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RESEARCH ARTICLE

THE GREAT REVERT OF UNCONTROLLED TYPE 2 DIABETES MELLITUS WITH DIABETIC NEUROPATHY BY AYURVEDIC INTERVENTION: A CASE STUDY RELATING TOPITTAJ PRAMEHA - SUBTYPE HARIDRA MEHA

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Abstract

Diabetes mellitus (DM) is a multi-factorial disease of disturbed metabolism with hyperglycemic condition. Among 2 types of diabetes, type 2 DM also named as non-insulin dependent diabetes is the most common type causes due to sedentary lifestyle. In ayurveda DM can be correlate with Prameha. Apathy-nimittaj Prameha is mentioned by Acharya Sushruta which occurs due to unhealthy lifestyle of patient. This presenting article is about a case of type 2 DM or Apathy-nimittaj prameha, diagnosed to a male patient of age 45 years. He had come to JEENA SIKHO LIFECARE LIMITED HOSPITAL, NAVI MUMBAI, MAHARASHTRA, on 12/09/2024 and showed symptoms like burning micturition, pain and numbness of lower limb etc. He brought his HbA1c report investigated prior to visit hospital. His symptomatology and positive HbA1c had given a clue to diagnose uncontrolled type 2 DM with diabetic neuropathy/ Pittaj prameha. Later he starts to avail ayurvedic therapeutics. After 74 days of treatment his HbA1c values reduced to non-diabetic range and his symptoms also got completely subsided. Treatment was included ayurvedic medicines along with diet and exercise recommendation which shown an excellent result.

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Introduction:-

As per the WHO, diabetes mellitus (DM) is defined as a heterogeneous metabolic disorder characterized by common feature of chronic hyperglycemia with disturbance of carbohydrate, fat and protein metabolism. DM is a leading cause of morbidity and mortality world over. It is estimated that approximately 1% of population suffers from DM. The incidence is rising in the developed countries of the world at the rate of about 10% per year, especially of type 2 DM, due to rising incidence of obesity and reduced activity levels. Diabetes is expected to continue as a major health problem owing to its serious complications. ^[1] There are two general types of diabetes mellitus as follows: ^[2]

1. **Type I diabetes mellitus** [Insulin-dependent DM] – Is caused by lack of insulin secretion.
2. **Type II diabetes mellitus** [Non-insulin-dependent DM] –Is initially caused by decreased sensitivity of target tissues to the metabolic effect of insulin. This reduced sensitivity to insulin is often called insulin resistance.

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Type II Diabetes:

It is far more common than type I, accounting for about 90 to 95 percent of all cases of diabetes mellitus. In most cases, the onset of type II diabetes occurs after age 30, often between the ages of 50 and 60 years, and the disease develops gradually. Therefore, this syndrome is often referred to as adult-onset diabetes. In recent years, however, there has been a steady increase in the number of younger individuals, including few younger than 20 years, with type II diabetes. This trend appears to be related mainly to the changing lifestyle from healthy to unhealthy. **Chronic hyperglycemia leads to diabetic complications** by causing tissue injury. When blood glucose is poorly controlled over long periods in diabetes, blood vessels in multiple tissues throughout the body begin to function abnormally and undergo structural changes that result in inadequate blood supply to the tissues. This in turn leads to diabetic complications like heart disease, kidney disease, retinopathy, blindness, ischemia and gangrene of the limbs etc. Frequent complications of chronic, **uncontrolled diabetes** mellitus are **peripheral neuropathy** and autonomic nervous system dysfunction. These abnormalities can result in impaired cardiovascular reflexes, impaired bladder control, decreased sensation in the extremities, and other symptoms of peripheral nerve damage.^[2]

According to Ayurveda Prameha is a santarpanotha vyadhi. It means that it occurs due to that factors which over nourishes the body.^[3] So the hetu of prameha also included those things which cause impairment in the metabolism like madya (alcohol), guda (jaggery), navanna (new grains), udaka mansa (Sea food), snigdha anna (oily food) etc. Hetu of prameha are mentioned later in discussion to understand the etiological factors. All aacharya's mentioned the main symptom of prameha is prabhuta mutrata^[4] or prabhuta avila mutrata^[5] (excess and/ turbid urine). In ayurveda detailing of prameha hetu (etiological factors), purvaroop's (pre-symptomatic phase), roopa's (symptomatic phase), samprapti (pathogenesis), dosha-dushya sangraha (pathogenic factors involved), sadhya-asadhyatva (prognosis) and prameha upadras (complications) are also mentioned. Management of prameha included detoxification, oral medicines together with diet and exercise recommendation. Acharya Sushruta classified Prameha in 2 types.^[6]

1) Sahaja Prameha and 2) Apathya nimittaja prameha

Among these types sahaja prameha is a genetic or hereditary type. Apathya nimittaja prameha has 3 types on the basis of predominance of dosha. These 3 types again sub-classified into 20 different sub-types on the basis of urine appearance. Types of Doshaj Prameha's are given as below:^[4]

- 1) Vataj prameha
- 2) Pittaj prameha
- 3) Kaphaj prameha

This article is going to present a significant reversal in a case of uncontrolled type 2 diabetes mellitus with diabetic neuropathy in particular view of **Pittaj prameha** and its subtype **Haridra meha**. He was a male patient aging 45 years, who visited to Jeena Sikho Lifecare Limited Hospital, Navi Mumbai, Maharashtra, on 12/09/2024. By ayurvedic intervention his uncontrolled diabetes gets reverted to normal within 74 days. All symptoms got subsided along with normal shift in the HbA1c value. This treatment included, panchakarma therapies, oral medication, diet and exercise recommendations. All the belongings are mentioned from here onwards that how disease occurs, how it became uncontrolled and how ayurveda treated it accurately with ayurvedic conceptual study.

Case Report:

This is a case of male patient was aging 45 years. He had come to JEENA SIKHO LIFECARE LIMITED HOSPITAL, NAVI MUMBAI, MAHARASHTRA, on 12/09/2024. On arrival, his chief complains were noted as given below followed by history taking and examinations as well.

1. Chief complains:

- Pain while walking
- Numbness and tingling to bilateral lower limb
- Anorexia
- Nausea and vomiting
- Burning micturition on & off/ persistent
- General weakness
- Burning sensation to both feet and sole
- Headache or dizziness
- Feeling of fear

2. **History taking:** He had no history of illness/ he was not taking any allopathic or other medicines/ no any family history of diabetes etc.

3. **Examinations:**

Table no. 1:- General examination.

Particulars	Remark
Blood Pressure	140/80 mm of Hg
Pulse	84/ min
Weight	69.2 kg
Nidra	Prakrita
Kshudha	Prakrita
Mutra	Mutra daha (burning micturation)

Table no. 2:- Ashtavidh parikshan.

Particulars	Remark
Nadi (pulse)	Vata pitta
Mala (bowel)	Asamyaka (not clear)
Mutra (urine)	Mutra daha (burning micturation)
Jivha (tongue)	Alpa Sama (mild coated)
Shabd (pronunciation)	Spashta (clear)
Sparsh (touch)	Anushna Sheeta (normal)
Drik (eyes)	Prakrita (normal)
Aakriti (physique)	Madhyam (average)

Local examination:

Bilateral pitting edema was found to lower limb.

4. **Investigation:**

He had already brought HbA1c report investigated on 15/08/2024 and showed elevated value of HbA1c, 10.4 % which counted under poor control range and together with this he had also brought RFT, LFT, lipid profile reports.

Table no. 3:- HbA1c report.

Date	HbA1c	Eag
15/08/2024	10.4 %	251.78 mg/dL
03/10/2024	7.1 %	157 mg/Dl
05/11/2024	5.5 %	111.15 mg/dL
25/11/2024	4.9 %	94 mg/Dl

Table no. 4:- Other investigations.

Date	Tests	Result
15/08/2024	LFT (Liver function test)	Direct bilirubin - 0.43 mg/dl (mild high) Total Bilirubin, SGOT & SGPT normal
	Urine analysis	Specific gravity – 1.004 (Normal – 1.016 to 1.022)
	Lipid profile	Normal
13/09/2024	CBC (Complete blood count)	Normal
	LFT (Liver function test) Mild increase in bilirubin	Total Bilirubin - 1.79 mg/dl Direct Bilirubin - 0.69 mg/dl Indirect Bilirubin - 1.1 mg/dl
	RFT (Renal function test)	Normal

5. **Diagnosis:** On the basis of symptomatology, history, examination and blood report this case was diagnosed as **Uncontrolled Type 2 diabetes mellitus with Diabetic neuropathy**. According to ayurvedic perspective same case was diagnosed as **Pittaj prameha – subtype Haridra meha**.

Ayurvedic Intervention:

After the diagnosis patient wanted to avail ayurvedic therapy for further treatment. Therefore, he was admitted to IPD for ayurvedic therapeutics which included oral medicines, panchakarma therapies (detoxification procedures), pathy-apathy aahar vihar (do's and don'ts of diet and activities).

1] Panchakarma Therapies (9 days of IPD):

Table no. 5:- Panchakarma procedures.

Therapy name	Medicine used for therapy	Quantity and time
1. Sarvang abhyang	Ksheerbala taila	30 min.
2. Avgaha swedana	Ushna jala (hot water)	20 min
3. Matra basti	Punarnava taila	90 ml for 10 min
4. Shirodhara	Bramhi taila	150 ml for 30 min.

2] Medicines prescribed during IPD period:

Table no. 6:- IPD prescription.

Formulation	Dose and time
Divya Shakti powder	½ tsf HS (Nishakala with Koshna jala i.e. lukewarm water)
Prameha rog har powder	½ tsf TDS before meal (Pragbhakta kala with Koshna jala)
Syrup madhumeha nashak	20 ml BD (Adhobhakta kala with saman matra of Koshna jala i.e. equal amount of lukewarm water)
Capsule DM	2 Capsule TDS (Adhobhakta kala with Koshna jala)
Yakrit shotha har vati	1 Tablet BD (Pragbhakta kala with Koshna jala)
Syrup Nervine tonic	10 ml BD (Adhobhakta kala with Koshna jala)

3] Follow up during IPD:

Table no. 7:- IPD follow-up.

Date	Follow-up of Symptoms	Treatment	Pain score 10
12/09/2024 (1 st day of IPD)	<ul style="list-style-type: none"> Chief complains as mentioned in Case report 	Mentioned in table no. 5 & 6	4
13/09/2024	<ul style="list-style-type: none"> No fresh complains Recurrent vomiting⁺⁺ 	1. Lepam over bilateral feet 2. Arogya vati 3. Rest continued	4
14/09/2024	<ul style="list-style-type: none"> Recurrent vomiting⁺ 	Continue all	4
15/09/2024	<ul style="list-style-type: none"> No fresh complains 	Kansyathali – foot massage	
16/09/2024	<ul style="list-style-type: none"> Morning 10.00 am: Per abdomen tenderness over whole abdomen Evening 8.30 pm: Vomiting and edema reduced 	Tab. vomitab 2 stat	5
17/09/2024	<ul style="list-style-type: none"> Per abdomen: Normal/ non-tender 	Continue all	4
18/09/2024	<ul style="list-style-type: none"> Reduced burning sole, no vomiting 	Continue all	3
19/09/2024	<ul style="list-style-type: none"> Reduced burning sole, Diminish numbness and tingling of lower limb, Pitting edema reduced General weakness reduced, Fear + 	Tab Dr. Sukoon 1BD Rest continued	2

20/09/2024 (7 th day of IPD)	<ul style="list-style-type: none"> No giddiness, No burning sole, General weakness⁺ 	Continued all	2
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4] Daily diet during IPD:

Table no. 8:- IPD diet.

Early morning	Herbal tea + raw turmeric
Breakfast	Fruits, sprouts and red juice
Lunch and dinner	Salad and cooked food
Afternoon	Green juice, Makhana, 4-5 almonds

5] Medicines prescribed to consume after discharge:

Table no. 9:- Medicines to consume after discharge.

Formulation	Dose and time
Divya shakti powder	½ tsf HS (Nishakala with Koshna jala i.e. lukewarm water)
Syrup Nervine tonic	20ml BD (Adhobhakta kala with Koshna jala)
Tablet JS Diab	2BD before food (Pragbhakta kala with Koshna jala)
Tablet Immune pathy	1 BD after food (Adhobhakta kala with Koshna jala)
Tablet Liv DS	2 BD (Adhobhakta kala with Koshna jala)
Syrup Liver tonic	20 ml BD after food (Adhobhaktakala with saman matra of Koshna jala)
Syrup Telome	10 ml BD after food (Adhobhakta kala with saman matra of Koshna jala)
Syrup Madhumeha nashak	10 ml BD after food (Adhobhakta kala with saman matra of Koshna jala i.e. equal amount of lukewarm water)
Tablet Dr. sukoon	1 BD before food (Pragbhakta kala with Koshna jala)

6] Diet suggested to follow after discharge:

Patient was advised to have DIP diet that was planned according to advanced method of diet plan named as **DIP (Discipline and Intelligent) diet**. Per day diet included **plate no. 1 of fruits, salad** and **plate no. 2 of millet diet** in lunch and dinner. Quantity of fruits and salad were calculated according to DIP diet plan formula's and are given below.^[7] He was advised to have that food which is pathya for Prameha vyadhi, will be discuss later.

Formula of fruits: Patient s weight × 10 = fruits in grams

Formula of salad: Patient s weight × 5 = salad in grams

In this case weight of patient was 69.2 kg. So by the above formula calculated quantity of fruits and salad advised is mentioned below in table no. 10. This table also noted the discipline in having food as per time which was suggested to him:

Table no. 10:- DIP diet at home.

Diet	Quantity/type of food	Time
Fruits	<ul style="list-style-type: none"> All type of fruits especially citric fruits ~ 700 grams 	Till 12.00 pm
Salad (Plate 1)	<ul style="list-style-type: none"> All salads like cucumber, tomato, beetroot etc. ~ 350 grams 	Just before lunch and dinner
Lunch (Plate 2)	Millet diet, bitter and fruit vegetables, lentils etc.	Between 1.00 to 2.00 pm

Dinner (Plate 2)	Millet diet, bitter and fruit vegetables, lentils etc.	In the evening before 7.30 pm
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7] **Exercise:** Regular exercise and meditation for 45 minutes was advised to him. He was told to practice Sun salutations (Surya namaskara's) along with Kapalbhati pranayam.

8] Pathya-apathya (Do's and don'ts):

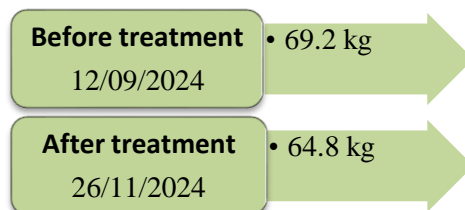
Table no. 11:- Pathya-apathya.

Pathya (Do's)	Apathya (Don'ts)
Should have millet diet like barley, sorghum etc. Eat all vegetables especially bitter taste and fruit vegetables like Karvellaka (bitter guard), Methika (Trigonella foenum-graecum), Ivy guard etc.	Skip dairy products, jaggery and their products, oily, spicy food, packaged food, salty food. Don't eat non-veg.
Wake up early and sleep early	Day sleeping and night awakening
Do exercise regularly and always stay physically active.	Stale food, alcohol or any other addiction, avoid eating new grains.
Eat only in day time	Hold natural urge
Always eat homemade and fresh food.	Stress and anger

Results:-

Weight decline:

By following DIP diet and exercise, his weight was reduced approximately by 5 kg within 2 and half months.



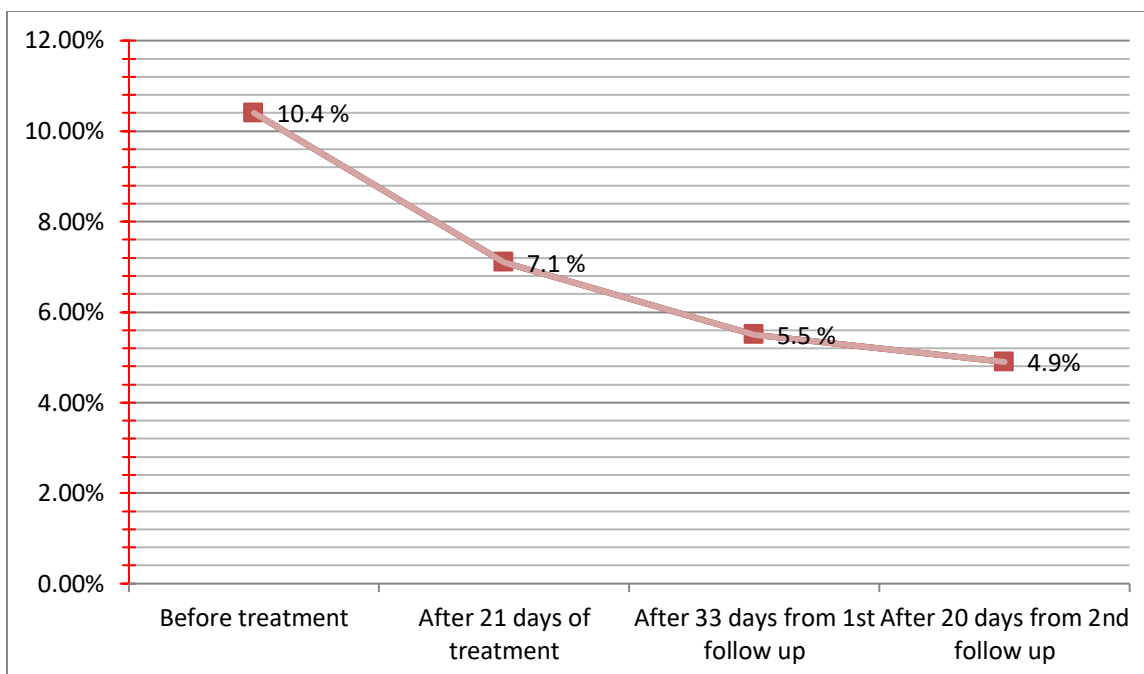
Reversal in altered HbA1C assessment:

After 21 days of ayurvedic treatment HbA1c value reduced by more than 3% that is shifted to 7.1% from 10.4%. From here HbA1C was decreased to near about half of pre-treatment value and reached to 5.5% in the next 33 days. This is a border line reading of non-diabetic HbA1c value. After total 74 days of ayurvedic treatment it reduced to 4.9% successfully and it is within border line range of non-diabetic HbA1c. Tabular presentation of HbA1C outcome is given below in table no. 12.

Table no. 12:- HbA1c outcome.

Date	Before or after treatment	Result
15/08/2024	Before treatment, 28 days prior to start treatment	10.4%
03/10/2024	After 21 days of treatment	7.1%
05/11/2024	After 33 days from 1 st follow up	5.5 %
25/11/2024	After 20 days from 2 nd follow up (Within 74 days of treatment)	4.9 %

Below graph is showing how the graph of HbA1c was positively declining from diabetic to non-diabetic range during the ayurvedic treatment.



Graph no. 1:- Declining percentage of HbA1c with downward slop.

Symptomatic outcome:

Table no. 13:- Symptomatic relief during IPD.

Date	Day of IPD	Result
18/09/2024	7 th day	<ul style="list-style-type: none"> Mild reduction in burning sole, No vomiting
19/09/2024	8 th day	<ul style="list-style-type: none"> Reduced burning sole, Diminish numbness and tingling of lower limb, mild reduction in Pitting oedema General weakness reduced to some extent, Complain of mild fear yet.
20/09/2024	9 th day	<ul style="list-style-type: none"> No giddiness, No burning sole, General weakness mild

Outcome of pain score during admission was as like below:

Table no. 14:- Progress in pain score.

Day of treatment	Pain score
1 st to 4 th day	4
5 th day	5
6 th day	4
7 th day	3
8 th day	2
9 th day (last day)	2

At the time of last follow up his all symptoms were subsided.

Table no. 15:- Last follow-up.

Symptoms	Result
Pain while walking	Diminishes
Numbness and tingling to bilateral lower limb	He was started to feel sensations to lower limb.
Anorexia	Normalized

Nausea and vomiting	Absent
Burning micturation on & off/ persistent	Reduced
General weakness	Recovered
Burning sensation to both feet and sole	Absent
Headache or dizziness	Absent
Feeling of fear	Went off

Discussion:-

As we studied earlier diabetes mellitus is a syndrome of disturbed carbohydrate, fat and protein metabolism caused by either lack of insulin secretion or decreased sensitivity of the tissues to insulin. In both types of diabetes mellitus which are mentioned in introduction, metabolism of all the main foodstuffs is altered. The basic effect of insulin lacks or insulin resistance on glucose metabolism is to prevent the efficient uptake and utilization of glucose by most of the cells of the body, except those of the brain. It leads to increase in blood glucose concentration along with cell utilization of glucose falls increasingly lower and utilization of fats and proteins increases.^[8] According to Ayurveda 3 types of Doshaja Prameha as stated in introduction are again re-divided into 20 sub-types by the appearance of urine. Kaphaj prameha have 10 subtypes, Pittaj have 6 and Vataj have 4 subtypes. This is a case of Pittaj prameha, that's why subtypes of Pittaj prameha are mentioned here as follows:^[9]

1. Kshar meha
2. Kala meha
3. Neela meha
4. Lohita meha
5. Manjistha meha
6. Haridra meha

This article is a case of uncontrolled type 2 diabetes with diabetic neuropathy or Pittaj prameha sub-type Haridra meha. A male patient of age 45 years had already investigated for HbA1c 28 days prior presented to JEENA SIKHO LIFECARE LIMITED HOSPITAL, NAVI MUMBAI, MAHARASHTRA, INDIA on 12/09/2024. His case report is already given. Now the detailed discussion on case study, diagnosis and patho-physiology of this case is as follows:

Etiological factors:

He was used to unhealthy lifestyle and not following the timings of eating and sleeping properly. He was not even exercising. Even after elevated HbA1c value he ignored it and this ignorance lead to again triggering in symptoms due to uncontrolled hyperglycemia. Acharya Vagbhata mentioned following causative factors to generate Prameha as given in shloka no 1.

Food and activities which increases Meda (Lipid or fat), Mutra (urine) and Kapha dosha, food of sweet, sour and salty taste, Snigdha (Oily), Guru (uneasy to digest), Pichchhila (Sticky or fermented), Sheetal (cold potency food), Nava dhanya (new grains), sura (alcohol), Anoop mansa (sea food, meat of buffalo, goat etc.), Ikshu (sugarcane), Guda (jaggery), Gorasam (curd and milk), Eka sthana aasanarati (sitting continually at one place), Shayanam vidhi varjitam (sleeping without following rules of sleep).^[10]

श्लोकः

“प्रमेहाविंशतिः तत्र.....तेषांमेदोमूत्रकफावहम्॥१॥
अन्नपानक्रियाजातंयत्प्रायःतत्प्रवर्तकम्।
स्वादुअम्ललवणःस्निग्धगुरुपिच्छिलशीतलम्॥२॥
नवधान्यः सुराःअनूपमांसैक्षुगुडगोरसम्।
एकस्थानासनरतिः शयनम् विधि वर्जितम्॥३॥”
अष्टांगहृदयनिदानस्थान१०/०१

Symptomatology of case:

1. Pain while walking, Numbness and tingling at bilateral lower limb, burning sensation at both feet and sole:

It is a symptom of diabetic neuropathy. As with other complications of DM, the development of neuropathy correlates with the duration of diabetes and glycemic control. This case is of a **Distal Symmetric Polyneuropathy**

(DSPN), the most common form of diabetic neuropathy, most frequently presents with distal sensory loss and pain. Symptoms may include a sensation of numbness, tingling, sharpness, or burning that begins in the feet and spreads proximally.^[1] Pain typically involves the lower extremities. As per ayurvedic perspective, this symptom is mentioned in poorvaroop (Pre-symptomatic phase) of Prameha vyadhi as below:

श्लोक१:

“स्वेदो अंगगन्धाः शिथिलांगता च शय्यासनस्वप्नसुखेरतिः च ।
हृत्तेजजिह्वाश्रवणउपदेहो घनांगता के शनखातिवृद्धिः ॥१३॥
शीतप्रियत्वंगलतालुशोषो माधुर्यमास्येकरपाददाहः ।
भविष्यतो मेहगदस्यरूपं मुत्रे अभिधावन्ति पिपीलिकाः च ॥१४॥

चरकसंहिताचिकित्सास्थान-६

Table no. 16:- Poorvaroop.

Poorvaroop	Elaboration
Kara-pada daha ^[4]	Burning sensation to hands and legs
Hasta-pada-tala daha ^[5]	Burning sensation to upper and lower limb with palm & sole
Karapadayoh suptata dahou ^[8]	Numbness and burning to upper and lower limb

Modern science mentioned it as diabetic complication whereas ayurveda mentioned it as pre-symptomatic phase of diabetes. In treatment Acharya already said that if prameha manifests with all its poorvarup's then it is not curable. And according to modern science also diabetes with complications is the chronic stage of diabetes which is not curable.

2. Anorexia:

May be due to fear of gaining weight he was not eating enough food. Obese people are generally more prone to diabetes. So some people may have this symptom of anorexia nervosa usually called anorexia.

3. Nausea and vomiting:

This may be due to disturbed metabolism because liver plays a key role in digestion and metabolism. It also has a significant role in maintaining blood glucose level thereby causes homeostasis of blood. Nausea and vomiting are the symptoms of disturbed functions of liver. All Acharya's mentioned the different Upadravas of Prameha. Upadravas means complications which produced by the same dosha of previous disease or the main disease can become a causative factor of that upadrava.^[11] In this case kaphapraseka (Nausea) and chardi/vaman (vomiting) were the symptoms present in the patient. Kapha praseka, and chardi/vaman are the updrava's of prameha. Piitaj Prameha also involves rakta dhatu dushti. And rakta dushti means dushti of raktavaha srotas and their moolasthanas well. So in this case it was found a border line alteration in LFT values but it was not a serious issue.

4. Burning micturation on & off, Persistent – It is due to high glucose level in the blood. It often causes infection in urinary tract. Acharya Charaka and Sushruta mentioned the mutra daha as a roopa (symptom) of haridra meha a subtype of pittaj prameha. Shloka by acharya Charaka is given below:

“हारिद्रमेही कटुकम् हरिद्रासन्निभम् दाहात् ॥१४॥”

5. General weakness – As body tissues cannot efficiently use the insulin they become unable to function properly. So body tissues cannot utilize glucose and it leads to weakness. Acharya Charaka in prameha nidansthan mentioned Dourbalya (weakness) as updrava of prameha.

6. Headache/dizziness and Feeling of fear

Due to weakness, he would be a feeling of fear. Because diabetes affects both physical and mental health. Nausea and vomiting may cause headache. In prameha dosha dushya samurchana there is dushti of Oja dhatu. Bhaya i.e. fear and dorubalya (weakness) are the symptoms of Ojo dushti.^[12]

Local examination:

As he had complaining that tingling numbness, burning and pain in the lower limb, his lower limb was examined. There was pitting oedema over both legs. On pricking there was a sensation of numbness. Hyperglycemia from uncontrolled diabetes can damage blood vessels in the legs. It leads to poor circulation and fluid accumulation thereby resulting in pitting oedema.

Investigation:

He was already investigated for HbA1c on 15/08/2024. It showed increase in reading and marked under poor control limit. So, he was not advised again for any blood glucose tests. After few days of treatment, he did HbA1c test to see the effect of treatment and it showed a positive shift to normal by ayurvedic treatment. Findings are already noted in result. **Glycosylated hemoglobin (HbA1C)** Long-term objective assessment of degree of glycemic control is better monitored by measurement of glycosylated hemoglobin (HbA1C). This is because the non-enzymatic glycosylation of hemoglobin takes place over 90-120 days, lifespan of red blood cells. HbA1C assay, therefore, gives an estimate of diabetic control and compliance for the preceding 3-4 months. Since HbA1C assay has a direct relation between poor control and development of complications, it is also a good measure of prediction of microvascular complications.^[1]

Pathogenesis of disease:

Samprapti of this case of pittaj prameha is like that, etiological factors cause increase in Pitta dosha (Kupita pitta) which then vitiates to bastigat medodhatu, mansadhatu and sharirgat kleda and it leads to Pittaj prameha.^[13] But prameha vyadhi involves all 3 dosha's (Vata, Pitta and Kapha) with specific predominance of any dosha.

Flow chart of Samprapti**Diagnosis:**

Though Prameha involved all 3 dosha dushti with predominance of kapha dosha dushti, however, on the basis of dosha which increased majorly than others due to their respective hetu sevana that type of Prameha is diagnosed. It should be decided by observing symptoms.

Table no. 17:- Diagnosis of Pittaja prameha- Haridra meha.

Symptoms	Ayurvedic terminology noted in prameha vyadhi	Prameha vyadhi correlation
Pain in legs while walking	Due to dourbalya	Poorvaroop
Numbness and tingling at bilateral lower limb	Kara-padayo suptata	Poorvaroop
Nausea and persistent vomiting	Kapha praseka, vaman	Pittaj Prameha updrava
Burning micturition on & off	Mutradaha	Haridra meha lakshan
General weakness	Dourbalya	Poorvaroop
Burning sensation to both feet and sole	Karapada daha/hasta-pada tala daha	Poorvaroop
Fear	Bhaya	Ojo kshaya lakshana

Prameha upadravas (Diabetic complications): ^[13]

Kaphaj	Pittaj	Vataj
Avipaka	Basti mehanyo todo	Udavarta

Aruchi	Mushka avadaramam	Kampa
Chhardi	Jwara	Hrudgraha
Ati Nidra	Daha	Lolata
Kasa	Trishna	Shoola
Peenas	Amlako udgar	Nidranasha
	Murcha	Shosha
Kapha praseka ^[6]	Vidbheda	Shwasa- Kasa
	Vaman ^[6]	

Biological reference value for HbA1C test is as follows:

1. **Non-diabetic:** <5.7 %
2. **Pre-diabetic:** between 5.7 to 6.5 %
3. **Diabetic:** > 6.5 %

Hyperglycemia remains the fundamental basis for the diagnosis of diabetes mellitus. In symptomatic cases, the diagnosis is not a problem and can be confirmed by finding glucosuria.^[1] HbA1c of the patient was elevated to **more than poor control** and it was **10.4%** on 15/08/2024. Patient reached to this value means he was suffering by diabetes from so many days but maybe he was in asymptomatic phase or if any symptom was there, he might have ignored it. In between the time of investigation and initiation of treatment his symptoms got triggered and showed complications.

Hence on the basis of symptomatology and investigation report he was diagnosed as **uncontrolled type 2 diabetes mellitus with diabetic neuropathy**. According to ayurvedic criteria he was diagnosed as **Pittaj Prameha** with subtype **Haridra meha**.

Prognosis (Sadhya-asadhyatva of Prameha):

All acharya's said Pittaj Prameha is yapa means difficult to treat because of vishamkriyatvat. It means that, to reduce pitta dosha there is need of sheeta veerya dravyas (cool potency drugs) but it again increases meda kaphadi dushy (lipid/fat/kapha etc.). These meda-kaphadi dushya needs ushna veerya dravyas (hot potency drug) to diminish which again increases pitta dosha. But if there is fewer vitiation of kapha dosha and medo dhatu then pittaja prameha can be Sadhya (easy to treat). This Medo dhatu dushti can be identified by observing poorvaroops of prameha. Purvaroop like dantyadinam maladhyatvam explained as talugalajivha dantyeshu malotpatti by acharya Sushruta it means that accumulation of dirt in all parts of mouth like throat, tongue, teeth etc. This poorvaroop occurs by excessive vitiation of medo dhatu. In this patient medo dhatu is present but in less quantity so it showed symptom of mild coated tongue. This patient had investigated for lipid profile which showed normal results. His liver function test also showed a little bit changes. So this case of Pittaj Prameha became easy to treat. To reach this prognosis fine review of case with deep study is needed.

Ayurvedic intervention:

Shodhan and shaman are the 2 ayurvedic treatments mentioned for the management of prameha. Acharya Charaka stated that shodhan chikitsa should be conducted in sthula (Obese) and balvana pramehi (strong immunity). So this patient had given shaman therapy along with panchakarma therapy which boosts immunity of patient. Panchakarma treatment advised for patient during IPD period worked as like follows:

1. **Abhyanga:** He went through body massage by Ksheerbala taila. ^[14] Ksheerbala taila is mentioned by acharya Vagbhatt, is used here due to its rasayan property [immunity booster]. It is also useful in Vataroga to reduce pain.
2. **Awgaha Swedan:** In this procedure patient was asked to sit in a tub filled with hot water (42 degree temperature). It is one of the type of body steam.^[15] It relieves shoola (pain) and pacifies the diseases caused by vata and kapha dosha.^[16,17]
3. **MatraBasti:** Small amount of Punarnava taila basti was administered to the patient through rectum during IPD period for 9 days. Acharya vagbhatt mentioned that matra basti is useful in abalarugna (whose immunity/strength is low) as it promotes strength.^[18] It leads to easy elimination of mala (stool) and mutra (urine). Punarnava has Shophanut property (anti-inflammatory). ^[19] This patient had pitting edema at lower limb. So this therapy was given to boost immunity by reducing edema of lower limbs.

4. **Shirodhara:** Shirodhara is a form of independent snehana procedure, wherein involves gently pouring liquids over the forehead. In this patient shirodhara with Bramhi oil was performed. It performed to overcome his fear. Bramhi is said to be medhya rasayan. means it acts as immunity booster to brain. Thereby it helped to overcome his feeling of fear. ^[20]
5. **Lepam:** Local application of Dashmoola powder paste over feet had been done during IPD period daily. Absorption of drugs is taking place through body surface and provides the effect of herbs directly on the site of action. Dashmool (group of 10 herbs) are named as Shothahar Mahakashaya by acharya Charaka. ^[21] Shothhara means it reduces swelling. So to reduce pitting edema of patient rapidly, dashmoola was applied directly to lower limb.
6. **Kansyathali foot massage:** It was given to increase circulation in the lower limb thereby reduce numbness and tingling sensation.
7. **Neem-Karela therapy:** In this therapy patient was told to soak his feet in the paste of Nimba (Azadirachta indica) and Karvellaka (Momordica charantia). This is also a local therapy. It was used to reduce burning sensation in feet. Nimba and Karvellaka both have Sheeta virya (cool potency) and both are pittashamaka herbs. ^[22,23]

Shaman chikitsa (Palliative drugs):

It included Herbo-mineral formulations which act as pramehahar (Ant-diabetic) and rasayan (boost immunity). Formulations prescribed during IPD period and post-discharge along with ingredients and uses are given below.

1) Divya shakti powder –

Ingredients: Trikatu (Zingiber officinale, Piper nigrum, Piper longum), Triphala (Embllica officinalis, Terminalia chebula, Terminalia bellirica), Musta (Cyperus rotundus), Vidang (Embelia ribes), Laghu ela (Elettaria cardamomum), Tejpatr (Cinnamomum tamala), Lavang (Syzygium aromaticum), Trivrutta (Operculina turpethum), Saindhav (Rock salt), Dhanyak (Coriandrum sativum), Pippali mul (Piper longum root), Jeerak (Cuminum cyminum), Nagkeshar (Mesua ferrea), Dadim (Punica granatum), Brihat ela (Black cardamom), Hingu (Ferula asfoetida), Ajmoda (Apium graveolens), Sajjikshar (Sodium bicarbonate), Pushkarmool (Inula racemosa), Mishri (Rock sugar)

Indications: Boosts immunity and aids to treat indigestion

2) Capsule DM:

Ingredients: Aamragandhi Haridra (Curcuma amada), Guduchi (Tinospora cordifolia), Methika (Trigonella foenum), Shweta musli (Chlorophytum borivilianum), Nimba (Azadirachta indica), Karvellak (Momordica charantia), Jambu (Syzygium cumini), Bilva patra (Aegle marmelos leaves), Gudmar (Gymnema sylvestre), Shilajeet (Asphaltum)

Indications: All types of diabetes and all diabetic complications.

3) Madhumehanasaka syrup:

Ingredients: Karvellak (Momordica charantia), Jambu, Nimba (Azadirachta indica), Kirattikta (Swertia chirayta), Gudmar (Gymnema sylvestri), Kutaj (Holarrhena antidysenterica)

Indications: Diabetes mellitus, Diabetes neuropathy, Retinopathy, Hyperglycemia

4) Prameharoghar powder –

Ingredients: Kutaki (Picrorhiza kurrooa), Kirattikta (Swertia chirayta), Nimba (Azadirachta indica), Karvellak (Momordica charantia), Rasanjan (Berberis aristat), Amlika beej (Tamarind seeds), Kala namak (Black salt), Guduchi (Tinospora cordifolia), Shunthi (Zingiber officinale), Babul tvak and phal (Acacia Arabica bark and fruit), Sarpagandha (Rauvolfia serpentine), Trivang bhasma, Yashad bhasma, Revandchini, Guggulu (Commiphora mukul), Methika (Trigonella foenum), Jambu (Syzygium cumini), Karanj (Pongamia pinnata), Shilajeet, Haridra (Curcuma longa), Haritaki (Terminalia chebula), Indrayava (Holarrhena antidysenterica seeds), Vanshlochan (Bambusa arundinacea), Bibhitak (Terminalia Bellerica), Amalki (Embllica officinalis), Shweta musli (Chlorophytum borivilianum), Gudmar (Gymnema sylvestre)

Indications: All types of diabetes, controls blood sugar level, relieves urinary problems, improves immunity, useful in diabetic neuropathy and retinopathy

5) Nervine tonic syrup:

Ingredients: Ashwagandha (Withania somnifera), Musli (Chlorophytum borivilianum), Manjishtha (Rubia cordifolia), Haritaki (Terminalia chebula), Haridra (Curcuma longa), Rasna (Pluchea lanceolata), Vidari

(Pueraria) , Arjun (Terminalia arjuna), Musta (Cyperus rotundus), Trivritta (Operculina turpethum), Shweta chandan (Santalum album), Rakta chandana (Pterocarpus santalinus), Sariva (Hemidesmus indicus), Chitrak mula (Root of Plumbago zeylanica), Bramhi (Bacopa monnieri) , Shatavari (Asparagus racemosus), Shunthi (Zingiber officinale), Shatpushpa, Renuka (Calamus vattayila), Madhu (Honey)

Indications: Nerve disorder, numbness, insomnia, memory loss, bone disease, weakness

6) Tablet JS Diab:

Ingredients: Karvellak (Momordica charantia), Gudmar (Gymnema sylvestri), Paneer dodi (Withania coagulens), Jambu (Syzigiumcumini, Methika (Trigonella foenum-graceum), Nimba (Azadirachta indica), Kalmegha (Andrographis paniculata), Bilva (Aegle marmelos), Mamajjak (Enicostema littorale), Guduchi (tinospora cordifolia), Yashad bhasma, Vang bhasma

Indications: Diabetes, diabetes neuropathy, retinopathy

7) Tablet Immune pathy:

Ingredients: Nmba (Azadirachta indica), Guduchi (tinospora cordifolia), Haridra (Curcuma longa), Maricha (Piper nigrum), Twak (Cinnamomum tamala), Shunthi (Zingiber officinalis), Ashwagandha (Withania somnifera)

Indications: Immunity booster, weakness, liver disease, kidney disease, CA

8) Capsule LIV DS:

Ingredients: Bhumyamalki (Phyllanthus niruri), Kasmard (Cassia oxidentalis), Hinsra (Capparis sepiaria), Punarnava (Boerhavia diffusa), Guduchi (Tinospora cordifolia), Kakmachi (Solanum nigrum), Arjun (Terminalia arjuna), Zabuk (Tamarix gallica), Vidang (Embelia ribes), Chitrak (Plumbago zeylanica), Kutaki (Picrorhiza kurrooa), Haritaki (Terminalia chebula), Bhiringraj (Eclipta prostrate)

Indications: Liver disease, GIT, GERD, loss of appetite

9) Yakrit shothahar vati

Ingredients: Punarnava (Boerhavia diffusa), Marich (Piper nigrum), Pippali (Piper nigrum), Vidang (Embelia ribes), Devdaru (Cidrus deodara), Kushtha (Saussurea lappa), Haridra (Curcuma longa), Chitrak (Plmbago zeylanica), Haritaki (Terminalia chebula), Bibhitak (Terminalia bellirica), Aamalki (Emblia officinalis), Danti (Baliospermum montanum), Chavya (Piper retrofractum), Indrayava (seeds of Holarrhena antidysenterica), Pippali mula (root of Piper longum), Musta (Cyperus rotundus), Krishna jeerak (Carum carvi), Kayphal (Myrica esculenta), Kutaki (Picrorhiza kurrooa), Trivritta (Operculina turpethum), Shunthi (Zingiber officinale), Karkatshringi (Pistacia integerrima), Ajmoda (Apium graveolens), Mandoor bhasma

Indications: Deepan, Pachana, Rasayana

10) Syrup Telome:

Ingredients: Kumari (Aloe vera), Guduchi (Tinospora cordifolia), Bhiringraj (Eclipta alba), Aamalki (Emblia officinalis), Kutaki (Picrorhiza kurroa), Vidang (Embelia ribes), Chitrak (Plumbago zeylanica), Daruharidra (Berberis aristata), Kalmegha (Andrographis paniculata), Bhumyamalki (Phyllanthus niruri), Pudina (mint leaves), Tulsi (Ocimum sanctum), Pippali (Piper longum), Jeerak (Cuminum cyminum), Punarnava (Boerhavia diffusa), Bilva (Aegle marmelos), Ela (Cinnamomum cardamom)

Indications: Liver disease, GIT, metabolic disorder, cell rejuvenation

11) Tablet Dr. Sukoon:

Ingredients: Apamarga (Acharanthes aspera), Shatavari (Asparagus racemosus), Ashwagandha (Withania somnifera), Bramhi (Bacopa monnieri), Vacha (Acorus calamus), Shankhapushpi (Convolvulus pluricalis)

Indications: Sleeplessness, anxiety, headache, restlessness

12) Arogya vati:

Ingredients: Loha bhasma, Abhraka bhasma, Tamra bhasma, Aamalki (Emblia officinalis), Bibhitak (Terminalia bellirica), Haritaki (Terminalia chebula), Chitrak (Plumbago zeylanica), Kutaki (Picrorhiza kurroa), Nimba (Azadirachta indica)

Indications: Deepan, Pachana, Rasayana

Diet and Exercise:

DIP diet plan was advised to him. This diet plan is helpful in managing disorders which caused by unhealthy lifestyle. This diet gives discipline to the patient's diet timing and it planned intelligently with how much quantity should be advised for salad and fruit. Formulas for quantity of fruits and salad are mentioned previously in DIP diet plan according to patient's weight. It can be helpful in diseases like diabetes, hypertension, thyroid, liver diseases, etc.

Following pathy-apathy aahar (Healthy and unhealthy diet) was advised to patient which is explained by acharya Bhavmishra.

Pathy aahar:

Godhuma (Wheat), chanaka (Chickpeas), aadhaki (Pigeonpea), kulath (Horse gram), purana anna (Old grains/millet), tikta shaka (Bitter taste vegetables), yavanna vikriti (Barley recipes), mudga (Green gram), shali (Rice)

Varjayeta:

Madira (Alcohol), taila (Oily food), takra (butter milk or curd), ksheera (milk), ghrita (ghee), guda (Jaggery), amla (sore taste food), ikshurasa (Sugarcane juice), pishtanna (Starch food), anoop mans (non-veg)

Exercise is more necessary in diabetic patient as acharya Charaka mentioned in the treatment of prameha that, "vyayamyogai vividhai" means different type of exercises should do.

Further Scope of Advance Research :-

This case study is of great value in its own as it gave a tremendous result in uncontrolled type 2 DM with its complication named diabetic neuropathy and this result is just within 74 days without any adverse effect by ayurvedic therapeutics. But this is a single case study with diabetic complication. There is a need to collect data on large scale to analyze the average result of ayurvedic therapeutics in type 2 DM along with its all type of complications and not only the diabetic neuropathy. This collective data will be a proof and be useful to treat the patients of DM successfully with ayurvedic therapeutics.

Conclusion :-

This case is of uncontrolled type 2 diabetes mellitus and diagnosed as pittaj prameha-Haridra meha according to ayurveda. Overview of the case concludes that though the case is of uncontrolled diabetes came with diabetic complication also, he/she can be cured and get reversed to normal within short period. In this case after total 74 days of ayurvedic treatment it reduced from 10.4% to 4.9% successfully and it is within border line range of non-diabetic HbA1c. This treatment does not show any adverse effects.

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