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Case Study

DIABETES-RELATED PROXIMAL LOWER LIMB MUSCLE WEAKNESS: A CASE REPORT INTERPRETED THROUGH *MEDO AVRUTA VATA*

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ABSTRACT

Diabetes mellitus is a chronic metabolic disorder associated with multiple microvascular and macrovascular complications; however, involvement of skeletal muscle remains under-recognized. Diabetes-associated muscle dysfunction may present with progressive weakness, pain, and functional impairment, significantly affecting quality of life. This case report describes a young female with long-standing type 2 diabetes mellitus who presented with progressive right lower limb pain, muscle wasting, and weakness predominantly affecting the calf and distal leg muscles. Clinical examination revealed hypotonia, reduced muscle strength, gait abnormality, and preserved deep tendon reflexes, with minimal sensory involvement. Laboratory investigations showed poor glycemic control with elevated glycated hemoglobin levels, while serum creatine phosphokinase levels were within normal limits. Electromyography and nerve conduction studies demonstrated myopathic changes with superficial peroneal nerve involvement. Magnetic resonance imaging of the lower limbs revealed muscle atrophy with fatty infiltration, supporting the diagnosis of diabetes-associated skeletal muscle dysfunction. From an Ayurvedic perspective, the clinical features were correlated with *Medo Avṛta Vata*, occurring in the background of chronic *Prameha*. The patient was managed using an integrative therapeutic approach comprising *Prameha chikitsa* and *Avaraṇa-hara Vata chikitsa*, including internal medications and external therapies. Significant improvement was observed in pain intensity, muscle strength, gait, and overall functional capacity over the treatment period. This case emphasizes the importance of early recognition of diabetes-related muscle involvement and highlights the potential role of integrative diagnostic and therapeutic strategies in the holistic management of neuromuscular complications associated with chronic metabolic disorders.

INTRODUCTION

Skeletal muscle mass and strength follow a dynamic trajectory across the human lifespan, with progressive muscle development during childhood and adolescence, stabilization in early adulthood, and a gradual decline beginning in the third decade of life. This decline accelerates notably after the sixth decade, contributing to sarcopenia and dynapenia, which are associated with reduced physical performance, frailty, and diminished quality of life.[1]

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Chronic metabolic disorders, particularly long-standing diabetes mellitus, further accelerate muscle degeneration through metabolic, inflammatory, and neuromuscular mechanisms [2]

Diabetes mellitus is widely recognized for its microvascular and macrovascular complications; however, its impact on skeletal muscle structure and function is increasingly acknowledged. diabetic myopathy represents an under-recognized complication characterized by proximal muscle weakness, reduced muscle endurance, and progressive muscle wasting, often occurring without sensory deficits.[3] Functional impairments such as difficulty rising from a seated position, climbing stairs, or performing overhead activities are commonly reported, reflecting predominant involvement of pelvic and shoulder girdle musculature.

Myopathies are clinically defined by motor impairment without sensory involvement and typically present with symmetrical proximal muscle weakness. Pelvic girdle muscles are frequently more severely affected, leading to gait disturbances and postural instability. Diagnosis relies on detailed clinical history, careful physical examination, and supportive investigations. Additional features such as myalgia, fatigue, muscle cramps, and reduced exercise tolerance may be present. In diabetes, chronic hyperglycaemia, insulin resistance, mitochondrial dysfunction, low-grade inflammation, and impaired protein synthesis contribute to progressive muscle dysfunction.[2, 3]

From an Ayurvedic stand point, the clinical presentation of diabetic myopathy can be conceptually correlated with *Medo Avṛta Vata*. In this condition, aggravated *Meda Dhatu* obstructs the normal movement of *Vata*, leading to impaired nourishment and function of *Asthi Dhatu*. Our muscles are attached to the *Asthi dhathu* vice versa this causes loss of strength of *Mamsa dhathu*. Classical descriptions of *Avaraṇa* include *Gaurava* (heaviness), *Bala-kṣaya* (loss of strength), *Gati-saṅga* (restriction of movement), and *Karma-hani* (functional impairment), which closely parallel the manifestations observed in diabetic muscle involvement.[4] Chronic *Prameha* is described as a disorder affecting *Meda* and *Mamsa Dhatu*, predisposing individuals to neuromuscular complications when *Vata* becomes obstructed and subsequently aggravated.[5]

This case report aims to describe a patient with diabetic myopathy and to interpret the clinical features through the Ayurvedic framework of *Medo Avṛta Vata*, emphasizing the relevance of an integrative diagnostic approach for early recognition and holistic management of muscle dysfunction in long-standing diabetes.

Case Presentation

Patient Information

A 31-year-old female, a known case of type 2 diabetes mellitus for the past five years and on regular anti diabetic medication, presented with progressive neuromuscular symptoms involving the right lower limb.

Presenting Complaints

The patient complained of nocturnal cramping pain in the right calf muscle for the past one year, followed by difficulty in flexion of the right lower limb. Gradually, she developed pain in the right popliteal fossa and dorsum of the right foot.

Approximately two months prior to presentation, she had an episode of severe febrile illness, after which there was aggravation of pain in the right calf and knee, associated with progressive weakness and numbness of the right foot. Pain was aggravated by cold exposure and while stepping on the ground. The weakness progressed over several months, significantly affecting her activities of daily living and quality of life

Past History

Patient is known case of diabetic mellitus since 5years on regular medication

On examination

- Built – Medium
- Nourishment – Moderate
- Pulse Rate – 76beats/minute
- BP – 120/80mmhg,
- Temperature – 98.6°F, afebrile
- Heart Rate – 76/minute
- Respiratory Rate – 18/minute
- Tongue – Uncoated
- Height and Weight – ht-160cm, wt - 59 kg
- Pallor – Absent
- Icterus – Absent
- Cyanosis – Absent
- Clubbing – Absent
- Edema – Absent
- Lymphadenopathy – Absent

Systemic Examination

1. Respiratory System – B/L normal vesicular breath sounds heard.
2. Cardiovascular System – S1 & S2 (+), NAD.
3. per Abdomen- NAD
4. Central Nervous System– Conscious, oriented to time/place/person, with preserved memory and higher mental function.

Motor System

Involuntary movements – Absent

Muscle bulk

		Right	Left
Upper limb	Arm	30cms	30cms
	Fore-arm	24cm	24cm
Lower limb	Thigh	40cms	41cms
	Leg	30cms	33cms

Muscle tone

Right hand - Normal
Left hand - Normal
Right leg - Hypotonia
Left leg - Normal

Muscle strength

Upper limb		Right	Left
Elbow	flexion	5/5	5/5
	extension	5/5	5/5
Wrist	flexion	5/5	5/5
	extension	5/5	5/5
Finger abduction		5/5	5/5
Opposition of thumb		5/5	5/5
Test of grip		5/5	5/5

Lower limb		Right	Left
Hip	Adduction	3/5	5/5
	abduction	3/5	5/5
	flexion	3/5	5/5
	extension	4/5	5/5
Knee	flexion	4/5	5/5
	extension	4/5	5/5
Ankle	dorsi flexion	1/5	5/5
	Plantar flexion	1/5	5/5

Gait- Limping gait

Reflexes

Superficial

a) Corneal +
b) Abdominal +

Deep reflex		Right	Left
Biceps jerk		++	++
Triceps jerk		++	++
Knee jerk		++	++
Ankle jerk		++	++
Note: ++ indicates normal			
Clonus	patella	absent	absent
	ankle	absent	absent

Babinski reflex - -ve
Abdominal reflex - +

Sensory system

Superficial: Intact
Deep: Intact
Combined: 2-point discrimination reduced on right leg
Hot and cold sensation reduced on right leg.

Locomotor examination

Spine; Inspection – Posture; sitting
Gait – Limping
Palpation – No mass, tenderness over cervical, lumbar

Range of movements

Knee joint, ankle joint – Restricted on rt leg

Diagnostic Evaluation

Laboratory Investigations

Glycosylated hemoglobin (HbA1c): 8%

Creatine phosphokinase (CPK): 167 IU/L

Electrophysiological Studies

Electromyography and nerve conduction studies showed:

Absent right superficial peroneal nerve response.

Reduced left superficial peroneal nerve response.

Myopathic pattern suggestive of diabetic myopathy.

Imaging Studies

Magnetic resonance imaging (MRI) of the lower limbs revealed:

Muscle atrophy with fatty infiltration in the calf muscles.

No focal inflammatory or structural lesions.

Diagnostic Assessment

Based on:

Progressive proximal and distal lower limb weakness.

Muscle wasting with preserved reflexes.

Absence of upper motor neuron signs.

Elevated HbA1c and myopathic EMG findings.

MRI evidence of muscle degeneration.

A diagnosis of diabetic myopathy was made.

From an Ayurvedic perspective, the condition was correlated with *Medo Avṛta Vata*, arising due to chronic *Prameha*.

Samprapti

↓

prameha vardhaka nidanas

↓

rasavaha, asthivaha mamsavaha srothodushti
Sira, Snayu Kshata

↓

Vyan Vayu Vikruthi

↓

Deha Vyapnoti
(*Saravanga Shareera Visheshta*)

↓

Karmeindriya Hani,
(*Bala Kshaya in Adho Shakha*) *Abhighatajanya Sarvanga Vata*

Samprapti Ghataka

Dosha -kapha pradhana tridosha

Dooshya - Rasam, Meda, Sira, Snayu

Agni -Jataragni, Dhatvagni

Srotas -Rasavaha, Medovaha,

Srotho dushti prakara –Sanga

Udbava sthana - Amashaya, Pakwasaysa

Vyaktha sthana - Sakthi

Adhishtana - Jangha

Marga - Madhyama

Sadhyasadhyatha - Kruchra Sadhya

Clinical features [8]

1. Excessive fatigue of calf muscles and thighs.
2. Constant pain with slight burning sensation.
3. Pain in feet on stepping on the ground.
4. Insensitivity to cold touch.
5. Loss of muscle power on standing.
6. resisting the movement, walking and on moving the lower limbs.
7. Unable to move the upper and lower parts of the lower limbs due to the feeling that they are fractured.

Special investigations

Diagnostic Evaluation

Laboratory investigations showed elevated glycosilated hemoglobin (HbA1c) levels of 8 and CPK value 167. Electromyography (EMG) and nerve conduction studies demonstrated absent right superficial peroneal and reduced left superficial peroneal myopathic changes, supporting the diagnosis of diabetic myopathy. Imaging studies, including magnetic resonance imaging (MRI) of the lower limbs, revealed no obvious demonstrable abnormalities seen in calf muscles. Muscle atrophy and fatty infiltration, confirming the diagnosis.

Diagnosis

Medo avrutha vata

Diabetic myopathy

Treatment proposed

1. *Nisakathakadi kashaya*
2. *Amrithamehari churnam*
3. *Thriphalaguggulu*
4. *Shatpala ghritham*
5. *Gugguluthikthaka ghritham*

Udwarthanam with *Yavakolakulathadi churna* -3 days

Utsadanam-Yavakolakulathadi churnam - 4 days

Dasamula kashayadhara- 5 days

Dhanyamla dhara whole body- 5 days

Lavana pinda swedam sarvangam - 7 days

Matravasthi with *Sahacharadi mezhupakam* 75ml -7 days

Observations noted during the course of treatment

Date	Treatment	Observation
From 18/10/22 to 18/11/22	*Udwarthanam* with *Yavakolakulathadi churna* -3 days *Utsadanam-Yavakolakulathadi churnam* 4 days *Dasamula kashayadhara*- 5 days *Dhanyamla dhara* whole body 5 days *Lavana pinda swedam sarvangam* - 7 days *Matravasthi* with *Sahacharadi mezhupakam* 75ml -7 days	Stiffness, heaviness of the thigh reduced by 50% controlled diabetics. Muscle power improved significantly as Babinski sign becomes normal bilaterally Power Hip – 4/5 right Left WNL Ankle -3/5 right Left side normal EHL -3/5 right Left side normal

Outcome

Pain on calf muscles reduced 70%.

- Muscle tone of extremities improved.
- Can walk normally and flexion of knee obtained fully.

DISCUSSION

Patient had *Lakshanas* of *Medo avrutha vata* and due to which she developed calf muscle pain with weakness. Acharyas have noted that the *Samprapti* of *Urustambha* is primarily influenced by *Kaphaavruta Vata* and *Medasavruta Vata. Urustambha* was described by Acharya Sushruta as *Adhyavata*, which resembles *Medasavruta Vata. Kapha Pradhana Tridoshaja Vyadhi* is *Urusthamba*. *Sanga* occurs in *Kostha* as a result of *Kapha* dominance, which causes *Avarana* of *Vata* by *Kapha* and *Medas*. When the *Vimarga Gamana* of the *Doshas* occurs, *Sthana Samshraya* in *Uru Pradesh* and *Urustambha* are the results. The line of treatment followed here in this case is *Prameha chikitsa* along with *Medo varana vatha chikitsa*. While doing *Udwarthana* which is *Medasa pravilayanam* and *Anga sthitheekaranam*, weakness of the muscles reduced much which helped to bring back the normal function of lower extremities. *Dhanyamla dhara* and *Lavana pinda sweda* helped to reduce the *Avarana dosha* which helped to correct the *Vimarga gamana* of *Vata. Matravasthi* with *Sahacharadi mezhupakam* helped to correct the *Pakwasaya* which is the seat of *Vata*.

CONCLUSION

This case highlights diabetes-associated skeletal muscle dysfunction presenting with progressive lower limb weakness, muscle wasting, and functional impairment in a young patient with poorly controlled type 2 diabetes mellitus. Although classical diabetic complications are well recognized, muscular involvement remains underdiagnosed and may significantly affect quality of life. The clinical, electrophysiological, and imaging findings in this patient suggest a predominantly myopathic process with associated neuromuscular involvement.

From an Ayurvedic perspective, the presentation closely correlates with *Medo Avṛta Vata*, arising in the background of chronic *Prameha*, wherein obstruction of *Vata* by aggravated *Meda* leads to impaired muscle nourishment and strength. The integrative management approach combining *Prameha chikitsa* and *Avaraṇa-hara Vata chikitsa* resulted in significant improvement in pain, muscle strength, gait, and functional capacity.

This case underscores the importance of early recognition of diabetes-related muscle dysfunction and supports the role of an integrative diagnostic and therapeutic approach in addressing complex neuromuscular manifestations of chronic metabolic disorders. This report is limited by its single-patient nature and lack of muscle biopsy; however, the consistent clinical, electrophysiological, and radiological findings support the diagnosis

REFERENCES

1. Cruz-Jentoft AJ, Bahat G, Bauer J, Boirie Y, Bruyère O, Cederholm T, et al. Sarcopenia: revised European consensus on definition and diagnosis. Age Ageing. 2019; 48(1): 16-31. Available from: https://academic.oup.com/ageing/article/48/1/16/5126243
2. Park SW, Goodpaster BH, Strotmeyer ES, de Rekeneire N, Harris TB, Schwartz AV, et al. Excessive loss of skeletal muscle mass in older adults with type 2 diabetes. Diabetes Care. 2009; 32(11): 1993-7. Available from: https://diabetesjournals.org/care/article/32/11/1993/28030
3. Hilton TN, Tuttle LJ, Bohnert KL, Mueller MJ, Sinacore DR. Excessive loss of skeletal muscle mass in patients with type 2 diabetes mellitus. Diabetes Care. 2008; 31(3): 425-30. Available from: https://diabetesjournals.org/care/article/31/3/425/24708
4. Sumayya P, Vinod S. Conceptual and clinical aspects of Avarana: a review. Int J Res Ayurveda Pharm. 2021; 12(4): 112-6. doi:10.7897/2277-4343.1204116
5. Sharma RK, Dash B. Charaka Samhita: Nidana Sthana, Prameha Nidanam (Chapter 4), and Cikitsa Sthana, Prameha Cikitsa (Chapter 6). Varanasi: Chaukhambha Sanskrit Series Office; 2011.

6. Kasper Fauci Hauser Longo Jameson Loscalzo, Harrisons's principle of internal medicine, 19th edition, Mc Graw Hill Education, Volume I, Chapter-30, Pp - 465, Pg. No - 157.
7. Kasper Fauci Hauser Longo Jameson Loscalzo, Harrisons's principle of internal medicine, 19th edition, Mc Graw Hill Education, Volume I, Chapter-30, Pp - 465, Pg. No - 157.
8. Agnivesha, Charaka Samhita, Ayurveda Deepika Commentary of Chakrapani, Edited by Vaidya Yadavji Trikramji Acharya, Choukambha Orientalia, Varanasi, Reprint-2011, Sutra Sthana, Chapter - 20, Verse - 11, Pp - 738, Pg. no.- 113.
9. Agnivesha, Charaka Samhita, Ayurveda Deepika Commentary of Chakrapani, Edited by Vaidya Yadavji Trikramji Acharya, Choukambha Orientalia, Varanasi, Reprint-2011, Chikitsa Sthana, Chapter - 28, Verse - 25, Pp - 738, Pg. no.- 617.
10. Sushrutha, Sushrutha Samhita, Nibandhasangraha commentary of Sri Dalhanacharya and Nyaya Chandrika Panjika of Sri Gayadasacharya on Nidanasthana, edited by Vaidya Jadvji Trikamji Acharya & Narayan Ram Acharya 'Kavya Tirtha', Chaukhamba Sanskrit Sansthan Varanasi, reprint-2012, Nidana Sthana, 1st chapter, verse-31, pp-262, pg-824
11. Agnivesha, Charaka Samhita, Ayurveda Deepika Commentary of Chakrapani, Edited by Vaidya Yadavji Trikramji Acharya, Choukambha Orientalia, Varanasi, Reprint-2011, Sutra Sthana, Chapter - 14, Verse - 5, Pp - 738, Pg. no.- 87.
12. Agnivesha, Charaka Samhita, Ayurveda Deepika Commentary of Chakrapani, Edited by Vaidya Yadavji Trikramji Acharya, Choukambha Orientalia, Varanasi, Reprint-2011, Siddhi Sthana, Chapter - 1, Verse - 7, Pp - 738, Pg. no.- 678.
13. Agnivesha, Charaka Samhita, Ayurveda Deepika Commentary of Chakrapani, Edited by Vaidya Yadavji Trikramji Acharya, Choukambha Orientalia, Varanasi, Reprint-2011, Siddhi Sthana, Chapter - 12, Verse – 16(1), Pp - 738, Pg. no.- 731.

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