

Double Diabetes; A Case Report

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Abstract

Double diabetes is a new variant which is a combination of both type 1 and type 2 diabetes in children and adolescents. This variant is becoming more prevalent because of epidemic obesity in children. Obesity among people of different ethnicity and race is tripled since last decade. Although, obesity is linked to diabetes type 2 because of insulin resistance which is due to excess free fatty acids, high intracellular triglyceride and dysregulation of adipokines secretion. Double diabetes is coexistence of insulin resistance (type 2) and autoantibodies (type1). Person with type 1 diabetes who is obese and develop type 2 diabetes will lead to increase morbidity and early exhaustion of beta cells. We report a case of 25-year-old male with this new variant discussing diagnosis and management modalities.

Keywords: Double diabetes, Diabetes Mellitus.

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Introduction

Diabetes mellitus is usually classified into Type 1 and Type 2, although there are many more variants of diabetes mellitus and many other etiologies. We through this case report want to discuss, Double diabetes which is a new variant with overlapping of type 1 and type 2 diabetes. Early detection and management of this type of variant can lead to decrease morbidity and mortality.

Case Report

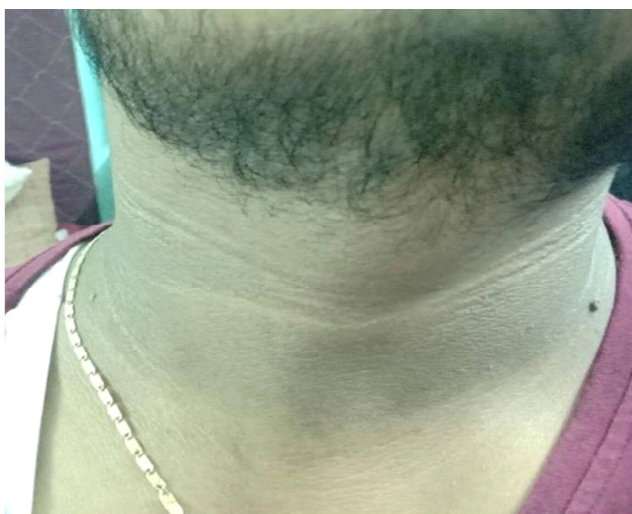


Figure 1: Acanthosis nigricans around neck.



Figure 2: Acanthosis nigricans involving axilla.

A 25-year-old male presented with acute diabetic ketoacidosis with blood glucose level of 560 mg/dl, was managed according to standard protocols. Due to presentation with diabetic ketoacidosis, type 1 diabetes was suspected and patient was positive for anti-insulinoma associated antibodies (4.1 U/ml), anti-Glutamic acid decarboxylase (10 U/ml) antibodies, c-peptide levels (0.6 ng/ml) were low. Patient's BMI was 32 kg/m² and diffuse acanthosis nigricans was present around neck (figure 1) and axillary region indicating insulin resistance (figure2) along with this patient had a strong family history of type 2

diabetes. HOMA-IR (homeostatic model assessment for insulin resistance) was more than 3.5 indicated presence of insulin resistance. Patient was advised life style modification along with insulin and metformin to maintain balance

Discussion

Diabetes mellitus is becoming more prevalent in India and all over the world. Prevalence and incidence of this variant is yet to be estimated, but around 25% of type 1 diabetic patients are obese, also 35% of type 2 obese children have some of autoantibodies.^[1] We divide the diabetes into many variants including type 1, type 2, MODY (Hnf-4 alpha, glucokinase mutations), Genetic insulin resistance, Drug induced, endocrinopathies and exocrine pancreatic defect as the cause of diabetes mellitus. Diabetes mellitus type 1 is characterized by autoantibodies against islet cells and insulin along with T cell mediated islet damage while pathogenesis of type 2 diabetes involves insulin resistance followed by beta cell dysregulation. The overlapping of both the types lead to early dependence on insulin and early onset of complications. In this case differential diagnosis include Latent autoimmune diabetes mellitus which is further classified as type 1 with high titer of autoantibodies along with low c-peptide level, type 2 has normal c-peptide level and insulin resistance.^[2] Our patient had low c-peptide level with insulin resistance thus excluding both types of latent autoimmune diabetes mellitus. Patient had a strong family history of diabetes type 2 and double diabetes is strongly linked with family history of type 2 diabetes.^[6]

Patients with double diabetes and latent autoimmune adult onset diabetes should be started with insulin earlier, due to insulin resistance patient should be started on metformin, glycoside inhibitor as well as glucagon like peptide 1 analogue together with lifestyle modifications. Patient should be started with insulin earlier, as data showed decrease progression of beta cell destruction.^[3,4] Diagnosis of this condition is important because of different treatment

options. Diagnosis involve detection of anti-GAD antibodies, anti-insulin antibodies along with features of type 2 diabetes. Some studies have shown increase in progression and complications even with good glycemic control.^[5] In our case, patient was advised life style modifications along with Metformin 500 mg T.D.S and Regular human insulin according to sliding scale.

Conclusion

The case report is about a rare presentation of Diabetes, overlapping both type 1 and type 2. Through this case report we want to assist other clinicians for diagnosing this rare variant along with discussion on management targeting both insulin deficiency and insulin resistance.

Ethics

Written informed consent was obtained from the patient for this case report and the images.

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