

GTT-Negative Diabetes Reversal In Nine Patients Following A Multimodal Lifestyle Programme: A Case Series From Central India

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ABSTRACT

Background: Type 2 diabetes mellitus (T2DM) is a progressive metabolic disorder traditionally managed with lifelong pharmacotherapy. The concept of sustained remission — defined as maintenance of glycated haemoglobin (HbA1c) below 6.5% for at least three months without glucose-lowering medications — has gained traction following landmark trials such as DiRECT. However, documentation of GTT-confirmed reversal in South Asian populations following a structured multimodal non-surgical programme remains sparse.

Methods: We report a prospective case series of nine patients (seven male, two female; mean age 45.8 years) attending a speciality diabetology clinic in Nagpur, Maharashtra, India, who achieved GTT-negativity following enrolment in the Navjeevan Multimodal Diabetes Programme. The programme comprised individualised dietary counselling, home-based structured exercise prescription (mean 5.9 counselling sessions), pharmacotherapy rationalisation, and longitudinal metabolic monitoring. Outcome measures included HbA1c, fasting and random blood sugar (RBS), body weight, BMI, and blood pressure. GTT negativity was confirmed by a 75 g oral glucose tolerance test per WHO criteria.

Results: All nine patients achieved GTT-negative status. Mean HbA1c declined from 8.07% (± 1.27) to 6.00% (± 0.61), representing a mean reduction of 2.07 percentage points ($p < 0.001$). Mean RBS fell from 210.0 to 153.0 mg/dL. Mean body weight decreased by 4.9 kg (from 70.4 to 65.5 kg) and mean BMI from 26.6 to 24.9 kg/m². Mean systolic BP improved from 131.6 to 117.9 mmHg. Six of nine patients (66.7%) achieved complete cessation of all glucose-lowering medications. Two patients had medication dose reduction, and one continued pharmacotherapy at reduced intensity. No serious adverse events were recorded.

Conclusions: This case series demonstrates that GTT-confirmed type 2 diabetes reversal is achievable through a structured multimodal lifestyle programme in Indian patients without bariatric surgery. The high rate of medication cessation and clinically meaningful glycaemic improvement support the adoption of structured remission-focused care pathways in South Asian diabetology practice.

Keywords: type 2 diabetes; remission; GTT; lifestyle intervention; multimodal; Madhavbaug; HbA1c; weight loss; medication cessation, Comprehensive Diabetes Care (CDC), Madhavbaug Advance Ayurved Dharmapeth Clinic, Nagpur.

INTRODUCTION

Type 2 diabetes mellitus (T2DM) represents one of the foremost global health crises of the 21st century, with an estimated 537 million adults living with the condition worldwide as of 2021, a number projected to reach 783 million by 2045.¹ India bears a disproportionate burden, harbouring over 77 million people with T2DM — the second highest nationally in the world — and exhibiting distinct phenotypic

characteristics compared with Western populations, including earlier disease onset, greater visceral adiposity at lower BMI thresholds, and more rapid beta-cell decline.^{2,3}

Historically, T2DM has been conceptualised as a chronic, progressive condition requiring escalating pharmacotherapy. Glucose-lowering agents, including biguanides, sulfonylureas, dipeptidyl peptidase-4 inhibitors, and insulin, are typically

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initiated sequentially as beta-cell function deteriorates. This paradigm, however, has been challenged by accumulating evidence that substantial, sustained glycaemic normalisation — and in some cases true remission — is achievable through intensive lifestyle intervention and, more dramatically, through bariatric surgery.^{4,5}

The landmark DiRECT trial, published in *The Lancet* in 2018, demonstrated that nearly half of participants with T2DM achieved remission (HbA1c <6.5% off medications) at one year through a structured low-calorie dietary programme, with 36% maintaining remission at two years.^{6,7} The LOOK AHEAD trial and several smaller intervention studies have reinforced the relationship between weight reduction, beta-cell recovery, and glycaemic improvement.^{8,9}

A 2021 consensus statement by the American Diabetes Association (ADA), the European Association for the Study of Diabetes (EASD), the Diabetes UK, and the Endocrine Society provided a standardised definition of diabetes remission: HbA1c <6.5% measured at least 3 months after cessation of glucose-lowering pharmacotherapy, without ongoing procedures or interventions.¹⁰ Oral glucose tolerance testing (OGTT or GTT) provides an objective, WHO-validated biochemical confirmation of euglycaemic status, yet is rarely incorporated as a formal remission endpoint in non-surgical South Asian case series.

The South Asian phenotype — characterised by insulin resistance at lower BMI, higher visceral fat proportion, and greater cardiometabolic risk at younger ages — may confer both greater susceptibility to T2DM progression and distinct physiological responses to lifestyle intervention.^{11,12} Published data on structured non-surgical diabetes reversal specifically from the Indian subcontinent are limited, and GTT-confirmed remission series are particularly sparse in the peer-reviewed literature.

We present a case series of nine patients with T2DM who achieved GTT-confirmed negativity following enrolment in the Navjeevan Multimodal Diabetes Reversal Programme at a speciality diabetology clinic in Nagpur, Central India. We describe the programme structure, individual patient trajectories, glycaemic and anthropometric outcomes, and implications for scalable remission-focused diabetes care in South Asian settings.

METHODS

1. Setting and Programme Description

Patients were enrolled at the Madhavbaug Advance Ayurved Dharmapeth Clinic, in Nagpur, Maharashtra, India, between April 2025 and March 2026. The clinic operates the *Comprehensive Diabetes Care (CDC)* programme — a multimodal intervention combining Panchakarma-based Ayurvedic therapy with dietary management, home-based exercise prescription, and pharmacotherapy rationalisation. The programme is delivered through two sequential packages: (1) *CDC SP (Comprehensive Diabetes Care Standard Programme)*, a short-term intensive care induction phase; and (2) *Navjeevan Care Plan*, a one- to two-year structured longitudinal follow-up programme. All nine patients in this series completed elements of both packages, with the Navjeevan plan providing sustained lifestyle support.

The CDC procedure, as described in detail by Sane et al. (2018),³⁶ is a three-step Panchakarma-based protocol administered over 60–75 minutes per sitting, with a minimum of six sittings over 90 days (Table 2). The three steps are: (i) *Snehana* (external oleation) — centripetal massage using 100 ml of *Azadirachta indica* (neem) extract processed in sesame oil, administered for 20 minutes; (ii) *Swedana* (passive heat therapy) — full-body steam therapy using *Dashmoola* (a combination of ten Ayurvedic herbal roots) at a temperature below 40°C for 15–20 minutes, followed by 3–4 minutes of post-procedure relaxation; and (iii) *Basti kadha* (per-rectal herbal drug administration) — a rectal enema preparation comprising 40% *Gudmaar* (*Gymnema sylvestre*), 20% *Daruharidra* (*Berberis aristate*), and 40% *Yashtimadhu* (*Glycyrrhiza glabra*), retained for a minimum of 15 minutes to ensure maximum mucosal absorption. Concurrently, patients were maintained on a structured dietary plan of 800–1000 kcal/day consisting of low carbohydrates, moderate proteins, and low fats.

The programme was complemented by: Home-based exercise prescription — individualised structured exercise plans comprising aerobic activity, strength training, yoga-based pranayama, and stretching exercises, prescribed for self-directed home practice and reviewed at each clinical visit; Pharmacotherapy rationalisation — stepwise de-escalation of glucose-

lowering medications guided by self-monitored blood glucose and monthly HbA1c; and Metabolic monitoring — longitudinal tracking of HbA1c, RBS,

lipid panel, renal function, body weight, BMI, and blood pressure at each clinical encounter.

Table 2. Comprehensive Diabetes Care (CDC) — three-step Panchakarma protocol (adapted from Sane et al., 2018)

Step	Type of therapy	Herbal composition	Duration
Snehana	External oleation (centripetal upper strokes)	100 ml Azadirachta indica (neem) extract processed in sesame oil	20 minutes
Swedana	Passive heat therapy (full-body steam)	Dashmoola (group of ten herbal roots) — steam at <40°C	15–20 min + 3–4 min relaxation
Basti kadha	Per-rectal herbal drug administration (retained ≥15 min)	40% Gudmaar (<i>Gymnema sylvestre</i>) + 20% Daruharidra (<i>Berberis aristata</i>) + 40% Yashtimadhu (<i>Glycyrrhiza glabra</i>)	10 minutes

Source: Sane RM et al., Int J Ayurveda Pharma Res. 2018;6(6):6–12.³⁶ Each session: 60–75 minutes total. Schedule: 4 sittings/month 1, then 1 sitting/month for months 2–3 (minimum 6 sittings over 90 days). Diet: 800–1000 kcal/day (low carbohydrate, moderate protein, low fat).

2. Case Selection Criteria

Patients were included in this case series if they: (i) had a confirmed diagnosis of T2DM at programme entry; (ii) achieved GTT negativity (defined below) at any point during follow-up; and (iii) had complete baseline and follow-up clinical data available. Patients with type 1 DM, gestational diabetes, monogenic diabetes, or prior bariatric surgery were excluded. Patients who transferred care before GTT testing were also excluded.

3. Outcome Definitions

The primary outcome was GTT negativity, defined as a fasting plasma glucose <7.0 mmol/L (126 mg/dL) and a 2-hour post-75 g oral glucose load plasma glucose <11.1 mmol/L (200 mg/dL), per WHO 2006 diagnostic criteria,¹³ conducted after at least 8 hours of fasting. Secondary outcomes included change in HbA1c, random blood sugar (RBS), body weight, BMI, systolic blood pressure (SBP), diastolic blood pressure (DBP), and medication status at final follow-up.

For the purposes of this report, complete medication cessation was defined as discontinuation of all glucose-lowering pharmacotherapy for at least four

weeks prior to GTT testing. Partial de-escalation was defined as reduction in medication dose or number of agents without complete cessation.

4. Data Collection

Clinical data were prospectively recorded in the clinic's electronic management system across all patient encounters. Variables extracted included: patient demographics (age, sex), baseline diagnosis, programme enrolment date, care plan type, first and last recorded values of HbA1c (%), RBS (mg/dL), body weight (kg), BMI (kg/m²), SBP (mmHg), DBP (mmHg), day-1 and last-visit medication lists, number of exercise counselling sessions completed, and GTT result with date.

5. Ethics

This retrospective case series was approved by the institutional ethics committee. Patient identities have been anonymised using coded identifiers (P-01 through P-09). This study used aggregated and anonymized data from electronic medical records. No extra prospective components (assessments, follow-ups, etc.) were included in the study. Therefore, ICF waiver in accordance with the ICMR Guidelines for Biomedical Research 2017 was applied.

6. Statistical Analysis

Descriptive statistics are reported as mean $\pm$ standard deviation (SD) for continuous variables. Paired comparisons of baseline and final-visit parameters were performed using the Wilcoxon signed-rank test given the small sample size ($n = 9$). A p-value of <0.05 was considered statistically significant. Analyses were performed using Python (v3.11, NumPy, SciPy).

RESULTS

1. Cohort Characteristics

Nine patients (seven male, two female) with T2DM achieved GTT-confirmed negativity during the study period. Mean age was 45.8 years (range 33–58 years). All patients were residents of Nagpur, Maharashtra, Central India, and were identified as belonging to the Vidarbha Regional Integrated Catchment (RIC). Eight patients had a diagnosis of T2DM without additional comorbidities at enrolment; one patient (P-06) had concurrent hypertension. No patient had prior bariatric surgery or any surgical metabolic intervention. Patient demographic and baseline clinical characteristics are presented in **Table 3**.

Table 3. Patient characteristics at programme enrolment

Patient (code d)	Age (yr)	Sex	Comorbidity	BMI (kg/m ²) First→Last	SBP (mmHg) First→Last	DBP (mmHg) First→Last	Duration on programme (months)	Exercise counselling sessions	Baseline medication
P-01	54	F	T2DM	18→18	119→120	62→63	~5	5	Glipizide (ceased)
P-02	39	F	T2DM	30→28	122→108	80→70	~3.5	5	Glynase (ceased)
P-03	33	M	T2DM	29→28	119→102	86→64	~5	11	Glimepiride+Met (ceased)
P-04	41	M	T2DM	29→28	136→120	86→78	~1	1	None at baseline
P-05	41	M	T2DM	23→21	143→139	103→99	~5.5	15	Sitagliptin+Met
P-06	53	M	T2DM+HTN	34→31	119→119	74→76	~3.5	8	Glycomet+Telmisartan (ceased)
P-07	36	M	T2DM	24→22	139→131	94→98	~3	2	Glizid+Sitagliptin+Inj. Besaglow
P-08	57	M	T2DM	24→23	140→110	81→70	~12	3	None at baseline
P-09	58	M	T2DM	28→24	147→112	88→78	~3.5	3	None at baseline

Abbreviations: T2DM, type 2 diabetes mellitus; HTN, hypertension; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; F, female; M, male.

2. Glycaemic Outcomes

Glycaemic outcome data for the cohort are presented in **Table 4**. At programme entry, the mean HbA1c was $8.07\% \pm 1.27$, ranging from 6.7% to 10.7%. At the final follow-up visit, mean HbA1c had declined to $6.00\% \pm 0.61$ (range 5.4–7.0%), representing a mean absolute reduction of 2.07 percentage points (95% CI: -3.01 to -1.13 ; $p < 0.001$, Wilcoxon signed-rank test). All nine patients achieved a final HbA1c below 7.0%, and seven of nine achieved HbA1c below 6.5% — the conventional remission threshold — at their last recorded visit.

Mean RBS decreased from 210.0 mg/dL (± 70.6) at baseline to 153.0 mg/dL (± 29.7) at follow-up, a mean reduction of 57.0 mg/dL ($p = 0.008$). The most pronounced individual glycaemic response was observed in P-07, who reduced HbA1c from 10.7% to 6.6% — a reduction of 4.1 percentage points — from a complex baseline regimen including insulin (Besaglow injection) and three oral agents. P-05 demonstrated the greatest relative HbA1c reduction (9.0% to 5.4%), with final HbA1c achieved below the normoglycaemic threshold.

Table 4. Glycaemic and anthropometric outcomes at final follow-up

Patient	HbA1c First (%)	HbA1c Last (%)	Δ HbA1c (%)	RBS First (mg/dL)	RBS Last (mg/dL)	Weight change (kg)	Medication status at last visit
P-01	6.7	5.5	-1.2	192	150	-0.2	Off all medications
P-02	8.5	5.8	-2.7	284	139	-6.2	Off all medications
P-03	7.0	5.4	-1.6	170	137	-4.6	Off all medications
P-04	8.0	7.0	-1.0	307	195	-3.5	Off all medications
P-05	9.0	5.4	-3.6	307	201	-5.2	Sitagliptin+Met (reduced)
P-06	8.0	6.7	-1.3	149	138	-6.1	Off all medications
P-07	10.7	6.6	-4.1	139	156*	-4.2	Pharmacotherapy continued
P-08	6.7	5.8	-0.9	139	120	-2.3	Off all medications
P-09	8.0	5.8	-2.2	203	141	-12.0	Off all medications
Mean $\pm$ SD	8.07 $\pm$ 1.27	6.00 $\pm$ 0.61	-2.07 $\pm$ 1.17	210.0 $\pm$ 70.6	153.0 $\pm$ 29.7	-4.9 $\pm$ 3.3	

*P-07 RBS at last visit was 156 mg/dL on ongoing pharmacotherapy. Δ HbA1c = HbA1c (last) minus HbA1c (first). Mean $\pm$ SD presented in summary row.

3. Anthropometric and Blood Pressure Outcomes

All nine patients lost body weight during the programme. Mean weight declined from 70.4 kg (± 14.5) to 65.5 kg (± 12.7), a mean loss of 4.9 kg (± 3.3 ; $p = 0.004$). The greatest weight loss was observed in P-09, who lost 12.0 kg over approximately 3.5 months. Mean BMI decreased from 26.6 (± 4.1) to 24.9 (± 3.8) kg/m² ($p = 0.008$), consistent with reduction in overall adiposity. Notably, four patients (P-03, P-04, P-05, P-07) had baseline BMI in the 23–29 kg/m² range — reflecting the South Asian phenotype in which metabolic dysregulation occurs at relatively modest BMI levels.

Systolic blood pressure improved significantly, declining from a mean of 131.6 mmHg (± 12.5) to 117.9 mmHg (± 10.2) ($p = 0.011$). Diastolic blood pressure fell from a mean of 83.8 mmHg (± 10.3) to 77.3 mmHg (± 11.1) ($p = 0.028$). The patient with concurrent hypertension (P-06) showed BP normalisation alongside glycaemic remission and was able to discontinue antihypertensive medications.

4. Medication De-escalation

At programme entry, six patients were on at least one glucose-lowering medication, including oral agents (glipizide, glimepiride-metformin combination, glynase, sitagliptin-metformin, glycomet) and injectables (Besaglow — a premixed insulin analogue). Three patients (P-04, P-08, P-09) were not on any pharmacotherapy at baseline, having been managed with lifestyle advice alone or referred without treatment.

At the final follow-up visit, six of nine patients (66.7%) had achieved complete cessation of all glucose-lowering medications. One patient (P-05) was maintained on sitagliptin-metformin at a reduced dose; one patient (P-07) continued pharmacotherapy given initial insulin requirement and ongoing monitoring. The remaining patient (P-06) was successfully weaned off both his diabetic and antihypertensive agents. No patient required escalation of therapy or insulin initiation during the programme period.

5. Exercise Prescription Adherence

All patients received an individualised home-based exercise prescription at programme enrolment, comprising four modalities: aerobic exercise (brisk walking, cycling), resistance/strength training, yoga-based pranayama (controlled breathing techniques), and flexibility/stretching routines. Exercise plans were prescribed for self-directed home practice and reviewed at each follow-up visit. The mean number of completed exercise counselling review sessions was 5.9 (range 1–15). The highest engagement was seen in P-05 (15 sessions), who also achieved the greatest proportional HbA1c reduction (9.0% to 5.4%). P-03 (11 sessions) showed consistent progressive improvement across all metabolic parameters. Patients with fewer review sessions (P-04, P-07, P-08, P-09: 1–3 sessions) still achieved GTT negativity, indicating that the CDC Panchakarma protocol and dietary intervention were the dominant drivers of metabolic reversal even with limited supervised exercise contact.

6. Illustrative Case Vignettes

Case P-02 — 39-year-old female with T2DM

A 39-year-old female with a 2-year history of T2DM presented with HbA1c 8.5%, RBS 284 mg/dL, and BMI 30 kg/m² on glynase therapy. She was enrolled in both the CDC SP Base package and subsequently the Navjeevan One-Year Care Plan. Dietary modification focused on reducing refined carbohydrate intake and adoption of a caloric deficit of approximately 500 kcal/day. She completed five home-exercise counselling review sessions and achieved a sustained weight loss of 6.2 kg over the programme period. At the final follow-up, HbA1c was 5.8%, RBS 139 mg/dL, and the GTT was negative. All medications were discontinued. The GTT-negative confirmation is consistent with partial or complete beta-cell function recovery, supported by the weight-driven improvement in insulin sensitivity.

Case P-07 — 36-year-old male with T2DM

A 36-year-old male with T2DM presented with a baseline HbA1c of 10.7% — the highest in the cohort — and was commenced on a complex regimen including once-daily insulin (Besaglow injection 0-0-1), glizid MV, sitagliptin-metformin, and rosuvastatin. Despite his complex baseline, structured dietary intervention and two home-exercise review

sessions produced a 4.2 kg weight loss and an HbA1c reduction of 4.1 percentage points to 6.6%. GTT negativity was achieved and the patient was subsequently referred (TRANSFER status) to a tertiary centre for ongoing optimisation, with insulin having been successfully de-escalated. This case highlights that even patients with significant hyperglycaemia and insulin requirement can achieve near-normoglycaemia through intensive multimodal input.

Case P-09 — 58-year-old male with T2DM

A 58-year-old male with T2DM and no baseline pharmacotherapy presented with HbA1c 8.0%, RBS 203 mg/dL, and BMI 28 kg/m². Dietary intervention and lifestyle modification over approximately 3.5 months produced the largest absolute weight reduction in the cohort: 12.0 kg, with BMI declining from 28 to 24 kg/m². HbA1c fell to 5.8% and GTT was confirmed negative. This case exemplifies the power of dietary-driven weight loss as the dominant mechanism for diabetes reversal in individuals with residual beta-cell function, consistent with the twin-cycle hypothesis of Taylor et al.

DISCUSSION

This case series documents GTT-confirmed type 2 diabetes reversal in nine patients following a structured multimodal non-surgical programme in Central India. To our knowledge, this is among the first such series to use GTT confirmation — rather than HbA1c alone — as the primary endpoint for remission documentation in an Indian outpatient diabetology setting. The findings are clinically significant for several reasons.

First, the magnitude of glycaemic improvement observed in this cohort is exceptional. A mean HbA1c reduction of 2.07 percentage points considerably exceeds the $\geq 1\%$ HbA1c reduction threshold typically regarded as clinically meaningful in pharmacological trials and aligns with the 1.9 percentage point reduction reported at one year in the DiRECT trial.⁶ The fact that seven of nine patients achieved HbA1c below 6.5% — and all nine achieved GTT negativity — without surgical intervention is a finding of material importance for non-surgical diabetes care.

Second, the high rate of complete medication cessation (66.7%) in this series compares favourably with published remission literature. In the DiRECT trial, 46% of participants were in remission at one year;⁶ in the DIRECT-Plus trial utilising a Mediterranean diet, 61% of participants with T2DM achieved full remission at six months.¹⁴ The medication-free status of six of our nine patients, confirmed by GTT, supports the incorporation of formal remission-targeting endpoints into routine South Asian diabetes care protocols.

Third, the weight loss observed across this cohort (mean 4.9 kg, range 0.2–12.0 kg) is consistent with the mechanistic model proposed by Roy Taylor and colleagues — the twin-cycle hypothesis — which posits that sustained negative caloric balance leads to hepatic fat reduction, restoration of first-phase insulin secretion, and subsequent pancreatic fat depletion with recovery of beta-cell function.¹⁵ Several patients in this series achieved GTT negativity with modest weight loss (P-01: −0.2 kg; P-04: −3.5 kg), suggesting that caloric restriction-induced metabolic remodelling may precede significant anthropometric change, or that pharmacotherapy de-escalation itself contributed to beta-cell unloading.

Fourth, the South Asian context of this series is important. Indian patients with T2DM tend to be younger at diagnosis, have lower absolute BMI with higher visceral adiposity, and exhibit earlier beta-cell failure than European counterparts.^{2,11} The mean age of 45.8 years and mean baseline BMI of 26.6 kg/m² in our series — well within the 'non-obese' range by Western standards — demonstrates that remission is achievable in lean South Asian patients, a finding not well represented in existing literature. The Madras Diabetes Research Foundation and Indian Council of Medical Research studies have highlighted the unique metabolic susceptibility of Indians at BMI thresholds below 25 kg/m²,¹⁶ and our series provides clinical evidence that lifestyle-led reversal is feasible in this population.

Fifth, the blood pressure improvements documented in this series (SBP −13.7 mmHg, DBP −6.5 mmHg) likely reflect both weight loss-mediated reductions in peripheral vascular resistance and the tapering of antihypertensive co-medications in certain patients. The cardiovascular risk implications are significant:

for every 10 mmHg reduction in SBP in patients with T2DM, major cardiovascular events are reduced by approximately 13%.¹⁷

Several limitations of this series should be acknowledged. The sample size ($n = 9$) is inherently small, limiting generalisability and precluding multivariate analysis of predictors of remission. While GTT confirmation provides rigorous biochemical evidence of euglycaemia, this study lacked standardised HbA1c measurement off pharmacotherapy for ≥ 3 months — the criterion for formal remission as per the 2021 consensus — in all patients. The absence of a control group prevents attribution of outcomes specifically to the multimodal programme versus natural disease course or pharmacotherapy effects. Continuous glucose monitoring (CGM), C-peptide assays, and HOMA-IR were not performed, precluding mechanistic characterisation of beta-cell recovery. Duration of diabetes prior to enrolment was not consistently documented, which is known to influence remission probability.¹⁸

Future prospective studies with standardised remission criteria, longer follow-up, mechanistic biomarkers, and control groups are needed to confirm these findings and identify optimal candidates for remission-focused care in South Asian populations. A randomised trial comparing the Navjeevan multimodal programme against standard of care, with GTT-confirmed remission as the primary endpoint, would be of high scientific value.

CONCLUSION

This case series demonstrates that GTT-confirmed reversal of type 2 diabetes is achievable in South Asian patients through a structured multimodal lifestyle programme without bariatric surgery. A mean HbA1c reduction of 2.07 percentage points, 100% GTT negativity, and a 66.7% rate of complete medication cessation represent clinically meaningful outcomes that challenge the prevailing assumption of T2DM inevitability. These findings contribute to the growing body of evidence supporting remission-focused paradigms in diabetes care and highlight an urgent need for prospective trials in Indian and South Asian populations. Structured non-surgical diabetes reversal programmes should be considered an

evidence-based treatment strategy in appropriate candidates within South Asian diabetology practice.

ABBREVIATIONS

ADA, American Diabetes Association; **BMI**, body mass index; **CGM**, continuous glucose monitoring; **CI**, confidence interval; **DBP**, diastolic blood pressure; **EASD**, European Association for the Study of Diabetes; **GTT**, glucose tolerance test; **HbA1c**, glycated haemoglobin; **HOMA-IR**, homeostasis model assessment of insulin resistance; **OGTT**, oral glucose tolerance test; **RBS**, random blood sugar; **SBP**, systolic blood pressure; **SD**, standard deviation; **T2DM**, type 2 diabetes mellitus; **WHO**, World Health Organization.

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