Supplementary materials

Table 1. Screening tests for infection and autoimmune diseases.

	Test	Result
Infection	Antigen of influenza A (Flu A-Ag)	Negative
	IgM against Chlamydia pneumoniae (CP-IgM)	Negative
	CMV IgM	Negative
	IgM against Mycoplasma pneumoniae (MP-IgM)	Negative
	Brucella agglutination test	Negative
	Anti streptolysin (ASO)	Negative
	G test and GM test	Negative
	Urine culture and stool culture	Negative
	Blood screening test (HIV IgG, RPR, HCV IgG, HBsAg, HBsAb, HBcAg, HBeAg, HBeAb)	Only HbsAb was positive
Autoimmune diseases	Autoantibody	Negative
	Anti-extractable nuclear antigen antibody (ENA)	Negative
	ANCA (IF-ANCA, PR3-ANCA, MPO-ANCA)	Negative

Table 2. Genes screening for diabetes melitus panel

Official name	Phenotype	Inheritance
MODY type 1	HNF4A	AD
MODY type 2	GCK	AD
MODY type 3	HNF1A	AD
MODY type 4	PDX1	AD
MODY type 5	HNF1B	AD
MODY type 6	NEUROD1	AD
MODY type 7	KLF11	AD
MODY type 8	CEL	AD
MODY type 9	PAX4	AD
MODY type 10	INS	AD
MODY type 11	BLK	AD
MODY type 12	ABCC8	-
MODY type 13	KCNJ11	AD
MODY type 14	APPL1	AD
Diabetes mellitus, permanent neonatal	GCK	AD
	INS	AD
	ABCC8	AD
Diabetes, permanent neonatal, with or without neurologic features	KCNJ11	AD
Diabetes mellitus, transient neonatal	ZFP57	-
Microcephaly, epilepsy, and diabetes syndrome	IER3IP1	AR
Wolcott-Rallison syndrome	EIF2AK3	AR
Fanconi-Bickel syndrome	SLC2A2	AR
Diabetes mellitus, insulin-resistant, with acanthosis nigricans	INSR	AR
Thiamine-responsive megaloblastic anemia syndrome	SLC19A2	AR
Rabson-Mendenhall syndrome	INSR	AR

Wolfram syndrome	WFS1	AR
Immunodysregulation, polyendocrinopathy, and enteropathy, X-linked	FOXP3	XLR
Histiocytosis-lymphadenopathy plus syndrome	SLC29A3	AR
Pancreatic agenesis and congenital heart defects	GATA6	AD
Lymphedema-distichiasis syndrome with renal disease and diabetes mellitus	FOXC2	AD
Fanconi renotubular syndrome 4, with maturity-onset diabetes of the young	HNF4A	AD
Renal cysts and diabetes syndrome	HNF1B	AD
Abdominal obesity-metabolic syndrome 3	DYRK1B	AD
Lipodystrophy, familial partial, type 2	LMNA	AD
Lipodystrophy, familial partial, type 3	PPARG	AD
Lipodystrophy, familial partial, type 4	PLIN1	AD
Lipodystrophy, familial partial, type 5	CIDEC	AR
Lipodystrophy, familial partial, type 6	LIPE	AR
Lipodystrophy, congenital generalized, type 2	BSCL2	AR
Lipodystrophy, congenital generalized, type 1	AGPAT2	AR
Lipodystrophy, congenital generalized, type 3	CAV1	AR
Lipodystrophy, congenital generalized, type 4	PTRF	AR
Werner syndrome	WRN	AR
Bardet-Biedl syndrome 1, modifier of	CCDC28B	AR,AD
Bardet-Biedl syndrome 1, modifier of	ARL6	AR,AD
Bardet-Biedl syndrome 1	BBS1	AR,DR
Bardet-Biedl syndrome 2	BBS2	AR
Bardet-Biedl syndrome 3	ARL6	AR
Bardet-Biedl syndrome 4	BBS4	AR
Bardet-Biedl syndrome 5	BBS5	AR
Bardet-Biedl syndrome 6	MKKS	AR

Bardet-Biedl syndrome 7	BBS7	AR
Bardet-Biedl syndrome 8	TTC8	AR
Bardet-Biedl syndrome 9	BBS9	AR
Bardet-Biedl syndrome 10	BBS10	AR
Bardet-Biedl syndrome 11	TRIM32	AR
Bardet-Biedl syndrome 12	BBS12	AR
Bardet-Biedl syndrome 13	MKS1	AR
Bardet-Biedl syndrome 14, modifier of	TMEM67	AR
Bardet-Biedl syndrome 14	CEP290	AR
Bardet-Biedl syndrome 15	WDPCP	AR
Bardet-Biedl syndrome 16	SDCCAG8	AR
Bardet-Biedl syndrome 17	LZTFL1	AR
Bardet-Biedl syndrome 18	BBIP1	AR
Bardet-Biedl syndrome 19	IFT27	AR
Bardet-Biedl syndrome 20	IFT74	AR
Bardet-Biedl syndrome 21	C8orf37	AR
Alstrom syndrome	ALMS1	AR
Microcephaly, short stature, and impaired glucose metabolism 1	TRMT10A	AR
Insulin-like growth factor I, resistance to	IGF1R	AD/AR
Diabetes mellitus, insulin-resistant, with acanthosis nigricans TYPE A/Rabson-Mendenhall syndrome	INSR	AR
Diabetes, type 2, susceptibility to	GPD2	AD
Diabetes mellitus, noninsulin-dependent	NEUROD1	AD
Diabetes mellitus, noninsulin-dependent	IRS1	AD
Diabetes, type 2	PPARG	AD
Diabetes mellitus, noninsulin-dependent	SLC2A2	AD
Diabetes mellitus, noninsulin-dependent, susceptibility to	IGF2BP2	AD

Diabetes mellitus, noninsulin-dependent, association with	WFS1	AD
Diabetes mellitus, noninsulin-dependent	NIDDM4	AD
Diabetes mellitus, noninsulin-dependent, susceptibility to	CDKAL1	AD
	HMGA1	AD
	ENPP1	AD
Diabetes mellitus, noninsulin-dependent, late onset/Hyperinsulinemic hypoglycemia, familial, 3	GCK	AD
Insulin resistance, severe, digenic	PPP1R3A	AD
Diabetes mellitus, type 2	PAX4	AD
Diabetes mellitus, noninsulin-dependent, susceptibility to	SLC30A8	AD
Diabetes mellitus, type 2, susceptibility to	TCF7L2	AD
Diabetes mellitus, type 2, susceptibility to/Hyperinsulinemic hypoglycemia, familial, 2	KCNJ11	AD
Diabetes mellitus, noninsulin-dependent	ABCC8	AD
Diabetes mellitus, noninsulin-dependent	MAPK8IP1	AD
Diabetes mellitus, type 2, susceptibility to	MTNR1B	AD
Diabetes mellitus, noninsulin-dependent, 2	HNF1A	AD
Diabetes mellitus, type II, susceptibility to	PDX1	AD
Diabetes mellitus, noninsulin-dependent	IRS2	AD
Diabetes mellitus, noninsulin-dependent	LIPC	AD
Diabetes mellitus, noninsulin-dependent	HNF1B	AD
Diabetes mellitus, noninsulin-dependent	GCGR	AD
Hypertension, insulin resistance-related, susceptibility to/Diabetes mellitus, noninsulin-dependent, susceptibility to	RETN	AD
Diabetes mellitus, type II	AKT2	AD
Diabetes mellitus, noninsulin-dependent	NIDDM3	AD
	HNF4A	AD
Insulin resistance, susceptibility to	PTPN1	AD
Hyperinsulinemic hypoglycemia, familial, 1	ABCC8	AD, AR

Hyperinsulinemic hypoglycemia, familial, 2	KCNJ11	AR
Hyperinsulinemic hypoglycemia, familial, 3	GCK	AD
Hyperinsulinemic hypoglycemia, familial, 4	HADH	AR
Hyperinsulinemic hypoglycemia, familial, 5	INSR	AD
Hyperinsulinemic hypoglycemia, familial, 6	GLUD1	AD
Hyperinsulinemic hypoglycemia, familial, 7	SLC16A1	AD
AD: autosomal dominant AR: autosomal recessive XLR: X-linked recessive XLD: X-linked dominant		

A CHI Next-generation sequencing (NGS) analysis retrieved a total of 107 genes (mutations related to monogenic DM). The identified mutations were validated using direct sequencing on an ABI 3730XL DNA Analyzer (Applied Biosystems, Foster City, CA, USA). The sequences were compared to the reference genomic GCK sequence (https://www.ncbi.nlm.nih.gov/nuccore/ NM_000162.4) using the Human BLAT Search online of University of California Santa Cruz (UCSC) (http:// genome.ucsc.edu/cgi-bin/hgBlat). The bioinformatics prediction systems (SIFT and Polyphen2) provided controversial results for the pathogenicity of the missense mutations. The Single Nucleotide Polymorphism Database (dbSNP) and the Human Gene Mutation Database (HGMD) were used to determine the novelty of the identified variant.

Table 3. HLA subtype

	Allele 1	Allele 2
HLA_A	11:01	29:01
HLA_B	07:05	52:01
HLA_C	12:02	15:05
HLA_DRB1	12:02	14:01
HLA_DQB1	05:02	03:01

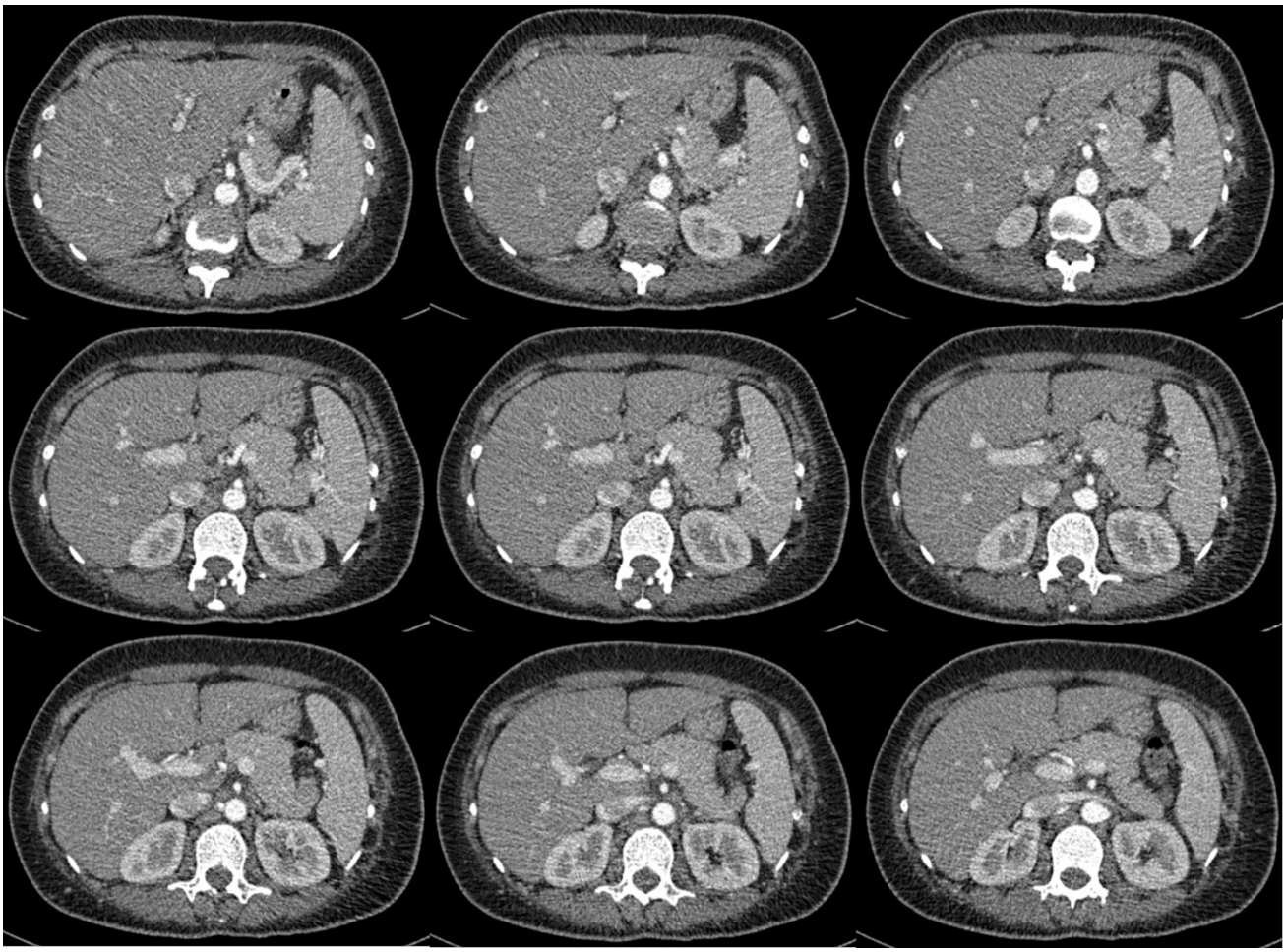

Figure 1. Pancreas on enhanced CT. Enhanced CT showed that the size and shape of the pancreas were normal, the edges were clear, the parenchyma density were uniform, and the pancreatic duct had no obvious expansion.

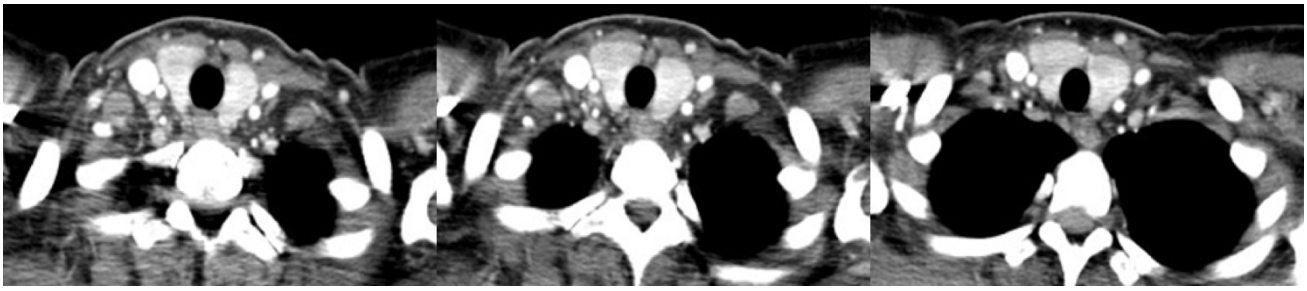

Figure 2. Thyroid on enhanced CT. There were no nodules within the thyroid.

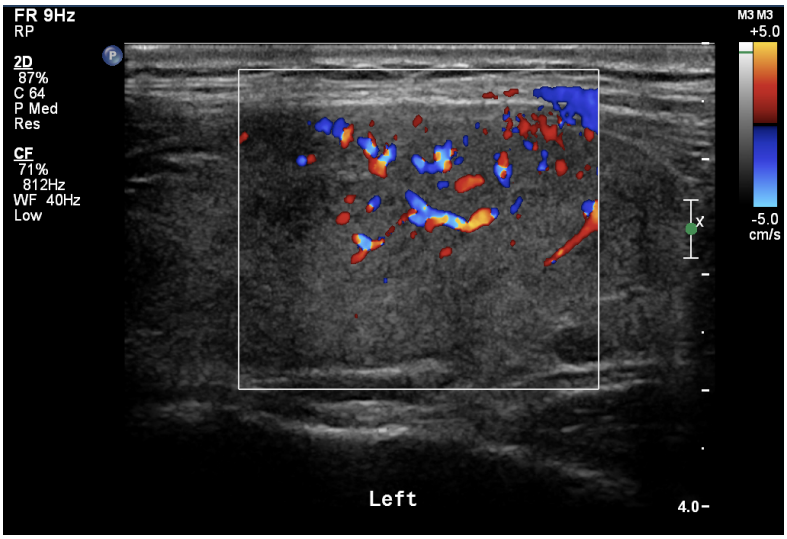

Figure 3. Thyroid ultrasonography. There were no nodules within the thyroid, CDFI demonstrated slightly abundant flow signal.