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Yakrit Dushti: An Ayurvedic Approach to Non-Alcoholic Fatty Liver Disease (NAFLD) Management—A Case Study

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Abstract

Non-Alcoholic Fatty Liver Disease (NAFLD) is a growing global health concern, primarily linked to metabolic disorders such as obesity, Type II Diabetes Mellitus, and dyslipidemia. *Ayurveda* correlates NAFLD with *Yakrit Roga* and *Medoroga*, where *Kapha-Pitta Medovaha Srotodushti*, *Agnimandya* (digestive fire impairment), and *Ama Utpatti* (toxin accumulation) play a central role in its pathogenesis. The disease originates from *Apathya Ahara-Vihara* (improper diet and lifestyle), leading to *Srotorodha* (blockage of metabolic pathways) and excessive *Meda Dhatu* (fat accumulation) in the liver. A clinical case study demonstrated the efficacy of *Ayurvedic* interventions in a 59-year-old male patient with NAFLD, treated with a combination of dietary modifications, lifestyle corrections, and *Ayurvedic* medicines. By restoring *Agni* (digestive fire), detoxifying the liver, and regulating *Meda Dhatu*, *Ayurveda* offers a preventive and curative approach to NAFLD. Early diagnosis, proper medicinal support, and a disciplined lifestyle are essential in preventing the progression to fibrosis, cirrhosis, and hepatocellular carcinoma, making *Ayurveda* a valuable system for NAFLD management.

Keywords: *Agnimandya*, *Ama*, *Ayurveda*, *Medoroga*, NAFLD, *Yakrit Roga*.

Introduction

Non-Alcoholic Fatty Liver Disease (NAFLD) is a common liver condition characterized by excessive fat accumulation in the liver of individuals who consume little to no alcohol. It is a major global health concern, often associated with metabolic disorders such as obesity, type 2 diabetes, and dyslipidemia. NAFLD encompasses a spectrum of liver conditions ranging from simple fatty liver (steatosis), which is generally benign, to Non-Alcoholic Steatohepatitis (NASH), a more severe form that involves liver inflammation and can lead to fibrosis, cirrhosis, and even liver cancer. The primary risk factors for NAFLD include obesity, insulin resistance, high blood sugar, and abnormal cholesterol levels. It is often considered the hepatic manifestation of metabolic syndrome. Many individuals with NAFLD remain asymptomatic, making early detection difficult. Diagnosis is typically based on imaging studies, liver function tests, and sometimes liver biopsy. Management of NAFLD primarily involves lifestyle modifications such as weight loss, dietary changes, and increased physical activity. Currently, there are no specific medications approved for NAFLD, though ongoing research is exploring potential treatments. With the rising prevalence of obesity and metabolic disorders, NAFLD has become a

leading cause of chronic liver disease worldwide, emphasizing the need for increased awareness, early detection, and effective management strategies [3].

Modern research on NAFLD (Non-alcoholic fatty liver disease) is heavily focused on understanding its complex multi-systemic nature, exploring the role of genetics and gut microbiota in its development, identifying new biomarkers for disease progression, and investigating potential therapeutic options beyond lifestyle modifications, with a particular emphasis on the link between NAFLD and cardiovascular disease (CVD) as well as the emerging concept of "metabolic dysfunction-associated steatotic liver disease (MASLD)" as a more accurate descriptor of the condition [1]. Research is investigating how alterations in gut bacteria composition can contribute to NAFLD pathogenesis, potentially influencing inflammation and lipid metabolism in the liver [2]. Studies are increasingly highlighting the strong link between NAFLD and increased risk of cardiovascular events, investigating mechanisms like endothelial dysfunction and inflammation that contribute to this connection [4]. While lifestyle changes like weight loss, diet modification, and physical activity remain the cornerstone of NAFLD management, studies are refining dietary strategies to optimize liver health [5].

In *Ayurveda*, Non-Alcoholic Fatty Liver Disease (NAFLD) can be correlated with *Yakrit Roga* (Liver Disorders) and is often linked to *Medoroga* (Disorders of Fat Metabolism) and *Ama* (Toxic Buildup). The liver, known as *Yakrit*, plays a vital role in digestion, metabolism, and detoxification, aligning with the *Ayurvedic* principles of *Agni* (Digestive Fire) and *Pitta Dosha*. Causes (*Nidana*) of NAFLD in *Ayurveda*:

- **Dietary Factors (*Apathya Ahara*):** Consuming heavy, oily, and sweet foods can lead to *Kapha* accumulation and impaired digestion, resulting in fat buildup in the liver.
- **Lifestyle Factors (*Apathya Vihara*):** A sedentary lifestyle, overeating, and stress contribute to metabolic imbalances and fat accumulation.
- **Weak Digestive Fire (*Mandagni*):** Impaired *Agni* leads to the formation of *Ama* (toxins), which accumulate in the liver, disrupting its function ^[6]

Ayurvedic management of NAFLD include *Shodhana* (detoxification), *Pathya Ahara* (Dietary Recommendations), *Pathya Vihara* (Lifestyle Modifications). *Ayurveda* provides natural medicines that can effectively manage and potentially reverse non-alcoholic fatty liver disease (NAFLD). Medicinal plants, in particular, play a significant role in treating NAFLD. One notable herb is Milk Thistle (*Silybum marianum*), used for centuries in *Ayurveda* to protect and treat liver problems. Another beneficial *ayurvedic* herb is *Bhumyamalaki* (*Phyllanthus niruri*), known for its

hepatoprotective effects. Studies indicate that combining *Bhumyamalaki* with turmeric (*Curcuma longa*) can enhance its effectiveness in treating liver disorders. Turmeric possesses anti-inflammatory and antioxidant properties, addressing two crucial factors in the development of NAFLD—liver inflammation and oxidative stress. Furthermore, Andrographolide, a compound found in the herb *Andrographis paniculata*, has demonstrated hepatoprotective properties and may contribute to improved liver function. Other herbs like dandelion root, liquorice, and *kutki* also offer hepatoprotective effects and can be combined with other herbs to treat NAFLD ^[7].

Case Report
A 59 year old male patient with history of mild hepatomegaly with grade II fatty liver disease visited Jeena Sikho Lifecare Limited Hospital, Ambala, Haryana, India on 18th of May, 2024. Table 1 shows the detailed analysis and diagnosis of the patient. Table 2 shows the initial vitals and *Ashtasthana pareeksha* of the patient taken on the day of first visit. The patient attended a follow-up visit each month for six months. His blood pressure and weight was carefully recorded all these days since these play a vital role in prescribing appropriate medicines and therapy. The investigations are tabulated in table 3. The clinical findings of the patient are mentioned in the table 4.

Table 1: Analysis details and Diagnosis

Analysis & Diagnosis	
Symptoms	Abdominal Pain
	High Cholesterol
	Enlarged lymph nodes
Medical History	Mild Hepatomegaly with Grade II Fatty Liver
	Type II Diabetic Mellitus
Family History	None
Diagnosis	Non-Alcoholic Fatty Liver Disease (NAFLD)

Table 2: Initial Vitals and *Ashtasthana Pareeksha* on first consult

Parameter	Values
Blood Pressure	140/90 mm Hg
Pulse Rate	99/min
Weight	90.50 Kg
Height	6' 10"
Body Mass Index	25.56
<i>Nadi</i>	<i>Vataj pittaj</i>
<i>Mala</i>	<i>Prakrit</i>
<i>Matra</i>	<i>Prakrit</i>
<i>Jiwha</i>	<i>Saam</i>
<i>Shabda</i>	<i>Spashta</i>
<i>Sparsha</i>	<i>Anushnasheet</i>
<i>Akriti</i>	<i>Sthool</i>
<i>Drikka</i>	<i>Prakrit</i>

Table 3: Daily blood pressure and weight records

Date	Blood Pressure (mm Hg)	Weight (Kg)
18-05-2024	140/90 mm Hg	90.50 Kg
17-06-2024	110/70 mm Hg	88.40 Kg

12-07-2024	120/70 mm Hg	88.1 Kg
20-08-2024	100/70 mm Hg	87.80 Kg
20-09-2024	120/65 mm Hg	86 Kg

Table 4: Clinical Findings

Parameters	Remarks
Body Constitution	Vata Kapha Prakriti
	Madhyam Koshtha
	Madhyam Bala
Electrocardiogram	Tachycardia
Jiwha (Tongue)	Saam (Coated)
Auscultation	Cardiovascular System Normal
	Central Nervous System Normal
Palpation	Pain at right hypochondrium
	Enlargement of post-auricular lymph nodes

In keeping all these facts, the patient was advised a combination of *Ayurvedic* treatments which covered a tailored therapeutic diet, lifestyle recommendations and *Shaman*

(*ayurvedic* medication). *Ayurvedic* medications taken during the course of treatment is shown in table 5. Medication schedule for each follow up is mentioned in table 6.

Table 5: Medicines taken throughout the treatment

Medicines	Ingredients	Therapeutic Effects
Prameh Rog Har Powder	Kutaki (Picrorhiza kuroa), Chiraita (Swertia chirata), Nam (Tadaricaria indica), Karela (Momordica charantia), Rasanth (Berberis aristata), bull Beej (Tama Indus indica), Sala Nantak, Giloy (Tinospora cordifolia), South (Zingiber officinale), Babool Chaal (Vachellia nilotica), Sarpagandha (Rauvolfia serpentina), Trivang Bhasam Yashad Bhasam, Revend Chinni (Rheum emodi), Sodhit Guggul (Commiphora mukul), Methi (Trigonella foenum-graecum), Stamm (Sylygium cumini), Babool Fruit (Vachellia nilotica), Karanj (Milletia pinnata), Shilajeet, Haldi (Curcuma longa), Hamel (Terminalia chebula), Inderjamt (Holanhena antidysenterica), Vanshlochan (Bambusa arundinacea), Bahera (Terminalia bellirica), Amla (Phyllanthus emblica), White Musli (Chlorophytum borivilianum), Gunnar (Gymnema sylvestre).	Ingredients like Amla, Jamttn, and Meth/assist in maintaining optimal blood glucose levels, making the formulation beneficial for diabetic patients.
Gadood sudharak vati	Kahn (Euphorbia hirta), Vann: (Crataeva nurvala), Gokshur (Tribulus terrestris), Khayarain (Acacia catechu), Shodhit Guggul (Commiphora wightii).	The combination of Gokshur and Varun assists in cleansing the liver, promoting the elimination of toxins, and supporting metabolic processes
YAM Shoth Har Vati	Punarnava (Boerhavia diffusa), Munch (Piper nigrum), Pippali (Piper longum), Vayavidanga (Embelia ribes), Devdaru (Cedars deodara), Kutha Haldi (Picrorhiza kurroa), Chitrak (Plumbago zeylanica), Herod Bahera (Terminalia chebula, Terminalia bellirica), Anda (Embelia officinalis), Danti (Baliospermum montanum), Chavya (Piper chaba), Indra Jon (Taraxacum officinale), Pippin Mool (Piper longum), Motha Kalajira (Nigella sativa), Kayphal (*rim esculenta), Kutaki (Picrorhiza kurroa), Nishoth (Operculina turpethum), South (Zingiber officinale), Kakad Singhi (Cucumis sativus), Sails (Trachyspermum ammi), Mandoor Bhasant	The formulation helps reduce inflammation of the liver, addressing conditions like hepatitis, fatty liver, cirrhosis and other inflammatory liver diseases.
Lis-Balance Capsule	Bh rani Ant& (Phyllanthus niruri), Punarnava (Boerhavia diffusa), and Makoy (Solanum nigrum).	Amla is rich in vitamin C and antioxidants, which help protect the liver from oxidative stress and support its overall function. Punarnava and Macon are known for its diuretic and anti-inflammatory properties, aiding in the detoxification process and promoting liver health
Sama vati	Gokshur (Tribulus terrestris), Kaunch (Mucuna pruriens), Shatawar (Asparagus racemosus), Ashwagandha (Withania somnifera), Vidarikand (Pueraria tuberosa), Beej Band Lal (Sida cordifolia), Akarkara (Anacythis pyrethrum), Talmakhana (Hygrophila atriculata), Musli (Chlorophytum borivilianum), Aawla (Embelia officinalis), South (Zingiber officinale), Jaiphal (Murraya koenigii), Swann Makshik (Chalcophyllum), Shilajeet Shuddh (Asphaltum punjabianum).	The formulation helps to ease digestive discomfort, promoting smoother digestion.
Lipi Capsule	Adult (Terminalia arjuna), Guggul (Commiphora wightii), Resine at (Resin Extract-source-specific), Haridra (Curcuma longa), Bhuntiantla	The combination of these herbs helps in regulating cholesterol levels, thereby

	(Phyllanthus Guduchi (Tinospora cordifolia), Amin (Embllica officinalis), Haritaki (Terminalia chebula), Vibhitaki (Terminalia bellirica), Shunthi (Zingiber officinale), Marich (Piper nigrum), Pippali (Piper longum), Mulethi (Glycyrrhiza glabra), Punarnava (Boerhavia diffusa), Jatanamsi (Nardostachys jatamansi), Lasuna (Allium sativum), Bulb Ext (Bulb Extract — source-specific), Akika Pishti (Agate Calx), Mukta Pishti (Pearl Calx), Abhrak Bhasm (Mica Calx), Shankha Bhasm (Conch Shell Calx).	reducing the risk of atherosclerosis and related cardiovascular diseases.
Liver Tonic	Lal Punantava (Boerhavia diffusa), Soled Punarnava (Boerhavia diffusa), Bala (Sida cordifolia), Atibala (Abutilon indicum), Patna (Cyclea peltata), Giloy (Tinospora cordifolia), Churak (Plumbago zeylanica), Kakoli (Lilium polyphyllum), Vasa (Adhatoda vasica), Nagannotha (Cypripedium rotundus), Ajwain (Trachyspermum ammi), South (Zingiber officinale), Marich (Piper nigrum), Long (Piper longum), Methi (Trigonella foenum-graecum), White teem (Cuminum cyminum), Roheda Chhal (Tecomella undulata), Dalchini (Cinnamomum verum), Tejpatra (Cinnamomum tamala), Badi Elaichi (Amomum subulatum), Chotti Elaichi (Elettaria cardamomum), Jaiphal (Mistricala fragrans), Nagkesar (Mesita fetrea), Kankol (Piper cttbeba), Multhi (Goicyrrhiza glabra), Shekel (Balanites aegyptiaca), Manua (Madhucia longifolia).	Enhances the production of bile, which aids in digestion and fat breakdown. Shields liver cells from damage caused by toxins, alcohol, and infections. Aids in reducing fat accumulation in the liver, which helps prevent fatty liver disease.
Dr. Immune tablet	"Cesar (Crocus sativus), Shuddh Kuchler (Shychnos nrcx-vomica), Ashwagandha Ext. (Withania somnifera), Shatawari Ext. (Asparagus racemosus), Pipali (Piper longum), Tulsi (Ocimum sanctum), Laung (Syzygium aromaticum), Choti Elaichi (Elettaria cardamomum), South (Zingiber officinale), Haldi (Curcuma longa), Loh Bhasm (Forum), Swarn Makshik Bhasm (Chalcopyrite), Mukta Shukti Bhasm (Pinctada margaritifera).	Ingredients like Ashwagandha and Shatawari enhance vitality and energy, supporting an active lifestyle. Herbs such as Elaichi and South improve digestion, contributing to overall comfort and wellness. Tulsi and Pipali help maintain respiratory wellness and clear airways.
Granthihar vati	Kanchanar Guggul, Antalaki (Phyllanthus emblica), Bibhitak (Terminalia bellirica), Haritaki (Terminalia chebula), Shunthi (Zingiber officinale), Marich (Piper nigrum), Pippali (Piper longum), Varuna (Crataeva nurvala), Twak (Cinnamomum zeylanica), Tantalpatra (Cinnamomum tamala)	Effective in treating glandular swellings, cysts, and fibroids, including thyroid nodules and lymphatic congestion.
Divya Shakti Powder	Trikatu (Zingiber officinale, Piper nigrum, Piper longum), Triphala (Embllica officinalis, Terminalia bellirica, Terminalia chebula), Nagarmotha (Cypripedium rotundus), Vay Vidang (Embelia ribes), Chhoti Elaichi (Elettaria cardamomum), Tej Patter (Cinnamomum tamala), Luting (Syzygium aromaticum), Nishoth (Operculina turpethum), Sendha Namak, Dhaniya (Coriandrum sativum), Pipla Mool (Piper longum root), Jeera (Cuminum cyminum), Nagkesar (Mesua ferrea), Amarvati (Achyranthes aspera), Anardana (Punica granatum), Badi Elaichi (Amomum subulatum), Hing (Fenugreek), Kachnar (Bauhinia variegata), Ajmod (Trachyspermum ammi), Sazzikhar, Pushkarntool (Inula racemosa), Mishri (Saccharum officinarum).	Appetite stimulation: digestion enhancement, and detoxification
JS Diab Cap	Karvellak (Momordica charantia), Gudmar (Gymnema sylvestre), Jambh. (Syzygium cumini), Methika (Trigonella foenum-graecum), Nimb (Azadirachta indica), Kahnegh (Andrographis paniculata), Bilva (Aegle marmelos), Guduchi (Tinospora cordifolia), Mamejela (Encostema littorale), Ttrak (Cinnamomum zeylanicum), Yashad Bhasm, Vang Bhasm	Herbal antioxidants help protect pancreatic p-cells from oxidative damage, delaying diabetic complications.
Kanchanar Guggul Tablet	Kanchanar chhal (Bauhinia variegata), Haritaki (Terminalia chebula), Bibhitaki (Terminalia bellirica), Amalaki (Phyllanthus emblica), Shunthi (Zingiber officinale), Markh (Piper nigrum), Pippali (Piper longum), Varun ennu (Crataeva moveida), Ela (Elettaria cardamomum), Dalchini (Cinnamomum verum), Tejpatra (Cinnamomum tamala), and Shuddh Guggul (Commiphora wightii).	Improves digestion and gut health

Table 6: Medication Schedule

Visits	Date	Medicines	Dosage
1 st	18-05-2024	Prameh rog har powder	Half teaspoon BD <i>Adhobhakta with koshna jala</i>
		Gadood Sudharak Vati	1 TAB BD <i>Adhobhakta with koshna jala</i>
		Yakrit Shoth har Vati	1 TAB BD <i>Adhobhakta with koshna jala</i>
		Liv Balance	1 CAP BD <i>Adhobhakta with koshna jala</i>
		Sama Vati	1 TAB BD <i>Adhobhakta with koshna jala</i>
		Lipi Cap	1 CAP BD <i>Adhobhakta with koshna jala</i>
		Liver Tonic	15 ml BD <i>Adhobhakta with Samamatra koshna jala</i>
2 nd	17-06-2024	Prameh rog har powder	Half teaspoon BD <i>Adhobhakta with koshna jala</i>
		Gadood Sudharak Vati	1 TAB BD <i>Adhobhakta with koshna jala</i>
		Yakrit Shoth har Vati	1 TAB BD <i>Adhobhakta with koshna jala</i>

		Liv Balance	1 CAP BD <i>Adhobhakta</i> with <i>koshnajala</i>
		Sama Vati	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Lipi Cap	1 CAP BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Liver Tonic	15 nil BD <i>Adhobhakta</i> with <i>Samamatra koshna jala</i>
3 rd	12-07-2024	Prameh rog har powder	Half teaspoon BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Gadood Sudharak Vati	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Liv Balance	1 CAP BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Sama Vati	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Lipi Cap	1 CAP BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Liver Tonic	15 ml BD <i>Adhobhakta</i> with <i>Samamatra koshna jala</i>
		Dr.Immune	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Granthi Har Vati	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
4 th	20-08-2024	Prameh rog har powder	Half teaspoon BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Gadood Sudharak Vati	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Liv Balance	1 CAP BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Sama Vati	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Lipi Cap	1 CAP BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Dr.Immune	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Liver Tonic	15 ml BD <i>Adhobhakta</i> with <i>Samamatra koshna jala</i>
		JS Diab Cap	1 TAB BD <i>Adhobhakta</i> with <i>koshnajala</i>
5 th	20-09-2024	Prameh rog har powder	Half teaspoon BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Divya Shalcti Powder	Half teaspoon HS <i>Nishikala</i> with <i>koshna jala</i>
		Sama Vati	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Gadood Sudharak Vati	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Dr.Immune	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Lipi Cap	1 CAP BD <i>Adhobhakta</i> with <i>koshna jala</i>
		JS Diab Cap	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Liv Balance	1 CAP BD <i>Adhobhakta</i> with <i>koshna jala</i>
6 th	26-11-2024	Liver Tonic	15 ml BD <i>Adhobhakta</i> with <i>Samamatra koshna jala</i>
		Prameh rog har powder	Half teaspoon BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Sama Vati	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Gadood Sudharak Vati	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Dr.Immune	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Lipi Cap	1 CAP BD <i>Adhobhakta</i> with <i>koshna jala</i>
		JS Diab Cap	1 TAB BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Liv Balance	1 CAP BD <i>Adhobhakta</i> with <i>koshna jala</i>
		Liver Tonic	15 ml BD <i>Adhobhakta</i> with <i>Samamatra koshna jala</i>
		Kancluiar Guggul Tablet	2 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)

Treatment Plan

i). Diet

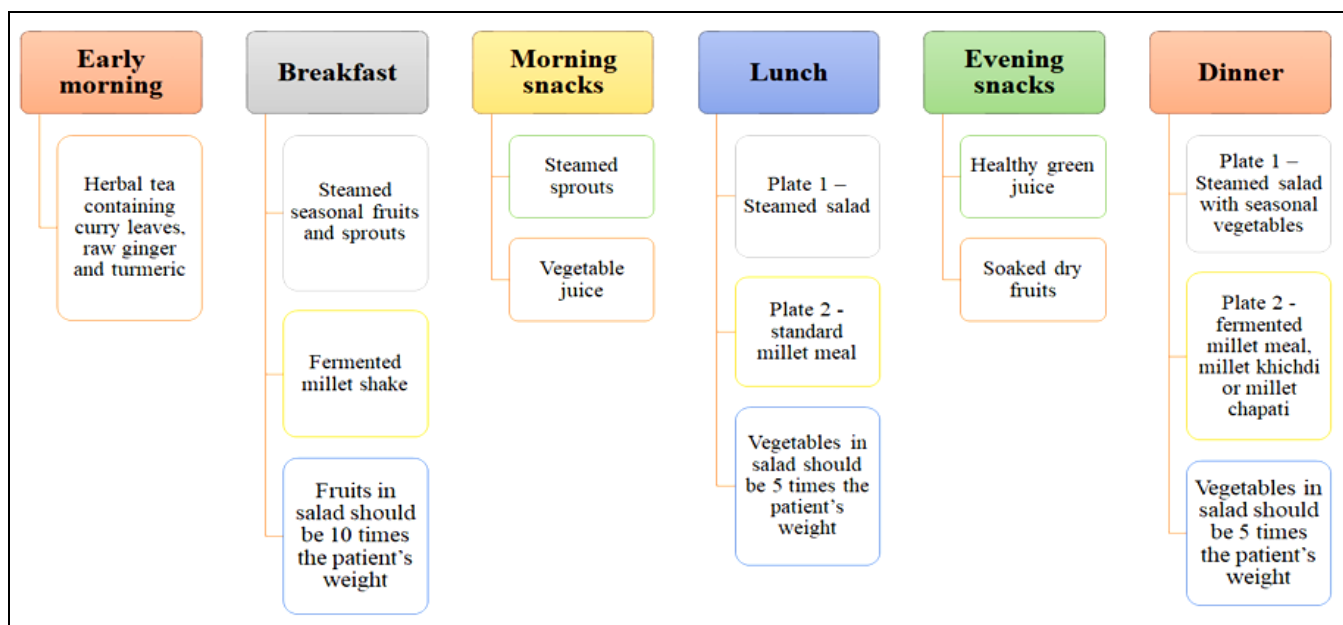
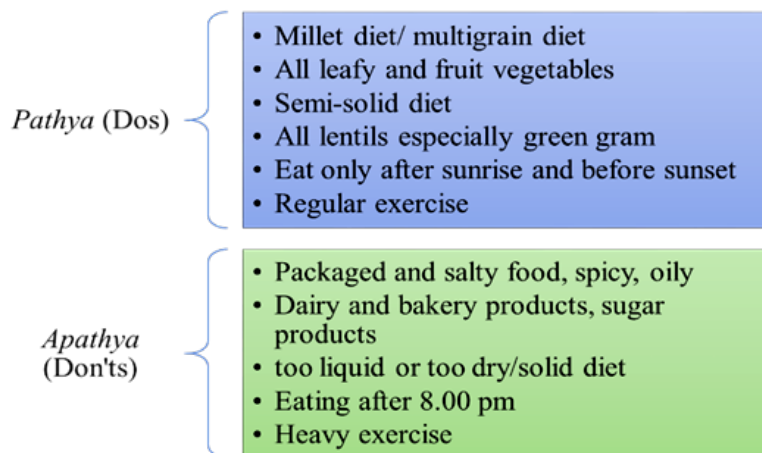
In *Ayurveda*, an ideal diet is a plant-based, easily digestible diet designed to detoxify the liver and improve digestion. For

Non-Alcoholic Fatty Liver Disease (NAFLD), the focus should be on reducing fat accumulation in the liver, improving metabolism, and balancing *Pitta* and *Kapha doshas*.

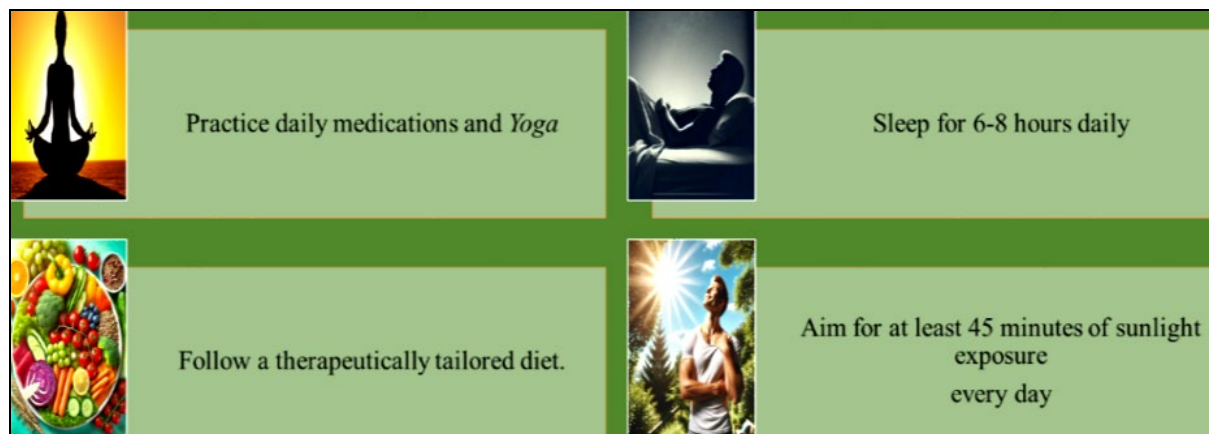
Table 7: Healthy Recommendations

Hydration
To ensure adequate water intake take slow sips at uniform time intervals
Drink 1 litre of alkaline water for 3-4 times a day
At proper intervals drink herbal tea, living water, turmeric water
Drink only boiled water
Millet Ingest
Foxtail (<i>Setaria italica</i>)
Barnyard (<i>Echinochloa esculenta</i>),
Little (<i>Panicum sumatrense</i>),
Kodo (<i>Paspalum scrobiculatum</i>),

Browntop (<i>Urochloa ramosa</i>)
Cook millets in a steel cookware using only mustard oil.
Special Notes
Intermittent fasting a day is recommended
A slow walk after dinner is recommended.
Practice Vajrasana and Sukhasana as this postures can help with digestion



ii). Lifestyle Recommendations



iii). Medicinal Interventions

The medicinal interventions included in this case were *Prameh rog har powder*, *Gadood Sudharak Vati*, *Yakrit*

Shotha har Vati, *Liv Balance*, *Sama Vati*, *Lipi Cap*, *Liver Tonic*, *Dr. Immune*, *Granthihara Vati*, *Divya Shakti Powder* and *JS Diab Cap*.

Result

Throughout the treatment course, the patient exhibited steady clinical progress with marked improvements in both physical and emotional well-being, as reflected in quality of life assessments. Following six outpatient consultations, there was a notable reduction in symptoms, indicating the efficacy of the prescribed Ayurvedic regimen in managing Non-Alcoholic Fatty Liver Disease (NAFLD). The patient experienced relief from symptoms such as abdominal discomfort and elevated cholesterol levels. Symptom severity progressively decreased over the duration of treatment, and follow-up ultrasonography (USG) revealed significant improvement, with hepatomegaly and fatty liver grade reducing from Grade II to Grade I.

Future Aspects

Ayurveda is gaining recognition in managing Non-Alcoholic Fatty Liver Disease (NAFLD) through *ayurvedic* medicine, detoxification (*Panchakarma*), dietary modifications, and lifestyle interventions. Future developments in *Ayurveda* for NAFLD focus on:

- **Integration of *Ayurveda* with Modern Diagnostics:** Combining *Ayurvedic dosha*-based diagnosis with modern imaging techniques like FibroScan & MRI-PDFF for accurate assessment Using biomarkers to validate *Ayurvedic* treatments impact on liver health.^[8]
- **Personalized *Ayurvedic* Diet & Nutrigenomics:** *Ayurveda* will integrate with Nutrigenomics to provide diet plans based on one's *Prakriti* (body constitution) and genetic profile. Growing research supports whole foods, fiber-rich meals, and herbal tea in liver detox. Incorporating *Ayurvedic* herbs into daily foods like herbal tea, *chyawanprash*, and infused ghee for liver protection.^[9]
- ***Panchakarma* & *Ayurvedic* Detox Therapies:** Customized detox therapies for NAFLD patients, including *Virechana* (Therapeutic Purgation), *Basti* (*Ayurvedic* medicinal Enema), *Udwartana* (*Ayurvedic* medicinal Powder Massage), *Nasya* Therapy.^[10]
- ***Yoga*, *Meditation* & *Mind-Body* Healing :** Research supports *yoga* postures like Twisting *Asanas* (*Vakrasana*, *Ardha Matsyendrasana*) to stimulate liver function *Pranayama* (*Kapalbhati*, *Anulom-Vilom*) as a natural detox method.^[11]

Discussion

A 59-year-old male with a known history of Non-Alcoholic Fatty Liver Disease (NAFLD) presented to Jeena Sikho Lifecare Limited Hospital, Ambala, Haryana, India, on May

18, 2024. He underwent a total of six outpatient consultations. The primary complaint was mild abdominal discomfort, and he had a concurrent diagnosis of Type II Diabetes Mellitus for the past eight years. The treatment approach included a personalized Ayurvedic regimen comprising dietary modifications, lifestyle changes, and a comprehensive Shaman based medicinal protocol. The *Samprapti* and *Samprapti Ghatak* are illustrated in Figure 1.

During the course of treatment, the patient was prescribed a comprehensive Ayurvedic formulation comprising Prameh Rog har Powder, JS Diab Cap, Gadood Sudharak Vati, Yakrit Shoth har Vati, Liv Balance, Sama Vati, Lipi Cap, Liver Tonic, Dr. Immune, Granthi har Vati, and Divya Shakti Powder.

- Prameh Rog har Powder and JS Diab Cap were utilized to help regulate blood glucose levels, making them particularly effective for managing Type II Diabetes Mellitus.
- Gadood Sudharak Vati was aimed at balancing *Pitta* and *Kapha doshas*, supporting liver health, and aiding in conditions such as jaundice, hepatitis, and detoxification.
- *Yakrit Shoth har Vati* helped reduce hepatic inflammation, enhance bile secretion, and improve digestion, with applications in fatty liver, hepatitis, and cirrhosis.
- Liv Balance functioned as a liver detoxifier and metabolism enhancer, promoting bile flow and liver repair, while Liver Tonic supported liver enzyme function and protected against liver damage due to alcohol or medications.
- *Sama Vati* targeted *Ama* (toxins), impaired digestive fire (*Agnimandya*), and metabolic imbalances, proving useful in liver dysfunction and indigestion-related issues.
- Lipi Cap was prescribed for lipid regulation, aiding in the management of high cholesterol, NAFLD, and obesity by supporting healthy lipid metabolism and reducing fat accumulation.
- Dr. Immune worked as an immunity booster, enhancing *Ojas* and strengthening the body's natural defense mechanisms.
- *Granthi har Vati* was indicated for managing cysts, glandular swellings, and fibroid conditions.
- *Divya Shakti* Powder served to balance all three *doshas*—*Vata*, *Pitta*, and *Kapha*—thereby improving energy, strength, and overall vitality.

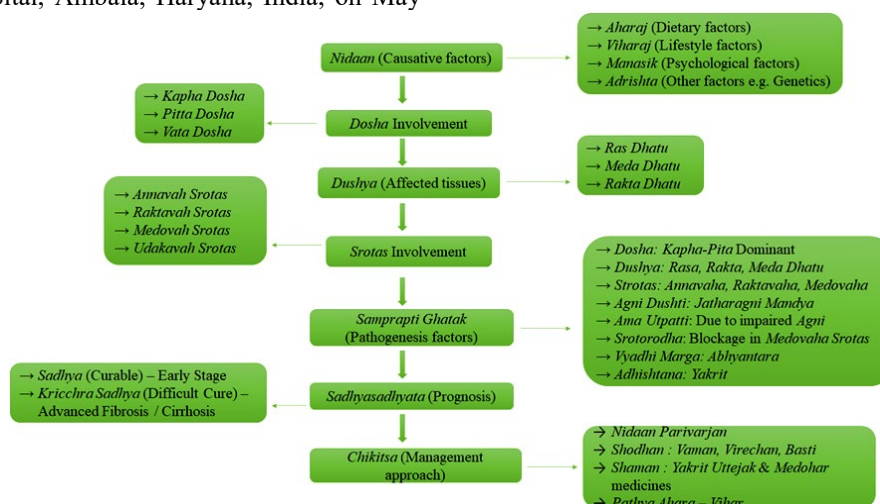



Fig 1: *Samprapti* and *Samprapti Ghatak* of this case

Lab Reports

ROTARY AMBALA CANCER AND GENERAL HOSPITAL (RACGH)		Dr. KARTIK MITTAL MBBS, MD, PDCC(RADIO- DIAGNOSIS) CONSULTANT DIAGNOSTIC AND VASCULAR INTERVENTIONAL RADIOLOGIST
DOPPLER → CT SCAN → MRI SCAN → X-RAY → IVP → HSG → BARIUM STUDY → MAMMOGRAPHY VASCULAR INTERVENTION SURGERY → VASCULAR OPD/DAY CARE		
REF. BY: OTHER		AGE/SEX: 59/MALE
		DATE: 16/05/2024
<u>ULTRA-SONOGRAPHY OF THE ABDOMEN AND PELVIS</u>		
<p>The liver is Enlarged in size (16.3cm) and has smooth margins with raised echotexture. No focal/diffuse parenchymal hepatic lesion is seen. There is no intrahepatic biliary dilatation. Portal vein is normal in course and caliber.</p>		
<p>The gallbladder is well distended. There is no biliary calculi, mass lesion or wall thickening. No e/o cholecystitis or pericholecystic collection is seen. The CBD is not dilated.</p>		
<p>The pancreas has normal contours and echotexture. No focal or diffuse lesion is seen in the pancreas. Pancreatic duct is normal in course and caliber. IVC and aorta are normal.</p>		
<p>The spleen is not enlarged and no focal splenic lesion is observed.</p>		
<p>The right kidney measures 10.4 x 4.2cm and The left kidney measures 11 x 4.7cm. Both kidneys are normal in size, shape, and have smooth margins. Cortical echotexture is normal. Corticomedullary differentiation (CMD) is well maintained. There is no ascites or adenopathy.</p>		
<p>The urinary bladder is well distended and has normal contours. There is no bladder wall thickening or calculus disease seen.</p>		
<p>Prostate measures 36 cc and is enlarged in size.</p>		
<p><u>CONCLUSION: MILD HEPATOMEGALY WITH GRADE II FATTY LIVER.</u></p>		
<p><u>MILD PROSTATOMEGALY.</u></p>		
DR KARTIK MITTAL -MD RADIO-DIAGNOSIS (KEM HOSPITAL MUMBAI) FELLOW INTERVENTIONAL RADIOLOGY (INSTITUTE OF LIVER AND BILIARY SCIENCES, NEW DELHI) -EXCONSULTANT INTERVENTIONAL RADIOLOGY (ARTEMIS AND MEDANTA HOSPITAL, GURGAON)		DR JASMINE KAUR -MD DNB RADIO-DIAGNOSIS -FELLOW ONCO IMAGING -EX ASST PROFESSOR (GOVT MEDICAL COLLEGE, BIKANER)

This is only an opinion and not the final diagnosis. Clinical correlation is must. This report is not valid for

	ROTARY AMBALA CANCER AND GENERAL HOSPITAL (RACGH)	DR. KARTIK MITTAL MBBS, MD, PDCC(RADIO- DIAGNOSIS) CONSULTANT DIAGNOSTIC AND VASCULAR INTERVENTIONAL RADIOLOGIST
		→ULTRASOUND →DOPPLER →CT SCAN →MRI SCAN →X-RAY→ IVP →HSG→BARIUM STUDY →MAMMOGRAPHY →VASCULAR INTERVENTION SURGERY →FNAC→BIOPSY →VARICOSE VEIN ABLATION→VASCULAR OPD/DAY CARE
REF. BY: OTHER		AGE/SEX: 59/MALE DATE: 18/08/2024
<p align="center"><u>ULTRA-SONOGRAPHY OF THE ABDOMEN AND PELVIS</u></p>		
<p>The liver is normal in size (13.3cm) shape and has smooth margins with raised echotexture. No focal/diffuse parenchymal hepatic lesion is seen. There is no intrahepatic biliary dilatation. Portal vein is normal in course and caliber.</p>		
<p>The gallbladder is well distended. There is no biliary calculi, mass lesion or wall thickening. No e/o cholecystitis or pericholecystic collection is seen. The CBD is not dilated.</p>		
<p>The pancreas has normal contours and echotexture. No focal or diffuse lesion is seen in the pancreas. Pancreatic duct is normal in course and caliber. IVC and aorta are normal.</p>		
<p>The spleen is not enlarged and no focal splenic lesion is observed.</p>		
<p>The right kidney measures 10.2 x 4.4cm The left kidney measures 11 x 4.9cm. Both kidneys are normal in size, shape, and have smooth margins. Cortical echotexture is normal. Corticomedullary differentiation (CMD) is well maintained. There is no ascites or adenopathy.</p>		
<p>The urinary bladder is well distended and has normal contours. There is no bladder wall thickening or calculus disease seen.</p>		
<p>Prostate measures 35cc and is enlarged in size.</p>		
<p><u>CONCLUSION: GRADE I FATTY LIVER.</u></p>		
<p><u>MILD PROSTATOMEGALY WITH INSIGNIFICANT POST VOID RESIDUAL URINE.</u></p>		
DR KARTIK MITTAL MD RADIO-DIAGNOSIS (KEM HOSPITAL MUMBAI) FELLOW INTERVENTIONAL RADIOLOGY (INSTITUTE OF LIVER AND BILIARY SCIENCES, NEW DELHI) EXCONSULTANT INTERVENTIONAL RADIOLOGY (ARTEMIS AND MEDANTA HOSPITAL, GURGAON)		DR JASMINE KAUR MD DNB RADIODIAGNOSIS FELLOW ONCO IMAGING EX ASST PROFESSOR (GOVT MEDICAL COLLEGE, BIKANER)
<p>This is only an opinion and not the final diagnosis. Clinical correlation is required.</p>		

Conclusion

Non-Alcoholic Fatty Liver Disease (NAFLD) is understood in Ayurveda as a *Kapha-Pitta* predominant *Medovaha Srotodushti* condition, characterized by *Yakrit Dushti* (liver dysfunction), *Agnimandya* (diminished digestive fire), and

Ama Utpatti (toxin accumulation). The pathology often stems from improper dietary habits (consumption of heavy, oily, and sweet foods), sedentary lifestyle, and mental stress, leading to *Strotorodha* (obstruction of bodily channels) and excess *Meda Dhatu* (fat tissue) accumulation in the liver.

Ayurvedic management of NAFLD, especially when diagnosed early, involves a holistic and multi-faceted approach, which includes:

- *Nidan Parivarthan* (eliminating causative factors)
- *Agni Deepan* and *Ama Pachan* (stimulating digestion and removing toxins)
- *Shodhan Chikitsa* (purificatory therapies like *Vamam*, *Virechan*, and *Basti* for doshic balance)
- *Shaman Chikitsa* (use of hepatoprotective and fat-regulating herbs such as *Kutki*, *Bhumyamalaki*, *Guduchi*, and *Triphala*)
- *Pathya Ahar* and *Vihar* (a therapeutic diet and lifestyle including physical activity, yoga, and stress reduction)

By enhancing digestive strength, detoxifying the liver, and optimizing lipid metabolism, Ayurveda offers both preventive and therapeutic strategies to manage NAFLD and halt its progression to more severe conditions like fibrosis or cirrhosis. Sustainable outcomes require adherence to a disciplined lifestyle, appropriate herbal formulations, and periodic detoxification.

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