

Case Report

Leukemia cutis: an indicator of relapse in a patient with myeloid leukemia – a case report

Faria Asad, Mansoor Haider, Sabrina Suhail Paal

Department of Dermatology, Unit II, King Edward Medical College/Mayo Hospital, Lahore

Abstract Leukemia cutis is a specific cutaneous lesion of leukemia in which there is deposition of leukemic cells. We report an adult female with papulonodular lesions on the chest region. A skin biopsy was found helpful in diagnosing the relapse in our patient with haematological remission.

Key words

Leukemia cutis

Introduction

Leukemia cutis is regarded as a dissemination of systemic leukemia to skin and its presence is usually associated with a grave prognosis. The skin lesions in a patient with leukemia can be due to either specific cutaneous leukemic infiltration or other non-specific lesions.¹

The specific lesions of leukemia cutis are due to infiltration of the epidermis, dermis or subcutaneous tissue by neoplastic leukocytes or their precursors and can have various presentations. Papules, plaques and nodules are the most common lesions. These are typically firm, erythematous or red brown to purple and can become purpuric with coexistent thrombocytopenia. The other clinical appearances of leukemia cutis may be macules, ulcerative or bullous lesions and

urticaria, erythema annulare centrifugum or guttate psoriasis like etc.²

Nonspecific cutaneous manifestations of leukemia are reactive or paraneoplastic. They may arise from marrow failure like pallor or anemia, purpura and bleeding from mucous membranes secondary to thrombocytopenia. Pruritus and herpes zoster are more frequent findings. Prurigo like papules, erythema multiforme, bullous pemphigoid, hyperpigmentation and non-specific eczematous eruption have also been observed with leukemia.^{2,3}

Leukemia cutis can be diagnosed by biopsy, but the cell type cannot always be identified with certainty. Specific cell markers are needed for definite diagnosis.¹

The best treatment for both specific and non-specific eruption of leukemia is the cure and control of the underlying systemic disease. When such control can not be achieved by currently available chemotherapy, immunotherapy or

Address for Correspondence

Dr. Faria Asad,

Assistant Professor of Dermatology,

KEMC/Mayo Hospital, Lahore

Email: dderma@paknet4.ptc.pk

radiation or where response is slow or incomplete, local treatment in the form of electron beam therapy can be used.⁴

Case report

A 42-year old woman presented at the out patient department of Dermatology Unit - II, Mayo Hospital, Lahore with few nodules on the neck and upper trunk for the last 3-weeks. She was asymptomatic. The nodules were erythematous to dark brown, firm with a smooth surface (**Figure 1**). She had been diagnosed as a case of acute myeloid leukemia three months back for which she was given induction therapy followed by consolidation therapy with high dose of cytosar.

Except for the nodules, her skin, nail, hair and mucosae were unremarkable. Systemic examination did not reveal any abnormality. Blood, urine, kidney and liver function tests, ultrasonography, x-ray chest, computerized tomography scans (viscera and bones) were normal and there was no evidence of extramedullary disease.

A skin biopsy was taken which showed normal epidermis. The dermis revealed a heterogeneous population of small and large cells with eosinophilic cytoplasm, pleomorphic vesicular nuclei and prominent nucleoli. Immunohistochemical analysis from the biopsy specimen identified that the neoplastic cells belonged to monocytic lineage. A diagnosis of leukemia cutis was made. She

was started with combination therapy of cytosin and daunorubicin. The lesions



Figure 1 Dusky-red papules and nodules coalescing into plaques over chest.

began to subside after three weeks

Discussion

Leukemia cutis is a relatively rare condition and the exact overall incidence of the disease is unclear. All types of leukemias result from the abnormal development of leukocytes in the bone marrow. Maturation arrest occurs, and a proliferative clonal population of cells results. A variety of defects promote the clonal expansion of leukemic cells. These defects include an abnormal proliferative potential, defective terminal differentiation, and apoptosis. The increased proliferative potential is caused by the activation of oncogenes or the inactivation of tumor suppressor genes. Leukemia cutis is thought to result from a local proliferation of the leukemic cells within the skin.¹

In most cases of leukemia cutis, systemic disease precedes the development of skin lesions. However, in as many as 7% of patients with leukemia cutis, localized disease occurs prior to bone marrow infiltration and systemic symptoms (aleukemia cutis or primary extramedullary leukemia [EML]).⁵

Our patient developed cutaneous lesions when her recent report showed that the marrow was in remission, indicating relapse and need for further therapy. The underlying mechanism is believed to be accumulation of small quantities of myeloblasts in bone marrow and with high tropism for the dermis.^{6,7} It has been observed that in cases of leukemia cutis combination therapy is more effective than single agent high dose therapy. Our patient was also treated with combination therapy which led to regression of lesions. Dermatology is a visual, specialty and early recognition of diseases especially if malignant, is always helpful in the management and prognosis.

References

1. Ratram KV, Lkhor CJ, Daniel Su WP. Leukemia cutis. *Dermatol Clin* 1994; **12**:419-31.
2. Zaman T, Pal SS, Khurshid K: Leukemia cutis – the specific cutaneous lesion of leukemia: a clinical study of 250 patients. *Ann King Edward Medical College* 1999; **5**: 255-8.
3. Buchner SA. Specific and nonspecific skin manifestations in leukemia. *Schweiz Rundsch Med Prax* 2002; **91**: 1071-7.
4. Gambichler T, Herde M, Hoffmann K. Poor prognosis of acute myeloid leukaemia associated with leukaemia cutis. *J Eur Acad Dermatol Venereol* 2002; **16**: 177-8.
5. Bachmeyer C, Turc Y, Freitag S. Aleukemic monoblastic leukemia cutis. *Ann Dermatol Venereol* 2003; **130**: 773-5.
6. Pont V, Miquel FJ, Grau TC. Skin involvement in chronic myelomonocytic leukaemia as a predictor of transformation into acute myeloid leukaemia. *J Eur Acad Dermatol Venereol* 2001; **15**: 260-2.
7. Ognbiyi AO, Shokunbi WA, Fasola FA. Leukaemia cutis in a patient with acute myelogenous leukaemia: case report. *East Afr Med J* 2003; **80**: 606-8.