IPEX SYNDROME CAUSED BY A NOVEL MUTATION IN *FOXP3* GENE : A CASE REPORT

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BACKGROUND

Immune dysregulation, polyendocrinopathy, enteropathy, X-linked (IPEX) syndrome is a rare and life-threatening primary immunodeficiency characterized by widespread autoimmunity. Mutations in the *FOXP3* gene have been identified as the cause for IPEX syndrome.

OBJECTIVES

To describe clinical characteristics and genetic finding in the first Vietnamese patient with mutation of *FOXP3* gene

METHODS

Case study:
Clinical features, biochemical finding, mutation analysis in a 12 day-old-boy were studied. Based on analysis of clinical symptoms associated with biochemical examination, the diagnosis of IPEX was therefore confirmed by mutation analysis. Genomic DNAs were extracted from peripheral blood leukocytes of proband and his parents with their informed consent for genetic studies**.** Mutation **a**nalysis of the coding regions and conserved splice sites of the *KCNJ11*, *ABCC8*, *INS*, *INSR*, *EIF2AK3*, *FOXP3*, *GATA4*, *GATA6*, *GCK*, *GLIS3*, *HNF1B*, *IER3IP1*, *PDX1*, *PTF1A*, *NEUROD1*, *NEUROG3*, *RFX6*, *SLC2A2*, *SLC19A2*, *WFS1* and *ZFP57* genes was performed using targeted next generation sequencing. Mutation in exon 11 of *FOXP3* was confirmed using Sanger sequencing.

RESULTS

The patient had gestation age of 41 weeks, birth weight of 2400 gram. He was admitted with prolong jaundice and suspected hypothyroidism in the results of newborn screening. On admission, he presented with diarrhea, jaundice, vomitting, and dehydration. After one day, he presented with the features of diabetic ketoacidosis.

Investigations:

Plasma glucose : 91.31 mmol/l (↑↑↑)
ABG: pH: 6.95
pCO_2: 10
HCO^-_3: 1.5 ; BE: - 28.9
Ure: 28.14 mmol/l, Creatinin: 179 µmol/l
Na^+ 163, K^+ 5.9, Cl^- 145 (mmol/l)
AST 34.3; ALT 17 (UI/l)
Bilirubin total: 274.4, indirect: 18.17 µmol/l
T3: 0.4 nmol/l, T4: 24.4 nmol/l (↓↓),
TSH: 764.2 mUI/ml (↑↑↑)

C-peptide 0.01 ng/ml
Insulin 60.47mUI/l
HbA1C 3.5%
Urine ketone (-)
WBC:7.09 G/l → 5.03 G/l
Hb: 149 g/l
Plt 314 G/l
Neu: 2.6 G/l → 4.0 G/l
Lymph: 2.49 G/l → 0.8 G/l

Treatment: He was treated with insulin infusion, adjustment of electrolyte and renal failure, but he was died due to severe infection

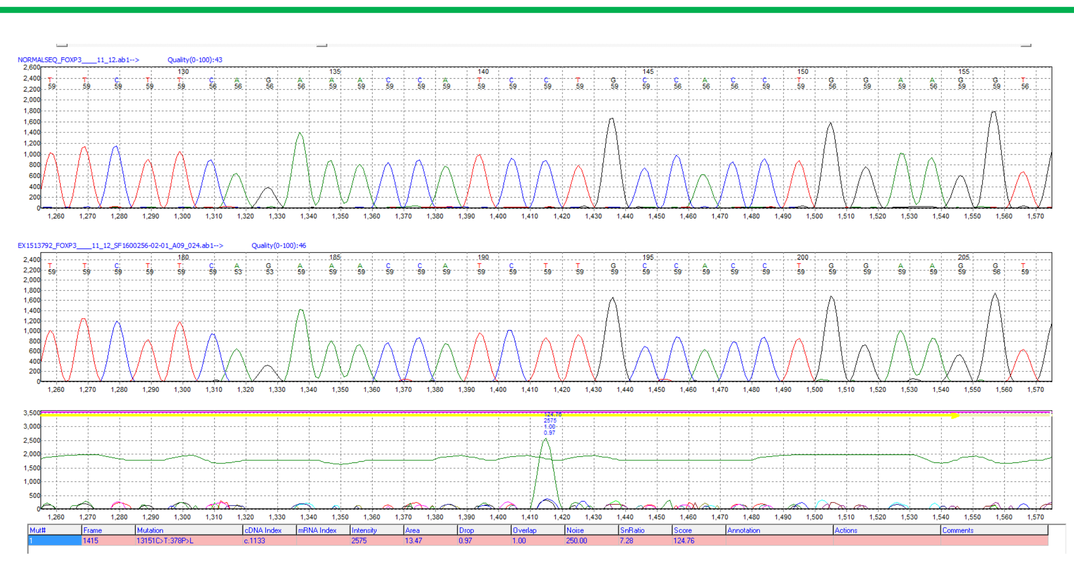

Figure 1. Novel *FOXP3 missense mutation, p.Pro378Leu*

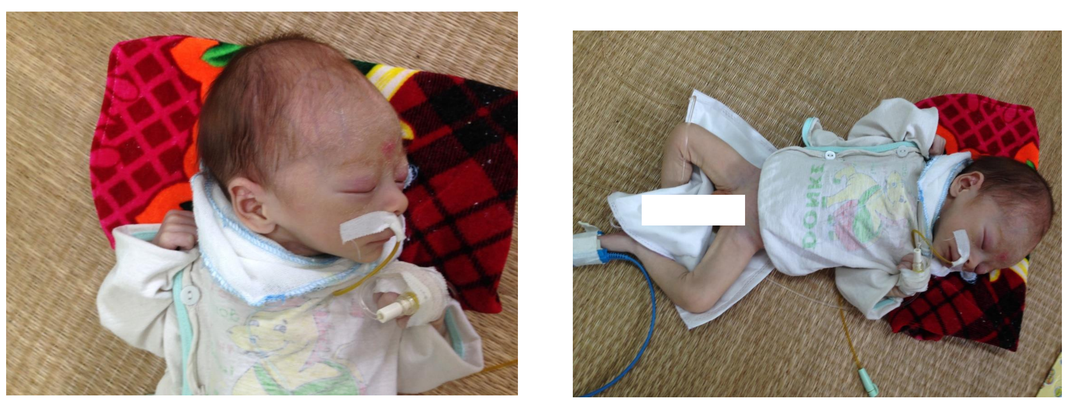

Figure 2. Picture of patient (permitted by family)

CONCLUSIONS

We reported a classical case of IPEX syndrome in a boy with severe DKA and hypothyroidism in the second week of age.
The identification of a *FOXP3* mutation in this family was important to predict prognosis for the child and risk for future offspring and enabled prenatal diagnosis

References

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Conflicts of interest: None declared

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