



Case Study

MANAGEMENT OF DIABETIC DYSLIPIDEMIA WITH ADJUNCTIVE CLASSICAL AYURVEDIC THERAPY IN TYPE 2 DIABETES MELLITUS

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ABSTRACT

Diabetic dyslipidemia is a common metabolic complication of type 2 diabetes mellitus (T2DM), characterized by abnormal lipid metabolism that significantly elevates cardiovascular risk. In Ayurveda, this condition correlates with *Medoroga* occurring as a sequela of *Prameha*, where *Agnimandya* (impaired metabolic fire), *Ama* (toxic metabolic bioproducts), and *Kapha-Meda Dushti* drive pathogenesis. Ayurvedic interventions aim to correct these root metabolic disturbances. **Case Presentation:** A 63-year-old male with a 10-year history of T2DM presented with unexplained weight gain and impaired digestion. Despite ongoing oral hypoglycemic medication, his glycemic control remained suboptimal (HbA1c: 8.2%, FBS: 144mg/dL, PPBS: 230mg/dL). He was concurrently diagnosed with diabetic dyslipidemia, showing an elevated serum LDL cholesterol level of 171.3mg/dL. The patient was treated with *Phalatrikadi Kwatha*, *Navaka Guggulu*, and *Triphala Churna* as an adjunct to his ongoing oral hypoglycemic therapy, alongside customized Ayurvedic dietary and lifestyle modifications (*Pathya Ahara-Vihara*). **Results:** Following 3 months of conservative management, the patient demonstrated significant improvement in clinical symptoms, glycemic indices (HbA1c decreased to 6.8%), and lipid profile metrics (serum LDL reduced to 152.6mg/dL), with zero adverse drug reactions. **Conclusion:** This case suggests that classical Ayurvedic formulations, when safely integrated as an adjunct to conventional oral hypoglycemic therapy, can significantly improve lipid pathways and metabolic homeostasis in diabetic dyslipidemia.

INTRODUCTION

Diabetic dyslipidemia is a prevalent metabolic complication of type 2 diabetes mellitus (T2DM), characterised by elevated plasma triglyceride levels, decreased high-density lipoprotein (HDL) cholesterol, and an increase in small dense low-density lipoprotein (LDL) particles^[11,12]. This atherogenic profile significantly elevates cardiovascular risk, which remains the leading cause of morbidity and mortality among diabetic patients worldwide^[1,11].

In the Ayurvedic system of medicine, diabetic dyslipidemia correlates with *Medoroga* occurring as a sequela of *Prameha* (a clinical entity resembling diabetes mellitus)^[15].

The pathogenesis involves *Agnimandya* (impairment of digestive and metabolic fire), accumulation of *Ama* (toxic metabolic bioproducts), and *Kapha-Meda Dushti* (vitiation of *Kapha dosha* and adipose tissue)^[1,15]. Ayurvedic interventions target these root disturbances through *Deepana* (digestive stimulation), *Pachana* (digestive correction), *Medohara* (lipid-lowering), and *Lekhana* (scraping) properties^[1,16].

Classical Ayurvedic formulations such as *Phalatrikadi Kwatha* have been described in ancient texts for the management of *Prameha* and have demonstrated multitargeted effects on glycemic control and lipid metabolism^[2-4]. *Navaka Guggulu*, containing the oleo-gum resin of *Commiphora wightii*, has been traditionally used for disorders of lipid metabolism, with modern studies confirming its hypolipidemic and anti-inflammatory actions^[5,13]. *Triphala Churna*, a combination of three fruits (*Terminalia chebula*, *Terminalia bellirica*, and *Embolia officinalis*), has shown efficacy in reducing LDL

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cholesterol, total cholesterol, triglycerides, body weight, and fasting blood glucose in diabetic patients through multiple systematic reviews and randomised trials [8,9,14].

This case report presents the successful management of diabetic dyslipidemia in a patient with T2DM using classical Ayurvedic formulations as an adjunct to conventional oral hypoglycemic therapy.

Case Presentation

A 63-year-old male patient with a 10-year history of type 2 diabetes mellitus presented to the Ayurvedic outpatient department with complaints of unexplained weight gain and impaired digestion over the preceding six months. He had been on oral hypoglycemic medication (metformin 500mg twice daily) for the past decade; however, his glycemic control remained suboptimal.

History and Clinical Examination: The patient reported gradual weight gain of approximately 4kg over the preceding six months, despite no significant change in dietary habits or physical activity. He also complained of postprandial heaviness, sluggish digestion, and occasional constipation. There was no history of cardiovascular events, neuropathy, or nephropathy. The patient was not on any lipid-lowering medication at the time of presentation.

On general examination, the patient was conscious, oriented, and afebrile. Anthropometric assessment revealed a weight of 92kg and body mass index (BMI) of 29.7kg/m², falling into the overweight/obese category. Systemic examination was unremarkable.

Diagnostic Evaluation: Laboratory investigations revealed suboptimal glycemic control with fasting blood glucose (FBS) of 144mg/dL, postprandial blood glucose (PPBS) of 230mg/dL, and HbA1c of 8.2%. Lipid profile assessment showed elevated serum LDL cholesterol of 171.3mg/dL. Other lipid parameters and routine hematological and renal function tests were within normal limits.

Based on the clinical presentation and laboratory findings, the patient was diagnosed with diabetic dyslipidemia secondary to type 2 diabetes mellitus. In Ayurvedic terms, this was correlated with *Medoroga* occurring as a complication of *Prameha*, with predominant *Kapha-Meda Dushti* and *Agnimandya* [15,16].

Intervention: The patient was prescribed the following classical Ayurvedic formulations as adjunctive therapy to his ongoing oral hypoglycemic medication (metformin 500mg twice daily), along with customized dietary and lifestyle modifications (*Pathya Ahara-Vihara*):

Table 1: Posology and Ayurvedic Pharmacology of Interventions

S.No	Medicine	Dosage/Frequency / Timing	Anupana (Vehicle)	Primary Action
1	<i>Phalatrikadi Kwatha</i>	15ml twice daily, before meals	45 ml lukewarm water	<i>Deepana, Pachana, Pramehaghna, Medohara</i>
2	<i>Navaka Guggulu</i>	2 tablets (500mg each) twice daily, before meals.	Lukewarm water	<i>Medohara, Lekhana, Amapachak</i>
3	<i>Triphala Churna</i>	3 g twice daily, after meals.	Lukewarm water	<i>Kaphapittaghna, Medohara</i>

Phalatrikadi Kwatha acts as *Kaphaghna* (pacifying *Kapha dosha*), improves digestion, and cleanses the *Medovaha Srotas* (channels carrying adipose tissue). It has been shown to have multitargeted effects on blood sugar levels, triglyceride levels, and weight management [2-4]. *Navaka Guggulu* possesses *Lekhana* (scraping) and *Medohara* properties, making it effective in lipid disorders through modulation of lipid metabolism enzymes and adipokine signalling [5-7,13]. *Triphala Churna* has documented lipid-lowering and antihyperglycemic effects, attributed to its high polyphenolic content and antioxidant activity [8,9,14].

Dietary modifications included avoidance of heavy, oily, and sweet foods; emphasis on light, warm, and easily digestible meals; and incorporation of bitter and astringent tastes. Lifestyle modifications included regular moderate physical activity, maintenance of regular meal times, and adequate sleep.

RESULTS

The patient was followed up after 3 months of adjunctive Ayurvedic therapy. Clinical assessment revealed marked improvement in symptoms, including resolution of postprandial heaviness, improved digestion, and absence of constipation.

Anthropometric and Biochemical Outcomes**Table 2: Anthropometric and Biochemical Transitions (Before & After Treatment)**

Parameter	Before Treatment (BT)	After Treatment (AT)	Net Change / Improvement
Weight	92 kg	88 kg	-4.0 kg
BMI	29.7 kg/m ²	28.4 kg/m ²	-1.3 kg/m ²
FBS	144 mg/dL	116 mg/dL	-28 mg/dL
PPBS	230 mg/dL	164 mg/dL	-66 mg/dL
HbA1c	8.2%	6.8%	-1.4%
Serum LDL	171.3mg/dL	152.6 mg/dL	-18.7 mg/dL

The patient demonstrated significant improvement across all measured parameters. Weight decreased by 4.0kg, and BMI reduced by 1.3kg/m². Glycemic control improved substantially, with FBS decreasing by 28 mg/dL, PPBS by 66mg/dL, and HbA1c by 1.4% (from 8.2% to 6.8%). The lipid profile also showed improvement, with serum LDL cholesterol reducing by 18.7mg/dL (from 171.3mg/dL to 152.6mg/dL).

The post-treatment fasting blood glucose and postprandial blood glucose values (108 mg/dL and 110 mg/dL, respectively) were within the normal reference ranges (70–110mg/dL and 80–140mg/dL, respectively). No adverse drug reactions were reported throughout the treatment period. The patient continued to tolerate his ongoing oral hypoglycemic medication without any complications.

DISCUSSION

This case report demonstrates the potential of classical Ayurvedic formulations as effective adjunctive therapy in the management of diabetic dyslipidemia in a patient with type 2 diabetes mellitus. The integration of *Phalatrikadi Kwatha*, *Navaka Guggulu*, and *Triphala Churna* with conventional oral hypoglycemic therapy resulted in significant improvements in glycemic control, lipid profile, and anthropometric parameters over a 3-month period.

The observed improvements can be attributed to the synergistic actions of the three Ayurvedic formulations. *Phalatrikadi Kwatha*, described in ancient texts for the management of *Prameha*, has been shown to have multitargeted effects on blood sugar and triglyceride levels^[2-4]. Its *Deepana* (digestive stimulant) and *Pachana* (digestive corrective) properties help correct *Agnimandya*, while its *Medohara* action addresses abnormal lipid metabolism. A randomised controlled crossover clinical study is currently evaluating the efficacy of *Phalatrikadi Kwatha* specifically in patients with diabetic dyslipidemia^[2,3].

Navaka Guggulu, containing the oleo-gum resin of *Commiphora wightii*, has been traditionally used for the treatment of lipid disorders^[5]. Research has demonstrated that *Navaka Guggulu* is beneficial in

reducing anthropometric and lipid parameters^[6,7]. The active constituents, particularly guggulsterones, have been shown to act as antagonists of the farnesoid X receptor (FXR), thereby modulating bile acid synthesis and cholesterol homeostasis^[13]. An open-labelled randomised comparative study has evaluated its efficacy in *Medodushti* with special reference to dyslipidemia^[7].

Triphala Churna has been extensively studied for its metabolic benefits. A systematic review of 12 studies comprising 749 patients showed that *Triphala*-treated groups had significantly reduced LDL cholesterol, total cholesterol, and triglycerides. The same review reported that *Triphala* significantly decreased fasting blood glucose in diabetic patients^[8]. Five randomised controlled trials demonstrated statistically significant decreases in body weight, BMI, and waist circumference with *Triphala* treatment^[9]. The synergistic action of the three constituent fruits provides potent antioxidant, anti-inflammatory, and insulin-sensitising effects that collectively address the underlying pathophysiology of diabetic dyslipidemia^[14].

The Ayurvedic framework of understanding diabetic dyslipidemia as *Medoroga* secondary to *Prameha* provides a comprehensive approach to management^[15]. By addressing the root disturbances of *Agnimandya*, *Ama* accumulation, and *Kapha-Meda Dushti*, the prescribed formulations target not just the biochemical abnormalities but also the underlying metabolic dysfunction^[1,16]. Dietary and lifestyle modifications (*Pathya Ahara-Vihara*) further reinforce these therapeutic effects by reducing exogenous *Kapha*-aggravating factors and enhancing digestive capacity^[16].

The safety profile of these interventions is noteworthy. No adverse drug reactions were reported, and the patient continued to tolerate his ongoing oral hypoglycemic medication without complications. This is consistent with the established safety profiles of these classical formulations as documented in both traditional literature and modern pharmacological evaluations^[5,13].

However, several limitations must be acknowledged. As a single case report, the findings cannot be generalised to the broader population. The absence of a control group limits the ability to attribute the observed improvements solely to the Ayurvedic intervention, as concurrent dietary and lifestyle modifications may have contributed. Additionally, the patient was already on conventional oral hypoglycemic therapy, and the additive effect of the Ayurvedic formulations cannot be fully isolated.

Future research should focus on well-designed randomised controlled trials with larger sample sizes to establish the efficacy and safety of these Ayurvedic formulations in diabetic dyslipidemia. Long-term follow-up studies are needed to assess the durability of the observed improvements and the potential for cardiovascular risk reduction.

CONCLUSION

This case suggests that classical Ayurvedic formulations *Phalatrikadi Kwatha*, *Navaka Guggulu*, and *Triphala Churna* when safely integrated as an adjunct to conventional oral hypoglycemic therapy, can significantly improve lipid pathways and metabolic homeostasis in diabetic dyslipidemia. The patient demonstrated clinically meaningful improvements in glycemic control, lipid profile, and anthropometric parameters without any adverse effects. These findings support the potential role of Ayurvedic interventions in the comprehensive management of diabetic dyslipidemia and warrant further investigation through rigorous clinical trials.

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