E-ISSN:2456-3110
Case Report
Fatty Liver
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Journal of Ayurveda and Integrated Medical Sciences

2025 Volume 10 Number 8 August

Publisher
Maharshi Charaka Ayurveda
www.maharshicharaka.in

Diabetes Care with Reversal Therapy: A Case Study on Remission of Type II Diabetes with Resolution of Grade II Fatty Liver

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DOI:10.21760/jaims.10.8.49

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Background: Type II Diabetes Mellitus (T2DM) often coexists with non-alcoholic fatty liver disease (NAFLD), leading to compounded metabolic and cardiovascular risks. While conventional therapy emphasizes medication-based management, integrative and holistic therapies offer potential for disease reversal. This case study evaluates the effect of Panchsutri Reversal Therapy a multidimensional Ayurvedic lifestyle approach on T2DM and Grade II fatty liver.

Methods: A 55-year-old male with a 6-year history of T2DM and imaging-confirmed Grade II fatty liver underwent a 90-day integrative therapy protocol involving Panchakarma (detoxification), an 800–1000 calorie diet, continuous monitoring, progressive tapering of medications, daily physical activity, and stress management. Baseline and follow-up data were collected.

Results: Post-treatment, the patient shows normalized glucose tolerance test (GTT), fasting blood glucose reduction from 130.42 to 110 mg/dL, postprandial blood glucose reduction from 188 to 140 mg/dL, and HbA1c improvement from 7.2% to 6.2%. Imaging revealed resolution of fatty liver from Grade II to no significant anomaly. The patient also experienced 100% relief from right gluteal pain, neuropathic symptoms, itching, stomatitis, and gastrointestinal complaints. Weight reduced from 75.7 kg to 69 kg, BMI from 26.2 to 23.8, and systolic/diastolic blood pressure improved from 138/87 mmHg to 113/70 mmHg. All Allopathic medications were discontinued.

Conclusions: This holistic Reversal Therapy led to diabetes remission and reversal of fatty liver in this patient. These results highlight the potential of integrative, non-drug therapies for managing metabolic diseases.

Keywords: Type II Diabetes, Reversal Therapy, Fatty Liver, Panchakarma, Lifestyle Modification

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How to Cite this Article

Kshirsagar JD, Lakariya AA, Khan SM, Patil SR, Diabetes Care with Reversal Therapy: A Case Study on Remission of Type II Diabetes with Resolution of Grade II Fatty Liver. J Ayu Int Med Sci. 2025;10(8):294-299.
Available From
https://jaims.in/jaims/article/view/4424/

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Manuscript Received	Review Round 1	Review Round 2	Review Round 3	Accepted
2025-06-12	2025-06-28	2025-07-08	2025-07-18	2025-07-28

Conflict of Interest	Funding	Ethical Approval	Plagiarism X-checker	Note
None	Nil	Not required	10.36	

Introduction

Type II Diabetes Mellitus (T2DM) is a chronic metabolic disorder characterized by progressive insulin resistance and impaired insulin secretion. Its global prevalence is increasing at an alarming rate, with an estimated 700 million individuals expected to be affected by 2045.[1] Among the various comorbidities associated with T2DM, Non-Alcoholic Fatty Liver Disease (NAFLD) is highly prevalent, impacting approximately 70% of individuals with diabetes.[2] NAFLD not only represents hepatic involvement in metabolic syndrome but also serves as a strong predictor of cardiovascular disease and all-cause mortality.[3] Despite its clinical significance, NAFLD remains underdiagnosed and undertreated in standard diabetes care.

Conventional management of T2DM typically involves long-term pharmacotherapy focused on glycemic control rather than addressing the underlying metabolic dysfunction.[4] However, emerging evidence suggests that sustained lifestyle modification, particularly through weight loss and calorie restriction, can induce diabetes remission. For instance, the DiRECT trial demonstrated that a structured, low-calorie diet delivered through primary care could result in sustained diabetes remission and hepatic improvement over two years.[5] Similarly, Ayurvedic medicine, which emphasizes a holistic view of health and disease, offers non-pharmacological options such as Panchakarma for detoxification, stress reduction, and metabolic restoration.[6,7] These traditional therapies are increasingly being validated by modern research and are considered complementary to conventional management.

Integrative approaches like Panchsutri Reversal Therapy incorporate the principles of Ayurveda and modern medicine, combining: Panchakarma, calorie-restricted diet, continuous health monitoring, drug tapering, and stress management. Such multidisciplinary interventions are in alignment with newer paradigms in chronic disease care, which emphasize root-cause treatment and sustainable remission rather than symptom suppression.[8] Mechanistically, these benefits can be explained by the twin cycle hypothesis, which describes how ectopic fat in the liver and pancreas drives insulin resistance and how its reduction can lead to diabetes reversal.[9]

The role of liver health in diabetes outcomes has also been highlighted in clinical guidelines for NAFLD, which stress the importance of early intervention.[10] Furthermore, long-term studies have shown that lifestyle interventions can enable drug-free glycemic control and improve patient-reported outcomes such as sleep, gastrointestinal function, and neuropathy.[11] This case report aims to demonstrate the efficacy of an integrative, holistic approach in reversing both T2DM and NAFLD, thereby supporting the role of non-drug therapies in comprehensive metabolic care.

Materials and Methods

Study design & patient population

This was prospective observational case study conducted over 270-days (9 months) period on 55-year-old male with known case of T2DM from last 6 years, recently diagnosed with Grade II fatty liver. Also has complaints like red, itchy patch on back lasting 2–3 years, intermittent palpitations over 6 months, recurring stomatitis (managed with daily Becosules for 2 years), right gluteal pain after walking approximately 2 kilometers, tingling in right toe, polyuria in mornings, dist. sleep, constipation, gaseous abdominal distension, & generalized fatigue.

Panchsutri Methodology

The Panchsutri methodology, integral approach, comprises five components: Dietary Management, structured exercise, Panchakarma therapies, Ayurvedic medication, and clinical monitoring.

1. Dietary Management:

A calorie-restricted diet (800 kcal/day) was prescribed, focusing on low glycemic index foods and high dietary fiber. The diet emphasized the intake of citrus fruits like amla and oranges, known for their antioxidant and metabolic benefits.

2. Structured exercise:

Daily supervised exercise sessions were implemented to enhance cardiovascular health and insulin sensitivity. The regimen included muscle-strengthening exercises to support health and prevent further complications.

3. Panchakarma Therapy:

Detoxification and rejuvenation therapies for metabolic dysfunctions:

Centripetal Oleation: Neem oil and Abhyanga oil (Til Tail) were used to improve peripheral circulation, reduce inflammation, and enhance skin health. Essential oils like lavender and rose were incorporated for their anxiolytic and antihypertensive properties. Sessions lasted 20 minutes.

Thermal Vasodilation: Dashamoola Kwath was administered for 15–20 minutes to help sweating, reduce swelling, and improve toxin elimination.

Per Rectal Herbal Decoction Therapy: Herbal preparations such as GDY Kwath (containing Gudmar, Daruharidra, and Yashtimadhu) and G.H.A Kadha were administered for 10 minutes. These help to producing insulin, heal the cells that making insulin, and keep the heart and blood vessels healthy.

4. Ayurvedic medication:

Oral administration of the following formulations was given below.

Guduchi: *Rasayan*, antioxidant, antidiabetic; protects liver and cardiovascular health.

Meshshrungi: Helps repair and grow the cells that making insulin, enhances producing insulin, reducing glucose absorption.

Amalaki: Helps the body use insulin better and protects the cells from damage caused by toxins.

Haridra: Anti-inflammatory, stimulate cells, reduces diabetic symptoms.

Daruharidra: Antihyperglycemic, reduces insulin resistance, supports lipid metabolism.

Ashwagandha: Antioxidant, activating immune System; supports nervous and musculoskeletal systems.

5. Clinical monitoring:

Clinical parameters including HbA1c, eGFR, Anti-TPO, and blood pressure with ABPM were monitored to evaluate the progress. Regular laboratory testing supported the efficacy of the integrative interventions.

Study endpoints and data collection

Primary endpoint was diabetes reversal, normalised of HbA1c & oral glucose tolerance test (GTT) results in absence of medication-based intervention.

Secondary endpoints included reversal of Grade II fatty liver as assessed by imaging, symptomatic relief, & improvement in Weight, BMI, BP, ABG, lipid profile, Blood sugar levels, heart rate, tapered allopathy medicines. Data for patient demographics, anthropometrics, echocardiographic findings, & medications were collected & analysed from patient medical records. On day 1 of IRP, detailed patient history, anthropometric measurements, & cholesterol measurements were documented. Details of medication was also recorded. This activity was repeated on day 90 of program. Data of day 1 was compared with data of day 90. Data of only those patients who had completed a total of 14 sessions was collected & analysed.

Results

Demographics of study patients

Over the 90 days, significant improvements were observed in health parameters. The Patient's weight reduced from 86.2 kg to 73.7 kg, with a corresponding decrease in BMI from 34.5 to 29.5. Blood pressure improved from 116/77 mmHg to 110/70 mmHg, while heart rate decreased from 104 bpm to 86 bpm. Abdominal girth reduced from 103 cm to 85 cm, indicating a notable reduction in abdominal obesity. Thyroid function remained stable, with TSH levels slightly fluctuating from 2.24 to 2.4, allowing for the complete discontinuation of Thyronorm medication. Secondary outcomes, as assessed through ultrasonography, demonstrated improvement in hepatic and ovarian health. Initial findings of Grade II fatty liver and bilateral bulky ovaries improved to mild fatty liver with slightly bulky ovaries by the end of the intervention period. These results collectively suggest a positive impact on metabolic health and parameters. The demographics are detailed in Table 1.

Table 1: Demographics of the study population

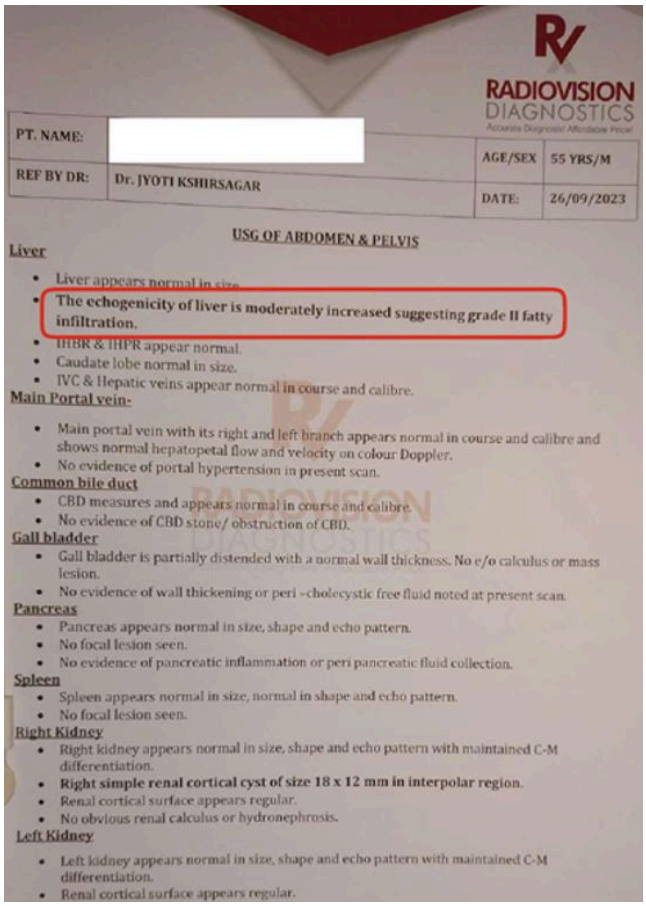
Variable	Day 1	Day 90	Change%
Age, years	55		
Weight, kg	75	69	-8.00
Body mass index, kg/m²	26.2	23.8	-9.16
Abdominal Girth, cm	97	86	-11.34
Systolic Blood Pressure, mmHg	138	113	-18.12
Diastolic Blood pressure, mmHg	87	70	-19.54
Heart Rate, bpm	101	86	-14.85
TSH (thyroid stimulating hormone), mIU/L	2.24	2.4	7.14

All data are expressed as number (percentage)

Discussion

This case report highlights the potential for complete reversal of Type II Diabetes Mellitus (T2DM) and resolution of Grade II fatty liver disease through Panchsutri Reversal Therapy, an integrative, non-drug therapies approach rooted in Ayurvedic and lifestyle medicine. T2DM is a growing global epidemic, with projections estimating it will affect over 700 million people by 2045.**[1]** Non-alcoholic fatty liver disease (NAFLD), a frequent comorbidity of T2DM, is seen in up to 70% of diabetic individuals and serves as both a hepatic manifestation and an independent risk factor for cardiovascular disease and metabolic syndrome.**[2,3]** Conventional medical management largely emphasizes pharmacological glycemic control rather than disease reversal, often leading to ongoing medication dependency without addressing underlying pathophysiology.**[4]** In contrast, recent studies such as the Direct trial have demonstrated that intensive lifestyle interventions - including calorie restriction and sustained weight loss - can lead to diabetes remission and hepatic recovery.**[5]** These findings are echoed by evidence supporting Ayurvedic detoxification therapies like Panchakarma, which have shown efficacy in improving metabolic health and insulin sensitivity.**[6,7]** Additionally, the patient's complete discontinuation of antidiabetic medications while maintaining glycemic control is consistent with outcomes from structured nutritional therapy trials, which emphasize the viability of medication-free management through lifestyle modification.**[8]** The improvement in hepatic condition from Grade II fatty liver to "no significant anomaly" in this patient corresponds with the twin cycle hypothesis, which suggests that reducing ectopic fat from the liver and pancreas can reverse insulin resistance and T2DM progression.**[9]** The resolution of neuropathic symptoms, improved gastrointestinal function, and better sleep quality further reflect the holistic benefits of integrative care. Continuous monitoring, stress management, and diet modification - core components of Panchsutri protocol - align with recommendations for sustained remission and patient empowerment in modern integrative medicine.**[10,11]** Although this is a single-patient case and lacks the statistical power of a large trial, the comprehensive and sustained improvements support the need for further research into similar integrative models to manage and potentially reverse chronic metabolic diseases.

Grade II Fatty liver changes Report



RADIOVISION DIAGNOSTICS

PT. NAME: | AGE/SEX: 55 YRS/M
REF BY DR: Dr. JYOTI KSHIRSAGAR | DATE: 26/09/2023

USG OF ABDOMEN & PELVIS

Liver
- Liver appears normal in size.
- The echogenicity of liver is moderately increased suggesting grade II fatty infiltration.
- IHBR & IHPR appear normal.
- Caudate lobe normal in size.
- IVC & Hepatic veins appear normal in course and calibre.

Main Portal vein-
- Main portal vein with its right and left branch appears normal in course and calibre and shows normal hepatopetal flow and velocity on colour Doppler.
- No evidence of portal hypertension in present scan.

Common bile duct
- CBD measures and appears normal in course and calibre.
- No evidence of CBD stone/ obstruction of CBD.

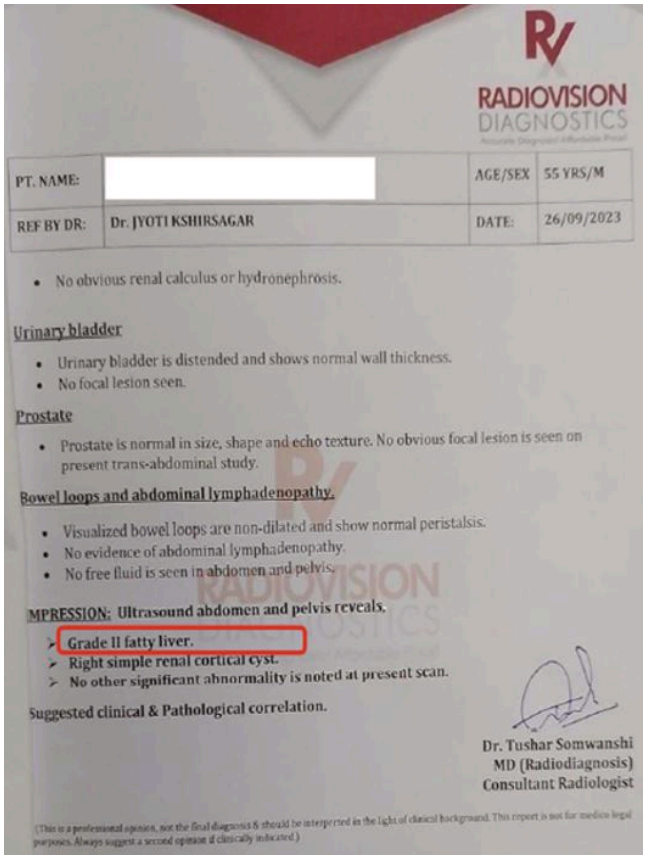
Gall bladder
- Gall bladder is partially distended with a normal wall thickness. No e/o calculus or mass lesion.
- No evidence of wall thickening or peri -cholecystic free fluid noted at present scan.

Pancreas
- Pancreas appears normal in size, shape and echo pattern.
- No focal lesion seen.
- No evidence of pancreatic inflammation or peri pancreatic fluid collection.

Spleen
- Spleen appears normal in size, normal in shape and echo pattern.
- No focal lesion seen.

Right Kidney
- Right kidney appears normal in size, shape and echo pattern with maintained C-M differentiation.
- Right simple renal cortical cyst of size 18 x 12 mm in interpolar region.
- Renal cortical surface appears regular.
- No obvious renal calculus or hydronephrosis.

Left Kidney
- Left kidney appears normal in size, shape and echo pattern with maintained C-M differentiation.
- Renal cortical surface appears regular.



RADIOVISION DIAGNOSTICS

PT. NAME: | AGE/SEX: 55 YRS/M
REF BY DR: Dr. JYOTI KSHIRSAGAR | DATE: 26/09/2023

- No obvious renal calculus or hydronephrosis.

Urinary bladder
- Urinary bladder is distended and shows normal wall thickness.
- No focal lesion seen.

Prostate
- Prostate is normal in size, shape and echo texture. No obvious focal lesion is seen on present trans-abdominal study.

Bowel loops and abdominal lymphadenopathy.
- Visualized bowel loops are non-dilated and show normal peristalsis.
- No evidence of abdominal lymphadenopathy.
- No free fluid is seen in abdomen and pelvis.

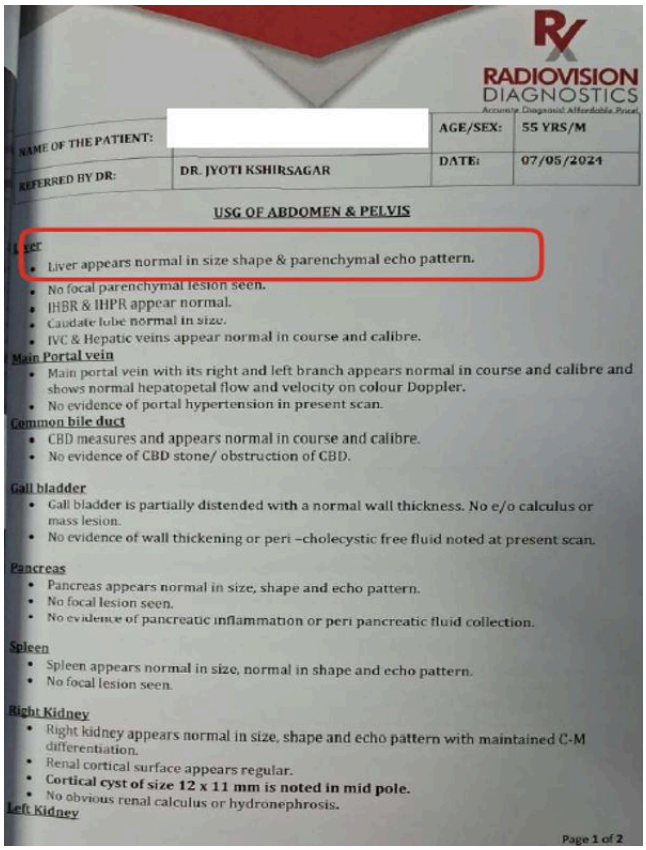
IMPRESSION: Ultrasound abdomen and pelvis reveals.
- Grade II fatty liver.
- Right simple renal cortical cyst.
- No other significant abnormality is noted at present scan.

Suggested clinical & Pathological correlation.

Dr. Tushar Somwanshi
MD (Radiodiagnosis)
Consultant Radiologist

(This is a professional opinion, not the final diagnosis & should be interpreted in the light of clinical background. This report is not for medico legal purposes. Always suggest a second opinion if clinically indicated.)

Before Treatment



RADIOVISION DIAGNOSTICS

NAME OF THE PATIENT: | AGE/SEX: 55 YRS/M

REFERRED BY DR: DR. JYOTI KSHIRSAGAR | DATE: 07/05/2024

USG OF ABDOMEN & PELVIS

Liver
- Liver appears normal in size shape & parenchymal echo pattern.
- No focal parenchymal lesion seen.
- IHBR & IHPR appear normal.
- Caudate lobe normal in size.
- IVC & Hepatic veins appear normal in course and calibre.

Main Portal vein
- Main portal vein with its right and left branch appears normal in course and calibre and shows normal hepatopetal flow and velocity on colour Doppler.
- No evidence of portal hypertension in present scan.

Common bile duct
- CBD measures and appears normal in course and calibre.
- No evidence of CBD stone/ obstruction of CBD.

Gall bladder
- Gall bladder is partially distended with a normal wall thickness. No e/o calculus or mass lesion.
- No evidence of wall thickening or peri –cholecystic free fluid noted at present scan.

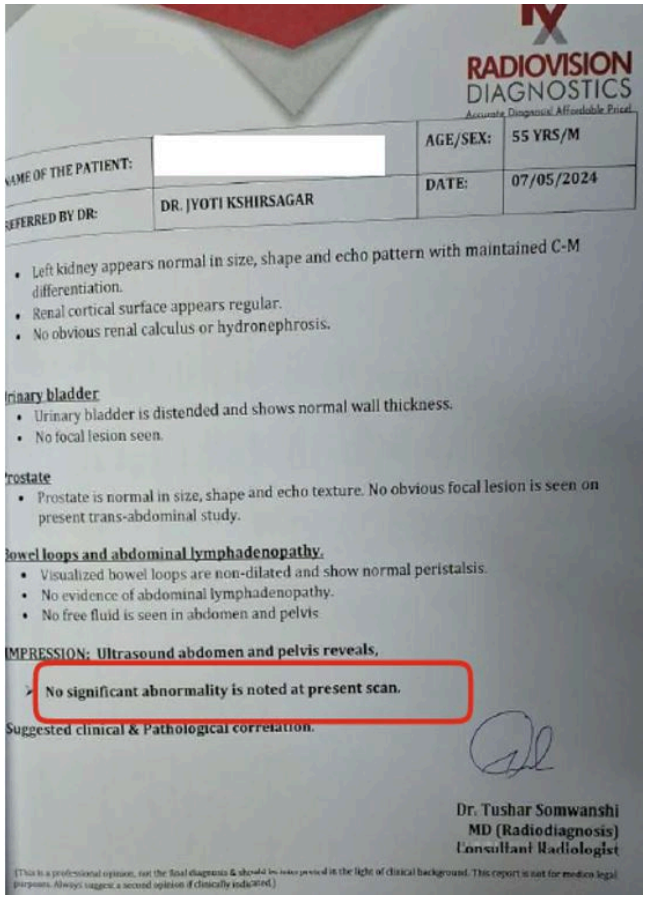
Pancreas
- Pancreas appears normal in size, shape and echo pattern.
- No focal lesion seen.
- No evidence of pancreatic inflammation or peri pancreatic fluid collection.

Spleen
- Spleen appears normal in size, normal in shape and echo pattern.
- No focal lesion seen.

Right Kidney
- Right kidney appears normal in size, shape and echo pattern with maintained C-M differentiation.
- Renal cortical surface appears regular.
- **Cortical cyst of size 12 x 11 mm is noted in mid pole.**
- No obvious renal calculus or hydronephrosis.

Left Kidney

Page 1 of 2



RADIOVISION DIAGNOSTICS

NAME OF THE PATIENT: | AGE/SEX: 55 YRS/M

REFERRED BY DR: DR. JYOTI KSHIRSAGAR | DATE: 07/05/2024

- Left kidney appears normal in size, shape and echo pattern with maintained C-M differentiation.
- Renal cortical surface appears regular.
- No obvious renal calculus or hydronephrosis.

Urinary bladder
- Urinary bladder is distended and shows normal wall thickness.
- No focal lesion seen.

Prostate
- Prostate is normal in size, shape and echo texture. No obvious focal lesion is seen on present trans-abdominal study.

Bowel loops and abdominal lymphadenopathy.
- Visualized bowel loops are non-dilated and show normal peristalsis.
- No evidence of abdominal lymphadenopathy.
- No free fluid is seen in abdomen and pelvis

IMPRESSION: Ultrasound abdomen and pelvis reveals,

- **No significant abnormality is noted at present scan.**

Suggested clinical & Pathological correlation.

Dr. Tushar Somwanshi
MD (Radiodiagnosis)
Consultant Radiologist

After Treatment

Conclusion

This case study demonstrates that Panchsutri Reversal Therapy offers an effective, holistic, & non-invasive approach to managing & potentially reversing Type II Diabetes & fatty liver disease. This case demonstrates that when root causes are addressed through lifestyle, detoxification, & psychosocial care, chronic metabolic diseases can be significantly even reversed, tapering need for lifelong medication & enhancing overall well-being.

Acknowledgement: Miss Pallavi Mohe from the Research Department of Madhavbaug Cardiac Clinics took an all efforts for data collection and data analysis.

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