Case Report

Leukemia Cutis in a 32-Year-Old Male with Acute Myeloid Leukemia

Meher Afsun[1], Rokon Uddin[2], Md. Abu Baker[3], Iftekhar Ahmed[4]
Received: March 27, 2019 Accepted: April 20, 2019
doi: https://doi.org/10.3329/jemc.v9i2.41416

Abstract

Leukemia cutis (LC) is a rare cutaneous manifestation of leukemia. Clinical presentation of the disease differs among patients depending on types. LC can precede, follow, occur simultaneously with, or present in the absence of the systemic leukemia. Leukemic involvement of the skin may appear as initial manifestation of recurrence or dissemination of systemic disease. Here we report a case of a 32-year-old male patient known to have acute myeloid leukemia with multiple cutaneous lesions diagnosed as LC.

Key words*: Leukemia cutis; Acute myeloid leukemia; Prognosis*

J Enam Med Col 2019; 9(2): 133–135

Introduction

Leukemia cutis (LC) refers to specific cutaneous eruptions resulting from various forms of leukemia. It was first described by Biesiadecki in 1876 as the infiltration of the skin by malignant hematopoietic cells.[1] It can be found in all forms of leukemia but is more common in myeloid leukemia.[2] Leukemia cutis can occur both in acute and chronic form of leukemia but frequently associated with acute type. The prevalence of LC is 10–15% in patients with acute myeloid leukemia (AML).[3]

The clinical appearance of LC is variable, including macules, papules, plaques, nodules and ulcers. Lesions of LC may be localized or disseminated and can occur on any site of the skin.[4] In most cases, the presence of systemic disease precedes the appearance of skin lesions.[5] Rarely, cutaneous expression of the disease can occur before the evidence of leukemia in peripheral blood and bone marrow making it difficult to diagnose.[6] The diagnosis is made by clinical suspicion and confirmed by lesional skin biopsy, immunophenotyping and B or T cell receptor rearrangement studies. To confirm associated hematological malignancy, complete analysis of bone marrow aspirate and peripheral blood smear are required. Therapy of LC is mainly directed at the underlying hematological disease itself and the prognosis is related to the prognosis of the systemic disease.[7]

We herein describe a patient with AML who presented with asymptomatic skin colored papules, nodules and plaques over face, scalp and trunk after four months of receiving single cycle chemotherapy.

Case report

A 32-year-old male known to have AML presented with multiple skin colored papules, nodules and plaques over face, scalp and trunk for 15 days (Fig 1). Initially lesions appeared over forehead and right side of the cheek, then gradually spreads over face, scalp and trunk. Lesions were painless and non-pruritic. Other complaints include oral ulceration and difficulty in hearing for last four months. He was diagnosed as a case of AML four months prior to skin manifestations and received one cycle of chemotherapy. After one month of getting chemotherapy he developed invasive fungal sinusitis and was treated with systemic antifungal

1. *Assistant Professor, Department of Dermatology and Venereology, Enam Medical College & Hospital, Savar, Dhaka*
2. *Professor, Department of Dermatology and Venereology, Enam Medical College & Hospital, Savar, Dhaka*
3. *Assistant Professor, Department of Dermatology and Venereology, Enam Medical College & Hospital, Savar, Dhaka*
4. *Assistant Professor, Department of Dermatology and Venereology, Sir Salimullah Medical College & Mitford Hospital, Dhaka*

Correspondence *Meher Afsun, Email: drmafsun@gmail.com*

Fig 1. Multiple skin-colored papules, nodules and plaques over scalp, face and trunk

medication. He had history of significant weight loss (30 kg) over six months prior to admission. On physical examination, the patient was found severely anemic with below average body built. There was no associated lymphadenopathy. Examination of the integumentary system revealed multiple skin colored, smooth surfaced papules, nodules and infiltrated plaques distributed over scalp, face and trunk, fixed with skin and free from underlying structures, non-tender and firm in consistency. A rounded atrophic scar with irregular margin was present on right cheek. Hyperpigmented depressed area was seen over the nasal bridge. Irregular whitish plaque was seen on the right side of the buccal mucosa and painless ulcerated area covered by whitish slough was found over hard palate near upper molar teeth. These lesions were non-tender. Nasal septal perforation was present. Alimentary system examination revealed hepatosplenomegaly. Nervous system examination revealed conductive type of deafness in right ear. On other systemic examination, no abnormalities were found.

Investigation reports showed Hb 7.3 gm/dL, ESR 140 mm in 1st hour and WBC 12,500/cu mm (Neutrophil 82%). Chest radiography showed inhomogeneous patchy opacities in all zone of lung fields. USG of whole abdomen revealed mild hepatosplenomegaly. Histopathological examination of lesional skin biopsy showed absent granular layer and melanocyte incontinence in epidermis. The dermis revealed atypical mononuclear cells suggestive of leukemia cutis. Patient was advised for immunohistochemistry.

During hospital stay, three units of blood were transfused for correction of severe anemia. Unfortunately the patient denied to go for further investigations and was discharged with risk bond. Therefore, further treatment and follow-up was not possible.

Discussion

Involvement of skin with acute leukemia usually occurs in late stage. The commonest cutaneous lesions as reported by Su et al[8,9] were of multiple papules, nodules (60%) or infiltrated plaques (26%), and varied from flesh-colored to red-brown or plum-colored. The site of predilection of LC differs among reports. While some studies reported no apparent predilection sites, others reported different predilection sites according to the type of leukemia.[4,10] ALL and CLL manifest mainly on the face or extremities. CML shows general distribution and AML is characterized by infiltration into oral mucosa.[11]

The cutaneous infiltrate occurs predominantly in the dermis, with involvement of vessels, nerves and adnexal structures.[12] LC has a strong association with extramedullary disease, particularly the CNS.[13] The appearance of LC indicates a poor prognosis with around 88% mortality within a year of diagnosis.[8]

LC usually occurs concomitantly with or following bone marrow disease and may be the presenting sign of relapse of leukemia after chemotherapy.[4,14] Standard induction chemotherapy is less effective in AML patients with skin involvement and requires bone marrow, skin and extramedullary involvement-directed therapy.[13]

Conclusion

LC is often misdiagnosed or diagnosis may be delayed due to its rare occurrence and variable clinical presentation. As non-leukemic cutaneous manifestations of leukemia are much more common, the possibility of LC should always be kept in mind and ruled out by relevant investigations. Although, histopathological findings are useful to reach the correct diagnosis, various other parameters including electron microscopy, cytochemistry and immunophenotypic studies are mostly required for exact characterization of the malignant cells. Early diagnosis and initiation of appropriate treatment is necessary as LC patients have a poor prognosis with an inevitably progressive course.

References

1. Costello MJ, Canizares O, Montague M, Buncke CM. Cutaneous manifestations of myelogenous leukemia. AMA Archives of Dermatology 1955; 71(5): 605–614.
2. James WD, Elston D, Berger T. Andrew's diseases of the skin. 12th edn. Philadelphia: WB Saunder's Company, 2016: 726–746.
3. Cho-Vega JH, Medeiros LJ, Prieto VG, Vega F. Leukemia cutis. American Journal of Clinical Pathology 2008; 129(1): 130–142.
4. Wagner G, Fenchel K, Back W, Schulz A, Sachse MM. Leukaemia cutis–epidemiologie, klinik und differenzial diagnosen. Journal der Deutschen Dermatologischen Gesellschaft 2012; 10(1): 27–37.
5. Aguilera SB, Zarraga M, Rosen L. Leukemia cutis in a patient with acute myelogenous leukemia: a case report and review of the literature. Cutis 2010; 85(1): 31–36.
6. Barzilai A, Lyakhovitsky A, Goldberg I, Meytes D, Trau H. Aleukemic monocytic leukemia cutis. Cutis 2002; 69(4): 301–304.
7. Wolff K, Goldsmith LA, Katz SI, Gilchrest BA, Paller AS, Leffell DJ. Fitzpatrick's dermatology in general medicine. 8th edn. New York: McGraw-Hill, 2012: 1726–1744.
8. Su WD, Buechner S, Li C-Y. Clinicopathologic correlations in leukemia cutis. Journal of the American Academy of Dermatology 1984; 11(1): 121–128.
9. Ratnam KV, Khor CJ, Su WD. Leukemia cutis. Dermatologic Clinics 1994; 12(2): 419–431.
10. Watson K, Mufti G, Salisbury J, Du Vivier A, Creamer D. Spectrum of clinical presentation, treatment and prognosis in a series of eight patients with leukaemia cutis. Clinical and Experimental Dermatology: Clinical Dermatology 2006; 31(2): 218–221.
11. Choi HS, Hahn JS, Lee KH, Cho SH. A case of leukemia cutis associated with B-cell chronic lymphocytic leukemia. The Korean Journal of Hematology 2003; 38(2): 147–150.
12. Longacre TA, Smoller BR. Leukemia cutis: analysis of 50 biopsy-proven cases with an emphasis on occurrence in myelodysplastic syndromes. American Journal of Clinical Pathology 1993; 100(3): 276–284.
13. Baer MR, Barcos M, Farrell H, Raza A, Preisler HD. Acute myelogenous leukemia with leukemia cutis. Eighteen cases seen between 1969 and 1986. Cancer 1989; 63(11): 2192–2200.
14. Ohno S, Yokoo T, Ohta M, Yamamoto M, Danno K, Hamato N et al. Aleukemic leukemia cutis. Journal of the American Academy of Dermatology 1990; 22(2): 374–377.