

Patient with features of XLA and Burkitt lymphoma presentation

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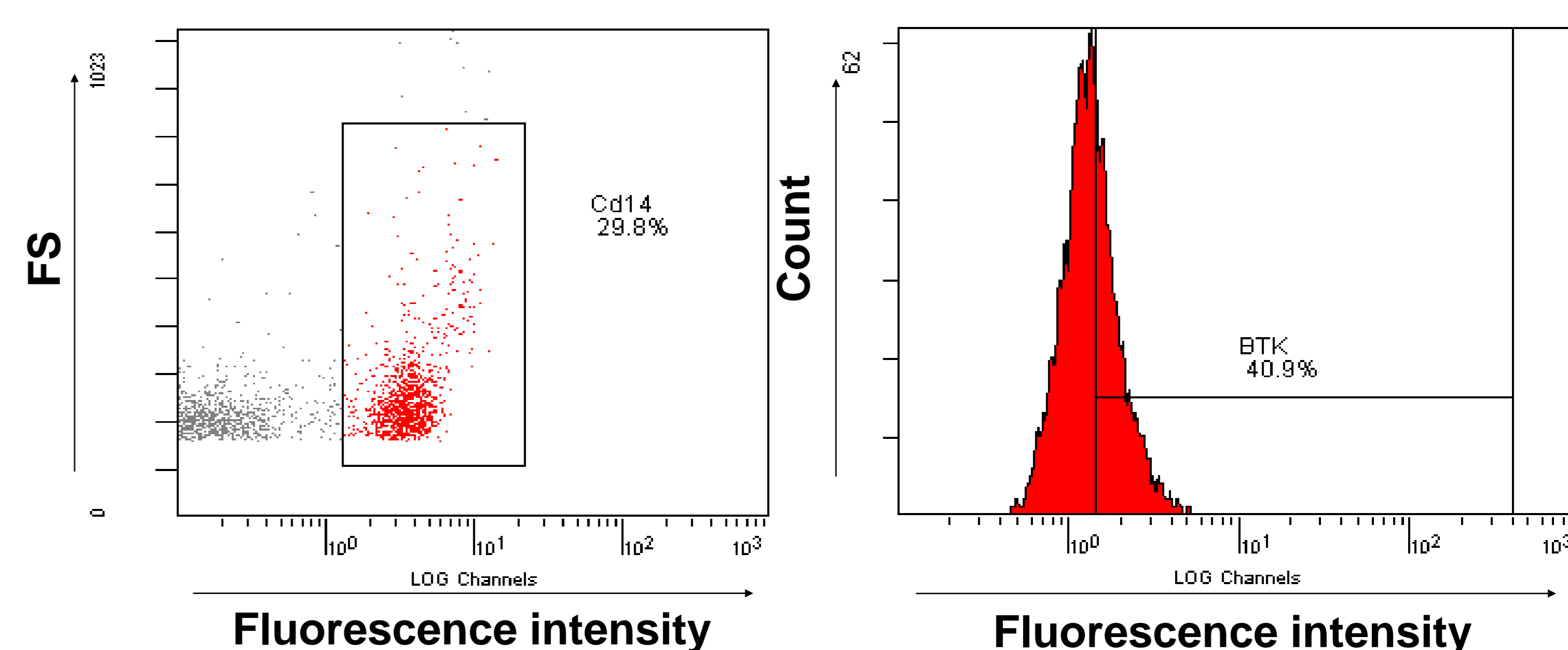
Background: X-linked agammaglobulinemia is a rare genetic disorder, which accounts for approximately 85% of patients with defects in early B cell development. XLA is characterized by a marked reduction in all serum immunoglobulin isotypes with significantly decreased or absent B cells, which causes susceptibility to recurrent and severe bacterial infections in affected males.

Aim: We report here a thirty-two years old male patient, born of non-consanguineous couple, with features of X-linked agammaglobulinemia and Burkitt lymphoma.

Clinical features: At 12 months of age the boy had measles post-vaccination. At 6 years he had scarlet fever and between 7 - 8 years – old he showed urinary tract infection. The patient also had psoriasis (15y), Burkitt lymphoma (26y) with oral candidiasis and bacterial endocarditis during chemotherapy, *Herpes simplex* (27y), diarrhea for 40 days (28y) with normal colonoscopy and endoscopy. Keeps chronic fatigue and presents constant sinusitis and tonsillitis. Their immunodeficiency was diagnosed in adulthood due to the occurrence of Burkitt lymphoma.

Age at onset	Age at diagnosis	Ig levels (mg/dL) at diagnosis			B cells (%)
		IgA	IgM	IgG	
12mo	28y	<7 (80-476)	4 (57-212)	<33 (830-2040)	1.0

Laboratory Investigation: *BTK* expression. Expression of BTK protein was assessed by flow cytometry. Peripheral blood mononuclear cells (PBMC) were first stained with anti-CD14 PE (Dako, Japan) MoAb to discriminate monocytes. These cells were fixed, permeabilized and incubated with 2 µg/mL anti-BTK (48-2H), washed, and then further incubated with a goat antimouse IgG1 FITC (Southern Biotechnology, USA).



BCG-specific T cell proliferation. PBMC were isolated by Ficoll-Hypaque (Amersham Biosciences, USA), washed, diluted to 1x10⁶ cells/mL in RPMI 1640 medium (Sigma, USA) and stimulated for 6 days with reconstituted BCG, PHA (phytohemagglutinin) or medium alone at 37 C with 5% CO₂ (NUNC, Denmark). Samples were stained with anti-human CD3, CD4, CD8 and T cell receptor (TCR) pan gd (Beckman Coulter, USA) fluorescent antibodies before acquisition (Epics XL-MCL flow cytometer, Beckman-Coulter, USA).

	% CD3	% CD4	% CD8	% TCR γδ
Medium alone	14.17	8.6	27.3	50.0
BCG	50.22	6.7	8.5	94.3
PHA	65.87	8.9	81.5	3.0

Mutation analysis. *BTK* gene were screened by sequencing of patient and mother cDNA. No mutations were found.

Conclusion: The clinical and laboratory aspects assessed are consistent with XLA, although we have not found a *BTK* mutation. The presence of Burkitt lymphoma is not common in patients with XLA. The heterogeneity in symptoms and severity is becoming increasingly recognized in primary immunodeficiencies, raising the possibility that individuals with moderate clinical manifestations reach adulthood without diagnosis.