Alström Syndrome: A Diagnostic Dilemma

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Background

Alström syndrome is a rare autosomal recessive genetic disorder characterised by multi organ dysfunction with an estimated prevalence of less than 1 in 1 million has about 700 cases reported worldwide and only about 20 cases from India.It is a rare autosomal recessive genetic disorder, first described in 1959, by Carl Henry Alstrom. It is caused by mutation in the ALMS1 gene, located on the chromosome 2p13.

The clinical features usually start from childhood with congenital progressive cone-rod retinal dystrophy leading to blindness, sensorineural deafness, truncal obesity. They also have features of insulin resistance with hyperinsulinemia, type 2 diabetes and acanthosis nigricans. The other biochemical alteration is hypertriglyceridemia which may lead to pancreatitis. The endocrinal abnormalities are hypothyroidism and hypogonadism with gynecomastia and reduced fertility. Increased incidences of serous otitis media and fluid retention have also been reported.

Case

A 9 year old boy was referred to the paediatric Outpatient Department of a Tertiary Care Hospital, for evaluation of elevated blood glucose of 145 mg/dL. He presented with history of increased frequency of micturition (> 10 times), increased hunger and thirst for the past 3 days, drowsiness and excessive fatigability since the last few days. His past history revealed poor vision since birth; he was diagnosed to be having blindness from the age of 5 months. His developmental milestones - gross and fine motor skills were consequently delayed. Ophthalmologic evaluation (Electroretinogram) done at another centre, a year ago, suggested cone dystrophy. Karyotype analysis was normal. There was no history of hospitalization in the past. He has been attending special school for the blind and has no difficulty in learning or hearing. However, he had frequent episodes of serous otitis media since the age of 6 years. He is the only child of consanguineous parents, both alive and well.

On physical examination, he had stable vital parameters, his blood pressure was 130/70 mmHg. There was evidence of central obesity with body mass index of 24.24 kg/m2. The patient had a flat occiput and frontal bossing with deeply inset eyes. Fingers were short and stubby; there was no evidence of poly or syndactyly. The feet were wide and the 4th metatarsal was short. He also had a micropenis and the testes were atrophic.

Investigations

Fasting Blood Glucose 181 mg /dL

Glycosylated Haemoglobin 10%

Fasting insulin levels 94.93 μIU/mL

Homeostasis Model Assessment Insulin Resistance 42.43

Fasting triglycerides level 1183 mg/dL

High Density Lipoprotein cholesterol 25 mg/dL

Serum creatinine 1.4 mg/dL

Microalbuminuria 89.8 mg/L

serum Thyroid Stimulating Hormone 5.16 μIU/mL

free Thyroxine 0.888 ng/dL

Results

Peripheral blood smear showed microcytic hypochromic anaemia with lymphocytic leukocytosis. Ultrasound of abdomen revealed hepatomegaly (19 cms) with increased cholestasis and fatty changes.

Conclusions

He was started on regular human insulin (30 units/ day), metformin (1000 mg/day), fibrates (145 mg/day) along with a low fat, moderate carbohydrate diet with high protein and fibre. Parents were advised regular review for management of his diabetes.