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Effect of *Kaphahara Basti* and *Rohitakadya Churna* in the management of Non-alcoholic Fatty Liver Disease (NAFLD) - A Case Study

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ABSTRACT

Non - Alcoholic Fatty Liver Disease (NAFLD) is the building of extra fat in the liver cells that is not caused by alcohol. NAFLD can be considered as *Santarpanjanya Vyadhi* (disease caused by to sedentary lifestyle, faulty dietary habits and lack of physical activities). *Kapha*, *Ama* and *Meda* play a major role in the pathogenesis of NAFLD. One such case of Non- Alcoholic Fatty Liver Disease came to *Panchakarma* OPD of Pt. Khushilal Sharma Govt. (Auto) Ayurveda College and Institute Bhopal. The patient was managed conservatively through *Ayurveda* medicine (*Rohitakadya Churna*) and *Panchakarma* therapy (*Kaphahara Basti*). After one month of treatment, all the subjective and objective parameters showed a remarkable response on both subjective and objective parameters. 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 mechanism of action of *Kaphahara Basti* and *Rohitakadya Churna* in the management of NAFLD. At the end of the study, it can be concluded that the treatment regimen has a significant role in the management of Non-Alcoholic Fatty Liver Disease.

Key words: NAFLD, Ama, Santarpanjanya Vyadhi, Basti, Panchakarma, Kaphahara Basti, Rohitakadya Churna

INTRODUCTION

Fatty Liver Disease refers to a condition in which excess fat accumulates in the liver cells affecting the metabolic function of the liver leading to Liver damage. A healthy liver contains a small amount of fat. It becomes a problem when fat reaches more than 5% to

10% of the liver's total weight. There are two main types of fatty liver disease (1) Alcoholic Fatty Liver Disease (AFLD) and (2) Non-Alcoholic Fatty liver Disease (NAFLD). AFLD is caused by heavy alcohol consumption over an extended period. NAFLD is a build-up of extra fat accumulation in the liver cell that is not caused by alcohol. Non-alcoholic fatty liver Disease (NAFLD) is now more common than Alcoholic Fatty Liver Disease (AFLD) globally and is currently estimated to affect 38% of the global population. The prevalence of fatty liver in India 9-32% with an average of 25% in general population.^[1] Nowadays NAFLD is one of the most common lifestyle disorders, The Pathogenesis of NAFLD is not fully elucidated. Beside weight gain and insulin resistance, many other factors seem to contribute, including adipokines, gut microbiota and genetic predisposition. High saturated fat, low fiber and carbohydrate rich diets have been known as risk diet in Non -Alcoholic fatty liver disease.

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The disease starts as hepatic steatosis, which may proceed to Non-Alcoholic Steatohepatitis (NASH); if fibrosis is added, the risk of cirrhosis and / or hepatocellular carcinoma is augmented.^[2]

According to *Ayurveda* NAFLD can be considered as the *Santarpanjanya Vyadhi* based on the aetiological component and symptoms complexes. Due to faulty dietary habits, lack of physical exercise and sedentary lifestyle *Kapha* and *Meda Dhatu* are specially vitiated in the body which leads to *Jatharaagnimandhya* and *Ama* formation. As a result, *Dooshit Ras* formed and the successive *Dhatu* formation is impaired. The vitiated *Kapha Dosh*a and *Ama* causes the unequal formation of *Meda Dhatu* which is not *Prakrit* is called *Abadha Meda*, which deposits in the liver and this condition is called Fatty Liver.^[3] This study aims to find a feasible solution to this problem, an effort is made to understand the disease for better clinical management by scientifically evaluating the effect of *Kaphahara Basti*^[4] and *Rohitakadya Churna*^[5] in Non-Alcoholic Fatty Liver disease.

The majority of patients diagnosed with NAFLD are commonly asymptomatic and frequently detected incidentally by blood-liver function tests or imaging performed for other reasons. Subjects with NAFLD have a higher mortality rate than the general population and are at increased risk of developing cardiovascular disease and diabetes. Patients with NAFLD have such signs and symptoms are like Fatigue, loss of Appetite, Constipation, Nausea, Flatulence, Abdominal pain, Hepatomegaly and Hepatic tenderness.^[6-7]

In modern medicine, NAFLD / NASH is treated with Insulin sensitizers (Thiazolidinediones) Antioxidants, Lipid-lowering drugs, Pentoxifylline, Angiotensin receptor blockers, n-3 Polyunsaturated fatty acids drugs etc. Several side effects have been reported because of these drugs, so also these drugs have a limited role in preventing complications.^[8] But *Ayurveda* has the potential to not only manage Non-Alcoholic Fatty Liver Disease but to reverse it and bring the Liver into a normal state. The protocol of *Santarpanjanya Vyadhi* with required lifestyle

modification is useful for managing NAFLD. *Basti* appears to be the best treatment modality amongst all *Sanshodhana* therapies mentioned under the *Panchakarma* procedure. *Kaphahara Basti* (Ch.Si.10/23) mentioned by *Acharya Charaka* for treating *Kapha Dosh*a. The drug of this *Basti* are *Lekhana* in nature thereby reducing *Meda* and *Kapha*. *Rohitakadya Churna* (Bha.Rat.41/10-11) mainly possess *Kapha Pittahara* along with *Bhedana*, *Anulomana*, *Deepana* and *Pachana*, *Balya* activities and Hepatoprotective action which protects the Liver from cellular damage.

CASE REPORT

A 49-year-old Non-Alcoholic, married female patient from an urban area, came for Ayurveda treatment in *Panchakarma* OPD at Pt. Khushilal Sharma Govt. (Auto) Ayurvedic Hospital Bhopal. The patient mainly complained about incomplete bowel evacuation, abdominal distension, gaseous trouble, fatigue, anorexia and nausea. These symptoms have been persisting in the patient for the past 6 months. No H/O P/R bleeding or pain during defecation. No H/O Hypertension/ Diabetes Mellitus/ Thyroid disorder.

Past History

According to the patient, she was quite healthy before 6 months. The patient had consulted for similar medical complaints with an allopathic physician 6 month back. Laxatives and Antacids were given to control the bowel evacuation and abdominal distension. During this period patient was not recovered completely and due to the reoccurrence of the symptoms, she came for *Ayurveda* treatment.

Personal History

Appetite	Decreased
Bladder	Normal
Bowel	Not clear
Sleep	Sound
Diet	Vegetarian
Height	5'3"

Weight	64 kg
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Rogi Pariksha

Abdominal Examination

Inspection - Centrally placed umbilicus, surgical scar present at lower abdomen, no redness or discolouration.

Palpation - superficial- no tenderness, no rise in temperature, no rigidity.

Deep Palpation - Liver is palpable and slight tenderness present.

Percussion - tympanic note heard over the abdominal area.

Auscultation - normal bowel sound heard.

On Examination

General body built	Medium
Pulse rate	74/min
Respiratory rate	16/min
Blood pressure	130/70 mm of Hg

Assessment criteria

The following criteria were adopted -

A) Subjective Criteria

Fatigue

Grade	Score
Routine activity without feeling fatigued	0
The feeling of fatigue after doing extra work	1
The feeling of fatigue after routine work	2
The feeling of fatigue even without doing any work	3

Loss of appetite

Grade	Score
Normal appetite	0
One meal and one breakfast, per 24 hrs	1

Eat only once in 24 hrs	2
Have no feeling of appetite	3

Constipation

Grade	Score
No constipation	0
Occasional constipation 1 to 2 times in a week	1
Occasional constipation 3 to 4 times in a week	2
Continuous constipation and feeling of incomplete evacuation	3

Nausea

Grade	Score
Normal	0
Occasionally	1
Moderate but does not disturb the routine work	2
Severe disturbing the routine work and a small amount of fluid regurgitating from the mouth	3

Flatulence

Grade	Score
Not present	0
Occasional feeling of Flatulence	1
Flatulence after intake of a heavy meal	2
Flatulence intake of a light meal	3

Pain in the right upper quadrant

Grade	Score
Not present	0
Mild pain occurs in the upper right side of the abdomen	1
Moderate pain occurs in the upper right side of the abdomen	2
Severe pain occurs in the upper right side of the abdomen	3

B) Objective Criteria

Table 1: USG Grading

Grade	USG Findings
Grade 0 No fatty liver	Normal
Grade 1 Fatty Liver	Slight diffuse increase in the echogenicity. The liver appears bright as Compared to the cortex of the kidney. Normal Visualization of Diaphragm and intra-hepatic vessel borders.
Grade 2 Fatty Liver	Moderate diffuse increase echogenicity. Slightly impaired Visualization of the intra-hepatic vessels and diaphragm.
Grade 3 Fatty Liver	The marked increase in echogenicity, obstructed penetration. Poor or no visualization of Intra-hepatic vessel borders, diaphragm and the vessels.

Liver Function Test

Treatment protocol

Total treatment duration - 1 month

Table 2: Treatment procedure

SN	Procedure	Duration	Drug	Dose	Time
1.	<i>Basti Karma - Kala Basti</i> plan according to <i>Acharya Vagbhat</i>	<i>Niruha</i>	<i>Kaphahara Basti</i>	480ml	Empty stomach in the morning
	(As.Hr.Su.19/63-64) 1-15days	<i>Anuvasana</i>	<i>Murchit Tila Taila</i> (4 th Day)	120ml	After meal
2.	<i>Shamana drug</i>	1-30 days	<i>Rohitakadya Churna</i>	3 gm twice a day	After meal with normal water

(Note - The *Niruha* and *Anuvasana Basti* will be administrated in 3:1 ratio in the plan)

RESULT

Table 3: Effect of therapy

Subjective parameters	Before Treatment (15/02/24)	After Treatment (02/04/24)
Fatigue	3	0
Loss of Appetite	2	0
Constipation	3	0
Nausea	1	0
Flatulence	3	1
Pain in abdomen	1	0

Table 4: Assessment of USG

Assessment parameter	Before treatment (15/02/24)	After treatment (02/04/24)
USG grading	Mild hepatomegaly with grade 2 fatty liver	Mild hepatomegaly with grade 1 fatty liver

Table 5: Assessment of LFT

Assessment parameter	Before treatment (15/02/24)	After treatment (02/04/24)
LFT	Bilirubin - Total: 0.8mg/dl Bilirubin - Direct: 0.2mg/dl Bilirubin - Indirect: 0.7mg% SGOT - 17.4 mg/dl SGPT - 20.6 mg/dl ALP - 174 U/L	Bilirubin - Total: 0.7mg/dl Bilirubin - Direct: 0.1mg/dl Bilirubin - Indirect: 0.6mg% SGOT - 14.3 mg/dl SGPT - 17.2 mg/dl ALP - 152.3 U/L

Table 6:

Weight	Before treatment	After treatment
	64kg	61.6kg

DISCUSSION

Liver disorder is one of the major problems and it is among the top ten causes of death in the world. NAFLD is now one of the most common diseases that is

present worldwide. NAFLD is estimated to affect approximately 1 billion individuals worldwide. According to the latest W.H.O. data published in 2020 liver disease deaths in India reached 268,580 or 3.17% of total death. Hence the need of timely intervention can be well understood. In *Charaka Samhita*, lack of physical activity and unhealthy eating habits which are the causes of lifestyle disease are mentioned in *Santarpaneeyam Adhyayam*.^[9] According to *Ayurveda* NAFLD can be categorized under the *Santarpanajanya Vyadhi*. The aetiology and symptomatology of *Santarpanajanya Vyadhi* show a remarkable similarity with NAFLD. As a consequence of urbanization and accompanying changes, like a high fat and carbohydrate rich diet, sedentary lifestyle, and a higher hereditary predilection for diabetes mellitus, NAFLD is one of the most common lifestyle disorders and commonly associated with metabolic comorbidities such as obesity, diabetes mellitus, and dyslipidaemia.

According to *Ashtanga Hridaya* "Rogah Sarveapi Mandaagnau" Agni plays a major role in the process of digestion and metabolism. Due to sedentary life style and faulty dietary habits *Kapha Dosha* become aggravated in the body, which probably leads to *Jatharagnimandhya*, derangement of *Dhatvagni* and *Ama* formation. As a result, *Ama Rasa* is formed and successive *Dhatu* formation is hampered. *Kapha* and *Meda* are the main *Dosha* and *Doosha* involved in the pathogenesis of NAFLD. Therefore *Agnideepana*, *Amapachana*, *Kapha Medo Vatahara* and *Srotoshodhana Chikitsa* are beneficial to manage the Disease. It is a great pleasure to say that *Ayurveda* defines the exact aim of treatment should be "Swasthasya Swasthya Rakshanam and Aturasya Vikara Prashamanam." Here this concept is also applied to the treatment of the disease that arises due to *Santarpana*, *Chikitsa Sutra* for *Santarpanajanya Vyadhi* primarily comprises *Samshodhana Chikitsa* and *Aptarpana Chikitsa*. *Basti* appears to be the best treatment modality amongst all *Samshodhana* therapies mentioned under *Panchakarma Chikitsa* since it is the fastest *Aptarpana Chikitsa* that can eliminate excessively high *Meda* when made with *Aptarpaka* medications.

Basti is administered through the anal route, *Basti Dravya* is absorbed from superior hemorrhoidal veins in the rectal mucosa, passes through the duodenum, enters systemic circulation, and then portal circulation, corrects liver metabolism, facilitates bile salt synthesis and results in the emulsification of fats, thereby avoiding fatty accumulation in the liver and blood cells.

Tila Taila is effective in *Kapha* and *Meda Pradhan* conditions. Due to *Snehatva Guna* lubricates the *Srotasa*, protects the mucous membrane from the irritating effect of *Tikshana* drugs in the *Basti Dravya* helps in easy removing of waste substance by *Srotovishodhana*.

Murchita Tila Taila acquiring *Vyavayi Guna*, facilitates easy absorption and transportation in the body, performs *Lekhana* and *Rukshana* removes excess *Meda*.

Basti Chikitsa is said to be *Ardha Chikitsa* by *Acharya Sushruta*. According to *Acharya Charaka*, *Achintya Prabhava* of *Basti*, it pulls out all the vitiated *Doshas* even from head to the *Pakvashaya*.^[10] *Kaphahara Basti* comprising of *Madhu*, *Saindhava*, *Tila Taila*, *Triphala*, *Haridra*, *Musta*, *Daruharidra*, *Yavkshara*, *Gomutra* and *Shyonaka Chaal* mentioned by *Acharya Charaka* which is most effective therapy for *Kapha* and *Meda Pradhan Dushti Janaya Roga*. The drugs components of this *Basti* are *Lekhana* in nature. *Ushana*, *Tikshana*, *Laghu*, *Ruksha Guna*, *Ushna Veerya*, *Katu Vipaka* and *Tejo Guna Pradhan* drugs used to prepare *Basti*, act at the level of *Jatharagni*, thus correcting the *Dhatvagni* and reducing the formation of *Ama*. Proper formation of *Uttarottara Dhatu* and reduction in *Medodhatu* production. The metabolism is enhanced as a result of the removal of vitiated *Doshas* and *Ama* via *Basti*.

The components of *Rohitakadya Churna* (*Bhai. Rat., Pleehayakritrogadhikara 41/10-11*) are *Rohitaka*, *Yavkshara*, *Bhunimba*, *Kutaki*, *Mustaka*, *Navasadar*, *Ativisha* and *Shunthi*. *Rohitakadya Churna* has *Deepana - Pachana*, *Bhedan*, *Anulomana*, *Yakrituttejak* and *Balya* action. *Ushna Veerya* of the drugs helps in *Srotorodha* caused by *Ama*. Apart from this, it is also believed to regulate the metabolic function and correct the *Jatharagnimandhya* and regulates the *Dhatvagni*.

CONCLUSION

There is no direct reference to NAFLD in Ayurveda classics but it would be thought-wise considered under the *Santarpanajanya Vyadhi*. *Kapha*, *Meda* and *Ama*, are the main *Doshas* and *Dooshya* involved in the pathogenesis of NAFLD. Ayurveda medicine and therapies have gained popularity because of their safety, efficacy and cost-effectiveness. Based on the result, we can conclude that the *Kaphahara Basti* and *Rohitakadya Churna* have shown a significant effect on weight reduction. This treatment regimen also helps to reduce the size of Subserosal uterine fibroid and all the subjective and objective parameters showed a noteworthy response to the treatment. There were no tropical and systemic adverse drug effects were found throughout the treatment. Thus, it can be concluded that the *Kaphahara Basti* and *Rohitakadya Churna* have significant role in the management of NAFLD. The study should be carried out on large sample size for long period.

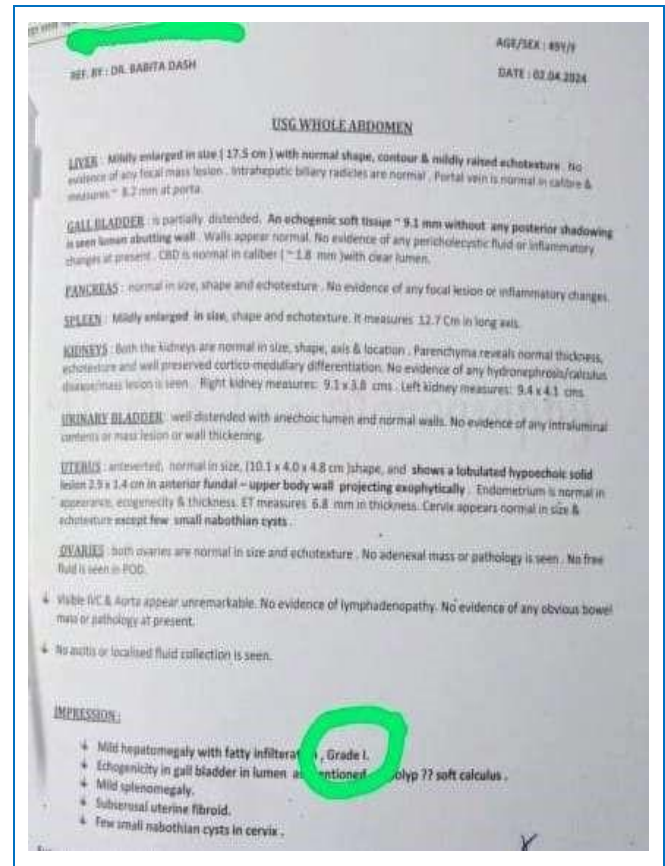


Image 2: After 1 month of treatment

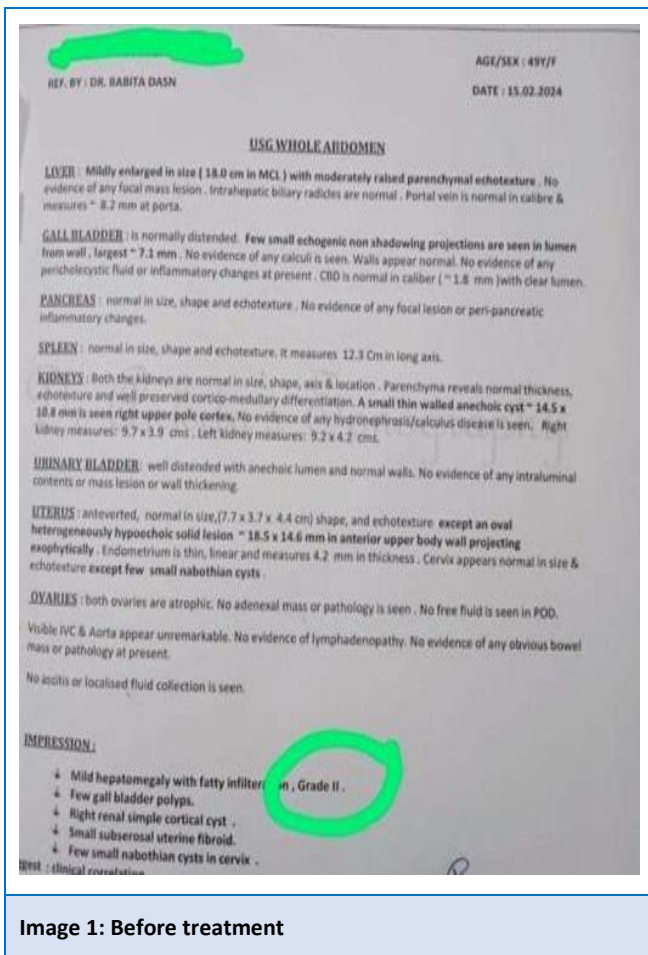


Image 1: Before treatment

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