

CASE RECORD

Diabetic Distal Symmetric Polyneuropathy: A Case Study

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The most common form of diabetic neuropathy is diabetic distal symmetric polyneuropathy. It most frequently presents with distal sensory loss. Treatment of diabetic neuropathy is unsatisfactory in modern treatment. A case of Diabetic Distal Symmetric Polyneuropathy in a 40-year-old male treated with homoeopathy is reported here. This case shows the efficacy of homoeopathic medicine, Phosphorus, in giving not only symptomatic relief to the patient but also improving the pathological findings and peripheral nerve conduction.

Key words: homoeopathy; diabetic distal symmetric polyneuropathy; phosphorus; peripheral nerve conduction study.

Introduction

Diabetes mellitus is a metabolic syndrome, which is by far the most common endocrinal disorder and world wide in distribution. Although Diabetes can be kept under control, the complications of Diabetes are the major cause of morbidity and mortality in uncontrolled subjects. Diabetic neuropathy is relatively early and common complication of Diabetes. Its prevalence is related to the duration of Diabetes and the degree of metabolic control. It is almost always present in Diabetics aged 40 years or more and who have been diagnosed for at least 20 years. Some reports suggest that diabetic neuropathy is not effectively managed by conventional drugs even in patients whose diabetes remains under control¹.

Diabetic peripheral neuropathy is a significant public health issue that is often associated with negative physical, psychological and social sequelae^{2,3}. Pain perception and interpretation is further complicated by cognitive, cultural and environmental interaction on the quality of patient life⁴. The association between neuropathic pain and decreased quality of life (QOL) in people with DPN is well documented^{5,6}.

It is difficult to estimate the true prevalence of diabetic peripheral neuropathy in India due to different diagnostic criteria used in studies. The prevalence varies from 30-60% in population and clinical based studies. It may be present in up to 10% of type 2 diabetic patients at the time of diagnosis. The incidence of diabetic peripheral neuropathy is not well known, but in a cross-sectional population-based study from South India shows that, 19.1% of type 2 diabetic patients had peripheral neuropathy and that DN is significantly associated with age, glycosylated haemoglobin and duration of diabetes study⁷.

Now there is a growing use of Complementary and alternative medicines for the management of diabetes. A study conducted by Garrow and Egede found that there has been a dramatic increase in overall use of CAM on adults with diabetes⁸. Studies report that Homoeopathy is one of most commonly used CAM system of treatment, to be used by diabetics^{10,11}. The homoeopathic literature indicates the usefulness of homoeopathic remedies in the management of patients suffering from diabetes mellitus and their complications, so the Council has undertaken a study to evaluate the usefulness of pre-defined medicines on the patients suffering from Diabetic Distal Symmetric (primarily sensory) Polyneuropathy, one of the complications of diabetes mellitus, through symptomatic and laboratory assessment. The Regional Research Institute (Homoeopathy), Guwahati was one of the centers and the profile of one of the patients treated at the centre is presented here.

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Case Presentation

The patient was enrolled from the OPD of Regional Research Institute (Homoeopathy), Guwahati as per the inclusion criteria of the protocol of Diabetic Distal Symmetric (primarily sensory) Polyneuropathy.

Patient was a 40 years old fair male. His chief complaints were numbness; tingling, burning pain and increasing weakness in both the extremities (upper limb more than lower limb) aggravated from least exertion, morning, walking, standing and after eating; ameliorated by bathing, rest and cold application, for last 4 years. On further investigations was diagnosed to be suffering from raised blood sugar level too. The sensation of tingling, burning and numbness were mostly in 'gloves and stocking' distribution. There was an occasional sensation of formication in upper limb. Associated symptoms were low back pain aggravated while sitting and abdominal bloating relieved by rubbing and cold application, for last 2 years. He was only taking allopathic medicine for maintaining blood sugar level the medicine did not include any vitamins or other products which had beneficial effect on nerve disease. There was no relief in the complaints.

He came from a middle class family and was the first child of his parents. His birth and milestones were unremarkable. He got married at 33 years of age and has 2 children- one male and one female; both were full term normal deliveries.

He had an attack of gall stone colic 2 years back and took allopathic treatment, got relief, except one or two episodes per year. He had a history of Diabetes Mellitus 4 years back & took Conventional treatment for the last 3 years.

Family history revealed that his father died from age related problem at the age of 78 year and mother died from Gastric ulcer haemorrhage, at the age of 40 year. He has three siblings- 2 brothers one of which suffering from tuberculosis and other had an attack of Cerebrovascular accident (Stroke) - 5 years back. His sister did not have any problem.

He was a chilly patient; had a tendency to catch cold easily, had desire for open air, sweets and meat and cold drinks; averse to chillies; and intolerance to spicy and rich foods. Urine was frequent (6-8 times) at night. Stool was irregular, hard and offensive; occasional bleeding per rectum during hard stool. Perspiration used to be scanty without any offensive odour. Sleep was refreshing while rising from bed early in the morning. In general, he

is aggravated from cold in any form, summer, morning, tight clothing, noise, exertion, standing & after eating, and relived by bathing, and rest. He was anxious, sad & depressed because of some recent financial problem. Memory- weak. Desires to be alone, does not like company most of the time, and wants to solve problems by himself. Anxiety for his family, while alone. Emotional.

General Physical Examination

Alert and oriented, cooperative, communicates well with good eye contact.

Fair complexioned, moderate built, anxious and depressed

Height- 169 cm, Weight- 70 kg

Anaemia- mild, Jaundice- nil, Cyanosis- nil, Oedema- nil, Lymph nodes- not palpable.

Pulse- 72/ min, regular in rhythm & normal in volume and character, BP- 130/88 mm of Hg

Temperature- 98°F, Respiratory rate-20/min

Systemic Examination

Respiratory System: NAD

Cardio Vascular System: NAD

Gastro Intestinal System: NAD

Locomotor System: NAD

Nervous System:

Gait -normal

Speech - normal

Nervous Examination of Limbs:

	Right		Left	
	UL	LL	UL	LL
Power	5	5	5	5
Tone	n	n	n	n
Light Touch	n	n	n	n
Position	n	n	n	n
Coordination	n	n	n	n

Reflexes	Supinator	Biceps	Triceps	Knee	Ankle	Plantar
Right	↓	↓	N	N	↓	↓
Left	↓	↓	N	N	↓	↓

[NAD – no abnormality detected, UL: upper limb, LL: lower limb, N- normal, ↓ - diminished]

Laboratory investigations related to the study e.g., HbA1C, Blood sugar level (fasting and postprandial) were done at entry and after every 3 months. However, Peripheral Nerve Conduction test was done at the entry level and at end of the study to evaluate the treatment response.

Pathological reports at entry:

- A. 1. Blood sugar: a. Fasting: 100 mg%
b. PP: 145 mg%
- 2. HbA1C: 6.9%

B. Peripheral Nerve Conduction:

Sensory Nerve conduction: Shows no significant abnormalities

Motor Nerve conduction Study: Distal latencies C-map and conduction velocities are within normal limit. Minimal (F) wave latencies with in normal limits. H reflexes are prolonged.

Conclusion: Study is suggestive of distal early neuropathy.

The **Totality of symptoms** of the case comprises of the following:

- **Causation** — Exciting: Cold in general aggravates.
Fundamental: Psoric and syphilitic miasms.
- **Past medical history:** Gall bladder diseases (Cholelithiasis), Diabetes mellitus.
- **Family history:** Gastric ulcer haemorrhage, Cerebro-vascular accident and Tuberculosis.
- **Mental generals:**
Sadness < night; regarding financial problem
Desire to be alone, does not like company,
Wants to solve problems by himself
Anxiety for his family, while alone
Emotional
Weakness of memory

■ **Physical generals:**

- Chilly patient
- Aggravation from cold in general, in summer, in morning, tight clothing, noise, exertion, standing, after eating
- Amelioration from bathing, & rest
- Tendency to take cold easily
- Desires for open air, sweets, meat, cold drinks
- Intolerance to spicy & rich foods
- Aversion to chillies
- Desires for open air
- Perspiration scanty
- Offensive stool

■ **Particulars:**

1. Weakness, burning pain, numbness and tingling in both the extremities
Aggravation from exertion, in the morning, walking, standing, after eating
Amelioration from rest, cold application
2. Low back pain < sitting
3. Abdominal discomfort > cold application, massaging

Repertorization was done with the help of Kent Repertory¹¹ considering the rubrics mentioned in the repertorization chart at Table 1.

Phosphorus scored 39 covering 19 rubrics out of 20 selected. After consulting *Materia Medica*¹² it was finally selected for the cases. The indications were-

- *Psoric and syphilitic state*
- *Chilly patient*
- *Anxiety, while alone*
- *Aggravation in morning & after eating*
- *Desires for cold drinks*
- *Emotional*
- *Weakness of memory*
- *Formication in upper limbs*

Not taken during repertorization

The 1st prescription was single dose of Phosphorus 30 on 29-11-2007 followed by placebo for one week. Besides this, the allopathic medicine for maintaining blood sugar level was also prescribed by the allopathic consultant.

Table 1: Repertorization sheet

Repertorisation Table															
Patient Name: DDST – A Case Study										Reg_No.:				Rep_Date: 17/07/2009	
Normal Repertorisation	Phos	Carb-v	Bry	Sulph	Ars	Puls	Nat-m	Rhus-t	Sep	Calc	Graph	Lyc	Nux-v	Kali-c	Carbn-s
Totally	39	38	37	37	36	33	32	32	32	30	30	29	28	26	26
Symptoms Covered	19	17	16	16	17	16	17	15	14	15	15	13	13	15	13
[KT] (Mind) Sadness mental depression: Night	2	-	-	-	2	-	2	1	-	1	2	-	-	-	-
[KT] (Mind) Company: Aversion to:	1	2	2	2	-	2	3	2	2	1	1	2	3	1	1
[KT] (Mind) Anxiety: Alone when	3	-	-	-	3	-	-	-	-	-	-	-	-	-	-
[KT] (Generalities) Cold: in general agg:	3	2	2	2	3	2	2	3	3	3	3	3	3	3	2
[KT] (Generalities) Cold: Tendency to take:	2	2	3	2	1	2	3	2	3	2	2	3	3	3	2
[KT] (Generalities) Morning:	3	3	3	3	2	3	3	3	3	3	2	1	3	2	3
[KT] (Generalities) Exertion physical: Agg:	2	2	3	3	3	2	3	3	3	3	1	2	2	2	-
[KT] (Generalities) Standing: Agg:	1	1	2	3	1	3	1	2	3	2	1	-	1	1	2
[KT] (Generalities) Eating After:	3	2	3	3	3	3	3	2	3	3	2	3	3	3	2
[KT] (Generalities) Air Open Desire for	1	3	2	3	2	3	2	1	1	-	2	3	-	1	2
[KT] (Generalities) Motion: Agg:	2	2	3	3	2	1	2	-	2	1	2	-	3	-	2
[KT] (Generalities) Food Rich: Agg:	1	3	2	-	-	3	1	-	2	-	-	-	-	-	-
[KT] (Stomach) Desires: Sweets	-	2	2	3	1	-	1	2	2	2	-	3	1	2	-
[KT] (Stomach) Desires: Cold drinks	3	-	3	1	3	1	1	2	2	2	2	2	1	-	1
[KT] (Extremities) Numbness (see tinging): Upper limbs	2	2	-	2	1	2	1	3	2	-	3	3	2	2	3
[KT] (Extremities pain) Pain: Bursing Upper limbs	1	2	1	1	2	1	1	2	-	1	1	1	-	1	-
[KT] (Extremities) Weakness Exertion least after	2	3	1	-	3	-	-	-	-	2	-	-	-	2	-
[KT] (Extremities) Tingling prickling asleep (see numbness) Upper limbs	3	2	-	1	1	1	-	-	-	-	3	-	-	1	2
[C] (Stool) Odor: Offensive	2	3	3	3	3	2	1	1	1	2	3	1	2	1	3
[KT] (Back) Pain Lumbar region: Sitting White	2	2	2	2	-	2	2	3	-	2	-	2	1	1	1
Symptoms 1 to 20	Total Symptoms: 20														
Symptoms 1 to 15	Remedies 1 to 15														
Total Remedies: 349	Total Remedies: 349														

Table 2: Diabetic Distal Symmetric Polyneuropathy Symptom Assessment Score (DDSPSAS)

Symptom and Sign	Score				
	1	2	3	4	5
Bilateral/symmetric distal sensory loss	0 Absent			3 Present	
Extent of sensory loss	0 Absent	1 Upto foot	2 Upto Knee	3 Above Knee	4 Involvement of upper limbs
Paresthesia (abnormal sensation such as of burning, pricking, tickling or tingling)	0 Absent	1 Response to stimuli	2 Spontaneous		
Dysesthesia (impairment of sensation by stimuli)	0 Absent	1 Present			
Numbness, tingling, that begins in the feet and spreads proximally	0 Absent	1 Upto foot	2 Upto Knee	3 Above Knee	4 Involvement of upper limbs
Burning that begins in the feet and spreads proximally	0 Absent	1 Upto foot	2 Upto Knee	3 Above Knee	4 Involvement of upper limbs
Lancinating or lightning pain in lower extremities (frequency)	0 Absent	1 2-3 times/day	2 4-10 times/day	3 11-24 times/day	4 Constant
Character of lancinating or lightning pain in lower extremities (severity)	0 Absent	1 Dull (Mild)	2 Acute (Moderate)	3 Excruciating (Unbearable)	
“Glove and Stocking” sensation in extremities.	0 Absent			3 Present	
Perception of superficial pain	0 Normal	1 Hypoalgesia (Partial loss of sensibility)	2 Analgesia (Absence of sensibility)	3 Exaggerated (Hyperalgesia)	
Perception of vibration	0 Normal	1 Reduced		3 Abolished	
Perception of temperature	0 Normal	1 Impaired	2 Abnormal		
Perception of position (movements)	0 Normal	1 Diminished	2 Absent		
Tendon reflexes	0 Normal	1 Diminished	2 Brisk	3 Absent	
Nerve conduction test (sensory)	0 Normal	1 Slow			
Nerve conduction test (motor)	0 Normal	1 Reduced			
Intensity: Mild: 0 - 15 Moderate: 16–30 Severe: 31–43					

Total score: **17** (sum of bold numbers) Intensity: Moderate

Follow-up of the patient was done periodically at fixed intervals as per protocol. During the first month, the patient visited weekly and after that, it was extended to once in two to three weeks and in between, for any problem he was instructed to report.

Diabetic Distal Symmetric Polyneuropathy Symptom Assessment Score (DDSPSAS), developed by the Council was used to quantify the severity of illness at entry and during each follow up visit. Evaluation of each subjective and objective symptom in terms of score was done by attributing zero score (no symptom or normal) and 1,2,3,4 for different degrees of a given symptom. The intensity of the case was categorised into mild (0-45), moderate (16-30) and severe (31-43) as mentioned in Table 2. Outcome assessment was done by

calculating the percentage using the formula $\{[(\text{baseline score} - \text{score at end}) / \text{baseline score}] \times 100\}$. Changes thereupon were graded as - *cure* (100% improvement), *marked improvement* (75 to < 100% improvement), *moderate improvement* (50 to < 75% improvement), *mild improvement* (25 to < 50% improvement), *not significant improvement* (< 25% improvement), *static* (no change), and *worse* (increase in symptom score).

The case is of moderate intensity, at entry the symptoms score of the patient being '17', i.e. moderate in intensity and '0' at the end of treatment indicating full recovery in the signs and symptoms of Diabetic Distal Symmetric Polyneuropathy (Table 3 & 4). The details of score and status of improvement at each follow-up is represented in (Figure 1).

Table 3: Details of the follow up visits reflecting change of prescription and pathological investigations

Date	Symptoms	Laboratory investigations	Symptom score	Medicine prescribed
At entry 29-11-2007	Numbness, tingling, burning pain and increasing weakness in both the extremities (upper limb more than lower limb) aggravated from least exertion, morning, walking, standing and after eating ; ameliorated by bathing, rest and cold application	1. Blood Sugar: a. F: 100 mg% b. PP: 145 mg% 2. HbA1C: 6.9% 3. Nerve Conduction: study is suggestive of distal early neuropathy	17	Phosphorus 30/ 1 dose
22-02-2008	Complaints improved up to 2 months but remained standstill for the last one month	1. Blood Sugar: a. F: 95 mg% b. PP: 130 mg% 2. HbA1C: 8.8%	9	Phosphorus 30/ 1 dose
23-06-2008	Tingling, numbness and burning pains reduced moderately with normal bowel bladder habit, appetite increased and sleep much better than before	1. Blood Sugar: a. F: 92 mg% b. PP: 164 mg% 2. HbA1C: 8.7%	7	Sac. Lac.
21-08-2008	Tingling, numbness and burning pains reduced moderately & patient feels much better than before	1. Blood Sugar: a. F: 93 mg% b. PP: 147 mg% 2. HbA1C: 9.1%	7	Phosphorus 200/ 1 dose
18-09-2008	Mild tingling, and numbness persist with general well being of the patient	—	7	Phosphorus 1M/ 1 dose
05-12-2008	No pain, weakness, numbness or tingling sensation	1. Blood Sugar: a. F: 100 mg% b. PP: 194 mg% 2. HbA1C: 6.1% 3. Nerve Conduction: shows normal motor and sensory conduction values	0	Sac. Lac.

Discussion and Conclusion

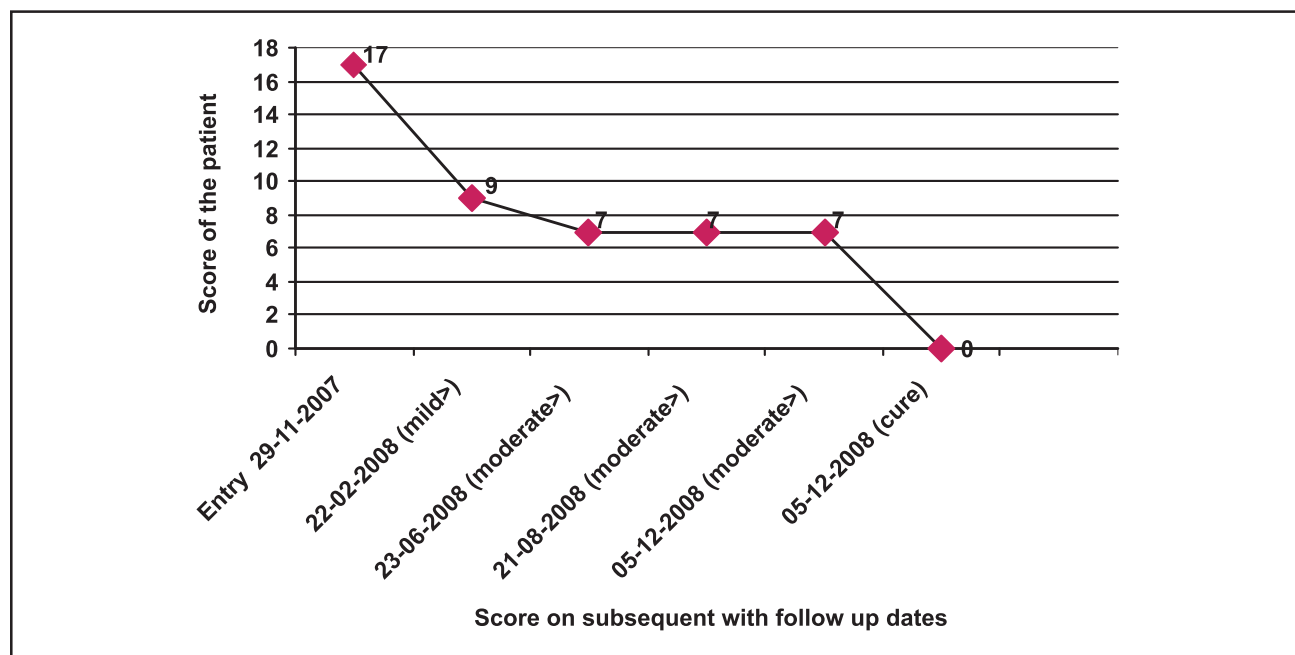
Phosphorus was selected for this case because not only it got the highest score in repertorial analysis (Table 1), but also totality of symptoms including the miasmatic background was in favour of it. Miasmatic

diagnosis was based on presenting complaints, generalities, past history & family history of the patient. Phosphorus in 30,200 & 1M potencies were administered at varying intervals as given in Table 3. Treatment started with baseline score 17 and ended with 0 (Table 4).

Table 4: Score at entry and status at subsequent follow-ups

Signs and Symptoms	Score on 29-11-2007	Score on 22-02-2008	Score on 23-06-2008	Score on 21-08-2008	Score on 05-12-2008	Score on 05-12-2008
Bilateral/symmetric distal sensory loss	3	3	3	3	3	0
Extent of sensory loss	1	0	0	0	0	0
Paresthesia (Abnormal sensation such as of burning, pricking, tickling or tingling)	2	1	0	0	0	0
Dysesthesia (Impairment of sensation by stimuli)	1	0	0	0	0	0
Numbness, tingling, that begins in the feet and spreads proximally	1	0	0	0	0	0
Burning that begins in the feet and spreads proximally	1	1	0	0	0	0
Lancinating or lightning pain in lower extremities (Frequency)	0	0	0	0	0	0
Character of lancinating or lightning pain in lower extremities (Severity)	0	0	0	0	0	0
“Glove and Stocking” sensation in extremities.	3	3	3	3	3	0
Perception of superficial pain	1	0	0	0	0	0
Perception of vibration	0	0	0	0	0	0
Perception of temperature	1	0	0	0	0	0
Perception of position (movements)	1	0	0	0	0	0
Tendon reflexes	1	0	0	0	0	0
Nerve conduction test (sensory)	0	0	0	0	0	0
Nerve conduction test (motor)	1	1	1	1	1	0
Total Score (status of improvement)	17 at entry	9 (mild>)	7 (moderate>)	7 (moderate>)	7 (moderate>)	0 (cure)

Figure 1: Details of score and status of the patient at each follow up



In spite of the fact that the patient was taking allopathic medicine for maintaining blood sugar level, the homoeopathic medicine has shown positive result in controlling the signs and symptoms of neuropathy as the patient was also taking these allopathic medicines earlier without any effect on neuropathy complaints.

In the case study, the pathological reports related to peripheral nerve conduction sensory were normal at baseline but the test indicated early neuropathic changes, which were not present at the end of the study. This indicates that this was a case of small nerve fiber neuropathies which occur early and are often present without objective signs or electrophysiologic evidence of nerve damage¹⁴. Besides this, the peripheral nerve conduction (motor) became normal after the treatment and HbA1c reduced from the baseline. The blood sugar level slightly increased (BSPP: 194 mg %) after 12-month treatment though the patient is still taking allopathic medicines for DM. But HbA1C was reduced which is more reliable. The pathological findings are not correlating with the symptom-score during follow up, HbA1C was found increased in spite of the improvement of the patient symptomatically. This does not corroborate with the observation of Ross MA¹⁵ who stated that the symptomatology of DDSP should relate with the blood sugar levels. Associated complaints like abdominal bloating decreased by 75-80% but the low back pain persisted with mild intensity.

Clinically he has recovered from neuropathic problem at present. The patient needs to be followed

up for a longer period to assess further changes in symptomatology, laboratory findings and peripheral nerve conduction.

However, the improvement of the patient reaffirming the principles of single medicine, minimum dose and infrequent repetition as advocated by Hahnemann¹⁵. The case suggests that after completion of this study a larger prospective randomized placebo controlled study may be undertaken.

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