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Case Report

Unusual initial presentation of type 1 diabetes mellitus

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ABSTRACT

Type 1 Diabetes Mellitus (T1DM) is an autoimmune destruction of B-islet cells. T1DM usually presents in children less than 15 years old with polyuria, polydipsia, polyphagia, and weight loss. Complications include diabetic ketoacidosis, hypoglycemia, retinopathy, neuropathy, nephropathy, and atherosclerosis. We present an unusual initial presentation for T1DM in a 21-year old Caucasian girl with pretibial numbness for three days.

Keywords: Type I diabetes mellitus, Peripheral sensory neuropathy

CASE REPORT

A 21 year-old Caucasian girl presented to her pediatrician with a three day history of pre-tibial numbness extending from her knee to her ankle. She denied numbness in this area or elsewhere on her body before. She denied any traumatic event. She noted a 70-pound unintentional weight loss over the past 9 months. She described the numbness as "pins and needles". She denied pain, muscle weakness, difficulty walking, altered mental status, polydipsia, polyuria, and polyphagia. She denied tobacco, alcohol, or drug use. Her past surgical history was unremarkable. Her family history was significant for sarcoidosis, thyroid cancer, and T1DM.

Physical exam revealed an afebrile, well appearing girl in no acute distress. Her blood pressure was 126/80, weight 158 pounds, and height 5'6. Her cardiovascular, pulmonary, and abdominal exams were unremarkable. Her neurologic exam was remarkable for pretibial peripheral sensory neuropathy. Testing sharp and dull palpation reproduced feeling "pins and needles" consistent with the area of numbness. Cranial nerves, deep tendon reflexes, muscle tone, and other neurological parameters were normal.

A magnetic resonance image of the brain and knee with basic screening labs including vitamin B12/folate levels, sedimentation rate, thyroid stimulating hormone, T3, and T4 were ordered. The hepatic and thyroid panels were within normal limits. Her labs were significant for a mild hyponatremia (132 mmol/L) and hypochloremia (94 mmol/L), and glucose of 535 mg/dL. On the basis of these findings, the diagnosis was confirmed.

DISCUSSION

Based on her family history for autoimmune disorders, we considered the possibilities of multiple sclerosis and thyroid cancer, but her laboratory suggested diabetes. The patient was admitted to the hospital and managed with IV fluid hydration, electrolyte balance, glucose control, and diabetic education. Endocrinology confirmed her peripheral neuropathy was related to her newly diagnosed diabetes.

Type 1 diabetes mellitus is one of the most common chronic, autoimmune diseases in childhood in the United States, with the incidence in non-Hispanic white children and adolescents as 23.6 per 100000 per year, and the prevalence is 2.0 per 1000.[1] The criteria for diagnosis

include a fasting plasma glucose ≥126 mg/dL on more than one occasion, random plasma glucose ≥200 mg/dL with classic symptoms of hyperglycemia, plasma glucose ≥200 mg/dL two hours after 1.75 g/kg oral glucose tolerance test, and/or hemoglobin A_{1C} ≥6.5. The treatment includes insulin injections either manually or with a pump.

T1DM usually presents before the age of 15 with classical symptoms of polydipsia, polyphagia, polyuria, and weight loss. Although, the patient did present with a 70-pound unintentional weight loss, this is usually not an isolated symptom. Chronic problems from diabetes include nephropathy, retinopathy and neuropathy, which follow an insidious course and are related to the duration and severity of hyperglycemia. Symmetric polyneuropathy is the most common diabetic neuropathy and usually presents as a progressive loss of sensory neurons in a "stocking glove" distribution from the foot proximally.[2] Interestingly, this patient's neuropathy did not include the foot.

Peripheral sensory neuropathy is a late presentation and usually not seen on primary presentation. Neuropathy is observed to be 41.9% more likely after 10 years of disease.[3] While many undetected type 1 diabetics are diagnosed with an acute event like diabetic ketoacidosis, other unusual primary presentations of T1DM in youth/adolescents have been described including vitiligo, right sided chorea in nonketotic hyperglycemia, and cataracts from hyperglycemia.[4-6]

Untreated diabetes will lead to worsening neuropathy. The Oslo study, a random, prospective trial that investigated the effect of long term glycemic control on motor and sensory nerve conduction suggested that a 1% rise in A_{1C} values correlated with 1.3 m/sec slowing of conduction in nerves.[7] This can be prevented and/or improved with proper glycemic control, including a hemoglobin A_{1C} <7% and a fasting glucose <130 mg/dL.

CONCLUSION

The rare primary presentation, without the usual symptoms of polyphagia, polyuria, polydipsia, illustrates a new dimension in the presentation of Type I diabetes mellitus. Isolated peripheral sensory neuropathy and unintentional weight loss in a child and/or adolescent should raise the index of suspicion for T1DM. Future investigation may expand on the relationship between sensory neuropathy at initial presentation and autoimmune disorders. This case highlights the importance of recognizing atypical presentations of T1DM for more accurate, early detection.

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