Phenotype and genotype characteristics of neonatal onset inflammatory bowel disease with combined immunodeficiency of TTC7A deficiency in mainland China

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Research

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Abstract

Objective: To explore the characteristics of genotype and phenotype of neonatal onset inflammatory bowel disease with combined immunodeficiency caused by a novel TTC7A mutant.

Methods: We summarized the clinical manifestations, imagings, endoscopic and histological findings, biochemical analyses,whole exon sequencing(WES), in silico and intervention of the patient.

Results: The boy showed severe diarrhea, malnutrition, electrolyte disturbance, dehydration and recurrent infections after birth. X-ray and ultrasonic images displayed no specific changes. Endoscopic and histological findings showed chronic inflammation. Immune functions indicated combined immunodeficiency. WES identified compound heterozygote TTC7A mutations c.2355+4A>G/c.643G>T in the infant. No abnormal splicing sequence by c.2355+4A>G mutation was found in TTC7A expression analysis, but the mRNA expression decreased. There was no improvement after treatment with methylprednisolone and leflunomide. The infant died when he was given up at 5 months 19 days old.

Conclusion: The compound heterozygote mutations (c.2355+4A>G, c.643G>T) in TTC7A gene were firstly described and confirmed. Our report expands the phenotypic spectrum of TTC7A mutaions and genotypic spectrum of very early onset inflammatory bowel disease with combined immunodeficiency.

Full Text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the manuscript can be downloaded and accessed as a PDF.

Figures

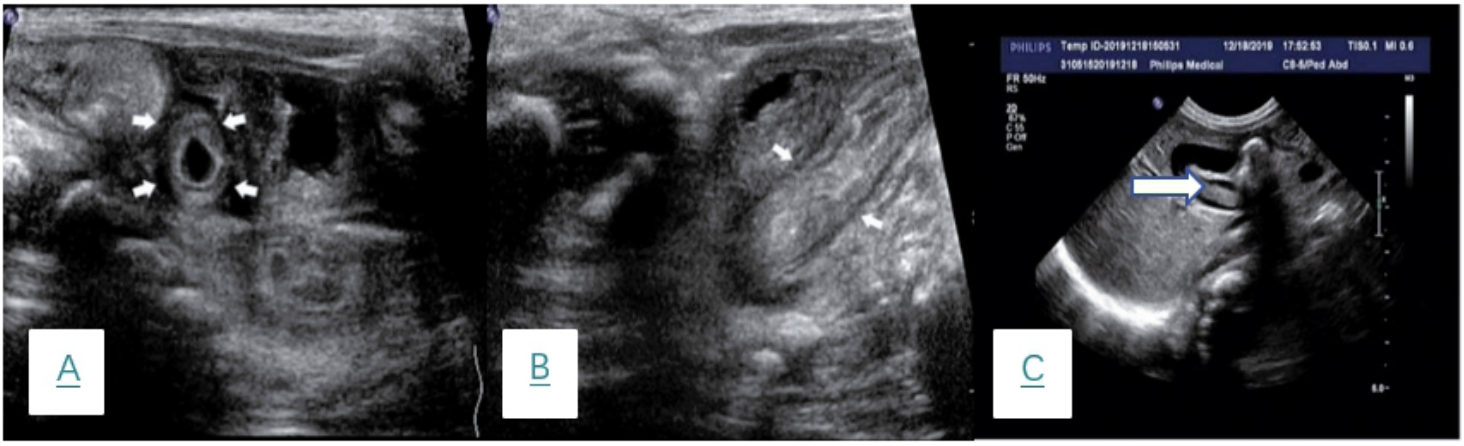

Figure 1

Ultrasonography of the patient’s abdomen

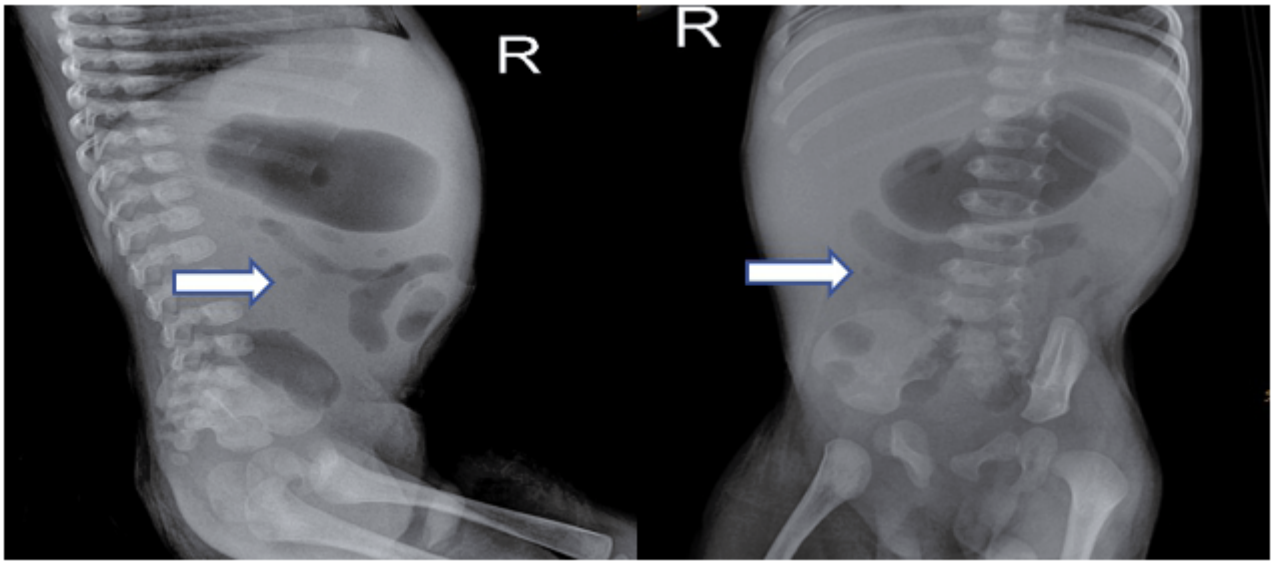

Figure 2

X-ray of the patient's abdomen

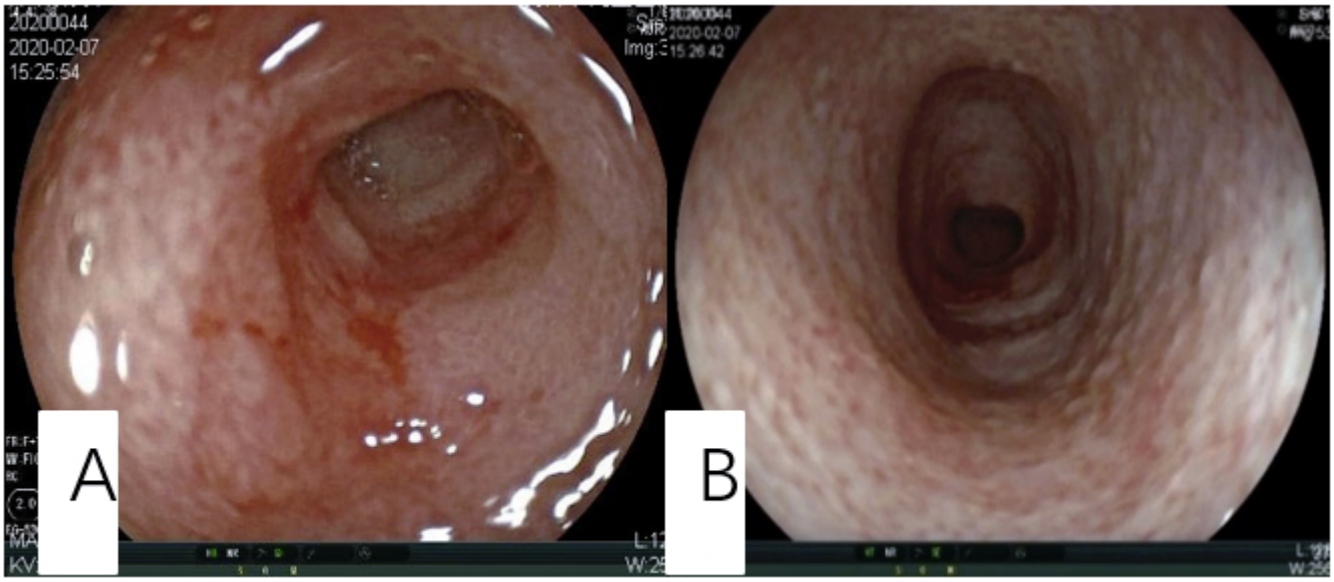

Figure 3

Gastroscopy and colonoscopy of the patient

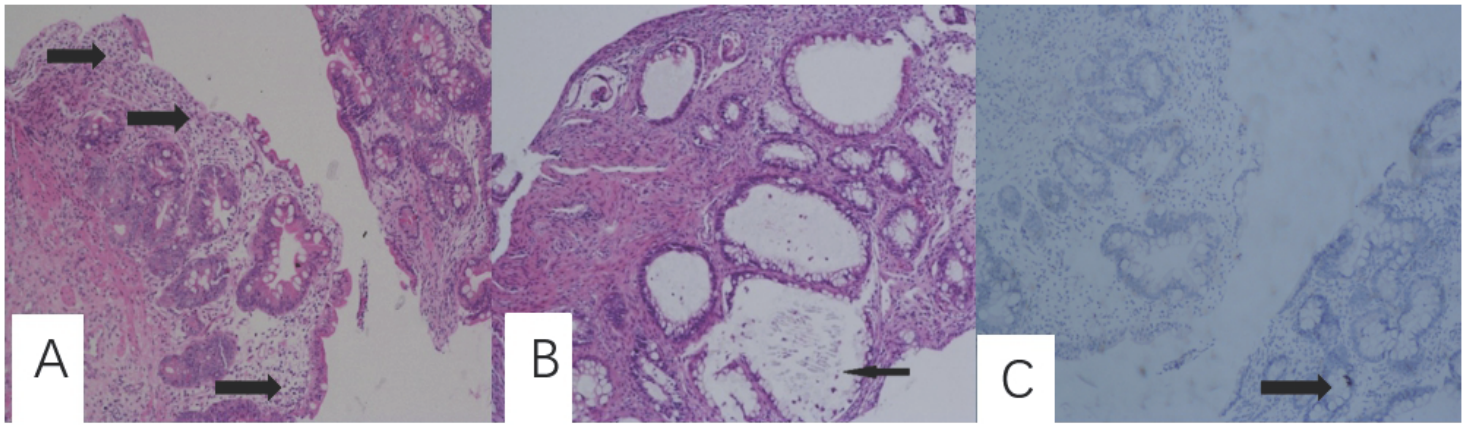

Figure 4

Histopathological findings of the patient' s intestine

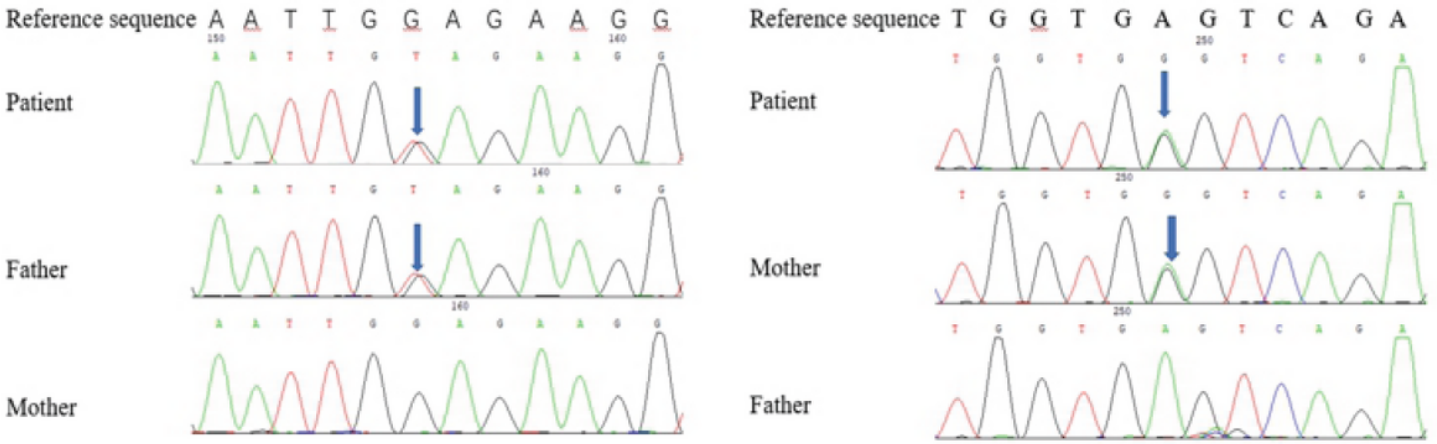

Figure 5

Sanger sequencing validationof the variants

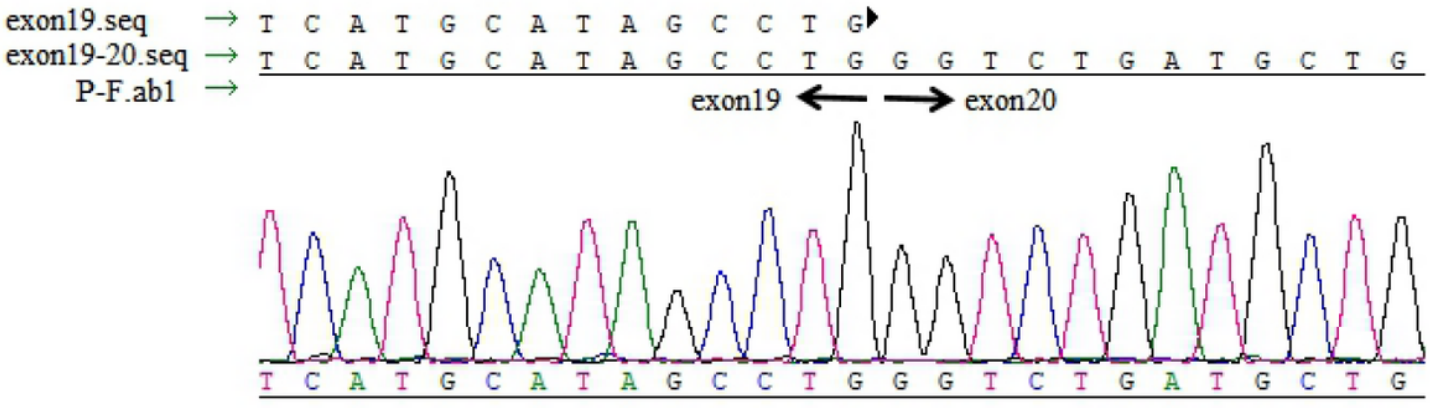

Figure 6

Complementary DNA Sequencing of the patient

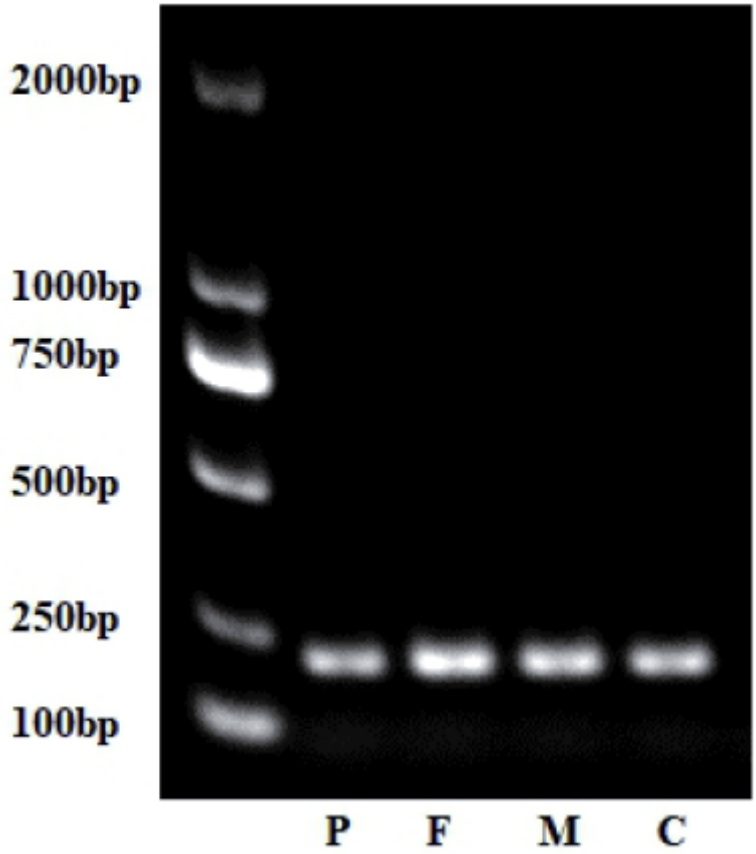

Figure 7

Complementary DNA electrophoresis of the patient, parents and control

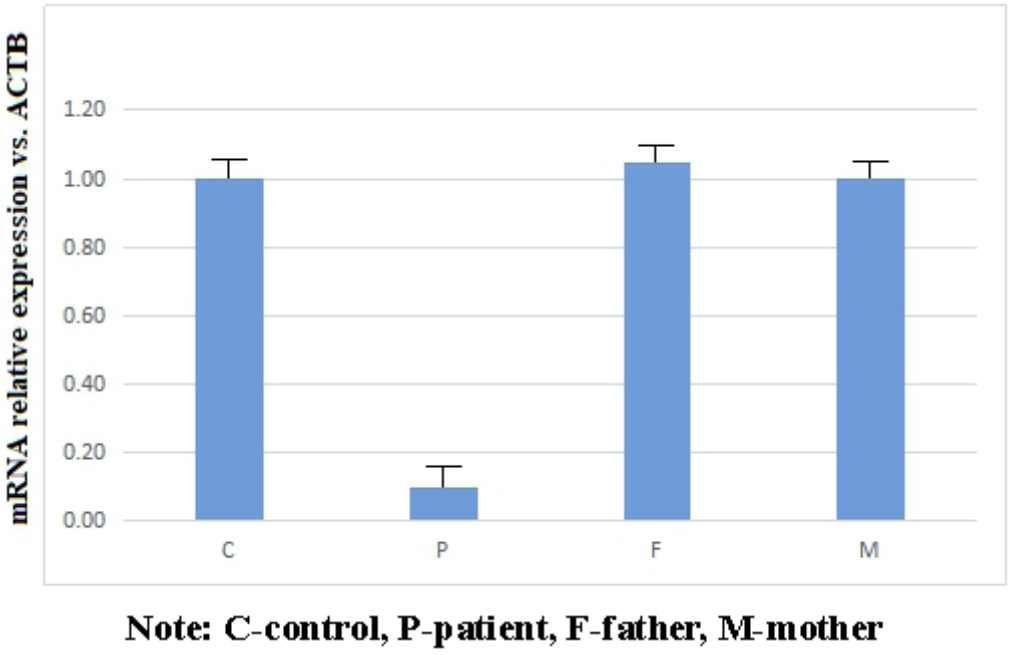

Figure 8

mRNA relative expression vs. ACTB of the patient, parents and control