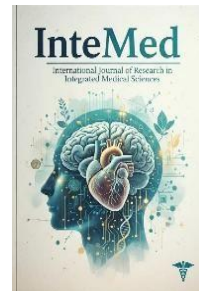




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Case Study

THERAPEUTIC EFFECT OF NIMBA CHOORNA IN PRAMEHA: A SINGLE-CASE STUDY WITH REFERENCE TO TYPE 2 DIABETES MELLITUS

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Abstract: Prameha is described in Ayurveda as a disorder involving abnormal urinary quantity and quality and is closely relevant to the clinical spectrum of metabolic disease. Contemporary Type 2 diabetes mellitus is characterized by persistent hyperglycaemia and is strongly influenced by dietary and lifestyle factors. Nimba (*Azadirachta indica*) possesses traditionally described Tikta-Kashaya Rasa, Laghu-Ruksha Guna and Kapha-Pitta-shamaka activity, with pharmacological literature also describing hypoglycaemic, antioxidant and anti-inflammatory effects.

Aim: To document the clinical response to Nimba Choorna in a patient presenting with features of Prameha and biochemical findings compatible with Type 2 diabetes mellitus

Materials and Methods: A 45-year-old female attending the Kayachikitsa OPD at College of Ayurveda and Research Centre, Nigdi, Pune, presented with increased frequency of urination, nocturnal urination, weakness and increased appetite. Baseline fasting and postprandial blood glucose were 169.2 mg/dL and 242.5 mg/dL, respectively.

Nimba Choorna was administered orally at 3 g twice daily before meals for 45 days. Symptoms were documented at baseline and during follow-up, while biochemical parameters were reassessed.

Observation and Result: Progressive improvement was recorded in the assessed subjective symptoms. Fasting blood glucose decreased to 141.7 mg/dL and postprandial blood glucose to 164.3 mg/dL on the documented 30th-day assessment. Urine sugar remained negative. By day 45, the patient reported marked reduction in the presenting complaints.

Conclusion: The present uncontrolled single-case observation indicates a favourable symptomatic and biochemical change following Nimba Choorna administration. Because the observation represents one patient without a comparator, it should be regarded as preliminary and hypothesis-generating rather than proof of efficacy.

KEY WORDS: *Prameha, Nimba Choorna, Type 2 Diabetes Mellitus, Prabhuta Mutrata, Naktamutrata, Daurbalya*

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INTRODUCTION

Prameha occupies an important place in Ayurvedic descriptions of disorders associated with excessive urinary output and altered urinary characteristics. Classical descriptions emphasize the contribution of Tridosha, with Kapha having a prominent role in many presentations, and identify Meda, Kleda and other Dhatus and tissues among the structures affected during disease evolution [1–3]. The disorder is also discussed in the context of Santarpana and dietary or behavioural factors that promote Kapha and metabolic disturbance [1,3].

The clinical relevance of Prameha is particularly evident when considered alongside Type 2 diabetes mellitus, a chronic metabolic condition in which hyperglycaemia develops through mechanisms that include impaired insulin action and progressive dysfunction of pancreatic beta cells [4]. Persistent hyperglycaemia can subsequently contribute to vascular, renal, neurological and ocular complications. Diabetes represents a major global health burden, with a substantial proportion of cases occurring in low- and middle-income countries [5].

Ayurvedic management of Prameha is therefore directed not only toward the urinary manifestations but also toward correction of the underlying Dosha-Dushya and Srotas disturbances [1]. Nimba is traditionally described with properties that are relevant to Kapha and Pitta balance, while experimental and pharmacological literature has investigated its possible metabolic and antioxidant actions [7,9]. The present case was documented to explore the clinical response following administration of Nimba Choorna.

AIM AND OBJECTIVES

To evaluate the therapeutic efficacy of Nimba Choorna in management of Prameha with special reference to Type 2 Diabetes Mellitus.

CASE REPORT

A 45-year-old female reported to the Kayachikitsa OPD of College of Ayurveda and Research Centre, Nigdi, Pune, with approximately three months of increased urinary frequency, particularly during the night, accompanied by generalized weakness and increased appetite. She reported nocturnal urination approximately 7–8 times per night. Baseline investigations showed fasting blood glucose of 169.2 mg/dL and postprandial blood glucose of 242.5 mg/dL; urine sugar was negative. She was not receiving oral hypoglycaemic therapy at presentation.

Nimba Choorna was prescribed at a dose of 3 g twice daily, administered before meals, for a total treatment period of 45 days. Clinical observations were recorded at baseline and during follow-up. The available biochemical assessment included fasting blood glucose, postprandial blood glucose and urine sugar.

PERSONAL HISTORY

The patient's personal history is summarized in Table 1.

Table 1: Personal history

Parameter	Finding
Bowel habit	Samyaka
Appetite	Increased; meal timings irregular
Sleep	Disturbed
Addictions	No history of smoking, alcohol or tobacco use

PAST HISTORY

Table 2: Past history

History	Finding
Hypertension, asthma or other major illness	Not reported
Blood transfusion	No history
Concurrent drug treatment	None reported
Family history	No significant history reported
Surgical history	No significant history reported

GENERAL EXAMINATION

Table 3: General examination findings

Parameter	Finding	Parameter	Finding
Appearance	Fair	Height	160 cm
Pulse	80/min, regular	Weight	70 kg
Blood pressure	120/70 mmHg	BMI	27.3 kg/m ²
Respiratory rate	16/min	Temperature	Afebrile

No.	Parameter	Finding
3	Mutra	8–10 times/day and 7–8 times/night; pale yellow, odourless
4	Jihwa	Ishat Sama
5	Akruti	Madhyama
6	Shabda	Prakrit
7	Sparsha	Anushna Sheeta
8	Druka	Prakrit (normal)

SYSTEMIC EXAMINATION

Table 4: Systemic examination findings

System	Finding
CNS	Conscious and well oriented to person, place and time
CVS	S1 and S2 audible; no murmur reported
Respiratory system	Bilateral symmetrical air entry with normal vesicular breathing; no added sounds
Per abdomen	Soft and non-tender; umbilicus centrally placed; no organomegaly
Digestive system	No abnormality reported

ASHTAVIDHA PARIKSHA

Table 5: Ashtavidha Pariksha (eightfold examination)

No.	Parameter	Finding
1	Nadi	80/min, regular
2	Mala	Once daily; Niram

AYURVEDIC ASSESSMENT OF PRAMEHA

Table 6: Ayurvedic assessment (Nidana Panchaka / Samprapti Ghataka)

Component	Finding
Dosha	Tridosha involvement, with Kapha given specific prominence
Dushya	Meda, Ojas, Shukra, Vasa, Majja, Rakta, Ambu, Lasika, Rasa and Mamsa
Srotas	Mutravaha and Medovaha Srotas
Srotodushti	Atipravritti
Adhithana	Basti and the body as a whole
Swabhava	Chirakari
Roga-marga / Marma	Madhyama
Udbhava sthana	Amapakvashaya

SAMPRAPTI

Nidana exposure → Kapha aggravation → impairment of Agni → Ama formation → disturbance of Meda → obstruction/alteration of Medovaha and Mutravaha Srotas

→ involvement of Kapha and Meda in Mutra → increased and turbid urinary manifestation → Prameha.

MATERIALS AND METHODS

A single-patient observational case study was carried out in the Kayachikitsa OPD of College of Ayurveda and Research Centre, Nigdi, Pune. The patient, who presented with symptoms of Prameha and blood glucose values compatible with Type 2 diabetes mellitus [8], was treated with Nimba Choorna at a dose of 3 g twice daily, taken orally before meals (Pragbhakta), for 45 days (Table 8). Symptoms were graded serially at baseline and on days 7, 14, 21, 30 and 45, and fasting blood glucose, postprandial blood glucose and urine sugar were used as objective parameters.

DRUG REVIEW

Nimba (*Azadirachta indica*) belongs to the family Meliaceae. Its Ayurvedic and phytochemical profile is summarized in Table 7 [6]. The proposed relevance of these properties in the present case is that the drug may be compatible with an Ayurvedic approach directed toward Kapha, Kleda and Meda-related disturbance. Pharmacological reports have also investigated neem constituents for glucose-lowering, antioxidant and anti-inflammatory activity [7,9].

Table 7: Ayurvedic and phytochemical profile of Nimba (*Azadirachta indica*)

Attribute	Description
Botanical name / Family	<i>Azadirachta indica</i> / Meliaceae
Rasa	Tikta, Kashaya
Guna	Laghu, Ruksha
Virya	Sheeta
Vipaka	Katu
Doshaghната	Kapha-Pitta-shamaka
Karma	Krimighna, Kushtaghna, Jwaraghna, Vishaghna, Raktashodhaka, Pramehahara
Chemical constituents	Nimbin, Nimbidin, Azadirachtin, Quercetin

TREATMENT ADMINISTRATION

Table 8: Details of intervention

Drug	Dose	Timing	Route	Duration
Nimba Choorna	3 g twice daily	Pragbhakta (before meals)	Oral	45 days

ASSESSMENT CRITERIA

Subjective parameters assessed were Prabhuta Mutra, Avila Mutra, Ati-sweda, Daurbalya, Pipasa, Kshudavridhi and Naktamutrata. Objective parameters were fasting blood glucose, postprandial blood glucose and urine sugar. The grading criteria applied to the subjective parameters are given in Table 9.

Table 9: Grading criteria for subjective parameters

Parameter	Grade 0	Grade 1	Grade 2	Grade 3
Prabhuta Mutrata (polyuria)	Normal daytime and nighttime frequency with normal volume	Increased frequency within the recorded lower abnormal range	Frequency of 8–10 times/day or 3–5 times/night with increased volume	More than 10 daytime or more than 8 nighttime episodes with increased volume
Avila Mutrata	Clear urine	Mild/faint cloudiness	Definite turbidity	Marked/dark cloudiness
Ati-sweda	Sweating only with heavy exertion or environmental heat	Profuse sweating with moderate activity	Sweating with minimal activity	Sweating even at rest or in cold conditions

Parameter	Grade 0	Grade 1	Grade 2	Grade 3
Daurbalya	Routine activities performed without difficulty	Routine work possible with fatigue	Routine work associated with considerable fatigue	Unable to perform routine activities
Pipasa	Thirst within the recorded normal range	Increased thirst, approx. 9–11 episodes/day with 2–2.5 L intake	Increased thirst with approx. 2.5–3 L intake	Marked thirst with more than 3 L intake
Kshudavridhi	Usual eating pattern	Approx. three meals/day	Approx. four meals/day	Four meals/day with persistent hunger
Naktamutrata	No nocturnal urination	1–2 episodes/night	3–4 episodes/night	More than 4 episodes/night

OBSERVATIONS AND RESULTS

The recorded subjective scores decreased over the treatment period (Table 10). Prabhuta Mutrata changed from 3 at baseline to 1 at day 45; Avila Mutrata from 2 to 0; Ati-sweda from 2 to 0; Daurbalya from 3 to 1; Pipasa from 1 to 0; Kshudavridhi from 3 to 1; and Naktamutrata from 3 to 1.

Table 10: Effect of Nimba Choorna on subjective parameters (grades)

Parameter	Day 0	Day 7	Day 14	Day 21	Day 30	Day 45
Prabhuta Mutrata	3	2	1	1	1	1
Avila Mutrata	2	2	1	1	0	0
Ati-sweda	2	2	1	1	0	0
Daurbalya	3	3	2	2	1	1
Pipasa	1	1	1	1	0	0

Parameter	Day 0	Day 7	Day 14	Day 21	Day 30	Day 45
Kshudavridhi	3	3	2	2	1	1
Naktamutrata	3	2	2	1	1	1

Objective parameters at baseline and on day 30 are shown in Table 11.

Table 11: Effect of Nimba Choorna on objective parameters

Investigation	Baseline	Day 30
Fasting blood glucose (mg/dL)	169.2	141.7
Postprandial blood glucose (mg/dL)	242.5	164.3
Urine sugar	Nil	Nil

Within the limits of this single observation, both symptom scores and the documented blood glucose values showed improvement during follow-up. Because no control group, repeated long-term biochemical assessment or statistical analysis was available, the observations cannot demonstrate causality.

DISCUSSION

The patient presented with a cluster of symptoms that were interpreted as Prameha, including increased urinary frequency, nocturnal urination, weakness and increased appetite. Her reported lifestyle included irregular meals and disturbed sleep, and the case assessment considered a Kapha-predominant metabolic pattern. These findings were interpreted through the Ayurvedic framework of Tridosha involvement with greater emphasis on Kapha and Meda-related disturbance.

Nimba Choorna was selected because its documented Ayurvedic attributes are considered compatible with a therapeutic approach aimed at Kapha-Pitta balance and reduction of Kleda and Meda-related features. Tikta-Kashaya Rasa and Laghu-Ruksha Guna are traditionally associated with actions relevant to Kapha and metabolic excess, while the recorded Sheeta Virya provides the rationale for considering Pitta modulation.

The reduction in the recorded symptom scores and the fall in fasting and postprandial glucose during follow-up are clinically noteworthy observations. However, spontaneous variation, dietary or behavioural changes, measurement variability and the natural course of disease cannot be excluded. In addition, because the patient was not receiving conventional glucose-lowering medication according to the

case history, the observed change occurred without documented concurrent pharmacotherapy; this does not by itself establish that Nimba caused the improvement.

Experimental studies have reported biological activities of neem constituents, including possible glucose-lowering, antioxidant and anti-inflammatory effects [7,9]. Such findings may provide a hypothesis for future research, but laboratory or preclinical evidence should not be equated with demonstrated clinical efficacy.

The most appropriate interpretation of this case is therefore that Nimba Choorna was temporally associated with improvement in the recorded symptoms and biochemical parameters. Controlled clinical studies with predefined outcomes, adequate sample size, appropriate safety monitoring and longer follow-up are required before therapeutic conclusions can be generalized.

CONCLUSION

In this single-patient case, administration of Nimba Choorna at 3 g twice daily for 45 days was followed by improvement in the documented symptoms of Prameha and reduction in fasting and postprandial blood glucose values by the 30th-day biochemical assessment. No adverse effect was reported in the case record. The findings are preliminary and should be interpreted as an observation that supports further investigation rather than as evidence of established efficacy.

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