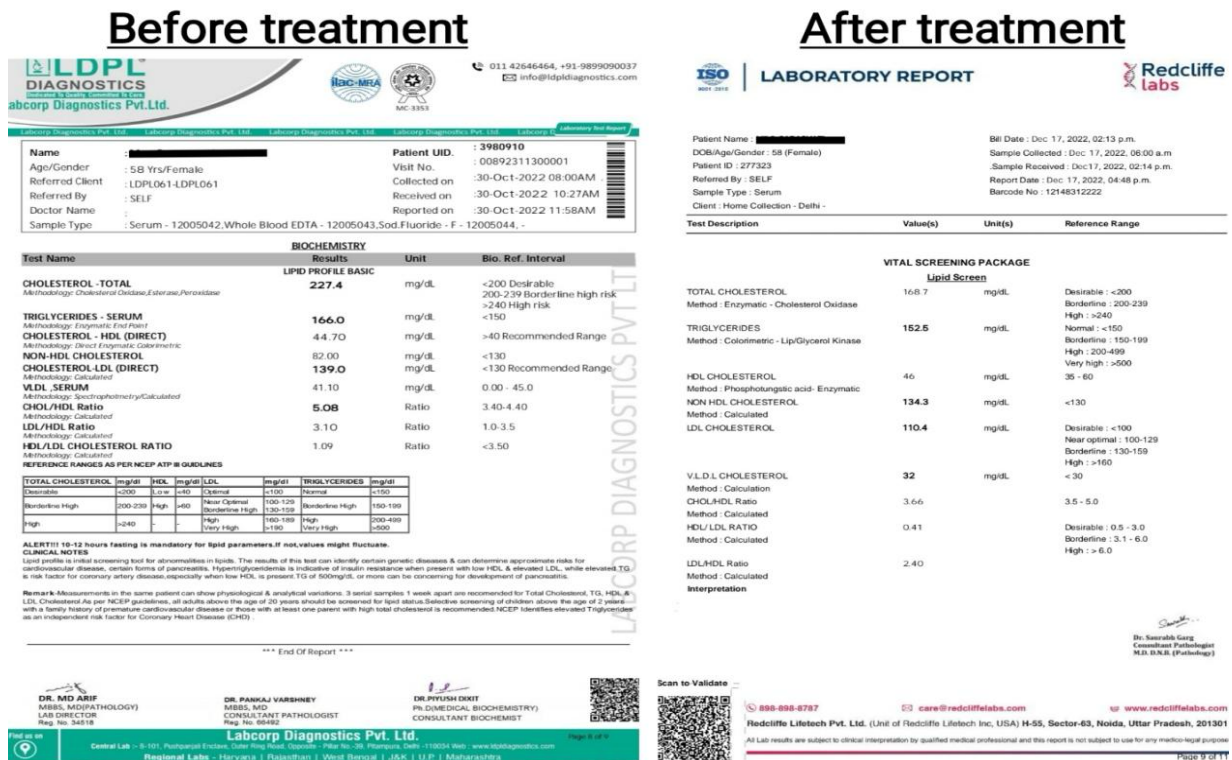


Figure 2: Before and After Treatment Lipid profile reports of the patient

CONCLUSION

Non-Alcoholic Fatty Liver Disease (NAFLD) is a disease with extremely widespread yet unmet therapeutic needs and is associated with metabolic comorbidities including obesity, type 2 diabetes mellitus, hypertension and dyslipidemia. Since recent guidelines only recommend lifestyle modifications and bariatric surgery for its treatment due to lack of standard treatment protocol. In order to achieve personalized medicine and treatments for this condition, more accurate therapeutic recommendations would be required. The swift rate of change in lifestyle and increasing prevalence of associated disorder motivates us to suggest that the effective treatment with no side effects must be available for the beneficence of the society. In the present case, the Ayurvedic treatment protocol was found effective in the management of non-alcoholic fatty liver disease and obesity. The results observed in this case are encouraging and further well-designed clinical trials to test the efficacy of these interventions in similar conditions.

Declaration of patient consent: Authors certify that they have obtained patient consent form, where the patient given their consent for reporting the case along with the images and other clinical information in the journal. The patient understands that his name and initials will not be published, and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Acknowledgement: Patient and its caregiver

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