

CASE REPORT

Ayurvedic Management of Diabetic Complications - A Case Report

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ABSTRACT

Diabetes mellitus can fall under *Prameha* in *Ayurveda*. Long-standing *Prameha* leads to several complications. Some of the subsequent complications of diabetes mellitus are diabetic osteomyelitis, charcot foot, peripheral neuropathy, diabetic ulcer, periarticular arthritis, etc. This case will be discussing a patient who had some of the above complications. Diabetic complications were badly affecting his day-to-day activities. Hence, the treatment was mainly focused on reducing his symptoms. 73-year-old upper-middle-class man resided at Vijayawada for the past 70 years and worked as a businessman (egg cellar) for 50 years there, admitted to Vaidyaratnam *Ayurveda* College hospital on 2020 January 21st, presented with numbness of both upper limbs and lower limbs and difficulty in walking for the past 2 years and difficulty to raise left upper limb for the past 1 year. The case was diagnosed as *Prameha Upadrava*. Accordingly, the basic *Ayurvedic* principles were used for the treatment. Along with internal medicines, *Rookshana*, *Snehana*, *Swedana*, *Sodhana*, *Rasayana*, and *Samana* therapies were also administered. After 47 days of treatment, he was able to walk without moving to one side like he used to. He was also relieved of tremors and the numbness had begun subsiding. His left shoulder joint flexion and abduction were possible up to 120°. This case categorically emphasizes the need for positively constructive and effective results if two systems of medicine go hand in hand at different stages of treatment to achieve optimum healing of the patient. This case also tells us the importance and effectiveness of *Rasayana* therapy in *Prameha*.

1. INTRODUCTION

Type 2 diabetes mellitus is a chronic metabolic disorder in which prevalence has been increasing steadily all over the world.^[1] It is assessed that in 2011, 366 million people had diabetes mellitus; by 2030, this would have risen to 552 million.^[2] In every country, the number of people with type 2 diabetes mellitus is increasing with 80% of people living in low- and middle-income countries.^[1] As a result of lifestyle and environmental risk factors, the incidence of type 2 diabetes mellitus fluctuates substantially from one geographical region to the other.^[3] Type 2 diabetes mellitus is due primarily to genetics and lifestyle factors.^[4] In the development of type 2 diabetes mellitus, several lifestyle factors are known to be important; these are physical inactivity, sedentary lifestyle, cigarette smoking, and generous consumption of alcohol.^[5] Obesity has also been found to contribute to approximately 55% of cases of type 2 diabetes mellitus.^[6]

Some of the subsequent complications of diabetes mellitus are diabetic osteomyelitis, charcot foot, diabetic peripheral neuropathy, diabetic ulcer,

periarticular arthritis, etc. Diabetic neuropathy is a common disease and is defined as signs and symptoms of peripheral nerve dysfunction are associated with diabetes mellitus in patients and in whom other causes of peripheral nerve dysfunction have been excluded.^[7] Diabetes neuropathy is a relatively early and common complication affecting approximately 30% of diabetes patients.^[8] There is a higher prevalence of diabetes mellitus in India (4.3%).^[9] Probably Asian Indians are more prone to insulin resistance and cardiovascular mortality.^[10] The incidence of diabetic neuropathy in India is not well known, but in a study from South India, 19.1% of type II diabetic patients had peripheral neuropathy.^[11] The invention of insulin and hypoglycemic medicines have done a great service in the management of diabetes mellitus, but these patients are not getting a proper solution for their neuropathic complications.^[12]

Diabetes mellitus can fall under *Prameha* in *Ayurveda*. Long-standing *Prameha* leads to several complications. This case will be discussing a patient who had some of these complications. Diabetic complications were badly affecting his day-to-day activities. Hence, the treatment was mainly focused on reducing his symptoms. Internally, *Kaphamedhokara*, *Agni Deepana*, and *Bala Vardhaka* medicines were administered. *Kriyakramas* such as *Dhanyamla Dhara*, *Rasayana* therapy, and *Thakradhara* were also administered

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2. CASE HISTORY

This is a known case of type 2 diabetes mellitus patient for the past 10 years, hypertension and dyslipidemia for the past 2 years, amputation was done on his right 2nd toe 2 years back, and was left with a painful ulcer on the dorsal aspect of the foot. After that, he felt gait imbalance and tremors. Gradually, he noticed a decreased sensation in both lower limbs, numbness of both upper limbs and lower limbs, especially on the sole of foot and fingers of both hands, difficulty in buttoning shirts, and difficulty in flexion of fingers. The symptoms were persistent and had no effect on diurnal variation or temperature variations. 1 year back, he also noticed a restricted and painful movement of his left shoulder. He was under allopathic medication for the past 2 years and his diabetes mellitus is under control. However, he did not get any symptomatic relief.

2.1. Personal History

Everyday, he used to consume cooked fish (live in stagnant water), curd and sweets, and mutton every Sunday (for the past 2 years, he is a vegetarian), his appetite was altered, bowel movements were not satisfactory, and only had a frequency of 3 times a week along with hard consistency, micturition 4–5/day, 2–3/night, sleep was disturbed due to numbness. He had a habit of alcohol (2 peg) intake and puff a cigar occasionally. Systemic hypertension was present. There is no known history of diabetic mellitus in the family. However, his father and brother passed away due to myocardial infarction.

2.2. Treatment History

At the time of admission, he was taking Esogress D tab, Nebivolol 5 mg., Teneligliptin 20 mg & metformin hydrochloride 1000 mg tab, Progynova - NT, Cilostazone 50 mg, Ecospirin 75 mg, Atoder. 20 mg, Telmisartan 40 mg, Alprazolam, Inj. humstard 30/70 32-unit 30 unit. *Ayurvedic* treatment is given along with these medications.

2.3. General Examination

His vitals were within normal limits. Antalgic gait with moderate built, pallor, icterus, cyanosis, and lymphadenopathy were absent. Height was 164 cm, weight was 77 Kg, and BMI was 28.62 kg/m². Dorsalis pedis pulse and posterior tibial pulse were elicited, and right dorsalis pedis pulse was prominent.

2.4. Systemic Examination

2.4.1. Nervous system examination

Appearance and behavior were neat, well dressed, and cooperative; the emotional state was pleasant, oriented to time, date, person; and general intelligence was intact. There was no wasting of muscles. Soft-touch sensation, pain sensation, cold touch sensation, and vibration perception were intact in both upper limbs. A hot touch sensation was absent in the right palm of dermatomes C6, C7, and C8. The soft-touch sensation was absent in L4, S2 of the left foot, and L5 of the right foot. Cold and hot touch sensations and pain sensations were absent up to the middle of both forelegs. The hot perception was absent in L5 of the right lower limb. Vibration perception was absent in both lower limbs. Proprioception was impaired and graphesthesia was partially impaired. NORFOLK QOL DN^[13] was calculated as 107.

2.4.2. Locomotory system examination

Periarticular arthritis on the left shoulder joint (flexion and abduction possible up to 90° - measured using a goniometer, Apley Scratch test was positive with negative drop arm test and negative pain arch syndrome)

2.4.3. Integumentary system examination

Diabetic dermopathy and absence of hairs in both lower limbs were noticed. Diabetic foot (painful ulcer with 1.45*2.15 cm on the dorsal aspect of the right foot beneath to 3rd toe) and onychomycosis were present.

2.5. Diagnostic Assessment

Investigations include blood routine, FBS, PPBS, Hb1AC, and urine routine were seen within normal limits. He is *Kapha Pitha* in *Prakriti*. *Vyana Vayu, Samana Vayu, Apana Vayu, Pachaka Pitha, Brachaka Pitha, Ranjaka Pitha, Kledaka Kapha, Sleshma Kapha, Rakta, Mamsa, Meda, and Asthi Dhatu Snayu and Nakha Upadhatu, Medho Vaha, Asthi Vaha, and Mamsa Vaha Srotas* were vitiated. *Udakavaha and Mutravaha Srotas* are involved from the initial stage of *Prameha* itself. *Rogamarga* is *Madhyama* and the prognosis is *Yapya*. *Nidanas* are detailed in the discussion. The case was diagnosed as *Prameha Upadrava* (complications mainly including peripheral neuropathy, periarticular arthritis, and diabetic ulcer)

2.6. Thérapeutique Intervention

Treatment was planned mainly focusing on reducing his clinical features (prime importance given to the *Upadrava Vyadhi*). It is after assessing the *Bala* and *Agni* of this person, the treatment was started.

Internal medicines [Table 1] were stopped during rest (13 February 2020 and 25/26 February 2020), *Snehapana, Sodhana, and Rasayana* therapy. Externally [Table 2], *Dhanyamla Dhara* planned for *Samyak rookshana* and it was attained in 14 days. *Snehapana* was administered with *Dhanwantharam Ghritam*, and the dosage was increased in succeeding days [Table 3] and stopped when *Samyak Snigdha* was reached. Followed by *Snehana, Abhyanga* steam and after proper *Sodhana, Rasayana* [Table 4] was given. Finally, *Thakradhara* was administered (*Abhyangam* was done with *Prabhanjana Vimardana Thailam* and *Siroabhyangam* with *Nisosiradi Thailam*).

3. RESULTS

After the treatment, NORFOLK QOL DN was calculated as 70. His tremors subsided completely. He was able to walk without moving to one side. Even though the difficulty in flexion of fingers of both upper limbs persists, there is also improvement in left shoulder joint movements (flexion and abduction before treatment 90°, after treatment 120°). His symptoms such as numbness get reduced and his sleep becomes normal. A comparison between before and after treatment is given in Tables 5 and 6.

4. DISCUSSION

For the past 70 years, he had the habit of *Sthira Thoya Matsya* (cooked), curd, and sweet intake on almost all days. *Sthira Thoya Matsya* is *Guru* in nature, the curd is *Guru* and *Kaphamedokara*,^[14] and *Madhura* is *Kapha Vardhaka*.^[15] This particular *Nidana Seva* can aggravate *Kapha Dosha*. As the *Kapha* has *Mandha* property,^[16] it will take a relatively long time for the pathogenesis process. Maybe due to the seasonal changes or something that impart *Vidhaha* to the body, *Pitha Dosha* may also get vitiated, and thus, *Poorvarupas* of *Prameha* could have been produced. If *Jatharagni* in the *Koshta* gets aggravated, it will lead to the elevation of *Vata* and as a result, *Prameha Lakshanas* were also seen in the body. As *Kapha* is *Medoasryam* and since it is also situated between *Mamsa* and *Medas*, the *Kapha* vitiation may lead to the diminution of *Dhatwagni*. Even after the manifestation of the diseases, if *Nidanas*

are continued, there is a chance for *Vatha* to get *Avarana* by *Kapha* and *Pitha*. This long-standing pathogenesis weakens the *Jatharagni* and *ama* is produced as a result. At the same time, it may severely affect the functioning of the *Medhodhatwagni*. *Snayu* (*Upadhathu* of *Medas*,^[17] produced by *Khara Paka* of *Sneha* portion of *Medhas*^[18]) also gets vitiated and thus produces *Upadhathu Pradhoshaka Vikaras* such as *Supthi*, *Sthamba*, and *Sankocha*. Depending on disease progression, succeeding *Dhatus* may get vitiated.

Basic *Ayurvedic* principles were applied in the treatment. That is *Rookshana*, *Snehana*, *Swedana*, *Sodhana*, *Rasayana*, and *Samana* therapies were administered, respectively.

Initially, *Dhanyamla Dhara* was used. *Dhanyamla* is *Seetha* in *Sparsa*.^[19] It helps to establish the normalcy of digestive fire and corrects metabolism, destroys *Ama* and hence removes the block from the body tissues, promotes nourishment, helps in cleansing channels of the body, removes excess fat from the body, improves blood circulation, and helps in the Significant reduction of subcutaneous fat. The therapy is very effective in *Kapha-Vata*'s predominant conditions. It helps in compacting obesity, reducing inflammation, and activates nerves.^[20] *Dhanyamla* can help provide nutrients to nerve fibers and can help treat signs and symptoms of diabetic neuropathy.^[21]

Dhanwantharam Ghritam was used for *Snehapana*,^[22] then *Swedana* (for *Abhyanga Vatahara Taila*), and *Sodhana* were done, respectively. *Rasayana* therapy administered to those whose body has not been purified becomes useless, just like coloring a dirty cloth.^[23] Hence, *Shilajatu Rasayana* was given after the *Sodhana*. *Shilajatu Bhavana* (7 times) was done with a decoction of the proper drug suitable for the disease.^[24] *Nisakathakadi Kashayam* was used as *Bhavana Dravya* as it is indicated in *Prameha*. Next, he was made to consume ghee prepared with drugs of a bitter taste, for 3 days; then he should consume *Silajathu* with the decoction of *Triphala*, *Patola*, and *Madhuka*, for 3 days (each one separately and one succeeding day).^[25] It has *Kashaya Tikta rasas*, *Sheeta virya*, *TridoshAhara*, *Vrishya*, *Balya*, *Mutrala*, *Lekhana*, *Yogavahi*, and *Rasayana* properties.^[26]

Thakradhara produces a coolant effect on the brain and the whole nervous system and hence releases the stress and anxiety of our mind; when all these are relaxed, the body functions including the heart functions take place in a relaxed manner, the circulation of blood, and nutrients correctly take place, the peripheral resistance is reduced, the channels of the body open up and the cells start flushing the toxins and overall metabolism gets improved.^[12]

Internally, *Varanadi Kashayam* was used due to its *Kapha Medhohara* and *Agni Deepthi* properties.^[27] For *Vyadhikshamatham*, *Indukantham Kashaya* was given. *Vyoshadi Guggulu* also has *Kaphamedhohara* as well as *Vatahara* properties.^[28] *Kapikachu* has antioxidant activity and is used in the management of nervous disorders.^[29] After 47 days of treatment, he was able to walk without moving to one side like he used to. He was also relieved of tremors and the numbness had begun subsiding. His left shoulder joint flexion and abduction were possible up to 120°. Difficulty in flexion of fingers of both upper limbs persists.

4.1. Limitation

Multiple therapeutic interventions contributed to the patient's outcome.

5. CONCLUSION

Shilajatu Rasayana is highly effective in diabetic complications. This case categorically emphasizes the need for positively constructive and

effective results if two systems of medicine go hand at different stages of treatment to achieve optimum healing of the patient.

6. ACKNOWLEDGMENTS

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7. AUTHORS' CONTRIBUTIONS

All the authors contributed equally in design and execution of the article.

8. FUNDING

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9. ETHICAL APPROVALS

This study not required ethical clearance as it is case study.

10. CONFLICTS OF INTEREST

Nil.

11. DATA AVAILABILITY

This is an original manuscript and all data are available for only review purposes from principal investigators.

12. PUBLISHERS NOTE

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Table 1: Internal medicines

Medicines	Dosage	Time
<i>Varanadi Kashayam</i> and <i>Indukantham Kashayam</i>	15 ml+45 ml hot water	6 am, 6 pm
<i>Iyoshadi Guggulu</i>	1-0-1	With <i>Kashayam</i>
<i>Gandharvahastadi Kashayam</i>	15 ml+45 ml hot water	as <i>Pathi kashayam</i>
<i>Kapikachu Choornam</i>	15 g with milk	After food, 2 times a day
<i>Brihat Triphala Choornam</i>	15 g with hot water	At night, If constipation

Table 2: Kriyakrama

Date	Procedure	Medicines
22 January 2020– 4 February 2020	<i>Dhanyamla</i> <i>Dhara</i>	<i>Dhanyamla</i>
5 February 2020– 9 February 2020	<i>Snehapanam</i>	<i>Dhanwantharam Ghritam</i> and (10 drops) <i>Dhanwantharam</i> <i>Thailam 101(A)</i>
10 February 2020 and 11 February 2020	<i>Abhyanga steam</i>	<i>Prabhanjana Vimardanam</i> <i>Thailam</i>
11 February 2020 and 12 February 2020	<i>Virechanam</i>	<i>Gandharvahastadi Thailam</i>
14 February 2020– 25 February 2020	<i>Rasayana Seva</i>	<i>Shilajatu</i>
27 February 2020– 04 February 2020	<i>Thakradhara</i>	Along with <i>Panchagandha Choornam</i>
	<i>Abhyangam</i>	<i>Prabhanjana</i> <i>Vimardanam Thailam</i>
	<i>Shiro Abhyangam</i>	<i>Nisosiradi Thailam</i>

Table 3: Day-wise *Dhanwantharam Ghritam* dosage

Date	Dosage
05 February 2020	25 ml
06 February 2020	50 ml
07 February 2020	100 ml
08 February 2020	150 ml
09 February 2020	200 ml

Table 4: *Rasayana* therapy

Date	Medicine
14 February 2020–16 February 2020	<i>Gulguluthikthaka Ghrita</i> 25 ml at 6 am
17 February 2020–19 February 2020	12 g <i>Shilajatu*</i> with 60 ml <i>Triphala Kwatha</i> at 6 am
20 February 2020–22 February 2020	12 g <i>Shilajatu*</i> with 60 ml <i>Padola Kwatha</i> at 6 am
23 February 2020–25 February 2020	12 g <i>Shilajatu*</i> with 60 ml <i>Madhuka Kwatha</i> at 6am

**Shilajatu* triturated 7 times in *Nisakathakadi Kashayam*

Table 5: Diabetic neuropathy symptom score

Symptoms	Before treatment	After treatment	Scoring
Unsteadiness on walking	1	0	1=Present 0=Absent
Numbness	1	1	1=Present 0=Absent
Burning, aching pain, tenderness in legs or feet	1	0	1=Present 0=Absent
Pricking sensation	1	0	1=Present 0=Absent
Total	4	2	

Table 6: Toronto clinical scoring system

Symptom score	Before treatment	After treatment	Scoring
Pain	1	0	0=Absent, 1=Present
Numbness	1	1	0=Absent, 1=Present
Tingling	1	0	0=Absent, 1=Present
Weakness	0	0	0=Absent, 1=Present
Ataxia	1	0	0=Absent, 1=Present
Reflex score			0=Normal, 1=Reduced, 2=Absent
Knee reflex right	0	0	
Knee reflex left	0	0	
Ankle reflex right	0	0	
Ankle reflex left	0	0	
Sensory test score			0=Normal, 1=Abnormal
Pinprick	1	0	
Temperature	1	1	
Light touch	1	1	
Vibration sense	1	1	
Position sense	1	1	
Total score	9 (moderate DPN)	5 (mild DPN)	

DPN: Diabetic peripheral neuropathy