

## Severe Polyneuropathy in Diabetic End Stage Renal Disease Patient: Case Report

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### ABSTRACT

62-Y-old diabetic female patient on renal dialysis, wheel chair bound presented by manifestations suggesting severe disabling polyneuropathy resulted in paraparesis and severe hand weakness.

### INTRODUCTION

Diabetes mellitus is very common to cause peripheral polyneuropathy as a long-term complication. Renal failure is also one of the complications of diabetes mellitus. The combinations of diabetes mellitus and end stage renal disease resulted in a type of polyneuropathy with more severe manifestations and different underlying mechanism.

### CASE DESCRIPTION

62-Y-old diabetic female, on dialysis, wheel chair bound, presented with LBP radiating to both LE x 1y, bilateral hand pain and numbness, Weakness and inability to hold objects with left hand x 8 months, Exam: back: Lumbar Kyphosis lumbar spine and sacroiliac joints tenderness. ROM: limited, Positive Tinel's sign, and Phalen bilaterally. Glove and stocking hypoesthesia, small muscles of hands wasting. MMT: Thenars ms 3/5, FDI, D and Palmar interossei 0/5, Biceps 4/5 B/L. Triceps and Deltoid 5/5 LE MS: Ankle ms 0/5 b/L, R Quad 1/5, L 2/5, R Hamstring 2/5, L hamstring 1/5, R hip flexor 1/5, L hip flexor 2/5. NCS and EMG: Sensory-motor axonal demyelinating polyneuropathy affecting both UE. LE could not be tested due to technical difficulties.

### DISCUSSION

This case represented infrequent complications of severe long-standing diabetes mellitus that was complicated with end stage renal disease on dialysis, and the patient progressively lost her

lower extremities muscle power resulted in paralysis followed by loss of hand grip. The presumptive diagnosis is severe polyneuropathy of unique severe type rather than the usual polyneuropathy encountered in case of diabetes mellitus.

Revising literature in this context showed that peripheral neuropathy in end stage renal disease (CKD), also known as uremic neuropathy, is the most common complication of CKD [1,2].

Diabetic patients with renal dialysis have higher prevalence of polyneuropathy compared to non-diabetic renal dialysis patients [3].

Diabetic peripheral neuropathy in case of end stage renal disease presents as distal symmetrical polyneuropathy with greater lower limb involvement than upper limbs. The most frequent manifestations of uremic neuropathy are those of large fiber neuropathy i.e. Paresthesia, impaired or lost tendon jerks, lost vibration sense, distal muscle weakness. In addition to that, small fiber neuropathy also occurs in diabetic uremic neuropathy, presented with severe burning and shooting pain [4].

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**Received:** April 20, 2021; **Accepted:** May 04, 2021; **Published:** May 11, 2021

**Citation:** Hussein N, Bartels M, Thomas M (2021) Severe Polyneuropathy in Diabetic End Stage Renal Disease Patient: Case Report. Int J Phys Med Rehabil. 9:614.

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**Figure 1:** The following pictures of the patient' hand, demonstrating marked muscle wasting and partial claw hand.

The degree of affection is depending on duration of diabetes and degree of its control and degree of uremic control [5].

This patient represented typically the above-mentioned pathological description, as her condition first severely affected her lower extremities resulted in paraparesis and she became

wheel chair-bound. Then her condition progressed to affect the upper extremities, mainly the hands with partial claw hand (shown in the picture). Also, the severity of her pain is outstanding suggesting the presence of small fiber neuropathy as well.

The underlying mechanism of uremic neuropathy is neurotoxins accumulation, mainly K, suggesting hyperkalemic depolarization. The abnormal excitability in dialysis patients is different from that noted with usual diabetic peripheral neuropathy in the absence of uremia [4].

The Pathology of this particular type of polyneuropathy is mainly axonal polyneuropathy. Secondary demyelination can occur as result of the severe axonal loss [1]. This was the case of the above-mentioned patient.

## CONCLUSION

Combination of uremic and diabetic polyneuropathy resulted in different severe pattern rather than pure diabetic neuropathy.

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