In conclusion *CFH* gene analysis was performed to confirm whether the patient had aHUS or not. However, we have found *CFH* gene mutations that are not specific for aHUS. Epigenetic factors might have triggered the patient's phenotype. Also *p.His402Tyr* mutation may cause TMA with a milder clinic feature than that of other aHUS specific *CFH* gene mutations.

Conflict of Interest Statement

The authors of this paper have no conflicts of interest, including specific financial interests, relationships, and/or affliations relevant to the subject matter or materials included.

Key Words: Thrombotic microangiopathy, Eculizumab, aHUS, *CFH* gene

Anahtar Sözcükler: Trombotik mikroanjiopati, Ekulizumab, aHUS, *CFH* geni

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Rapidly Growing Thyroid Mass: An Unusual Case of Acute Lymphoblastic Leukemia

Hızlı Büyüyen Tiroid Kitlesi: Sıradışı Bir Akut Lenfoblastik Lösemi Olgusu

To the Editor,

Extramedullary presentations of acute lymphoblastic leukemia (ALL) in the central nervous system (CNS), lymph nodes, gonads, spleen, and liver can also be observed. Thyroid infiltration of ALL is very rare. A 53-year-old woman was admitted to the endocrinology outpatient clinic with a lump in the throat, which increased in size over a week. Her medical and family history were nonspecific. Except sensitive and painful thyroid, physical examination findings were normal. Complete blood count values were as follows:

Hg 131 g/L, WBC 10,200x10^9/L, ANC 5490x10^9/L and platelets 188x10^9/L. Sedimentation and C-reactive protein (CRP) were higher than normal range. Thyroid hormone levels were within normal range. Antithyroid peroxidase was negative. Thyroid ultrasonography showed moderate enlargement of bilateral thyroid lobes, the parenchyma was hypoechoic and nonhomogeneous. Fine needle aspirates from the thyroid revealed a few lymphocyte and few polymorphonuclear leukocyte infiltration on a necrotic floor with acute inflammation. The neck MRI showed enlargement of the right lobe and a 5x4, 5x3.5 cm, T1W hypointense, T2W hyperintense nodular lesion in the right lobe that was contrasted homogeneously (Figure 1). She was diagnosed with subacute thyroiditis and treated with 1 mg/kg/day methylprednisolone. Three weeks later, she was admitted to hospital with fever, weakness, and enlarging painful thyroid lobes. Physical examination showed pallor, enlarged and painful thyroid lobes, and mild splenomegaly. Complete blood count revealed Hb of 88 g/L, WBC of 8170x10^9/L, ANC of 2100x10^9/L and a platelet count of 22x10^9/L, LDH: 3119. Peripheral blood smear test revealed increased blasts (52% of cells). Bone marrow biopsy showed 80% cellularity with a diffuse, uniform infiltration of lymphoblastic cells with prominent nucleoli. Immunohistochemical staining was positive for TdT, HLA-DR, CD19, CD20, CD22, CD10 and CD38. Chromosome analysis showed 46XX. The breakpoint cluster region-abelson gene (*BCR-ABL*) fusion was found to be negative. The patient received induction chemotherapy with Berlin-Frankfurt-Munich (BFM) protocol following the diagnosis of precursor-B cell-ALL. In a week pain and enlargement of the thyroid partially regressed, but pain on palpation persisted. On day eight, the second FNA was performed. Pathological results were consistent with leukemic infiltration in a background of very scant colloid. After remission induction therapy, bone marrow aspiration and biopsy showed a continuous rise in diffuse blast cells. During the salvage therapy the patient died due to progresive disease. Subacute thyroiditis is a spontaneously remitting inflammatory condition of the thyroid gland. The thyroid gland is typically enlarged two or three times the normal size and is tender to palpation. When we evaluated the patient retrospectively, we thought that the complaints due to increased thyroid volume were related to leukemic infiltration of the thyroid. Her initially normal complete blood count evolved into pancytopenia. In the literature, there are ALL patients presenting with extramedullary infiltration signs and complete blood count within normal ranges [1,2]. To the best of our knowledge this is the fourth case of B ALL with extramedullary thyroid infiltration in the literature [3,4,5]. As highlighted by the present report, performing fine-needle aspiration cytology should always be considered in the clinical context of a rapidly growing thyroid mass under treatment, and without resolving symptoms.

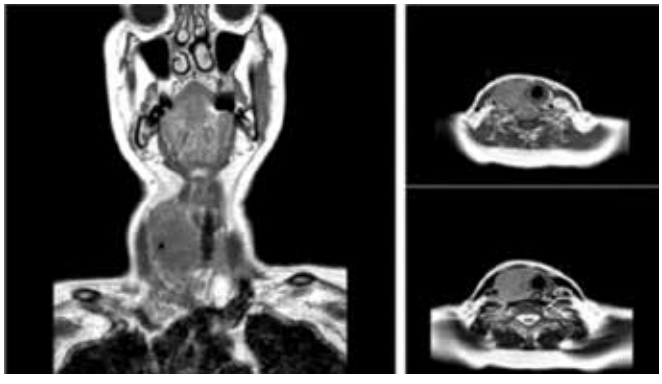

Figure 1. a, b, c: Neck MRI: Enlargement of the right lobe of the thyroid, 5x4.5x3.5 cm sized T1W hypointense, T2W hyperintense nodular lesion occupying right lobe with homogeneous contrast uptake.

Conflict of Interest Statement

The author of this paper has no conflicts of interest, including specific financial interests, relationships, and/or affiliations relevant to the subject matter or materials included.

Key Words: B-cell neoplasms, Acute lymphoblastic leukemias, Acute leukemia

Anahtar Sözcükler: B hücre neoplazileri, Akut lenfoblastik lösemi, Akut lösemi

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Auer Rods in Chronic Myelomonocytic Leukemia Can Change the Diagnosis

Kronik Miyelomonositik Lösemide Auer Çubukları Tanıyı Değiştirebilir

To the Editor,

Chronic myelomonocytic leukemia (CMML) is a clonal hematopoietic stem cell disorder with overlapping morphological features of myelodysplastic and myeloproliferative disease and a potential risk of transformation to acute myeloid leukemia. Presence of Auer rods in CMML is a rare finding and the presence of an occasional Auer rod gives the diagnosis of CMML-2 in spite of the presence of <5% blasts in peripheral blood/bone marrow [1,2]. A 39-year-old female, diagnosed outside our facility with Crohn's disease, presented with severe anemia with weakness and fatigue for 1 month. The patient had been treated previously with prednisolone at 1 mg/kg/day. Diarrhea was resolved after 2 weeks of therapy. Steroid dose was reduced and stopped after 4 months. There were no bowel symptoms and the colonoscopy done at our institution was normal. Hemoglobin was 65 g/L, total leukocyte count was $16.4x10^9$/L, and platelet count was $192x10^9$/L. Peripheral blood smear showed 4% blasts and promonocytes, 3% myelocytes and metamyelocytes, 26% monocytes (including abnormal forms) (Figures 1A and 1B), and 2 nucleated red blood cells/100 white blood cells. Bone marrow aspirate was hypercellular with dyspoiesis in all 3 lineages with increased monocytic cells (Figures 1C and 1D). Erythroid series showed predominantly megaloblastoid erythropoiesis with nuclear budding, multinuclearity, and cytoplasmic vacuolation. Granulocytic series showed myeloid hyperplasia with 15%-20% monocytes, 2% basophils, and 4% blasts, with an occasional blast showing an Auer rod (Figure 1C, arrows). Micromegakaryocytes and megakaryocytes with abnormal lobation and multinucleation were seen. Bone marrow biopsy was hypercellular (100%) with grade 1 reticulin fibrosis. Megakaryocytes were increased in number and showed hypolobation and multinucleation. Conventional cytogenetics showed a normal female karyotype. There was no Philadelphia chromosome or BCR/ABL fusion gene. Overall features were compatible with a diagnosis of CMML type 2. She was started on 3+7 induction chemotherapy using daunorubicin and ara-C. Bone marrow aspirate done on day 28 confirmed morphological complete remission. She underwent HLA-identical allogeneic hematopoietic stem cell transplantation from her elder brother and currently (2 years posttransplant) continues to be disease-free. Auer rods are a hallmark of acute myeloid leukemia but are occasionally seen in myelodysplastic syndrome (refractory anemia with excess blasts type 2) or CMML cases, and rarely in patients with fewer than 5% blasts [3,4]. According to the World Health Organization 2008 diagnostic criteria, the presence of Auer rods fulfills the criteria for CMML-2 irrespective of the blast count [5]. Thus, in CMML, a thorough search for Auer rods should be done for a correct diagnosis as the treatment given for CMML-2 is different from that for CMML-1 and the risk of transformation to acute leukemia is greater. We also want to emphasize that the presence of Auer rods with fewer than 5% blasts is a rare phenomenon that seems to be clinically, morphologically, and cytogenetically heterogeneous, and it could be a valuable finding for early treatment options in patients with CMML-2 if there is a HLA-identical donor.

Conflict of Interest Statement

The author of this paper has no conflict of interest, including specific financial interests, relationships, and/or affiliations relevant to the subject matter or materials included in this manuscript.

Key Words: Auer rod, Chronic myelomonocytic leukemia, Hematopoietic stem cell transplantation

Anahtar Sözcükler: Auer çubukları, Kronik miyelomonositik lösemi, Hematopoetik kök hücre transplantasyonu

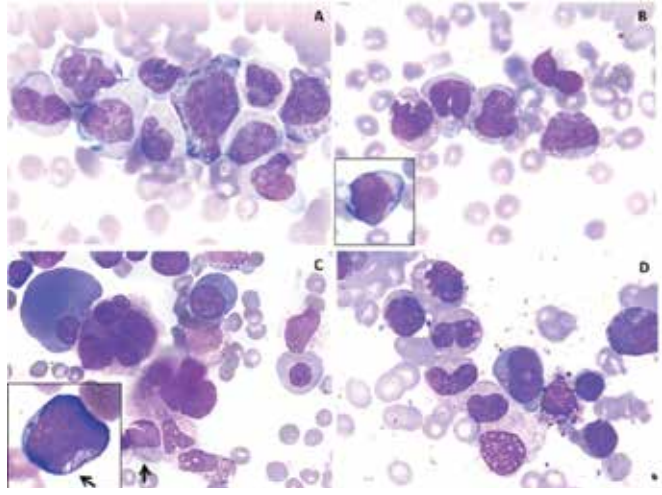

Figure 1. A, B) Peripheral blood smear showing presence of abnormal monocytes along with myelocytes and blast (B- inset). **C, D)** Bone marrow aspirate showing dyspoiesis in all three lineages **(C)** with an occasional blast showing an Auer rod **(C**, arrows) with increased monocytic cells **(D)** (Jenner and Giemsa stain, 1000x).