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An Ayurvedic approach for Non-alcoholic fatty liver associated with Type 2 Diabetes Mellitus: A Case report

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ABSTRACT

Background: The term Non-alcoholic fatty liver (NAFLD) refers to the accumulation of excessive fat inside the liver cells when excessive alcohol use is not present. The presence of both NAFLD and T2DM increases the likelihood of the development of complications of diabetes (including both macro- and micro-vascular complications) as well as augmenting the risk of more severe NAFLD, including cirrhosis, hepatocellular carcinoma and death. Liver illness is also described quite well in Ayurveda. NAFLD may be seen as a *Santarpanotha Vikar* (illness) brought on by *Pittasthan*, *Raktavahasrotomoola*, *Kaphmedodusti* and *Sthanasamsraya* in *Yakrut* (liver). **Aim:** To evaluate the efficacy of Ayurvedic intervention in NAFLD associate with T2DM. **Method and material:** In this case report, effect of Ayurveda intervention in grade III fatty liver is reported. Fifty -eight -year-old obese male with grade III fatty liver presented with fatigue, heaviness in abdomen, belching and incomplete bowel evacuation. On examination, there was no significant clinical abnormality except a high body mass index and haematological parameters. The patient was diagnosed sonologically with a grade III fatty liver. **Observation and Conclusion:** The patient was given Ayurveda treatment for two months. The patient was assessed for improvement in signs and symptoms, haematological parameters, and quality of life. Present case highlights the potential of Ayurveda interventions in managing non-alcoholic fatty liver disease with T2DM.

Key words: Ayurveda, Non-alcoholic Fatty liver (NAFLD), T2DM, Santarpanotha Vikar.

INTRODUCTION

Non-alcoholic fatty liver disease (NAFLD) consists of steatosis and non-alcoholic steatohepatitis (NASH). Steatosis is the accumulation of fat in the liver, and steatohepatitis is a condition with inflammation.^[1,2] Estimates from our own studies and others have suggested that there is a significant burden of advanced fibrosis in asymptomatic individuals with

type 2 diabetes ranging from 5% to 7%.^[3,4] There is therefore no doubt that these two common conditions co-exist and that there is significant amount of unrecognised advanced NAFLD within asymptomatic diabetic patients. Obesity and physical inactivity are interlinked risk factors for the development of diabetes and both are clearly implicated in an individual's risk of developing NAFLD. There is therefore no doubt that these two common conditions co-exist and that there is significant amount of unrecognised advanced NAFLD within asymptomatic diabetic patients. Liver is comparable to *Yakrut*, which is a significant *Koshtanga* that is referenced in Ayurvedic texts. It is *Raktavahasrotas's Moolasthan* (root).^[5] taking *Sthansanshrya* in *Yakrut* with *Kaphpradhana Tridosha Dushti*. NAFLD can be viewed as *Santarpanjanya Vyadhi*.^[6] The ancient text of *Yogratnakara* described that *Vidahi* (spicy food) and *Abhisyadi Ahara* (food that blocks the channels) lead to *Rakta-Kapha Dushti* giving rise to *Yakritodara* (enlargement of the liver).

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This case report highlights the treatment effects of *Ayurveda* interventions in a patient with grade III NAFLD.

CASE REPORT

A 58-year-old man from an urban region who has been diagnosed with type 2 diabetes mellitus since five years, is married, non-alcoholic, and obese (BMI = 31.9), came to national institute of Ayurveda hospital, Jaipur for the treatment. Patient has no history of HTN and thyroid dysfunction and any CVD. The patient appeared ill and exhausted, standing 5.6" tall and weighed 90 kg. The patient's primary complaints were of abdominal distension, bodyache, anorexia and incomplete bowel evacuation. The patient has experienced these symptoms for the last six months.

Clinical finding

The patient had *Madhyam Koshti*, *Mandagni* and *Madhyam Bala*, *Vata Kapha Prakruti*. Both the heart rate and blood pressure were within acceptable bounds. The patient body mass index 31.9 and was obese, weighing 90 kg. There was no abnormality observed in the cardiovascular or respiratory system and gastrointestinal examination.

General and Vitals examination

General condition : Ill looking

Diet : Vegetarian

Appetite : Poor

Bowel : Incomplete evacuation

Bladder : Normal

Sleep : Sound

Addiction : Not any

Pulse : 80/min., regular

BP : 130/80mm Hg

Weight : 90 kg

Height : 168cm

Temperature : 98.6°F

Past illness : T2DM since 5 years

Family history: Not any

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). 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).

Table 1: USG Grading

SN	Grade	Features
1.	No fatty liver	---
2.	Grade I	Slightly 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.
3.	Grade II	Moderate diffuse increase in fine echoes. Slightly impaired in visualization of the intrahepatic vessels and diaphragm
4.	Grade III	Marked increase in the fine echoes. Poor or no visualization of intra hepatic vessels border, diaphragm and the vessels.

Diagnosis

The patient was referred to a sonologist for ultrasonography of the whole abdomen, and the patient was found to be having grade III fatty liver (Figure A.). The patient was thus diagnosed with grade III NAFLD with mild hepatomegaly. The *Ayurvedic* diagnosis was *Santarpanotha Vikar* with *Madhumeha*.



Intervention

The patient was given Ayurvedic medication for 60 days. All the interventions are presented in Table 3.

Table 3: Interventions

Treatment regimen	Duration	Drug	Dose and frequency	Route of administration	Anupana
One	Days 1 - 30	Arogyavardhini Vati	500mg twice a day	Oral, after meal	Luke warm water
		Triphala Guggulu	750mg twice a day	Oral, before meal	Luke warm water
		Patokaturohinyadi Kashayam	40ml twice a day	Oral, before meal	Luke warm water

Two	Days 31- 60	Arogyavardhini Vati	500mg twice a day	Oral, after meal	Luke warm water
		Triphala Guggulu	750mg twice a day	Oral, before meal	Luke warm water
		Patokaturohinyadi Kashayam	40ml twice a day	Oral, before meal	Luke warm water
		Triphala Churna + Kutaki Churna	4gm + 1 gm	Oral, at bed time	Luke warm water

Diet

No specific diet or exercise schedule was given to the patient during the treatment period of two months.

Timeline of treatment

The patient had treatment for two months. The time of assessment in each 15 days.

OBSERVATIONS AND RESULTS

Table 4: Showing difference in different parameters before and after treatment.

SN	Parameters	Before treatment	After treatment	Follow-up (after one month)
1.	USG	Grade III fatty liver	Grade II fatty liver	Grade II fatty liver
2.	Fibroscan			
A.	Stiffness (%)	14.1	8.6	4.1
B.	UAP (Db/m)	341	286	264
	Biochemical			
3.	SGOT (AST)(U/L)	49.68	25.7	21.67

4.	SGPT (ALT)(U/L)	87.38	31.97	22.37
5.	S. triglycerides (mg/dl)	227.12	199	190
6.	S. HDL(mg/dl)	33.89	31.2	30
7.	S. LDL (mg/dl)	163.8	150.8	146.7
8.	FBS (mg/dl)	162.73	103.9	95
9.	HBA ₁ C (%)	6.1	5.9	5.6
Sign and symptoms				
10.	Weight (kg)	90	85	83
11.	BMI kg/m ²	31.9	30.1	29.32
12.	Anorexia	Moderate	Normal	Normal
13.	Abdominal symptoms	Severe	Normal	Normal

Patient perspective

The patient was satisfied with the treatment given and the improvement in his digestion, appetite, bowel evacuation, lethargic condition, and weight reduction. After two months of the treatment, the patient was feeling energetic, and actively doing his daily activities.

DISCUSSION

The prevalence of NALFD and type 2 diabetes is increasing, and obese patients with type 2 diabetes and elevated LFTs are regularly referred to outpatient clinics. This case illustrates the necessity for both diabetologists and hepatologist to be aware, and together take part in the diagnosis and treatment of NAFLD. In this study, we have treated a non-alcoholic, obese patient who had grade III fatty liver with T2DM. According to *Ayurveda*, *Santarpana* (overeating and sedentary lifestyle) is responsible for the vitiation of *Kapha* and *Meda*, which are the main *Dosha* and

Dushya involved in the pathogenesis of *Sthaulya* (obesity).^[7] our practice shows that persons with vitiated *Kapha* and *Meda* (fat) are prone to develop fatty liver and altered lipid profiles. A similar clinical picture was observed in the present case. *Agni Deepana* (enhancing the digestive fire), *Ama Pachana* (eliminating the toxins from the body), and *Virechana* (laxative) were the main principles applied in this case.

Arogyavardhi Vati^[8]: *Arogyavardhini vati* consists of many ingredients among which *Haritaki* (*Terminalia chebula*), the chief is an astringent and laxative is effective in relieving liver disorders and very effective in fatty liver and cirrhosis of liver. *Bibhitaki* (*Terminalia bellerica*) is a laxative, anthelmintic and effective in digestive disorders. *Amalaki* (*Emblica officinalis*) being an astringent, antibacterial, carminative, hypoglycaemic, stomachic, hypotensive is effective because of its anti-hepatotoxic, anti-oxidative, and immuno-modulatory properties. Along with the herbal ingredients *Guggulu* (*Commiphora mukul*) is an oleo-gum-resin helps in reducing cholesterol by converting it into bile. This is also effective in removing the unwanted fats and balancing the cholesterol levels. The formulation also consists of *Chitraka* (*Plumbago zeylancia*) that is effective in relieving loss of appetite, indigestion, piles, liver diseases, worms, colitis and various. Including *Picrorrhiza kurroa* to the formulation makes it effective in liver disorders. *Picrorrhiza kurroa* (*Pitta Rechank/ Bhedana* property) effective in hepatitis B infection and promising effect on bilirubin, SGOT, SGPT, preventing liver toxicity and improves hepatic glycogen preservation.

Triphala Guggulu^[9]: *Triphala Guggulu* is a mixture of: i) *Triphala* (*Haritaki* - *Terminalia chebula*; *Vibhitaki* - *Terminalia bellerica* and *Amalaki* - *Emblica officinalis*) ii) *Pippali* (*Piper longum*) and iii) *Guggulu* (*Commiphora mukul*). *Triphala* has *Deepaniya* action of improving metabolic fire, *Slesma- Pittaghani*, *Meha* - *Shothagni* (improving urinary disorders and swelling), *Rasayani* (improving rejuvenating power). *Pippali* is *Medah-Kaphakanashak* (reducing body fat) and so the drugs which possess *Lekhaniya* and *Medohara Karma* (fat reducing action) would be beneficial in NAFLD patients because they decrease the body fat and thus not only

improve lipid profile and BMI but also may be helpful in improving the liver function.

Patokaturohinyadi Kashayam: *Patola Katurohinyadi Kashayam*^[10] is a classical Ayurvedic herbal formulation explained in *Ashtanga Hridaya* and which has been used by Ayurvedic practitioners in the management of *Pitta Vikaras* and liver disorders. It contains 6 ingredients those are *Patola (Trichosanthes dioica Roxb)*, *Katurohini (Picrorhiza kurroa Royle Ex Bonth)*, *Raktachandan (Pterocarpus santalinus L)*, *Murva (Marsdenia tenacissima Roxb)*, *Guduchi (Tinospora Cordifolia)* and *Patha (Cissampelos pareira var. hirsuta)*. The main properties of all these herbal medicines are *Pittagna*, *Kamalahar*, *Vishagna*, and *Raktaprasadhak*.^[11] *Patola (Trichosanthes dioica)* is proved for its hepatoprotective and lipid lower property. Hepatoprotective activity of the *Patola* was assessed based on the reduction in ALT, AST, and ALP towards normal values by the administration of the extract (ETD) which indicates the repairment of hepatocytes.^[12] Mechanism of the lipidemic lowering activity of TD could be the inhibition of lipid absorption due to the presence of saponins and tannins in the aqueous extract.^[13]

CONCLUSION

On the basis of the results, we can conclude that *Ayurvedic* interventions used in the present case have shown a significant effect on weight reduction and management of non-alcoholic fatty liver. The results observed in this case are encouraging, and further well-designed clinical trials may be carried out to test the efficacy of these interventions in similar conditions.

Declaration of patient consent

Informed consent for the publication of the data was taken from the patient.

REFERENCES

1. Huang D.Q., El-Serag H.B., Loomba R. Global epidemiology of NAFLD-related HCC: trends, predictions, risk factors and prevention. *Nat Rev Gastroenterol Hepatol*. 2021;18(4):223–238. doi: 10.1038/s41575-020-00381-6.

- Sanchez P.P., Bril F., Maximos M., Lomonaco R., Biernacki D., Orsak B. High prevalence of nonalcoholic fatty liver disease in patients with type 2 diabetes mellitus and normal plasma aminotransferase levels. *J Clin Endocrinol Metab*. 2015;jc20151966.
- Armstrong M.J., Hazlehurst J.M., Parker R., Koushiappi E., Mann J., Khan S. Severe asymptomatic non-alcoholic fatty liver disease in routine diabetes care; a multi-disciplinary team approach to diagnosis and management. *QJM*. 2014;107:33–41.
- Williamson R.M., Price J.F., Hayes P.C., Glancy S., Frier B.M., Johnston G.I. Prevalence and markers of advanced liver disease in type 2 diabetes. *QJM*. 2012;105:425–432.
- https://www.researchgate.net/deref/https%3A%2F%2Fpubmed.ncbi.nlm.nih.gov%2F21497741%2F?_tp=eyJjb250ZXh0Ijp7ImZpcnNOUGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InB1YmxpY2F0aW9uIn19
- https://www.researchgate.net/publication/380131982_The_role_of_Ayurvedic_management_in_non-alcoholic_fatty_liver_disease_NAFLD_a_case_study
- Singhal P., Nesari T., Gupta G.S. Efficacy of herbomineral compounds and pathya (Ayurvedic dietary regime and physical exercise) in the management of Yakṛt Roga (Non-alcoholic fatty liver disease) *Anc Sci Life*. 2015;34(4):216–222. doi: 10.4103/0257-7941.160866.
- Santosh Pal, A Ramamurthy, Bidhan Mahajan. Arogyavardhini Vati: A theoretical analysis. *Journal of Scientific and Innovative Research* 2016; 5(6): 225-227.
- https://www.wjpmr.com/home/article_abstract/2436
- Mitra, S., De, A., & Chowdhury, A. (2019). Epidemiology of non-alcoholic and alcoholic fatty liver diseases. *Translational Gastroenterology And Hepatology*, 5. Retrieved from <https://tgh.amegroups.com/article/view/5499>
- Chalasan N, Younossi Z, Lavine JE, et al.; American Gastroenterological Association; American Association for the Study of Liver Diseases; American College of Gastroenterology. The diagnosis and management of non-alcoholic fatty liver disease: practice guideline by the American Gastroenterological Association, American Association for the Study of Liver Diseases, and American College of Gastroenterology.

Gastroenterology 2012; 142: 1592–1609pmid: 22656328

12. Fernando Brill and Kenneth Cusi Management of Nonalcoholic Fatty Liver Disease in Patients with Type 2 Diabetes: A Call to Action. Diabetes Care 2017 Mar; 40(3): 419-430. <https://doi.org/10.2337/dc16-1787>
13. Mehta S. R. (2010). Advances in the treatment of nonalcoholic fatty liver disease. Therapeutic advances in endocrinology and metabolism, 1(3), 101–115. <https://doi.org/10.1177/2042018810379587>.

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