

ROLE OF KATHAKAKHADIRADI KASHAYA IN PREVENTIVE DIABETOLOGY; A CASE REPORT

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ABSTRACT

Diabetes mellitus is an abnormal scenario of altered glucose tolerance due to inadequate insulin action. Small blood vessels are susceptible to the complications of diabetes mellitus, such as basal lamina thickening and endothelial cell proliferation called diabetic microangiopathy, frequently causing retinal and renal damage. Microangiopathy affecting the kidney is called *diabetic nephropathy* and is the second leading cause of death due to diabetes mellitus after myocardial infarction. Due to the persistent hyperglycemic status of microcapillaries in the kidney, some histological changes occur in the nephron level detected by electron microscopy only after a few years of onset of diabetes^[1]. This is a case report of a known diabetic and hypertensive patient who complained of *frothy urine* and was diagnosed as type 2 diabetes-induced *microalbuminuria* and *intervened* with *Kathaka Khadiradi Kashaya*, a traditional antidiabetic formulation famous in South India. Two months of administration of the medicine reduced the urine microalbumin and albumin creatinine ratio to a significant normalcy, hence proved to be a choice for a clinical trial in the preventive aspect of diabetic nephropathy.

Key words: Microalbuminuria, diabetes mellitus, Kathakakhadiradi Kashaya, Ayurveda, Case report

INTRODUCTION

The first detectable clinical presentation of diabetic nephropathy occurs in its third stage, called microalbuminuria, diagnosed as excess elimination of albumin in urine. Now, annual microalbuminuria

screening is recommended by WHO and the International Diabetes Foundation for patients with diabetes mellitus^[2]. This is a relevant case report in this regard, as experimenting with a traditional

Kashaya yoga of Kerala in rectifying the pathology of microalbuminuria and finding a valid nephroprotective medicine which will benefit the field of preventive nephrology. Therefore, *Kathaka Khadiradi Kashaya*, a combination of 12 herbs, was selected from the textbook *Sahasrayoga*^[3].

PATIENT INFORMATION

On 10 December 2019, a 60-year-old male patient reported to the hospital with a complaint of frothy urination, especially in the morning. who was a known diabetic (type 2) for eight years and hypertensive for 04 years. He has been under *antidiabetic and antihypertensive* medication since 2011 and 2015 respectively, with an occasional elevation of blood sugar ranging between 150- 250 mg/dl. He had a family history of diabetes mellitus for his mother and a history of heart attack in 2015, underwent angioplasty, and consumed blood thinning medications for 02 years. There has been a disclosure of other complaints typical in diabetic scenarios, including general debility, excessive hunger, increased urine output, and periorbital edema.

CLINICAL FINDINGS

The patient underwent a thorough history taking and clinical examination at the outpatient department. His bladder frequency was 6-7 times/day and 3/night with frothy, unclear urine revealed *Athimutrata* (polyuria) and *Aavilatha* (unclear urine). His *Ahara* (diet) was a mixed type with *Vishama agni* (indigestion), *Kroora koshta* (constipated), and *Vihara* (activities) founded to be *Alpavyayama* (sedentary) and *Divaswapna* (day-sleep). On systemic examination, he exhibited no icterus, cyanosis, clubbing, or pallor. His tongue was moist and clear and he had issues with flatulence and constipation. No abnormalities were found in the central nervous system or cardiovascular system. The respiratory system showed equal air entry bilaterally with a clear chest. His height was 163 cm, and his body weight was 78 kg, with an obese build. His body mass index was 29.4 kg/m².

TIMELINE

The chronological description of the clinical events given in Table I

DIAGNOSTIC ASSESSMENTS

His initial laboratory findings are presented in Table II.

THERAPEUTIC INTERVENTIONS

The treatment advised was the administration of *Kathamkadiradi Kashaya* at a dose of 96 ml in the morning and evening one hour before food for one month. The patient is advised to continue antihypertensive and antidiabetic medication as earlier and to consume *Pramehasatmya Ahara* (antidiabetic diets) with the notable inclusion of dietary fibres. He is restricted from food with a high glycemic index to diminish the renal vascular hyperglycemia. *Kathamkadiradi Kashaya* is a combination of 12 drugs given in Table III.

FOLLOW-UP AND OUTCOME

The patient is advised to visit the Out Patient Department after one month for follow-up, and urine microalbumin, albumin creatinine ratio, FBS, and PPBS were found to be reduced. Hence, the medicine dosage is revised, and it is advised to take 96 ml of *Kathamkadiradi Kashaya* in the morning only. Then, the patient visited the OPD after one month, and urine albumin status was found to be persistently reduced and advised to continue medicine for 02 more months. His complaint of frothy urine was also reduced. A comparison of laboratory findings on follow-ups is given in Table IV. A photograph of the urine microalbumin test in various stages is shown in image I.

DISCUSSION

Nephropathy leads to morphological changes in renal vasculature, including micro and macroangiopathy. Histopathology of microalbuminuria includes vascular lesions like arteriosclerosis, nodular sclerosis of glomerular capillaries, and vasculitis^[3]. In Ayurvedic perspective, it is a *Pramehajanya Vrukkaroga* (diabetic kidney disease) with vitiation of *Kapha* in excess along with *Pitharakta* where *Sanga* and *Vimargagamana* (obstruction and abnormal passage) of the *Dhathusaramsa*(albumin) through *Mutravahasrotas*, which may be expressed as nodular sclerosis and thickening (*Kapha* causes

Grathithatwa), *hyaline arteriosclerosis (Rakta dushti)*. Necrotizing papillitis and tubulointerstitial nephritis are the inflammatory changes that cause further deterioration of renal function.

Several researchers did pharmacological studies on *Kathamkadiradi Kashaya*, and it has proven to be^[4],

- Anti-diabetic; all individual drugs on the medicine are antidiabetic
- Antioxidant
- Antidiabetic action of the drug is inferred to be due to antioxidant activities

The pharmacological properties of *Kathamkadiradi Kashaya*, which were found helpful in rectifying microalbuminuria, are.

- *Katu Kashaya tikta rasa, Ruksha, Laghu guna, Ushna virya, Katu vipaka, Kaphadikapitha vatahara, Raktadoshahara and Pramehaghna.*
- *Antidiabetic, antihypertensive, antioxidant, and vascular antiproliferative & nephroprotective action may enable the glomerular capillaries to heal in a normotensive and normoglycemic environment.*

CONCLUSION

Correction of Microalbuminuria demands the cure of *Kapha raktadushti* to alter glomerular and vascular changes and *Pitha vata haratwa* to arrest its prognosis.

In this case experience, *Kathamkadiradi Kashaya* is effective in preventing diabetic nephropathy.

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TABLE I: Chronological description of the clinical events.

	DATE	CLINICAL EVENT
1.	2011	<ul style="list-style-type: none"> • Diagnosis of Diabetes mellitus followed by allopathic medication for 3 months
2.	2015	<ul style="list-style-type: none"> • Diagnosis of hypertension • History of heart attack followed by angioplasty and blood thinning medication (aspirin) for 02 years. • Initiation of antihypertensive (amlodipine 5mg) and antidiabetic (Glyciphage SR 500mg)
3.	10 th dec 2019	<ul style="list-style-type: none"> • Consulting hospital for frothy urination and other usual diabetic symptoms
4.	11 th dec 2019	<ul style="list-style-type: none"> • Laboratory investigation for the same • Initiation of Ayurvedic medication
5.	13 th Jan 2019	<ul style="list-style-type: none"> • Repeated laboratory assessment and continued medicine for one more month
6.	18 th Feb 2019	Follow up assessment and revisal of dosage.

TABLE II; Initial laboratory investigations

Number	Laboratory test	Value
1.	Fasting Blood Sugar (FBS)	186 mg/dl
2.	Post Prandial Blood Sugar (PPBS)	213 mg/dl
3.	Glycosylated haemoglobin (HbA1C)	9.3%
4.	Urine creatinine	102 mg/dl
5.	Urine Microalbumin	151 mg/dl
6.	Urine Albumin Creatinine Ratio	148 mg/g of creatinine

TABLE III; Kathakakhadiradi Kashaya

No.	Drug	Botanical name	Parts used
1	Kataka	Strychnos potarorum	seed
2	Khadira	Acacia catechu	Heartwood
3	Dhatri	Embilica officinalis	Pericarp of fruit
4	Vairi	Salacia reticulata	Dried roots
5	Darvi	Berberis aristata	Dried stem
6	Samanga	Biophytum sensitivum	Whole plant
7	Vidula	Barringtonia acutangula	Root
8	Rajani	Curcuma longa	Dried rhizome
9	Patha	Cyclea peltata	Root tuber
10	Chutabija	Mangifera indica	Dried seeds
11	Abhaya	Terminalia chebula	Dried pericarp
12	Abda	Cyperus rotundus	Dried rhizome

TABLE IV: Comparison of the laboratory findings before and after treatment

	Laboratory investigation	Before treatment (11/12/2019)	After Treatment (13/01/2020)	Follow up. (18/02/2020)
1	Urine creatinine	102 mg/dl	43mg/dl	50mg/dl
2	Urine microalbumin	151 mg/L	15mg/dl	13mg/dl
3	Urine Albumin – Creatinine Ratio	148 mg/gm of creatinine	35mg/gm of creatinine	26mg/gm of creatinine
4	FBS	186 mg/dl	155mg/dl	163mg/dl
5	PPBS	213mg/dl	189mg/dl	197mg/dl

IMAGE I; Photograph of laboratory urine analysis.

