

Complete Remission of T2DM associated with Peripheral Neuropathy through Therapeutic Emesis and Herbal Decoction – A case report

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Abstract

Background

Diabetes mellitus (DM) is a global challenge in respect of its control, management and complication prevention. Its complications involve many systems and organs with significant damage in their functioning. Disease description of *Madhumeha*, on the basis of its clinical features is similar to DM in conventional medicine. Based on clinical presentation and laboratory findings a diagnosed case of *Madhumeha* (~diabetes mellitus) associated with peripheral neuropathy was successfully treated with Ayurveda treatment.

Objective

To evaluate the efficacy of *Vamana karma* (~therapeutic emesis) with *Ikshuvaku* yoga followed by oral administration of *Darvyadi kwatha* (~herbal decoction) in the management of type 2 diabetes mellitus (T2DM).

Methods

After obtaining the patient consent, a patient suffering from *Madhumeha* was treated with *Vamana karma* by *Ikshuvaku* yoga followed by oral administration of *Darvyadi kwatha* for 1-month. The patient was assessed on 0 day, 28th day, 50th day, and 168th day.

Results

The values of FBS, PPBS and HBA1c were 160 mg/dl, 248 mg/dl and 8.7% respectively before treatment which were reduced to 71 mg/dl 121 mg/dl and 6.1% respectively after treatment.

Conclusion

This study shows improvement in both laboratory and clinical parameters along with improvement in the quality of life in the patient suffering from *Madhumeha* when treated by *Vamana karma* followed by oral administration of *Darvyadi kwatha*.

Keywords

Darvyadi kwatha, Peripheral Neuropathy, Type-2 diabetes mellitus, *Vamana karma*,

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Introduction

Diabetes mellitus (DM) is characterized by polyuria, polyphagia, polydipsia, and fatigue with raised blood sugar levels like Fasting blood sugar (FBS) >125 mg/dl, Post prandial blood sugar (PPBS) >200 mg/dl, and Hemoglobin A1c (HBA1c) >6.4%.^[1] Based on clinical signs and symptoms, DM has a close resemblance with

Madhumeha described in Ayurveda.^[2] *Madhumeha* in due course, develops *Hastapadataladaha* (~burning sensation in bilateral palm and feet) due to the vitiation of *Pitta Dosha* (peripheral neuropathy).^[3] Management of DM includes oral hypoglycemic drugs and insulin in the later stage, which can further due to side effects of medication the condition deteriorates on one side and complications of T2DM on another side.^[4] The entire globe is searching for safe and effective treatment of T2DM,

the global diabetes prevalence was estimated to be 9.3% (463 million people) in 2019, rising to 10.2% (578 million) by 2030.^[5] *Prameha* caused due to *Mandagni* (~low digestive fire and metabolism), *Bahudrava shleshma* (*Kapha* with increased liquidity), and *Abaddhamedha* (~increased lipids) along with an increase of *Kleda* (~excessive fluidity) in the body, all of which belongs to the group of *Kapha* substance in the body.^[6] Hence *Samshodhana* (*Vamana* and *Virechana*)^[7] treatment is one of the best remedies for correcting *Agni* (~digestive fire)^[8] and elimination of *Bahu dosha*. Further *Vamana karma* is the best treatment specifically for the elimination of excessive *Kapha* and related substances like *Kleda* and to reduce *Abaddhamedha* from the body and *Ikshvaku yoga* specifically indicated^[9] in diabetes for *Vamana Karma*. Hence *Vamana karma*^[10] followed by oral administration of *Darvyadi kwatha*^[11] was selected for the treatment of *Madhumeha* in this case.

Patient information

A 59 year old Indian male, retired serviceman, suffering from non-insulin-dependent diabetes mellitus (NIDDM) visited OPD of Panchakarma with chief complaints of polyuria, polyphagia, dryness of mouth and throat, fatigue since 5 months, and burning sensation in bilateral feet since 3 months. Associated complaints were flatulence and irregular bowels since the last five months. There was a positive family history (father). After initiation of the symptoms 5 months back, he visited an Allopathic hospital and was diagnosed as a case of T2DM (HBA1c 8.6%) and advised oral hypoglycemic drug. He however did not take any anti-diabetic oral hypoglycemic drugs. Subsequently, after 2 months he developed a burning sensation in bilateral feet. After that, he came to the OPD of *Panchakarma* for the treatment. He also suffered with Hypertension and Bronchial asthma and was taking anti-hypertensive drug (Tab- Depin Retard 20 mg BD) for 13 years and anti-asthmatic drug (tab-Asthalin 2 mg OD) for 8 years. His personal history has shown irregular food habits, disturbed sleep patterns and beedi smoking (4-5 times in a day) since 10 years with occasional alcohol intake.

Clinical findings

On clinical examination, pulse rate 94/minutes, B.P. 140/80mmhg, R.R. 24/minutes, temperature 97.4 degrees Fahrenheit and laboratory findings were FBS - 160 mg/dl, PPBS - 248 mg/dl, and HBA1c – 8.7%.

Timeline

Detail mentioned in Table:1.

Diagnostic assessment

Objective criteria included FBS, PPBS, and HBA1c and subjective criteria included changes in signs and symptoms of type-2 DM (polyuria, polyphagia, dryness of mouth and throat, fatigue, and burning sensation in bilateral feet),^[12] *Agnibala* (~strength of digestion and metabolism), *Dehabala* (~physical strength) and *Satvabala* (~mental strength), and Quality of life by SF-36 score.^[13] Detail mentioned in the Table: 2 and 3.

Therapeutic intervention

Vamana karma was planned for the patient on an IPD basis followed by *Darvyadi kwatha* for one month. *Deepana* (~appetizer) and *Pachana* (~carminative)^[14] were started with *Nagarmotha* (*Cyperus Rotundus Linn*)^[15] *churna* 3 gm twice a day before food and *Panchakola churna*^[16] 3 gm twice a day after food for 3 days. Then *Snehapana* (~internal oleation therapy) was done with *Murchhita ghrta* (~a medicated ghee) for 6 days in fixed increase dose as per *Agnibala* [Day1(30ml), Day2(60ml), Day3(90ml), Day4(120ml), Day5(150ml) and Day6(180)].^[17] After that *Sarvanga abhyanga* and *Vashpa swedana* were done with *Tila taila* (~sesame oil) and *Dashmoola kwatha* (~decoction of ten roots) respectively for 2 days(one sitting a day).^[18] *Vamana karma* was done with classical *Ikshvaku yoga*.^[19] On the day of *Vamana karma*, patient was advised to get up early in the morning. After confirming about the digestion of previously taken food, *Sarvanga abhyanga* with lukewarm *Tila taila* followed by *Sarvanga vashpa swedana* with *Dashmoola kwatha* was done. After that

patient was shifted to the *Vamana peetha*, vitals were measured (blood pressure and pulse rate) and given *Akanthpana* with *ksheera* (~milk). Then *Vamaka* drugs were given with *Ikshvaku yoga* and waited for one *Muhurta* (48 minutes). Within a *Muhurta*, *vegas* (~purgative bouts) were started, then it was continued with *Madhuyashti phanta* until *Pittanta Darshana* (~characteristic feature of bile in vomitus) as per the strength of the patient. After that *Lavnodaka* (~lukewarm saltwater) was given until *Samyaka lakshana* of *Vamana karma* was observed and vitals were measured every 10 minutes [BP-130/80mmhg, pulse-80/minutes (before giving emetic drug), BP-140/80mmhg, pulse-88/minutes (after given emetic drug), BP-150/90mmhg, pulse-90/minutes (after given emetic drug) and BP-130/80mmhg, pulse-78/minutes (after completion of therapeutic emesis). *Samsarjana krama* (~specific dietetic regimen) was advised for 5 days as per *Shuddhi* (~bio purification).^[20] It was followed by oral administration of *Darvyadi kwatha* 80ml twice a day before food for 30 days. Details are mentioned in the Table: 4.

Method of *Ikshvaku yoga* preparation

6 gm *Ikshvaku beeja churna* soaked with 150 ml of *Madhuyashti kashayam* whole night. In the morning 2 gm of *Saindhav* & 20 ml of honey was added to it.^[21]

Method of *Darvyadi kwatha* preparation

10 gm coarse powder of equal quantity of *Darvyadi kwatha churna* [equal quantity of *Darvi* (*Berberis aristata* DC), *Suraha* (*Cedrus deodara* Roxb), *Haritaki* (*Terminalia chebula* Retz), *Bibhitaki* (*Terminalia bellirica* Roxb), *Amalki* (*Phyllanthus emblica* L) and *Musta* (*Cyperus rotundus* Linn) boiled with 320 ml of water and reduced to 80 ml, then filtered and advised to take liquid part before food twice a day.

Follow-up and outcomes

Follow-up was done on 28th, 50th, and 168th day for any changes in both objective and subjective parameters. Outcome showed highly significant improvement in

objective parameters (Graph 1 and 2). Subjective parameters, signs, and symptoms were completely subsided after the treatment along with improvement in *Agnibala*, *Dehabala*, *Satvabala*, and quality of life (SF-36 Score) . The composite score of cardinal sign and symptoms was 09 before treatment which was reduced to zero after treatment. The composite score of *Agnibala*, *Dehabala*, and *Satvabala* was 10 before treatment which was reduced to zero after treatment (Table: 5, 6 and 7). Patient has not taken any medicine for T2DM and asthma (from 17 April, 2020 – till now (17 July, 2021). He has continued the allopathic drug for high blood pressure.

Discussion

The present study showed that significant reduction was seen in specific lab investigations like FBS, PPBS, and HBA1c. Apart from this, significant improvement in all the subjective parameters like polyuria, polyphagia, dryness of mouth and throat, fatigue, and burning feet were observed.

T2DM developed due to the suppressed activity of beta cells of islets of Langerhans and disturbed Gut-Brain-islet axis leads to an increase in blood sugar levels,^[22] this phenomenon has to be corrected by the correction in the functioning of Brain, Gut, digestion and metabolism and elimination of toxic substances. Pathogenesis of *Prameha* starts with *Mandagni* in general and *Medodhatvagni mandya* (~ low-fat metabolism) in particular is not able to convert glucose into glycogen, hence blood sugar levels increase in the blood along with the increase in *Kleda*, *Bahudrava shleshma*, and *Abadha meda* in the body. *Vamana karma* is the best treatment for the elimination of *Kapha dosha* and related body constituents.^[23] It reduces, *kleda*, *Abaddhameda* which are major culprits in *Prameha*. *Ikshvaku* [*Lagenaria siceraria*–Linn (bottle gourd)] was used for *Vamana karma*. It is specifically indicated for *Vamana karma* in *Prameha*. It is found effective in diabetes, hypertension, asthma, etc. in phytochemical and pharmacological studies.^[24] The contents of *Darvyadi kwatha* mainly acts on the gastrointestinal tract which increases the *Agni* due to

ingredients like *Nagarmotha* which in having *Laghu* (~light), *Ruksha* (~dry) *guna*, and *Tikta rasa*. It helps in cleansing of Gut due to ingredients like *Haritaki*, *Bibhitaki*, and *Amalaki* which are laxative in action may in turn improve the functioning of Gut-Brain axis, reduces *Kleda* in the body due to ingredients such as *Triphala*, *Devadaru*, *Daruharidra* and *Nagarmotha* which have *Ruksha*, *Laghu guna* and *Kashaya*, *Tikta rasa*.^[25] Irregular eating behavior is common in industrialized countries. Studies have demonstrated the potential of *Triphala* as a therapeutic agent for weight loss and reduction of body fat, body weight, and energy intake as well and also decreased total cholesterol, triglycerides, low-density lipoprotein cholesterol levels in the blood.^[26]

Conclusion

This case report concludes that assessed objective and subjective parameters results show complete remission of T2DM associated with peripheral neuropathy treated with therapeutic emesis and herbal decoction without any adverse reaction of the treatment. So that this case report suggest that may conduct multi centric study with large sample size in future.

Inform consent

Obtained patient consent forms before starting the study.

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Conflict of Interest : None

Table:1 showing development of disease and treatment

| Date/Month/Year | Clinical event and intervention |
|--------------------------------|---|
| 2007 | He was diagnosed with hypertension |
| March 2019 | He was suffering from Polyuria, polyphagia, and dryness of mouth and throat, blood sugar test was done and the report was normal |
| August 2019 | He was suffering from cough and breathlessness and was diagnosed with Asthma. hence anti-asthmatic drugs were advised |
| 13 August 2019 - 02 March 2020 | He was on anti-asthmatic drugs |
| October 2019 | He was suffering from burning pain in bilateral feet and diagnosed with diabetes mellitus and advised tab-metformin 500 mg BD by allopath physician |
| October 2019 – February 2020 | He was not taking tab-metformin 500 mg BD but he was trying to maintain blood sugar level by anti-diabetic diet and lifestyle (self-decision) |
| February 2020 | A blood test was done and the report was HBA1c – 8.7% |
| 03 March 2020 | He was admitted to <i>Panchakarma</i> IPD |
| 03 - 05 march | Started oral administration of <i>Deepana</i> (~appetizers) and <i>Pachana</i> (~carminatives) drugs |
| 06 - 11 march | <i>Snehapana</i> (~internal oleation therapy) done |
| 12 march | <i>Abhyanga</i> (~massage) and <i>Vashpa swedana</i> (~whole body steam) were done |
| 13 march | <i>Vamana karma</i> was conducted |
| 13 – 17 march | <i>Sansarjan krama</i> (~ specific dietetic regimen) was followed |
| 18 March – 16 April | Oral administration of <i>Darvyadi kwatha</i> |

Table: 2 showing sign and symptoms assessment score

| | |
|----------|--|
| 1 | Polyuria (<i>Prahutamutrata</i>) |
| | a) The normal frequency of urine (3-5 times a day) – 0 |
| | b) Excessive frequency of urine (6-9 times a day) - 1 |
| | c) Excessive frequency of urine (10-12 times a day) - 2 |
| | d) Excessive frequency of urine (>12 times a day) - 3 |
| 2 | Polyphagia (<i>Atikshudha</i>) |
| | a) Food intake normal (2 times a day) – 0 |
| | b) Food intake mild increase (3-4 times a day) – 1 |
| | c) Food intake moderate increase (5-6 times a day) – 2 |
| | d) Food intake severe increase (>6 times a day) – 3 |
| 3 | Dryness of mouth and throat (<i>Galatalushosha</i>) |
| | e) No drying of the palate or throat frequently – 0 |
| | f) Mild dryness of throat & palate frequently – 1 |
| | g) Moderate dryness of throat & palate frequently – 2 |
| | h) Very frequently drying up of the throat & palate – 3 |
| 4 | Fatigue (<i>Klama</i>) |
| | a) Fatigue on strenuous work – 0 |
| | b) Fatigue on exercise – 1 |
| | c) Fatigue to do day to day activities – 2 |
| | d) Fatigue even at rest – 3 |

| | |
|----------|---|
| 5 | Burning sensation in bilateral feet (<i>Hastapadataladaha</i>) |
| | a) No burning sensation in hands & feet – 0 |
| | b) Mild burning sensation in hands & feet – 1 |
| | c) Moderate burning sensation in hands & feet – 2 |
| | d) Severe burning sensation in hands & feet – 3 |

Total Score – 15 - Score 1 – 5 mild, 6 – 10 moderate, and 11 – 15 severe.

Table: 3 Showings *Agnibala*, *Dehabala*, and *Satvabala* assessment score

| S.No | Assessment Parameters |
|-------------|---|
| 1 | <i>Ruchi (Agnibala)</i> |
| | a) Equally willing towards all the Bhojya padartha. – 0 |
| | b) Willing towards some specific Aahara / Rasavishesha - 1 |
| | c) Willing toward only one among Katu/Amla/Madhura foodstuffs. - 2 |
| | d) Willing towards only most liking foods not to the other - 3 |
| | e) Unwilling for food but could take the meal – 4 |
| | f) Totally unwilling for meal – 5 |
| 2 | <i>Vaata Mutra Purisha Retasam Mukti (Agnibala)</i> |
| | a) Passes stool daily without any difficulty – 0 |
| | b) Passes stool daily incompletely with flatulence -1 |
| | c) passes stool on alternate days with flatulence – 2 |
| | d) Passes stool after 3-4 days without strain – 3 |
| | e) Passes stool after 3-4 days with strain – 4 |
| | f) Passes stool after 5-7 days with strain – 5 |
| 3 | <i>Balavridhhi (Dehabala)</i> |
| | a) No weakness – 0 |
| | b) Slight weakness – 1 |
| | c) The feeling of weakness but ability to work unaffected – 2 |
| | d) Ability to work affected – 3 |
| | e) Can't do any type of work – 4 |
| | f) Can't do even walking and standing – 5 |
| 4 | <i>Nidra Labho Yathakalam (Satvabala)</i> |
| | a) Sound sleep – 0 |
| | b) Sleep gets disturbed in the early morning – 1 |
| | c) Sleeps with disturbed interval & remains unsatisfied with sleep – 2 |
| | d) Disturbed sleep in night tries to compensate in day -3 |
| | e) No sleep in night – 4 |
| | f) Sleep neither at day nor at night hours -5 |
| 5 | <i>Sukhena - Cha – Pratibodhanam (Satvabala)</i> |
| | a) Total relief & feeling of wellbeing at the physical & mental level – 0 |
| | b) Discomfort at the mental level – 1 |
| | c) Discomfort at the physical level – 2 |
| | d) Discomfort at both mental & physical level – 3 |
| | e) Not feeling well still can pursue work or study – 4 |
| | f) Not feeling well & not interested in any activity at all - 5 |

Total Score – 25 - score 1 – 6 mild, 7 – 12 moderate, 13 – 18 moderate to severe, and 14 – 25 severe.

Table: 4 Showings Therapeutic procedures, drugs, doses, and schedule

| Procedure | Medicine | Dose | Time | Duration |
|----------------------------|--|--|--|---------------------------------|
| <i>Deepana and Pachana</i> | <i>Nagarmotha churna</i> <i>Panchakola churna</i> | 3gm 3gm | TDS (7am, 1pm, 7pm before food) TDS (8am, 2pm, 8pm after food) | 3 days |
| <i>Snehapana</i> | <i>Murchhita ghrita</i> | Increasing (fixed increase dose) | 7 am – 8 am | 6 days |
| <i>Abhyanga</i> | <i>Tila taila</i> | 100 ml | After <i>Snehapana</i> | 2 days |
| <i>Vashpa swedana</i> | <i>Dashmoola kwatha</i> | As per required | After <i>Abhyanga</i> | 2 days |
| <i>Vamana karma</i> | <i>Ikshvaku yoga (Ikshvaku, yashtimadhu kashaya, Saindhav And Madhu)</i> | 6 gm 150 ml 2 gm 20 ml | After sunrise at 7 am – 8 am | 1 day |
| <i>Sansarjana Krama</i> | <i>Peya, Vilepi, Akrita yusha Krita yusha</i> | As per <i>Shuddhi</i> | Breakfast lunch Dinner | 5 days (12 <i>Annakala</i>) |
| <i>Samshamana</i> | <i>Darvyadi kwatha</i> | 80ml prepared kwatha twice a day | 30 minutes Before food | 30 days |

Table:5 showing assessment of intervention at the different interval on cardinal sign & symptoms

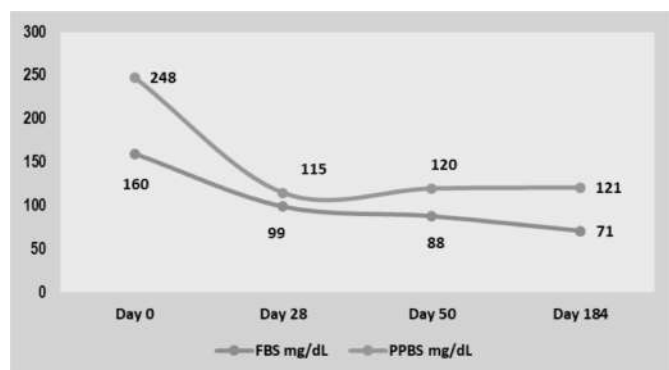
| S.N. | Parameters | Score | | | |
|--------------|---|---------------------|----------------------|----------------------|-----------------------|
| | | 0 th day | 28 th day | 50 th day | 168 th day |
| 1 | Polyuria (<i>Prabhutamutrata</i>) | 2 | 0 | 0 | 0 |
| 2 | Polyphagia (<i>Atikshudha</i>) | 1 | 0 | 0 | 0 |
| 3 | Dryness of mouth and throat (<i>Galatalushosha</i>) | 2 | 0 | 0 | 0 |
| 4 | Fatigue (<i>Klama</i>) | 2 | 1 | 0 | 0 |
| 5 | Burning sensation in bilateral feet (<i>Hastapadataladaha</i>) | 2 | 0 | 0 | 0 |
| Total | | 9 | 1 | 0 | 0 |

Table:6 showing assessment of intervention at the different interval on *Agnibala*, *Dehabala*, and *Satvabala*

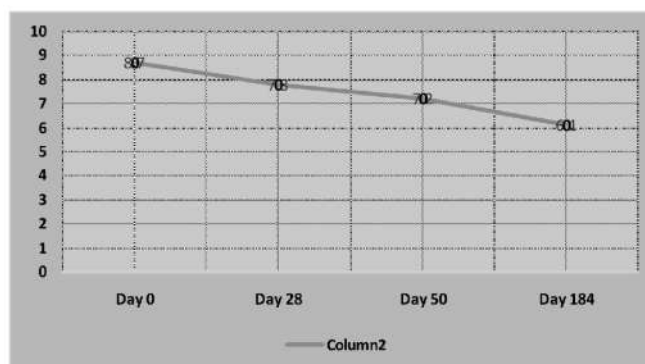
| S.N. | Parameters | Score | | | |
|--------------|---|---------------------|----------------------|----------------------|-----------------------|
| | | 0 th day | 28 th day | 50 th day | 168 th day |
| 1 | <i>Ruchi (Agnibala)</i> | 0 | 0 | 0 | 0 |
| 2 | <i>Vaata Mutra Purisha Retasam Mukti (Agnibala)</i> | 1 | 0 | 0 | 0 |
| 3 | <i>Balavridddhi (Dehabala)</i> | 3 | 1 | 0 | 0 |
| 4 | <i>Nidra Labho Yathakalam (Satvabala)</i> | 3 | 0 | 0 | 0 |
| 5 | <i>Sukhena - Cha Pratibodhanam (Satvabala)</i> | 3 | 1 | 0 | 0 |
| Total | | 10 | 02 | 00 | 00 |

Table:7 Showing assessment of intervention at the different interval on quality of life (SF-36 Score)

| S.N. | Parameters | Score (by online questionnaire) | | | |
|------|--|---------------------------------|----------------------|----------------------|-----------------------|
| | | 0 th day | 28 th day | 50 th day | 168 th day |
| 1 | Physical functioning | 65% | 80% | 90% | 95% |
| 2 | Role limitation due to physical health | 50% | 75% | 90% | 100% |
| 3 | Role limitation due to emotional problem | 66.7% | 66.7% | 100% | 100% |
| 4 | Energy/fatigue | 30% | 80% | 90% | 95% |
| 5 | Emotional well being | 48% | 84% | 88% | 92% |
| 6 | Social functioning | 50% | 75% | 100% | 100% |
| 7 | Pain | 45% | 77.5% | 90% | 90% |
| 8 | General health | 25% | 80% | 85% | 95% |
| 9 | Health change | 25% | 75% | 90% | 100% |



Graph: 1 Efficacy of intervention on FBS & PPBS



Graph: 2 Efficacy of intervention on HbA1c