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Acute Myeloid Leukemia: Significance of the Skin Test

Yavuz Yagar[1], Mehmet Ali Erkurt[2], Ilhami Berber[2], Ilknur Nizam[2,*], Mustafa Koroglu[2], Haci Bayram Berktas[1], Engin Burak Selcuk[3], Emin Kaya[2], Irfan Kuku[2]

[1]Department of Internal Medicine, Faculty of Medicine, Inonu University, Malatya, Turkey
[2]Department of Hematology, Faculty of Medicine, Inonu University, Malatya, Turkey
[3]Department of Family Medicine, Faculty of Medicine, Inonu University, Malatya, Turkey
*Corresponding author: ilknizam@yahoo.com

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Abstract Granulocytic sarcoma is generally associated to acute myeloblastic leukemia, either as its first clinical manifestation, tissue expression of the disease, or initial symptom of its recurrence. Less than 1 percent of patients will present with prominent extramedullary disease (i.e., myeloid sarcoma, also called granulocytic sarcoma, myeloblastoma, or chloroma). We report the case of a young patient suffering from granulocytic sarcoma of her right ankle which is symptom of its recurrence.

Keywords: *granulocytic sarcoma, dermatological symptoms, ankle, knee, acute myeloid leukemia*

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1. Introduction

Leukemia is a malignant neoplasm affecting the hematopoietic system. Following a generalization phase in the bone marrow and subsequent appearance of leukemic cells in the peripheral blood, extramedullary manifestation can ocur in various organs of the body, including the skin. The classification of various types of leukemia is based on the biological behavior of disease as well as the morphological, immunophenotypical, and cytogenetic characteristics of neoplastic cells in acute and chronic, lymphocytic or myeloid forms of disease [1,2]. Acute leukemia has been divided into sub-types bythe French-American- British (FAB) Cooperative Group: acute myeloid leukemia (AML) into types M0–M7 [3,4]. The diagnosis of AML was defined using the World Health Organization (WHO)'s definition of >20% blasts in the bone marrow or peripheral blood [3].

Dermatological symptoms seen in leukemia are divided by clinical and histopathological criteria into unspecific and specific skin changes. Unspecific skin changes are mostly dermatological diseases which have been associated with leukemia and which develop on the basis of abnormal hematopoiesis or as an expression of a cutaneous paraneoplastic disorder. [4,5]. Less than 1 percent of patients will present with prominent extramedullary disease (i.e., myeloidsarcoma, also called granulocyticsarcoma, myeloblastoma, or chloroma) [6]. Granulocytic sarcoma is generally associated to acute myeloblastic leukaemia, either as its first clinical manifestation, tissue expression of this disease, orinitial symptom of its recurrence [7,8].

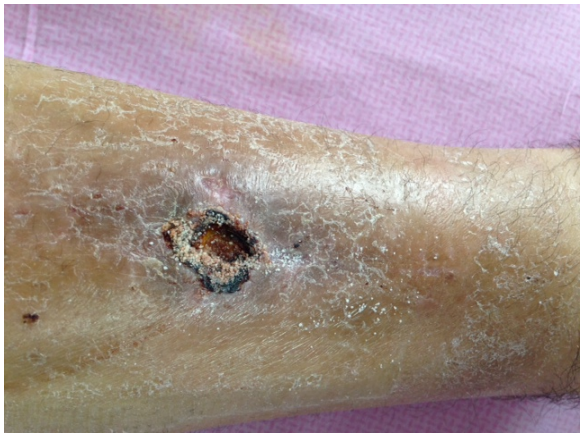
We report the case of a young patient suffering from granulocyticsarcoma (GS) of her right ankle which is symptom of its recurrence.

2. Case Report

A 46-year old female was diagnosed with AML-M5 in October 2010 due to periferal smear (%35 myeloblasts), flow cytometric immunophenotype and result of bone marrow biopsy. She suffered weight loss, general situation defect, expectoration, cough and fever. Her body temperature was 38.3°C, pulse rate was 102 bpm and respiratory rate was 15/min. Laboratory values were as follows (Table 1). There was no family history for any disease. No abnormally enlarged lymph nodes were palpable in any part of her body. Her abdomen was not distended, and her spleen and liver were not palpable. We reviewed the extremity and performed further immunohistochemical analysis to determine whether or not the tumoral cells were myeloid. The patient was started induction chemotherapy with cytosine arabinoside and idarubicin. Remission was determined by marrow aspiration with no blast cells at day 27th after first chemotherapy cycle. A third cycle high dose cytrabine 2x3 gr/m^2/day was given. During the third chemotherapy cycle, we observed a purple skin lesion which was fluffy, rough, measuring about 2.5×1.5 cm, mobile, demarcated, ulcered and painless. It was on right ankle (Picture 1). New peripheral smear and bone marrow aspiration revealed recurrence. Excisional biopsy from right ankle was performed. The pathological diagnosis was granulocytic sarcoma (GS). Bone marrow biopsy revealed recurrence of acute myeloblastic leukaemia, which had identical characterictics compared to the initial sample.

Table 1. Laboratuar parameters of patient

Parameter	Value	Normal Range
Leukocyte count	5,100/µL	4.000-10.000/µL
Haemoglobin	10,6 g/dL	13-17 g/dL
Haematocrit	33.5%	39.5-50.3%
Mean corpuscular volume	85,5 fL	80.7-90.5 fL
Mean corpuscular haemoglobin (MCH)	29.6 pg	27.2-33.5 pg
Mean platelet volume (MPV)	14,1 fL	6,6-10,6 fL
Platelet count	68.000/µL (in EDTA tubes)	150.000-450.000 /µL
Platelet count	72.000/µL (in citrate tubes)	150.000-450.000 /µL
Prothrombin time	12 sec	9-13.5 sec



Picture 1.

3. Discussion

Cutaneous paraneoplastic disease at AML includes pyoderma gangrenosum, Sweet syndrome, and insect-sting-like skin changes [4,5].

Less than 1 percent of patients will present with prominent extramedullary disease (i.e., myeloid sarcoma, also called granulocytic sarcoma, myeloblastoma, or chloroma) [6]. Extramedullary disease may present simultaneously with or precede bone marrow disease, and may be seen in relapse. Sites of isolated myeloid sarcoma include bone, periosteum, soft tissues, and lymph nodes, and less commonly the orbit, intestine, mediastinum, epidural region, uterus, and ovary [9,10,11].

GS is a rare entity that may precede the clinical manifestations of AML (it is often misdiagnosed like this case) or may occur as a relapse of a nonleukemic AML [8]. The patient's diagnosis of AML with isolated(GS) was, however, more rapid than typically observed despite the initial lack of circulating myeloblasts on peripheral blood smear. So physical examination should be made carefully, GS may be first symptom of recurrence.

4. Conclusion

Any skin lesion at AML should be carefully evaluated and the physician should always be alert about GS.

Reference

[1] Büchner Th, Saußele S, Hehlmann R. Akute und chronischemyeloische Leukämie. In: Dietel M, Suttorp N, Zeitz M: Harrisons Innere Medizin Band 1. Berlin: ABW? Wissenschaftsverlag, 2009: 845-56.

[2] Pezzutto A, Dörken B. Neoplasiendes lymphatischen Systems. In: Dietel M, Suttorp N, Zeitz M: Harrisons Innere Medizin Band 1. Berlin: ABW? Wissenschaftsverlag, 2009: 857-73.

[3] Swerdlow SH, Campo E, Harris NL, et al. World Health Organization (WHO) Classification of Tumours of Haematopoietic.

[4] Jänner M. Hämoblastosen der Haut. In: Korting GW: Dermatologie in Praxisund Klinik. Stuttgart: Thieme, 1981: 39. 339. 26.

[5] Ratnam KV, Khor CJL, Su WPD. Leukemia cutis. Dermatol Clin 1994; 12: 419-31.

[6] Dores GM, Devesa SS, Curtis RE, et al. Acute leukemia incidence and patient survival among children and adults in the United States, 2001-2007. Blood 2012; 119: 34.

[7] B. Lee, G. M. Fatterpekar, W. Kim, and P. M. Som, "Granulocytic sarcoma of the temporal bone,"American Journal of Neuro radiology, vol. 23, no. 9, pp. 1497-1499, 2002. View at Scopus.

[8] R. S. Neiman, M. Barcos, and C. Berard, "Granulocytic sarcoma: a clinico pathologic study of 61 biopsied cases," Cancer, vol. 48, no. 6, pp. 1426-1437, 1981. View at Scopus.

[9] Yamauchi K, Yasuda M. Comparison in treatments of nonleukemic granulocytic sarcoma: report of two cases and a review of 72 cases in the literature. Cancer 2002; 94: 1739.

[10] Byrd JC, Edenfield WJ, Shields DJ, Dawson NA. Extramedullary myeloid cell tumors in acute nonlymphocytic leukemia: a clinical review. J ClinOncol 1995; 13: 1800.

[11] Paydas S, Zorludemir S, Ergin M. Granulocyticsarcoma: 32 cases and review of the literature. LeukLymphoma 2006; 47: 2527.