

# The role of Ayurvedic management in non-alcoholic fatty liver disease (NAFLD): a case study

## Abstract

The term Non-Alcoholic Fatty Liver Disease (NAFLD) refers to the accumulation of excessive fat inside the liver cells when excessive alcohol use is not present. The WHO reports that there has been a consistent increase in the frequency of chronic liver diseases, including NAFLD, in recent years. NAFLD increases the chance of developing extrahepatic diseases, including osteoporosis, endocrine problems, colorectal cancer, CVD, and CKD. Liver illness is also described quite well in *Ayurveda*. NAFLD may be seen as a *Santarpanotha Vikara* (illness) brought on by *Pittasthana*, *Raktavahasrotomoola*, *Kaphamedo Dushti*, and *Sthanasamsraya* in *Yakrut* (liver). A 35-year-old male patient presented with a USG result indicating high liver echogenicity (Grade-2 Fatty Liver) with complains of dull stomach pain, discomfort, and low appetite for 2 Months. For two months, it was recommended that he take 500 mg of *Chitrakadi Vati* twice a day after meals along with *Takra as Anupana*. In NAFLD, the *Maha-Tikta Ghrita* and *Arogyavardhini Vati* shown to be beneficial. The patient's condition got better and there was pathological remission shown on the ultrasound. This case study aims to investigate the Ayurvedic therapeutic method and the mechanisms of action of the above-mentioned drugs. In the early stages of an illness, an effective approach to care might make all the difference in the world.

**Keywords:** non-alcoholic fatty liver disease, *Chitrakadi vati*, *Maha-tikta ghrita*, *Arogyavardhini vati*

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## Introduction

NAFLD is a Group of diseases that are all associated with hepatic steatosis, or fatty liver, in people who either never drink alcohol or only drink very little (less than 20g of ethanol per week). According to the diagnosis of non-alcoholic fatty liver disease (NAFLD).<sup>1</sup> The World Health Organization<sup>2</sup> reports that the frequency of chronic liver illnesses, including NAFLD, has been steadily rising in recent years. In the Indian population, the prevalence of NAFLD varies from 8 to 35%. Non-alcoholic steato-hepatitis (NASH), which can lead to liver cirrhosis and hepatocellular cancer, is thought to affect 3–5% of the general population. It is becoming more and more prominent as a cause of liver disease in India. According to epidemiological research, the whole Indian population may have a 12–35% prevalence of NAFLD, with a greater frequency among individuals who are overweight or obese and those who have diabetes or pre-diabetes.<sup>3,4</sup> Liver is comparable to *Yakrut*, which is a significant *Koshtanga* that is referenced in *Ayurvedic* texts. It is *Raktavahasrotas's Mulasthana* (root).<sup>5</sup> Taking *Sthansamsraya* in *Yakrut* with *Kaphpradhan Tridosh dushiti*, NAFLD can be viewed as a *Santarpanjanya Vyadhi*.<sup>6</sup>

In the *Charak Samhita Chikitsasthan Grahanidosha Chikitsa adhyaya*, the *Chitrakadi Vati* is referenced. It is a *Medohara*, *Deepan*, *Pachan*, and *Kapha vatahara*.<sup>7</sup> One of the main causes of chronic liver disease is non-alcoholic fatty liver disease (NAFLD), which has a close link to the metabolic syndrome. Additional hepatic illnesses including cardiovascular disease, chronic kidney disease (CKD), colorectal cancer, endocrine disorders like type-2 Diabetes Mellitus, thyroid dysfunction, and osteoporosis are all at increased risk due to non-alcoholic fatty liver disease (NAFLD). Therefore, a workable solution to this issue must be found.<sup>8,9</sup>

## Aim & objective

To evaluate the efficacy of *Chitrakadi Vati*, *Arogyavardhini Vati* and *Mahatikta Ghrita* in Non- alcoholic fatty liver disease.

## Case report

An obese 35-year-old man complained of lethargy, lack of appetite, itchy skin, and upper abdominal discomfort six months prior. The patient went to the Ayurvedic practitioner's outpatient department (OPD).

## Clinical finding

The patient had a *Madhyama koshti*, *Mandagni*, and *Madhyama bala Vata-kapha Prakruti*. Both the heart rate and blood pressure were within acceptable bounds. The patient had a body mass index of 28.3 and was obese, weighing 77 kg. There was no abnormality observed in the cardiovascular or respiratory systems. It was found that he was feeling discomfort when the right hypochondrium was palpated during a gastrointestinal examination (Table 1).

**Table 1** Systemic examination

Pulse	76/min
BP	130/80 mm Hg
Weight	77 kg
Height	165 Cm
Appetite	Moderate
Allergy	Nil
Addiction	Occasionally Smoking
Bowl	Normal
Bladder	Normal
Diet	Vegetarian
Exercise	Very less
Sleep	Normal

## Local examination Per Abdomen:

- Palpation – liver and spleen- nonpalpable, non-tender
- Percussion – tympanic note heard
- Auscultation – normal bowel sound (Table 2)

**Table 2** USG grading

No.	Grade	Features
0	No fatty liver	-
1	Grade 1 fatty liver	Slight diffuse increase in the fine echoes. Liver appears bright as compared to the cortex of the kidney. Normal Visualization of diaphragm and intra-hepatic vessel borders.
2	Grade 2 fatty liver	Moderate diffuse increase in fine echoes. Slightly impaired visualization of the intra-hepatic vessels and diaphragm.
3	Grade 3 fatty liver	Marked increase in the fine echoes. Poor or no visualization of intra-hepatic vessel borders, diaphragm and the vessels.

## Observation

Table 3

**Table 3** Before and after treatment

S. No	Parameters	Before treatment	After treatment
1.	USG liver	Grade 2 fatty liver	Normal
2.	S.G.O.T.	106.80	39
3.	S.G.P.T.	112.90	41
4.	Alkaline Phosphatase	140.10	95
5.	Weight, kg	77	70
6.	BMI, kg/m <sup>2</sup>	28.3	25.7
7.	B.P.	130/80	130/70
8.	Anorexia	Moderate	Normal
9.	Dull pain in Rt. Hypochondrium region	Present	Absent

## Diagnostic assessment

Following an extensive evaluation, the patient was given oral medications for 4 months in an outpatient department setting. During this time, regular follow-ups were conducted, and the patient's Vaya, Agni, Bala, Koshta, Prakriti, Ritu, and Satmya were all taken into account (Table 4).

**Table 4** Drug and dosages

<i>Arogyavardhini Vati</i>	500 mg 2 BD (twice a day)
<i>Chitrakadi Vati</i>	500 mg 2 BD (twice a day)
<i>Pancha-Tikta Ghrita</i>	5gm BD (twice a day)

## Clinical intervention

*Arogyavardhini Vati* is added to *Medo-Pachaka*, just as it does *Pachana of Drava and Kleda*. This results in a reduction in *Dravata and Snigdhatata of Meda dhatu Pancha-Tikta Ghrita* was employed for the purposes of pacifying the three *Doshas*, specifically *Strotoshodhana* and *Tridoshaghna*. Bitter-tasting drugs reduce fat mass, reignite the tissue fire, and balance fat metabolism. *Lekhana, Meda-shleshma-vasa Upashoshan, Laghu, and Ruksha* are the characteristics of *Tikta rasa*.

Because of its *Yogavahiguna* (~which bears the properties of that entity or material with which it is related in the combination), the *Pancha-Tikta ghrita* formulation is *Medanashana* and *Lekhana*. The medications were made right away at our college i.e. **Vivek College of Ayurvedic Teaching Pharmacy (Rasa Shastra and Bhaishajya Kalpana) GMP Lab certified**, utilizing all accepted ancient

techniques. In addition to taking the prescribed drugs, the patient was advised to adhere to certain dietary guidelines, such as consuming *laghu Bhojana* (which is easily digested), *kshudvan* (when there is adequate appetite), and *kale Bhojana* (eating meals on time).

## Discussion

An essential organ for food metabolism is the liver. *Acharyas* have conjectured about the formation of *Yakrita* from *Raktadhatu as Ayurveda* explains the fundamental principles of embryology and organogenesis, including *Pancha-Mahabhoota, Tridosha, Saptadhatu*, and others. The body's many organs are composed of various combinations of *Raktadhatu and Mahabhuta*.

In terms of *Nidana and Samprapti*, NAFLD, like *Sthaulya* (obesity), is a *Santarpana Janya vyadhi* (disease induced by overnutrition). *Agni-Vikruti* (vitiating of the digestive process) is the first step in the disease. It creates *Apakvaannarasa* (an imperfectly digested end product), which in turn vitiates *Kapha-dosha* and causes uneven development and deposit of *Meda* (fat tissue) in *Yakrita*.

This disease may be associated with fatty liver. The primary component of *Arogyavardhini Vati* is *kutuki* (*Picrorhizakarroa Royle ex Benth*). Through performing *Pachana karma, Kutuki*, a *Tikta rasa Pradhana*, can assist in reducing *Ama*.<sup>10</sup> Many studies have demonstrated the hepatoprotective properties of *Kutuki*. *Arogyavardhini Vati* has been demonstrated to assist individuals with NAFLD in improving their liver function because it is primarily a hepatoprotective.<sup>11</sup>

*Pancha Tikta ghrita* is a polyherbal *Ayurvedic* formula. This medicine is prepared using five bitters: *Guduchi* (*Tinosporacordifolia Thunb*), *Neem* (*Azadirachta indica A.*), *Patol* (*Trichosanthes cucumerina anguina*), *Kantakari* (*Solanum virginianum L.*), *Vasa* (*Adhatoda adhatoda L.*), together with *Ghrita* and *Triphala*. *Pancha Tikta ghrita* balances *Pitta, Kapha, and Vata*.<sup>12,13</sup> It also kindles *Agni* and helps the body rid itself of impurities.<sup>14</sup>

## Conclusion

When treating fatty liver, *Arogyavardhini Vati with Medapachana karma, Strotoshodhana, Pancha Tikta ghrita, and Chitrakadi Vati* has good results in terms of Radiological, biochemical, and symptomatic resolution. If NAFLD symptoms are addressed early enough, *Ayurvedic* treatment can reduce them and stop any irreparable consequences. Research using modern diagnostic methods like ultrasonography has confirmed that *Ayurveda* is a successful treatment for fatty liver disease Grade -2.

## Patient consent

The patient has granted permission for the case, photos, and other clinical data to be published in the journal, and the authors attest to having received this authorization. The patient is aware that although every attempt will be made to hide his identify and that his name and initials will not be published, anonymity cannot be ensured.

## Conflicts of interest

The authors declare that there have no conflicts of interest associated with this publication.

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