

Case Report on Diabetic Amyotrophy – A Rare form of Diabetic Neuropathy

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Introduction:

Diabetic Amyotrophy (DA), better known as diabetic lumbosacral radiculoplexus neuropathy (DLRPN), is a rare disorder englobed in the diabetic neuropathy spectrum. The prevalence of Diabetic Peripheral Neuropathy reaches up to 50% in people who live with DM. The lifelong incidence of DA is 1% among people with diabetes. which affects middle-aged or elderly people with type 2 DM.

This disease consists of a monophasic, asymmetrical progression of pain, motor weakness, Proximal muscle atrophy, weight loss, reflexia and Progression of paraplegia with poorly controlled DM. It is that diabetic amyotrophy may be an immune-mediated inflammatory micro vasculitis causing ischemic damage of the nerves.

Case Report

A 64-year-old male patient with a history of type 2 DM for the past 10 years visited a tertiary care centre for diabetes with complaints of uncontrolled hyperglycemia and complained that he was unable to lift the left leg for 10 days associated with severe pain in the thigh. On motor examination of the lower limbs, the power of the left lower limb was found to be reduced (grade 2), with paraesthesia in the upper anterior thigh, followed by weakness and wasting of the quadriceps muscle unilaterally.

Laboratory findings revealed that all the haematological and biochemical investigations were normal except the glycated haemoglobin level was 9.3 %. Serum creatinine was 1.0mg/dl and eGFR was 83. An advanced investigation like Doppler showed Normal blood circulation in both legs. Biothesiometry showed the presence of significant Neuropathy, 10 gm Monofilament

testing revealed a Protective sensation partially present. DA was diagnosed in the present case based on the clinical examination.

Discussion:

Patients with diabetes are susceptible to complications of diabetes in the chronic hyperglycemic state with DA also known as Diabetic Lumbosacral Radiculoplexus Neuropathy, Bruns- Garland Syndrome, Proximal diabetic Neuropathy, Diabetic Polyradiculopathy, Multifocal Diabetic Neuropathy, Femoral- Sciatic Neuropathy of Diabetes, Diabetic Myelopathy, Diabetic Motor Neuropathy, Diabetic Mononeuritis Multiplex and Paralytic Neuropathy classifies as part of the Diabetic Neuropathy Spectrum. The various terms that allude to this disorder constitute evidence of the contrasting viewpoints regarding the anatomical localization and underlying pathophysiology of this disorder.

Etiology evidence for an inflammatory-immune mediated microvasculitis due to injury to the peripheral nerves, nerve roots, and Lumbosacral plexus with accompanying axonal degeneration, demyelination, inflammation, and Ischemia. Abnormal sphingolipid metabolism has demonstrated a critical regulatory role in immunity and inflammation, which could also play a role in the pathogenic mechanism of injury.

Risk factors for DLRPN include Type 2 diabetes mellitus (1 in 2000) and those who were on rapid glycemic and tight glycemic management. Other possible risk factors include starting antihyperglycemic treatment, immunizations, trauma, and infections.

Classical findings are typically present in elderly (median age 65 years) people. DA is an episodic, monophasic disease that is clinically

active for a relatively short period (a few months - 2 years). This neuropathy presents acutely/subacutely, with an asymmetrical, focalized, unilateral, and proximal lower extremity (thigh, buttocks, or hip) distribution early in the disease. Widespread, multifocal, bilateral progression becomes apparent as the disease advances, with a wide range of symptomatic severity.

Symptoms initially include severe aggravating neuropathic pain, with predominant motor-strength weakness, proximal muscle atrophy, and frequently associated with weight loss. Progressive worsening of the disease process is seen, until eventual stabilization, and gradual recovery, often with some degree of impairment. Diagnosis of this condition would be challenging since its presentation may have similar findings as other neuropathies. This case underwent a Nerve conduction study which showed asymmetrically reduced motor action potential amplitude in affected muscle sites.

Laboratory studies, electrophysiologic studies, biopsies, and imaging (X-ray, CT, MRI suspecting compression) may be useful for the exclusion of other etiological causes of neurologic symptoms, but emphasis must focus on DLRPN being primarily a clinically based diagnosis.

The patient underwent treatment with a Basal Bolus Insulin regimen and OHA (Sitagliptin and Metformin combination twice daily and Dapagliflozin) for glycemic control and IV 1gm of Methylprednisolone twice daily for 5 days and later shifted to oral 40mg of methylprednisolone for 1 month and tapered. In a double blinded-study, including 75 patients, comparing high-dose IV steroids (1g Methylprednisolone) vs. placebo, there was a statistically significant improvement in the patient's secondary end-point (symptomatic

improvement of pain and weakness). This Patient was given Physiotherapy to strengthen the proximal muscles during the hospital stay and was advised to continue even after discharge. The prognosis of the disease is fairly good as this is usually self-limiting in a period of 2 months to 6 months.

Summary

Diabetic amyotrophy is distinct from other types of diabetic neuropathy. Hence, early recognition and diabetes control are the cornerstones of management. The patient underwent steroid therapy with glycemic control and Physiotherapy and advice was given to prevent further neuropathic complications.

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