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Ayurvedic Management of CLD (Nash) Associated with Type 2 Diabetes Mellitus: A Case Report

¹Acharya Manish, ^{*2}Dr. Gitika Chaudhary, ³Dr. Richa, ⁴Dr. Suyash Pratap Singh, ⁵Dr. Manjeet Singh and ⁶Dr. Tanu Rani

¹Director, Meditation Guru, Jeena Sikho Lifecare Limited, India.

^{*2}Senior Consultant, General Surgeon, BAMS, PGDIP, PGDGS, MS (Ay.), Jeena Sikho Lifecare Limited, India.

³Senior Research Officer, BAMS, PGDIP, CICR, CAIM, CMW, Jeena Sikho Lifecare Limited, India.

⁴Medical Superintendent, BAMS, PGDIP, DNYT, CCMC, Jeena Sikho Lifecare limited Hospital Derabassi, Punjab, India.

⁵Consultant, BAMS, PGDIP, ACLS, CCDN, CICR, CAIM, Jeena Sikho Lifecare Limited Hospital, Derabassi, Punjab, India.

⁶Research Associate, BAMS, Jeena Sikho Lifecare Limited, India.

Abstract

Chronic Liver Disease (CLD) is a progressive condition characterized by long-standing liver inflammation, hepatocellular degeneration, and fibrosis. Non-Alcoholic Steatohepatitis (NASH), a severe form of Non-Alcoholic Fatty Liver Disease (NAFLD), is increasingly prevalent in individuals with Type 2 Diabetes Mellitus (T2DM), posing complex therapeutic challenges. A 57-year-old male diagnosed with CLD and NASH associated with T2DM presented to Jeena Sikho Lifecare Limited Hospital, Derabassi, Punjab, with complaints of weakness, anemia, black stools, facial puffiness, itchy sclera, constipation, disturbed sleep, and mild breathlessness. He was admitted and treated through a comprehensive *Ayurvedic* protocol including *Panchakarma* therapies and *Ayurvedic* formulations. The patient reported marked relief in weakness, anemia, constipation, sleep quality, and respiratory discomfort. Laboratory investigations showed significant biochemical improvement: total bilirubin, conjugated bilirubin and direct bilirubin were dropped. Fibroscan findings also showed clinical progress. This case highlights the promising role of *Ayurvedic* integrative management in improving liver function and systemic symptoms in CLD (NASH) associated with T2DM.

Keywords: Chronic Liver Disease (CLD), Type 2 Diabetes Mellitus (T2DM), Non-Alcoholic Fatty Liver Disease (NAFLD), *Ayurveda*, *Panchakarma*, *Yakrit vikar*.

Introduction

Chronic Liver Disease (CLD) is a long-term condition involving progressive liver function decline over more than six months, driven by ongoing inflammation, tissue destruction, and regeneration. Causes include chronic alcohol use, toxic exposure, viral infections like Hepatitis B (HBV), autoimmune diseases and genetic or metabolic disorders. Alcoholic Liver Disease (ALD) and Non-Alcoholic Fatty Liver Disease (NAFLD), particularly its severe form Nonalcoholic Steatohepatitis (NASH), are key contributors to CLD, potentially progressing to fibrosis, cirrhosis, and end-stage liver disease [1]. Hepatic fibrosis gradually distorts liver structure, and disease progression is influenced by etiology, genetics, and environmental factors [2, 3]. It carries a 20% mortality rate and is mainly transmitted through vertical means, intravenous drug use, and sexual contact. Despite an

effective vaccine, HBV remains prevalent (5–20%) in low-income areas due to limited access [4–10].

Splenomegaly is seen in over 50% of cirrhotic patients and often indicates portal hypertension [11]. There is a significant link between CLD—especially NASH—and Type 2 Diabetes Mellitus (T2DM). A meta-analysis revealed that around 59.67% of T2DM patients also have NAFLD, and 96.1% of diabetic NAFLD patients have NASH, showing a strong bidirectional relationship [12–14]. Global prevalence of NAFLD among diabetics is about 55.5%, varying by region and ethnicity [15].

Management of NASH with T2DM includes lifestyle changes, glycemic control, and addressing dyslipidemia, though no definitive pharmacologic cure exists [16, 17]. *Ayurveda* offers a holistic view, linking NASH to *Kapha dosha* and *Medo dhatu* imbalance due to poor diet and

lifestyle. This leads to toxin (*Ama*) buildup and impaired digestion (*Mandagni*), affecting the liver (*Yakrit*), a vital organ governed by *Pitta dosha* and *Rakta vaha srotas* [18]. The obstruction of these *srotas* leads to inflammation and hepatocellular injury, progressing toward fibrosis and cirrhosis [19]. The *Samprapti Ghataka* [18, 19, 20] of this case is mentioned in Table 1.

Table 1: The *Samprapti Ghataka*

Samprapti Ghataka	Description
<i>Dosha</i>	<i>Kapha</i> and <i>Pitta</i> are primarily vitiated. <i>Vata</i> may be involved in advanced/chronic stages (<i>cirrhosis, fibrosis</i>).
<i>Dushya (Dhatus)</i>	<i>Ras, Rakta, Meda</i> , and <i>Mamsa Dhatus</i> are predominantly affected due to <i>metabolic disturbance</i> and <i>hepatic involvement</i> .
<i>Agni</i>	<i>Mandagni</i> (diminished metabolic fire), especially <i>Jatharagni</i> and <i>Dhatvagni (Meda Dhatvagni)</i> – leads to formation of <i>Ama</i> .
<i>Ama</i>	Present – due to improper <i>digestion</i> and <i>metabolism</i> ; it contributes to <i>Srotorodha</i> and <i>inflammatory changes</i> in the liver.
<i>Srotas</i>	<i>Medovaha Srotas, Raktavaha Srotas, Annavaha Srotas</i> , and <i>Yakrit-specific channels</i> are involved.
<i>Udbhava Sthana</i>	<i>Amashaya</i> – the origin of pathogenesis due to <i>faulty digestion/metabolism</i> .
<i>Sthana Samshraya</i>	<i>Yakrit (Liver)</i> – site of localization of vitiated <i>doshas</i> and <i>Ama</i> , causing tissue inflammation and damage.
<i>Vyaktavastha</i>	Clinical manifestation as <i>Yakrit Vikara (Chronic Liver Disease)</i> , <i>Meda Dushti</i> (lipid disorders), and <i>Prameha (T2DM)</i> .

Management involves both *Shodhana* and *Shamana*. *Virechana* is frequently employed to eliminate accumulated toxins and balance *Pitta*. *Ayurvedic* formulations like *Arogyavardhini Vati* are used to improve liver function and metabolism [20, 21, 22]. These effects are attributed to the antioxidant and multi-target therapeutic potential of *Ayurvedic* herbs, which modulate oxidative stress and metabolic pathways [21, 23]. Integrative approaches combining *Ayurveda* with modern medical care may offer improved outcomes for patients with NASH and T2DM [24, 25]. This study explores the combined impact of *Ayurvedic* interventions and conventional treatments in a 57-year-old CLD patient, particularly NASH associated with T2DM.

Case Report

A 57-year-old male with chronic liver disease (CLD), NASH associated with T2DM visited Jeena Sikho Lifecare Limited Hospital, Derabassi, Punjab, on June 26, 2024. The patient had no significant addiction or family history. He underwent post-endoscopic variceal ligation three times. Later he was admitted on July 13, 2024. He came with the chief complaints like weight loss and mild ascites. He reported anemia, mild back stool, general weakness, mild facial puffiness, mild itchy sclera, disturbed sleep, mild constipation and breathlessness. The *Ashta vidh pariksha* during the treatment period are mentioned in Table 2.

Table 2: The *Ashta vidh pariksha* during the treatment period

Parametr	Findings
<i>Nadi (Pulse)</i>	<i>Vataj Pittaj</i>
<i>Mala (Stool)</i>	<i>Badh, Krishna Avarna</i> (Constipated, Black stool)
<i>Mutra (Urine)</i>	<i>Isht Peet</i> (Mild Yellow)
<i>Jihwa (Tongue)</i>	<i>Saam</i> (Coated)
<i>Shabda (Voice)</i>	<i>Spasht</i> (Clear)
<i>Sparsha (Touch)</i>	<i>Anushmasheet</i> (Normal)
<i>Akriti (Face)</i>	<i>Madhyam</i> (Normal)
<i>Drikk (Eyes)</i>	<i>Prakrit</i> (Normal)

The patient received 10 days of Daycare treatment at Jeena Sikho Lifecare Limited Hospital, following a comprehensive *Ayurvedic* treatment plan. This included *Panchakarma* therapies such as *Shirodhara* with *Brahmni* and *Karpoor oil*, *Udar Basti* with *Punarnava oil*, *Udar Lepam* with *Punarnava* and *Dashmoola*, *Pippalyadi siddha sneha basti*, *Bhumiamla* and *Guduci Kashaya Basti* and *Parishek* with *Dashmoola* and *Erandmool*. The treatment was revised by adding *Punarnava* and *Bhumiamlaki Siddh Sneha Basti* and *Kashaya Basti*. Laboratory investigations during the treatment period including follow ups are mentioned in Table 3. The diabetic chart during the Daycare is mentioned in Table 4. The patient was afterward discharged on July 24, 2024.

Table 3: Laboratory investigations observed during the treatment period

Date	13-07-2024	18-07-2024	30-12-2024	03-03-2025
Haemoglobin	6.7 gm/dL	7.9 gm/dL	7.0 gm/dL	11 gm/dL
Total bilirubin	3.12 mg/dL	2.52 mg/dL	1.37 mg/dL	1.42 mg/dL
Direct bilirubin	0.75 mg/dL	0.86 mg/dL	0.45 mg/dL	0.58 mg/dL
Indirect bilirubin	2.37 mg/dL	1.66 mg/dL	0.92 mg/dL	0.84 mg/dL
SGOT	35.66 IU/L	40.22 IU/L	44 IU/L	34 IU/L
SGPT	23.27 IU/L	20.65 IU/L	20 IU/L	25 IU/L
ALP	140.20 U/L	116.54 U/L	135 U/L	128 U/L
Total protein	7.16 g/dL	7.96 g/dL	7.10 g/dL	8.01 g/dL
Albumin	3.18 g/dL	3.27 g/dL	4.55 g/dL	3.13 g/dL
Globulin	3.98 g/dL	4.69 g/dL	2.55 g/dL	4.88 g/dL
A/G	0.8	0.7	1.78	0.64
Platelet count	0.62 lacs/cumm	0.62 lacs/cumm	90 x 10 ³ /UI	75 x 10 ³ /UI
Total RBC	2.6 mill/cumm	2.93 mill/cumm	2.76 mill/cumm	-

Table 4: The diabetic chart during the Daycare

Date	Sugar
14-07-2024	R-202 mg/dL
16-07-2024	F-117 mg/dL
17-07-2024	F-158 mg/dL
	R-248 mg/dL
	R-216 mg/dL
18-07-2024	F-135 mg/dL
	R-143 mg/dL

An accurately designed DIP Diet was provided to the patient to complement the *Ayurvedic* treatments administered for CLD [26, 27];

Treatment Plan

I. Diet Plan:

Dietary Guidelines from Jeena Sikho Lifecare Limited Hospital:

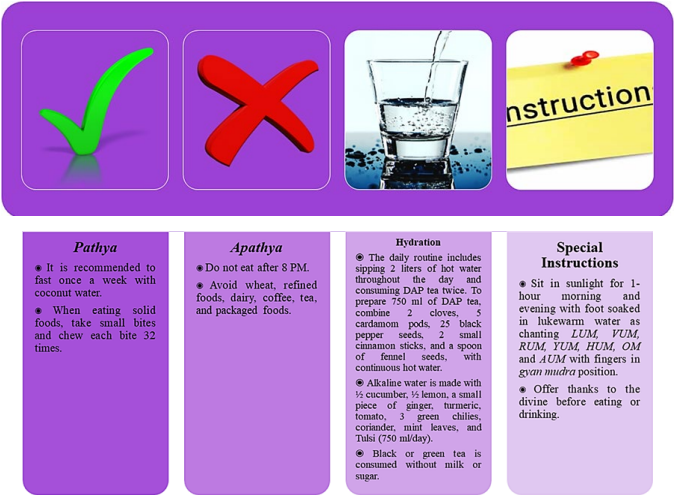


Fig 1: Dietary Guidelines

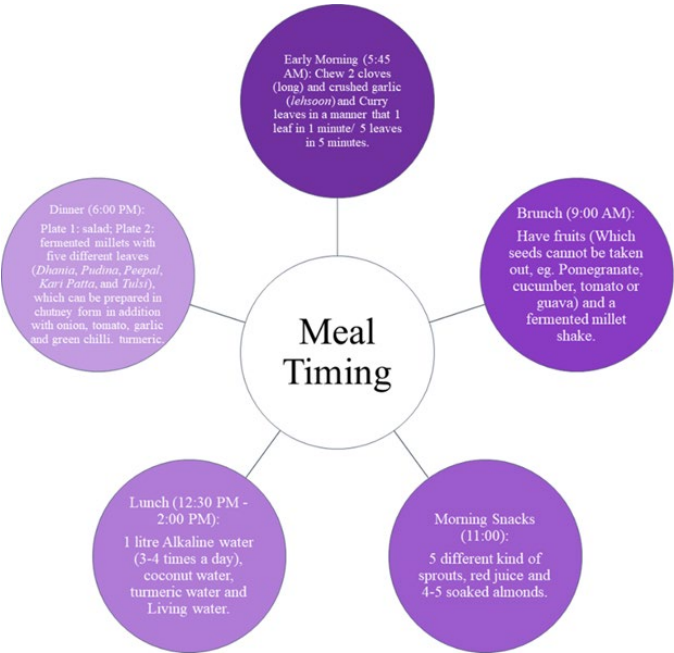


Fig 2: Meal Timing and Structure:

II. Lifestyle Recommendations

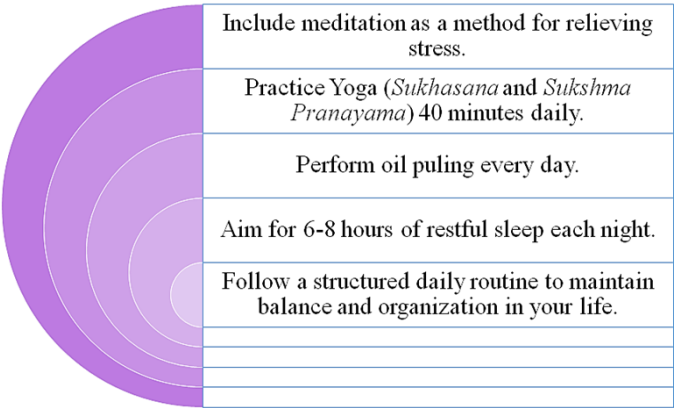


Fig 3:

III. Panchakarma Procedures Administered to Patients

1. Shirodhara with Brahmi and Karpoor Oil

Procedure

- The *Brahmi* and *Karpoor* oil was indirectly warmed to a comfortable temperature (~38–40°C).
- The patient was positioned supine on the massage table.
- A continuous stream of oil was poured gently over the *Ajna Chakra* (forehead), oscillating from temple to temple for about 30–45 minutes.
- They were allowed to rest for 15–30 minutes.

Physiology and Mode of Action

- The warm oil stream over the *Ajna Chakra* stimulates forehead receptors and modulates the HPA axis, reducing cortisol and increasing serotonin and melatonin.
- *Brahmi* acts as a brain tonic with anti-anxiety and memory-boosting effects. *Karpoor* has cooling and calming actions on the trigeminal nerve.
- The warmth induces vasodilation, enhancing blood flow to the scalp and brain.
- *Shirodhara* balances *Vata* and *Pitta doshas*, especially *Prana Vata* and *Sadhaka Pitta*. It calms the mind channels (*Manovaha Srotas*) and stabilizes *Chitta*, enhancing intellect, memory, and emotional clarity by reducing *Rajo* and *Tamo Gunas*. [28, 29].

2. Udar Basti with Punarnava Oil

Procedure

- The person was positioned comfortably, and *Punarnava* oil was warmed and applied to the abdominal region to relax the muscles and prepare the area for treatment.
- A dough barrier was formed around the navel to create a well that held the *Punarnava* oil in place.
- The warmed *Punarnava* oil was poured into the dough reservoir and left for 15–30 minutes.

Physiology and Mode of Action

- *Punarnava* oil is absorbed through the skin in the abdominal region, promoting improved blood circulation and lymphatic drainage.
- The therapy helps regulate digestion, reduces gas, bloating, and indigestion by soothing the digestive tract and calming the *vata dosha*.
- The therapy helps balance *vata dosha*, which governs digestive and eliminatory functions, improving bowel movements and eliminating toxins while calming excess *pitta* and *kapha* in the abdomen [29, 30, 31].

3. Udar lepam with Punarnava and Dashmoola

Procedure

- Equal parts of *Punarnava* and *Dashmoola churna* were mixed with warm water to prepare a smooth, warm paste.
- The patient was made to lie on their back, and the paste was applied evenly over the abdomen, about 0.5 to 1 cm thick.
- It was left on for approximately 30–45 minutes.
- The paste was gently removed using warm water.

Physiology and Mode of Action

- The warm *Ayurvedic* medicated paste allows active compounds to absorb through the skin, reducing inflammation, pain, and fluid retention in the abdominal region.

- *Punarnava* acts as a diuretic and anti-inflammatory, aiding in reducing abdominal bloating.
- *Dashmoola* pacifies *Vata*, relieves pain, and supports detoxification.
- The treatment pacifies *Vata* and *Kapha*, clears *Ama*, and supports the healthy function of digestive (*Annavaha*) and water (*Udakavaha*) channels, improving metabolism and relieving *Udara Roga* symptoms [33, 34].

4. Pippalyadi Siddha Sneha Basti

Procedure

- The patient was positioned in the left lateral posture.
- 90 ml of *Pippalyadi Siddha Sneha* was indirectly warmed to body temperature and filled in a sterile *basti* syringe.
- The catheter was gently inserted 3–4 inches into the rectum.
- The entire 90 ml of medicated oil was slowly administered into the rectum.
- The patient was asked to rest supine and retain the oil for 30–60 minutes.

Physiology and Mode of Action

- The rectal route delivers *sneha* directly to the *Pakvashaya*, the main site of *Vata*, helping pacify *Apana Vata* and balance overall *Vata dosha*, which governs elimination, reproduction, and nerve impulses.
- The warm medicated oil gets absorbed through the rectal mucosa, reaching local pelvic tissues and nerves, reducing inflammation, dryness, and pain in conditions like lower backache, joint pain, and urinary issues.
- *Basti* bypasses first-pass liver metabolism, allowing active compounds to enter systemic circulation efficiently.
- *Pippalyadi taila* is formulated to remove *ama* (toxins), lubricate channels (*srotas*), and enhance *Agni*. [35, 36]

5. BhumiAmala and Guduchi Kashaya Basti

Procedure:

- A lukewarm *Kashaya* (350 ml) of *BhumiAmala* and *Guduchi* was freshly prepared and strained.
- The 350 ml of *kashaya* was administered slowly into the rectum using a *basti* syringe.
- The patient was asked to rest supine and retain the *basti* for 15–30 minutes.

Physiology and Mode of Action

- Acts on *Rakta* and *Meda dhatus*, detoxifying blood and correcting lipid metabolism.
- Enhances *Pitta* balance and liver function through hepatoprotective action.
- Reduces *Ama* and systemic inflammation via *Deepana-Pachana* properties.
- Promotes hepatocyte regeneration and immune modulation. [37, 38].

6. Parisheka with Erandmool and Dashmool

Procedure

- *Erandmool* and *Dashmool* were boiled up to a warm temperature.
- The warm liquid was poured over the patient's body in a rhythmic, continuous motion.
- The treatment continued for approximately 20–30 minutes.

Physiology and Mode of Action

- Acts on *Rakta* and *Meda dhatus*, aiding blood detoxification and correcting lipid metabolism.
- Balances *Pitta dosha* and enhances liver function with hepatoprotective effects.
- Reduces *Ama* and systemic inflammation, improving digestive efficiency.
- Promotes hepatocyte regeneration and modulates immune responses for liver restoration [39, 40].

7. Punarnava and Bhumiarnalaki Siddh Sneha Basti Procedure

- The patient was positioned in the left lateral position.
- 90 ml of *Punarnava* and *Bhumiarnalaki Siddh Taila* was indirectly warmed to a suitable lukewarm temperature.
- After lubricating the anal region and catheter, the oil was slowly administered into the rectum using a *basti* syringe.
- The patient was kept in a supine position to retain the *basti*, and after evacuation, was advised to take light, warm food and avoid exertion.

Physiology and Mode of Action

- The *basti* directly targets *Apana Vata*, which governs elimination and lower abdominal functions. The oil-based formulation nourishes and pacifies *Vata*, supporting proper bowel, urinary, and hepatic function.
- *Punarnava* reduces swelling and fluid retention, promotes diuresis, and helps in detoxifying the kidneys and liver.
- *Bhumiarnalaki* offers hepatoprotective, antiviral, and anti-inflammatory actions, especially beneficial in managing liver disorders and urinary tract issues.
- The *basti* helps balance *Pitta* and *Vata doshas*, clears obstruction in *mutravaha* and *purishavaha srotas*, and enhances *Agni*, improving overall metabolism and reducing *Ama* [41].

8. Punarnava and Bhumiarnalaki Kashaya Basti Procedure

- The patient was positioned in the left lateral posture.

- A decoction of *Punarnava* and *Bhumiarnalaki* was freshly prepared, filtered, and indirectly warmed to a lukewarm temperature (280 ml).
- After lubricating the anal region and catheter, the warm decoction was slowly administered rectally using a *basti* syringe.
- The patient rested in a supine position for retention.

Physiology and Mode of Action

- The *Kashaya Basti* primarily acts on *Apana Vata*, the sub-dosha responsible for elimination, aiding in proper expulsion of toxins and regulation of bowel, urinary, and reproductive functions. It helps eliminate *Ama* and balance *Vata* and *Pitta doshas*.
- *Punarnava* exhibits strong anti-inflammatory and diuretic actions, reducing fluid retention and supporting kidney function.
- *Bhumiarnalaki* offers hepatoprotective and antiviral effects, supporting liver detoxification and cellular regeneration.
- The *basti* cleanses *Purishavaha*, *Mutravaha*, and *Raktavaha srotas*, improves *Agni*, and promotes overall detoxification and rejuvenation at both local and systemic levels [42].

Medicinal Interventions

The *Ayurvedic* treatment employed in this case included Liv DS Tablet, GE- LIV FORTE SYRUP, Liv ciro cure capsule, Amalpit Nashak, Arogya Vati tablet, Michli Churna, Chitrakadi Vati, Platojee Capsule, Brahmi Vati, Rakt Stambhak, Pearl Shield Capsules, Divya Shakti Powder, Yakrit Shoth Har Vati, Liv Balance Capsule, Jalodar vati, Udar vikar powder, LIV Shuddhi Tablet, FE Capsule, Sanjeevani vati capsule, Prameh Rog Har and Hemotone Syrup along with *Panchakarma* therapies. The medications prescribed during the treatment period is mentioned in Table 5. The description of the medicines is detailed in Table 6.

Table 5: The medications prescribed during the treatment period

Date	Medicines	Dosage with Anupana
26-06-2024	<i>Liv DS Capsule</i>	1 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>GE-LIV Forte Syrup</i>	15 ml BD (<i>Adhobhakta</i> with <i>sama matra kosha jala</i>)
	<i>Liv Ciro Care</i>	1 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Amlapitt Nashak</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
13-07-2024 to 24-07-2024 (Daycare)	<i>Arogya Vati tablet</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Michli Churna</i>	Half a teaspoon BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Chitrakadi Vati Tablet</i>	2 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Platojee Capsule</i>	2 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Brahmi Vati Tablet</i>	2 TAB HS (<i>Nishkala</i> with <i>koshna jala</i>)
	<i>Rakt Stambhan Vati</i>	2 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Pearl capsule</i>	1 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
24-07-2024 (Discharge)	<i>Divya Shakti Powder</i>	Half teaspoon (<i>Nishkala</i> with <i>koshna jala</i>)
	<i>Arogya Vati tablet</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Rakt Stambhan Vati</i>	2 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>GE-LIV Forte Syrup</i>	20 ml BD (<i>Adhobhakta</i> with <i>sama matra kosha jala</i>)
	<i>Liv DS Capsule</i>	1 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
13-08-2024	<i>Arogya Vati tablet</i>	2 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)

	<i>Yakrit Shoth Har Vati</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Liv Balance Capsule</i>	1 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Jalodar Har Tablet</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Divya Shakti Powder</i>	Half a teaspoon HS (<i>Nishkala</i> with <i>koshna jala</i>)
28-10-2024	<i>Arogya Vati tablet</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Udar Vikar Churna</i>	Half a teaspoon BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Divya Shakti Powder</i>	Half a teaspoon HS (<i>Nishkala</i> with <i>koshna jala</i>)
	<i>Liv Ciro Care</i>	1 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Yakrit Shoth Har Vati</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>GE-LIV Forte Syrup</i>	20 ml BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
27-11-2024	<i>Arogya Vati tablet</i>	2 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Liv Ciro Care</i>	2 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>GE-LIV Forte Syrup</i>	20 ml BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Yakrit Shoth Har Vati</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
30-12-2024	<i>Liv Shuddhi</i>	2 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>FE Capsule</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>GE-LIV Forte Syrup</i>	20 ml BD (<i>Adhobhakta</i> with <i>sama matra koshna jala</i>)
	<i>Sanjeevani Capsules</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Divya Shakti Powder</i>	Half teaspoon HS (<i>Nishkala</i> with <i>koshna jala</i>)
05-01-2025	<i>Prameh Har Powder</i>	Half a teaspoon BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>GE-LIV Forte Syrup</i>	20 ml BD (<i>Adhobhakta</i> with <i>sama matra koshna jala</i>)
	<i>Divya Shakti Powder</i>	Half a teaspoon HS (<i>Nishkala</i> with <i>koshna jala</i>)
	<i>Arogya Vati tablet</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>FE Capsule</i>	2 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Liv Shuddhi</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
10-01-2025	<i>Hemotone Syrup</i>	20 ml BD (<i>Adhobhakta</i> with <i>sama matra koshna jala</i>)
11-03-2025	<i>Liv Ciro Care</i>	2 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Udar Vikar Churna</i>	Half a teaspoon BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Prameh Har Powder</i>	Half a teaspoon BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Arogya Vati tablet</i>	1 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	<i>Platojee Capsule</i>	2 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)

Table 6: The description of the Ayurvedic medicines

Medicine Name	Ingredients	Therapeutic Effects
Liv DS Tablet	<i>Bhumiamla Ext. (Barleria prionitis)</i> , <i>Kasani Ext. (Cichorium intybus)</i> , <i>Bhulaw (Tylophora reticulata)</i> , <i>Punarnava Ext. (Boerhavia diffusa)</i> , <i>Gauchi Ext. (Tinospora cordifolia)</i> , <i>Kalmegh (Andrographis paniculata)</i> , <i>Shadun (Solanum xanthocarpum)</i> , <i>Arjuna (Terminalia arjuna)</i> , <i>Biranjaspitha (Berberis aristata)</i> , <i>Kusmarda (Embelia ribes)</i> , <i>Kumarda (Terminalia chebula)</i> , <i>Chitrak (Plumbago zeylanica)</i> , <i>Kutki (Picrorhiza kurroa)</i> , <i>Haridraki (Terminalia chebula)</i> , <i>Bhringraj (Eclipta prostrata)</i>	Used for liver disease, GIT, GERD and loss of appetite
GE-LIV Forte Syrup	<i>Bhringraj (Eclipta alba)</i> , <i>Kalmegh (Andrographis paniculata)</i> , <i>Kataki (Picrorhiza kurroa)</i> , <i>Vidhang (Argyrea nervosa)</i> , <i>Nisoth (Operculina turpethum)</i> , <i>Daruharidra (Berberis aristata)</i> , <i>Chitrak Mool (Plumbago zeylanica)</i> , <i>Bhumi Amla (Phyllanthus niruri)</i> , and <i>Shadashan (Acorus calamus)</i>	Used for liver disease, GIT, GERD and loss of appetite
Liv ciro care capsule	<i>Kutki (Picrorhiza kurroa)</i> , <i>Kasni (Hyoscyamus aristatum)</i> , <i>Kampak (Ghoramachus indica)</i> , <i>Patol (Trichosanthes dioica)</i> , <i>Makoy (Solanum nigrum)</i> , <i>Ajvain (Trachyspermum ammi)</i> , <i>Punarnava (Boerhavia diffusa)</i> , <i>Sounth (Foeniculum vulgare)</i> , <i>Pudina (Mentha piperita)</i> , <i>Gokshur (Tribulus terrestris)</i> , <i>Draksha (Vitis vinifera)</i> , <i>Arjun (Terminalia arjuna)</i> , <i>Aloe Vera, Tulsi (Ocimum sanctum)</i> , <i>Manjishta (Rubia cordifolia)</i> , <i>Mulathi (Glycyrrhiza glabra)</i> , <i>Pudina (Mentha spicata or Mentha arvensis)</i> , <i>Mulethi (Glycyrrhiza glabra)</i> , <i>Arjun (Terminalia arjuna)</i> , <i>Tulsi (Ocimum sanctum)</i> , <i>Aloe Vera, Manjishta (Rubia cordifolia)</i> , <i>Nirmali (Strychnos potatorum)</i>	Improves Liver Function and detoxification
Amalpiti Nashak	<i>Hing (Ferula asafoetida)</i> , <i>Chitrak (Plumbago zeylanica)</i> , <i>Jeera (Cuminum cyminum)</i> , <i>Vidang (Embelia ribes)</i> , <i>Ajvain (Trachyspermum ammi)</i> , <i>Marich (Piper nigrum)</i> , <i>Pipal (Piper longum)</i> , <i>Shunthi (Zingiber officinale)</i> , <i>Amla (Embllica officinalis/Phyllanthus emblica)</i> , <i>Vibhitaki (Terminalia bellirica)</i> , <i>Haritaki (Terminalia chebula)</i> , <i>Shankh Bhasm (calcined conch)</i>	Improves Digestive Efficiency
Arogya Vati tablet	<i>Kajan (Carum copticum)</i> , <i>Loh Bhasm (Ferrous)</i> , <i>Abhrak Bhasm (Mica)</i> , <i>Tamra Bhasm (Copper)</i> , <i>Haritaki (Embllica officinalis)</i> , <i>Vibhitak (Terminalia bellirica)</i> , <i>Haritaki (Terminalia chebula)</i> , <i>Chitrak (Plumbago zeylanica)</i> , <i>Katuka (Picrorhiza kurroa)</i> , <i>Nimb Patra (Azadirachta indica)</i>	Boosts immunity and helps in cell rejuvenation
Michli Churna	<i>Shunthi (Zingiber officinale)</i> , <i>Kali Mirch (Piper nigrum)</i> , <i>Pippali (Piper longum)</i> , <i>Ansafal/Aniseed (Pimpinella anisum)</i> , <i>Dalchini (Cinnamomum verum)</i> , <i>Nagkeshar (Mesua ferrea)</i> , <i>Kapoor (Cinnamomum camphora)</i> , <i>Jayitri (Myristica fragrans/Mace)</i> , <i>Laung (Syzygium aromaticum)</i> , <i>Jayphal</i>	Helps in liver detoxification and digestion

	<i>(Myristica fragrans/Nutmeg)</i>	
Chitrakadi Vati	<i>Chitrak (Plumbago zeylanica), Pippali (Piper longum), Himalayan Salt, Ginger (Zingiber officinale), Kalimirch (Piper nigrum), Hing (Ferula asafoetida), Pomegranate (Punica granatum)</i>	Helps to digest undigested food and removes accumulated toxins
Platojee Capsule	<i>Papaya (Carica papaya), Guduchi (Tinospora cordifolia), Sudarshan, Arogyavardhini, Amlaki Rasayan, and Neem (Azadirachta indica)</i>	Improves Hb and Platelet count and boosts immunity
Brahmi Vati	<i>Brahmi (Bacopa monnieri), Rasa Sindura (Herbo-mineral compound - purified mercury and sulfur), Abhraka Bhasma (Purified and incinerated mica), Vang Bhasma (Purified and incinerated tin), Shuddha Shilajet (Asphaltum punjabianum), Kali Mirch (Piper nigrum), Pippali (Piper longum), Vayavidanga (Embelia ribes)</i>	Memory Booster & Stress Relief Supplement
Rakt Stambhak	<i>Sudh Parad, Sudh Gandhak, Giloy (Tinospora cordifolia), Heeradokhi, Semal (Bombax ceiba)</i>	Used to manage hemorrhoids, hematuria and abscess
Divya Shakti Powder	<i>Trikatu, Triphala, Nagarmotha (Cyperus rotundus), Vaya Vidang (Embelia ribes), Chhoti Elaichi (Elettaria cardamomum), Tej Patta (Cinnamomum tamala), Laung (Syzygium aromaticum), Nishoth (Operculina turpethum), Sendha, Dhania, Dhania (Coriandrum sativum), Pippali (Piper longum), Jeera (Cuminum cyminum), Nagkesar (Mesua ferrea), Anantmul (Asphodelus asperus), Anardana (Punica granatum), Badi Elaichi (Amomum subulatum), Hing (Ferula asafoetida), Kachnar (Bauhinia variegata), Ajmoda (Trachyspermum ammi), Hijjal (Pisonia grandis), Pudikamool (Uncaria tomentosa), Mishri (Saccharum officinarum)</i>	Deepan, pachan and detoxification
Yakrit Shoth Har Vati	<i>Punarnava (Boerhavia diffusa), Kalimirch (Piper nigrum), Pippali (Piper longum), Vayavidanga (Embelia ribes), Devdaru (Cedrus deodara), Kutha (Saussurea lappa), Haridra (Curcuma longa), Zedoary (Curcuma zedoaria), Haldi (Curcuma longa), Haridra (Curcuma longa), Sarson (Brassica juncea), Hatud (Terminalia chellula), Baheda (Terminalia bellirica), Haritaki (Terminalia chebula), Amla (Embelia officinalis), Danti (Baliospermum montanum), Chavya (Piper chaba), Indra Jon (Taxacum officinale), Pippla Mool (Piper longum), Motha Haridra (Tricleisium), Kaphal (Myrica esculenta), Katak (Picrorhiza kurroa), Shonth (Operculina turpethum), Saunth (Zingiber officinale), Kalai Singh (Cuminum sativum), Ajwain (Trachyspermum ammi), Mundhur Bhasma (Ferrum)</i>	Helps in better liver function, strengthen digestion process and Helps in Detoxification, Deepan and pachan
Liv Balance Capsule	<i>Bhumi Amla (Phyllanthus niruri), Punarnava (Boerhavia diffusa) and Makoy (Solanum nigrum)</i>	Deepan, pachan, detoxification, cell rejuvenation and enhance digestion
Jalodar vati	<i>Shuddha Gandhak, Kutaki (Picrorhiza kurroa), Pippali (Piper longum), Triphala, Chitrak (Plumbago zeylanica), Jeerak (Cuminum cyminum), Nimbu (Citrus limon), Sahadevi (Sida cordifolia)</i>	Increase urine outflow, reduces inflammation and reduce fluid overload
Udar vikar powder	<i>Hing (Ferula asafoetida), Ajwain (Trachyspermum ammi), Jeera (Cuminum cyminum), Saunf (Foeniculum vulgare), Dhania (Coriandrum sativum), Amla (Phyllanthus emblica), Bela (Sida cordifolia), Pippali (Piper longum), Chitrak (Plumbago zeylanica), Shunth (Zingiber officinale), Triphala (Phyllanthus emblica, Terminalia chebula, Terminalia bellirica)</i>	Helps in stimulating the digestive system, alleviating gas, promotes appetite, and improving bowel movements
LIV Shuddhi Tablet	<i>Milk Thistle (Silybum marianum), Guduchi (Tinospora cordifolia), Dandelion (Taraxacum officinale), Tulsi (Ocimum sanctum), Punarnava (Boerhavia diffusa), Amla (Phyllanthus emblica) and Arjuna (Terminalia arjuna)</i>	Helps with natural liver detox, digestion, and overall wellness
FE Capsule	<i>Makoy (Solanum nigrum), Shilajeet, Lauh Bhasam, Loh Bhasam, Swarn Makshik Bhasam, Mukta Shukti Pishti.</i>	Used to manage anemia and weakness
Sanjeevani vati capsule	<i>Bhumiamla (Phyllanthus niruri) and Ajwain (Trachyspermum ammi)</i>	Used for fever, liver and infection
Prameh Rog Har	<i>Kutaki (Picrorhiza kurroa), Chiraita (Swertia chirata), Neem (Azadirachta indica), Karela (Momordica charantia), Rasonth (Berberis aristata), Indi Beej (Tamarindus indica), Kala Namak, Giloy (Tinospora cordifolia), Sonth (Zingiber officinale), Bakool (Mimusops elengi), Teek (Sargassum), Korphad (Aloe vera), Tulsi (Ocimum sanctum), Laung (Syzygium aromaticum), Bhumi Amla (Phyllanthus niruri), Laung (Syzygium aromaticum), Bhumi Amla (Phyllanthus niruri), Ruhmoul, Bhasm, Roxana, Chinul (Rheum emodi), Saunth Guggulu (Commiphora mukul), Methi (Trigonella foenum-graecum), Jamun (Syzygium cumini), Babul Fruit (Vachellia nilotica), Karanj Mishra (Psoralea corylifolia), Katphala (Myrica esculenta), Harad (Terminalia chebula), Inderjaun (Holarrhena antidysenterica), Vanshlochan (Bambusa arundinacea), Bahera (Terminalia bellirica), Amla (Phyllanthus emblica), White Musli (Chlorophytum borivilianum), Gurnar (Gymnema sylvestre)</i>	Helps in lowering blood sugar levels
Hemotone Syrup	<i>Draksha (Vitis vinifera), Aamalaki (Embelia officinalis), Punarnava (Boerhavia diffusa), Ashokam (Saraca asoca), Jambu (Syzygium cumini), Sariva (Hemidesmus indicus), Haritaki (Terminalia chebula), Lakshamana (Ipomoea pes-tigridis), Shatavari (Asparagus racemosus), Bhumikushmanda (Phyllanthus niruri), Katuki (Picrorhiza kurroa), Rohethakam (Thespesia populnea), Vidanga (Embelia ribes), Maricham (Piper nigrum), Pippali (Piper longum), Shunthi (Zingiber officinale), Kakam (Elettaria cardamomum), and Sitha (Sugar)</i>	Supports Hemoglobin Levels, Boosts Energy and Vitality and increases Blood Circulation

Result

The patient underwent Daycare, after the treatment he experienced noteworthy development in symptoms, which denotes the interventions used in the study are effective against CLD (NASH) associated with T2DM. At the time of

discharge, the patient was well oriented and there was relief from constipation and disturbed sleep which shows that the *Ayurvedic* interventions used in the case study are effective for CLD. The conditions before and after treatment are mentioned in Table 7.

Table 7: The conditions before and after treatment

Conditions	Before Treatment	After Treatment
Anemia	Severe	Mild relief
Black stool	Mild	Clear
Weakness	Moderate	Relieved
Facial Puffiness	Mild	Relieved
Itchy Sclera	Mild	Relieved
Sleep	Disturbed (2/10)	Sound (8/10)
Constipation	Mild	Normal
Breathlessness	Mild	Relieved

The patient's fatty liver was reduced from Grade I to Grade 0 as mentioned in Table 8 and Fig 4. A whole abdomen sonography on June 21, 2024, revealed chronic liver parenchymal disease, Cholelithiasis, splenomegaly and mild ascites.

Table 8: Fibro scan reports on July 01, 2024 and October 28, 2024.

Date	CAP (dB/m)	E (kPa)	Fatty Liver
01-07-2024	241	19.80%	Grade I
28-10-2024	196	13.90%	Grade 0

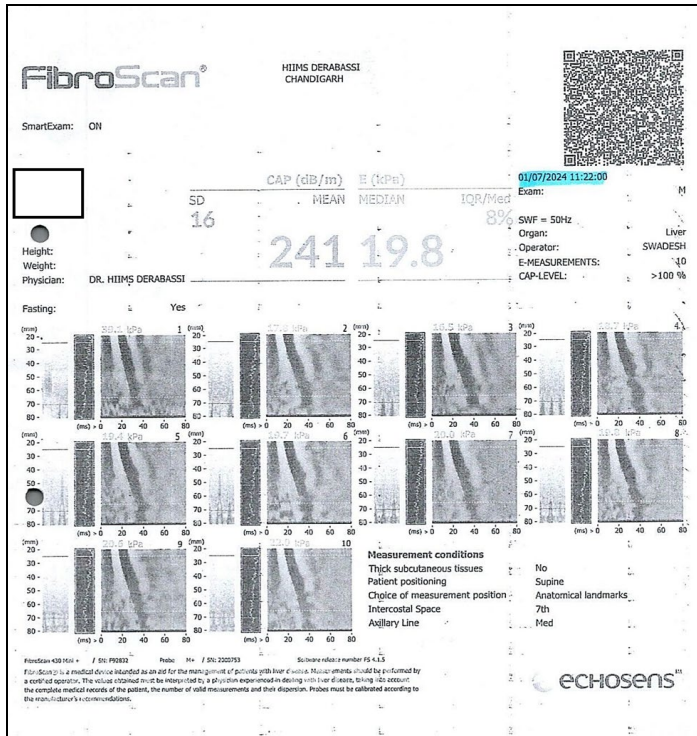


Fig 4A: The fibro scan report image on July 01, 2024



Fig 4B: The fibro scan report image on October 28, 2024

Implications for Future Research

This study focused on a CLD (NASH) associated with T2DM, yielding promising results. However, due to the small sample size, further research with randomized controlled trials and larger cohorts is needed to confirm the safety, efficacy, and reliability of integrated *Ayurvedic* treatments, helping to establish standardized therapeutic guidelines.

Discussion

Ayurvedic treatment integration for CLD offers a viable substitute for conventional medical methods. This case study describes the application of several *Ayurvedic* treatments to a 57-year-old man who has been diagnosed with CLD (NASH) associated with T2DM. During his 10-day Daycare sessions, he underwent *Panchakarma* treatments as part of the *Ayurvedic* therapy regimen. The *samprapti* [43] of this case study is illustrated in Fig 5.

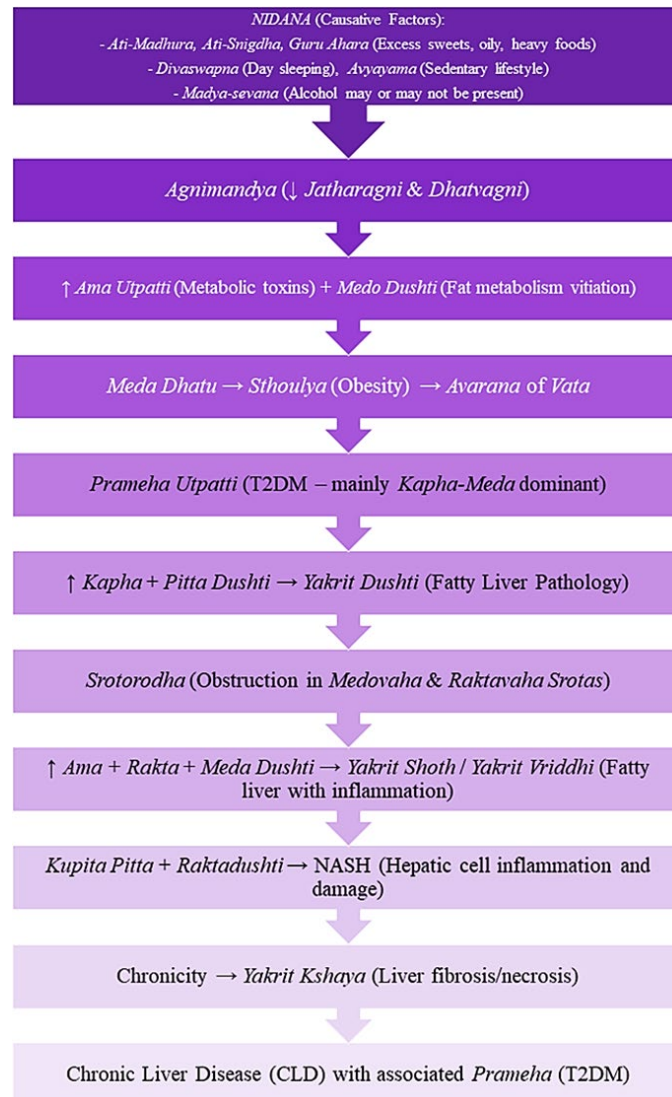


Fig 5: The *samprapti* of this case study

A *Panchakarma*-based *Ayurvedic* protocol was adopted to address chronic liver pathology associated with Type 2 Diabetes Mellitus (T2DM). *Shirodhara* with *Brahmi* oil and *Karpoor* oil calmed the *Manovaha srotas*, pacifying *Rajo* and *Tamo gunas*, reducing HPA axis overactivity. *Udar Basti* with *Punarnava* oil relieved hepatic congestion and localized inflammation. *Udar Lepam* using *Punarnava* and *Dashmoola* exerted anti-inflammatory effects by pacifying *Vata* and *Pitta*. *Pippalyadi Siddha Sneha Basti* corrected *Vata-Meda-Prameha* pathologies through *Deepana-Pachana* action and *Ama pachana*. *Bhumiamla-Guduchi Kashaya Basti* targeted *Rakta* and *Meda dushti*, aiding liver detoxification, regeneration, and immune modulation. *Parisheka* with *Dashmoola* and *Erandamoola* reduced abdominal heaviness and supported *Srotoshodhana*. Later, *Punarnava-Bhumiamlaki Siddha Sneha Basti* and *Kashaya Basti* were added for enhanced *Shodhana* and *Rasayana* benefits. *Ayurvedic* formulations included Liv DS Tablet, GE-Liv Forte Syrup, Livi Ciro Cure Capsule, Yakrit Shoth Har Vati, Liv Balance Capsule, and LIV Shuddhi Tablet for hepatoprotection and detoxification. To improve *Agni* and reduce *Ama*, Chitrakadi Vati, Amalpit Nashak, and Arogya Vati Tablet were given. Prameh Rog Har, Sanjeevani Vati Capsule, and Divya Shakti Powder addressed *Kapha-Meda Dushti* and insulin resistance. Platojee Capsule, Rakt Stambhak, FE Capsule, and Hemotone Syrup corrected anemia and low platelet counts. For neuro-psychological

support, Brahmi Vati and Pearl Shield Capsule were used. Gastrointestinal issues and ascites were managed with Jalodar Vati, Michli Churna, and Udar Vikar Powder, balancing *Apana Vata* and relieving abdominal symptoms.

Conclusion

This case study evaluating the treatment of CLD (NASH) associated with T2DM through *Ayurvedic* interventions yields the following findings:

Symptoms: Upon admission, the patient presented with anemia, black stool, weakness, facial puffiness, itchy sclera, disturbed sleep, constipation and breathlessness. After IPD *Ayurvedic* treatment and follow-up care, significant improvements were observed. The patient reported relief from general weakness, constipation, disturbed sleep, itchy sclera and constipation, with no new symptoms emerging, suggesting a marked improvement in liver function and overall health.

Vitals and Investigations: There was a notable reduction in general weakness, constipation, disturbed sleep, itchy sclera and constipation, reflecting positive changes in both lifestyle and diet. The total bilirubin decreased from 3.12 mg/dL to 1.42 mg/dL, likewise direct and conjugated bilirubin were also decreased from 0.75 mg/dL to 0.58 mg/dL and 2.37 mg/dL to 0.84 mg/dL, respectively indicating enhanced liver function. The albumin reduced from 3.18 g/dL to 3.13 g/dL. The fibroscan reports also shows the betterment of the patient,

which the CAP value reduced from 241 dB/m to 196 dB/m and E (kPa) reduced from 19.80 to 13.90.

In summary, integration of *Ayurvedic* therapies with previously prescribed necessary allopathic medicines for CLD showed promising results, including improvements in laboratory test results, vital signs, and symptoms. The integration of *Ayurvedic* treatments with prescription medications appears to enhance liver function, alleviate CLD symptoms, and improve overall health. However, further research through extensive, well-monitored clinical trials is needed to confirm these findings, establish standardized treatment protocols, and provide scientific evidence for incorporating *Ayurvedic* practices into conventional medical care.

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