

## A Diabetic Infant with Homozygous LRBA Mutation: The Youngest Patient Reported

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**Objective:** Autoimmune disorders such as thyroiditis, celiac disease, or Addison disease would develop in one third of patients with type 1 diabetes. However, severe immunodeficiency is rarely found in those patients. Lipopolysaccharide-responsive beige-like anchor protein (LRBA) deficiency has been identified as a primary immunodeficiency characterized by antibody deficiency, recurrent infections, autoimmunity, and lymphoproliferative disorders. Common symptoms are autoimmune cytopenias, enteropathy, and lymphocytic interstitial lung disease. To date, LRBA gene mutation was found in only several patients with early-onset diabetes.

**Case:** An 8-month-old baby girl was admitted to emergency service due to polyuria, polydipsia, and tachypnea. Her parents were third cousins. Her prenatal history was uneventful. Her birth weight was 2970 g. A history of candida dermatitis was noted. Exclusive breastfeeding was made in the first six months. All vaccines were administered according to the routine schedule. Motor development was normal. Laboratory investigation was consistent with diabetic ketoacidosis: blood glucose was 324 mg/dL, blood ketone 5.9 mmol, pH 7.07, and HCO<sub>3</sub> 8 mmol. C-peptide was 0.42 ng/mL, insulin 3.3 µIU/mL, and HbA<sub>1c</sub> 7.4%. Following appropriate treatment of diabetic ketoacidosis, breastfeeding was started along with subcutaneous insulin. Islet cell antibody, anti-glutamic acid decarboxylase, and anti-insulin antibody were negative. Thyroid function tests, cortisol, and adrenocorticotrophic hormone were normal. Antiendomysial antibody was negative. At 13 months of age, she presented with high fever, nasal discharge, and loss of appetite followed by cough. Viral pneumonia and acute otitis media were diagnosed. She was discharged on the 8th day of therapy. No mutation was found in the most common genes associated with neonatal diabetes (*KCJN11*, *ABCC8*, and *INS*). Sanger sequencing of LRBA gene revealed a homozygous splicing mutation in intron 30: c.5172-2A>G. Her parents were

heterozygous for this mutation. Lymphocyte subpopulation showed normal results as CD3+ 62.6%, CD19+ 29%, CD16/56+ 7.8%, CD3+/CD4+ 40.3 %, and CD3+/CD8+ 20.4%. Serum immunoglobulin (Ig) A level was 48 mg/dL, IgG 574 mg/dL, IgM 99 mg/dL and total IgE 6 IU/mL. Anti dsDNA and ANA were negative.

**Conclusion:** LRBA gene mutation is considered to be associated with early-onset diabetes in this infant. In addition, this patient is the youngest reported case with LRBA mutation and diabetes.