



Pseudo Chediak-Higashi Granules in Acute Lymphoblastic Leukemia L3

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CLINICAL IMAGE:

A 9-year-old boy came to our hospital complaining of headache, vomiting, abdominal pain. Physical examination revealed an increase in submandibular lymph nodes up to 1.5 cm, hepatomegaly. A general blood test showed the number of leukocytes $7.85 \times 10^9/l$, hemoglobin 73 g/l, platelet count $115 \times 10^9/l$, neutrophils – 32%, eosinophils – 2%, monocytes – 6%, lymphocytes – 60%. There were no blast cells in the blood smear. In the biochemical analysis of LDH 3489 IU/l. Computed tomography revealed a rounded 25×32 mm formation in the mesentery of the small intestine, lymphadenopathy, and hypervascular foci in the liver. The patient underwent a bone marrow puncture. The bone marrow aspirate was of normal cellularity and contained blast cells in an amount of 57%. Blast cells had medium-sized, rounded nuclei with nucleoles, and a basophilic cytoplasm with vacuolization. Chediak-Higashi-like granules were detected in the cytoplasm of a part of blast cells (Figure 1). Immunophenotyping of blast cells by flow cytometry revealed expression CD10+ CD19+ CD 20+ CD22+ iki-67+ JgM+ kappa+ cytCD 22+ cyt 79a+.

Cytogenetic analysis revealed t (8;14) (q24;q32). When examined by the FISH t method (8;14), it was confirmed. Thus, the patient was diagnosed with Burkitt leukemia with lesion of the mesentery of the small intestine, liver.

Chediak-Higashi pseudoanomaly is a large cytoplasmic inclusion, more common in patients with AML, variants – M2, M3, M4, M5, less often in patients with ALL. The pathophysiology of pseudoanomaly Chediak-Higashi is not reliably known. Two mechanisms have been suggested for pseudo-Chediak-Higashi granules anomaly: fusion of Golgi-derived or primary granules or fusion of granules with cell organelles forming a giant autophagic granule. And the formation of cytoplasmic granules in lymphoblasts is thought to result from abnormal organelle formation, fusion, or degeneration [1-3].

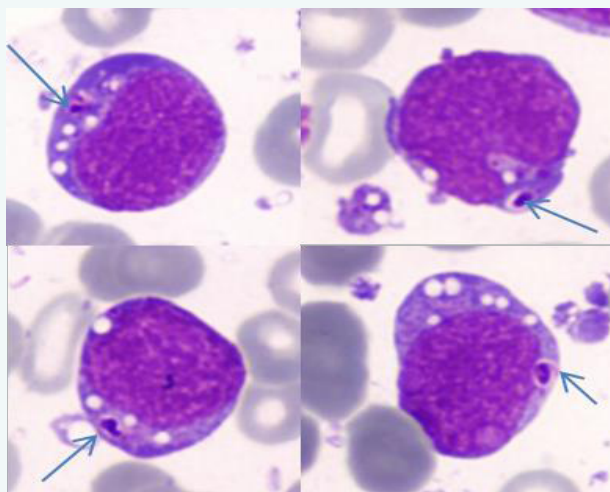


Figure 1: Bone marrow smear showing lymphoblasts. Giant cytoplasm granules (arrowheads) are readily observed (Giemsa stain, magnification x 1000).

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