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Nov 24th, **2023**
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HOSPITAL CENTRAL DR. IGNACIO MORONES PRIETO

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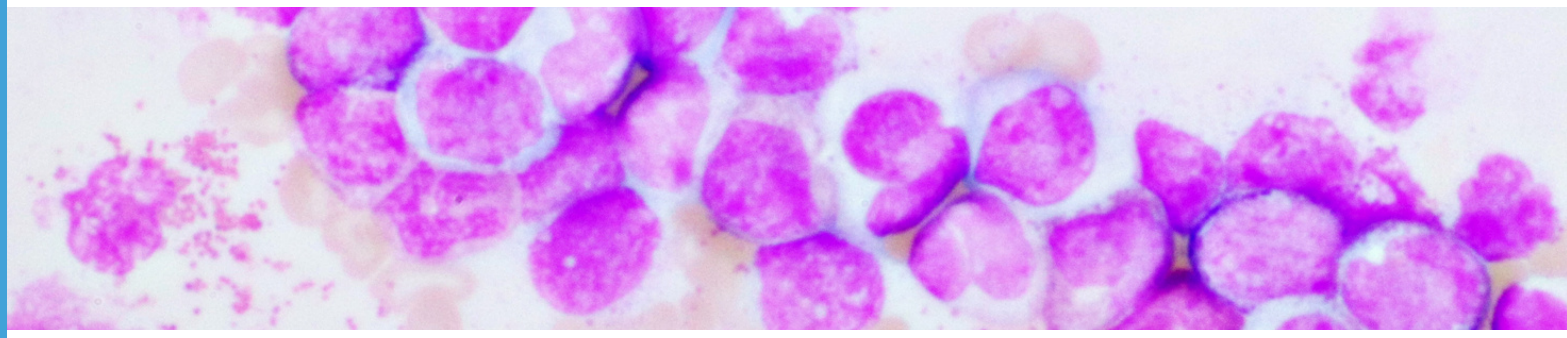

Leukemia Cutis and Erythema Nodosum as Clinical Manifestations of Myeloid Acute Leukemia

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ABSTRACT

Leukemia cutis is the infiltration of leukemic cells into the skin. It is a rare manifestation of myelo and lymphoproliferative disorders. The infiltration of these neoplastic cells into the skin produces polymorphous lesions, the most frequent being papules, nodules, or plaques (1).

Erythema nodosum is a form of panniculitis that produces painful red or violet lesions. Its etiology can be multiple and in rare cases associated with malignancy, occurring in less than 1% of cases; however, its presence in leukemia is exceptional (2).

We present the case of a patient with leukemia cutis and erythema nodosum associated with acute monoblastic leukemia.

Key words: leukemia cutis, acute myeloid leukemia, erythema nodosum.

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INTRODUCTION

Leukemia cutis (or dermis leukemia) is defined as a circumscribed or disseminated infiltration of dermis by leukemic cells. The frequency of this manifestation varies from 5% to 50%. It is more common in M5 acute monocytic leukemia and M4 acute myelomonocytic leukemia. Its presence implies a poor prognosis, with a mortality rate of about 80% of diagnosed patients a year.

In general, it affects the trunk, limbs, and face. The infiltrate of leukemic cells in the skin produces lesions, most frequently papules, nodules, or plaques. These are usually a little pinker, purple, or darker than normal healthy skin, always palpable, indurated and firm.

Erythema nodosum, on the other hand, is a hypersensitivity syndrome of multiple origin. Is characterized by the presence of erythematous, deep, hot, painful, and palpable lumps which are usually symmetrical of the lower extremities that last for days or weeks and are resolutive. It is important to mention that the presence of erythema nodosum in patients with leukemia is exceptional, with only 9 cases reported in literature up to 2017.

PATIENT INFORMATION

The patient is a 41-year-old woman with a history of lobular breast cancer treated with radiotherapy and conservative surgery.

She also has cervix-uterine dysplasia that required conization. Both currently in remission.

CLINICAL CASE PRESENTATION

A female patient comes to the emergency department with unquantified fever, malaise, and pallor of the skin. Laboratory tests showed Hb of 3.2 g/dL, 53,900 leukocytes and 34,000 platelets.

A referral was made to the dermatology department of the Hospital by the presence of well-defined, rounded, hyperpigmented spots on the anterior side of the legs **(Figure 1)**, the patient reported that these spots were previously erythematous, indurated, and painful; it was therefore inferred that these were post-inflammatory spots. On the further dermatological physical exploration, a hyperpigmented and indurated plaque was identified on the left breast, which subsequently developed erythema and pain **(Figure 2)**.

DIAGNOSIS AND EVALUATION

A skin biopsy was performed on the left breast area due to suspicion of radiodermatitis or recurrence of breast cancer. Skin biopsy showed poorly differentiated cellular infiltrate in the dermis with negative immunohistochemistry for pancytokeratin and positive for myeloperoxidase (**Figures 3 and 4**).

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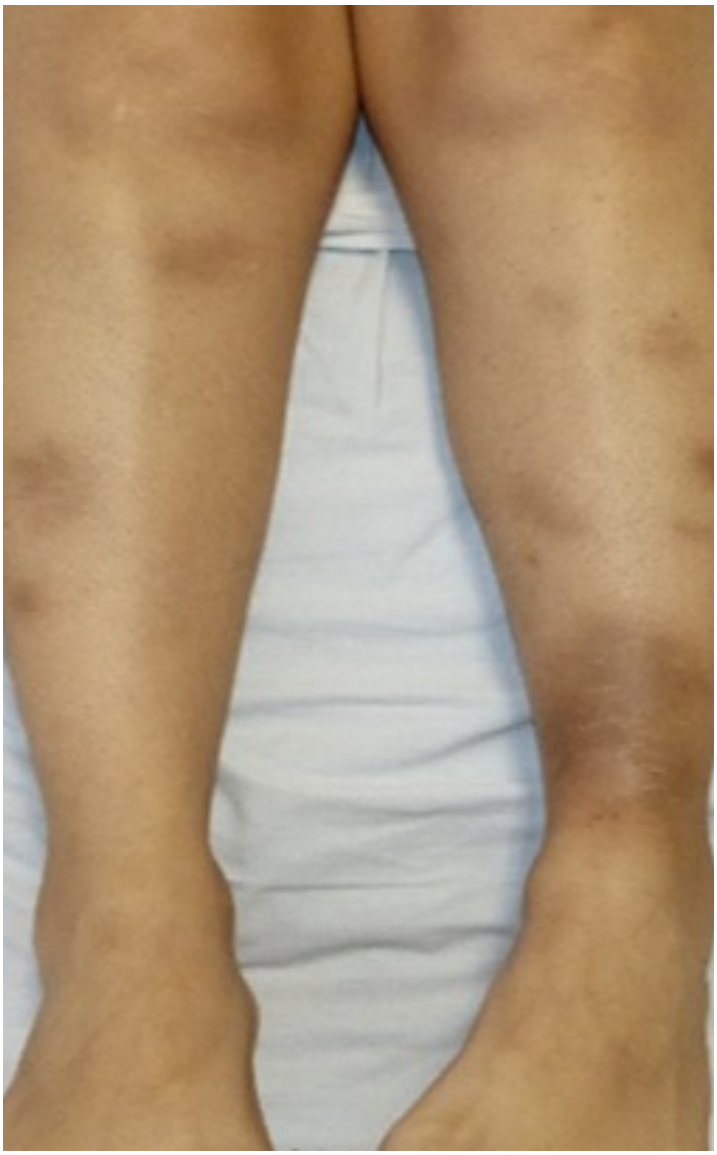

Figure 1. Leukemia cutis affecting lower limbs. Dermatosis localized to the lower extremities affecting the anterior side of legs characterized by hyperpigmented patches.

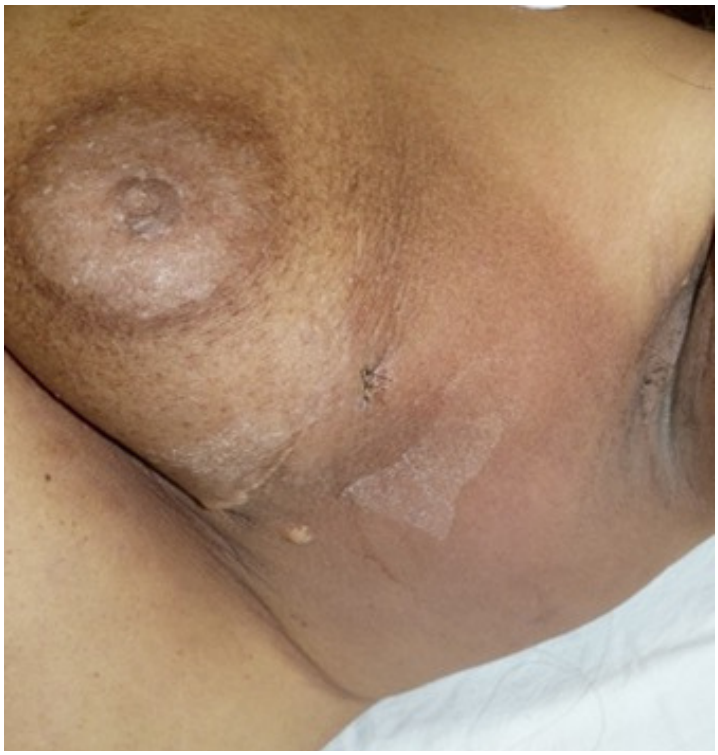

Figure 2. Erythema nodosum. Dermatosis localized to the left lateral side of thorax characterized by a hyperpigmented plaque with erythema at its periphery, which is indurated and painful on palpation.

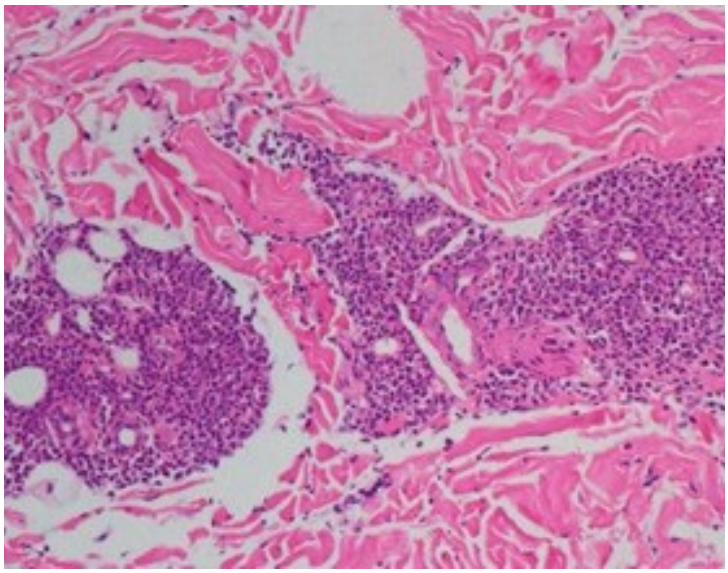

Figure 3. Poorly differentiated cellular infiltrate in the dermis.

The hematology department performed a bone marrow aspirate, which reported myeloid blasts with an immunophenotype of M5 acute monoblastic leukemia.

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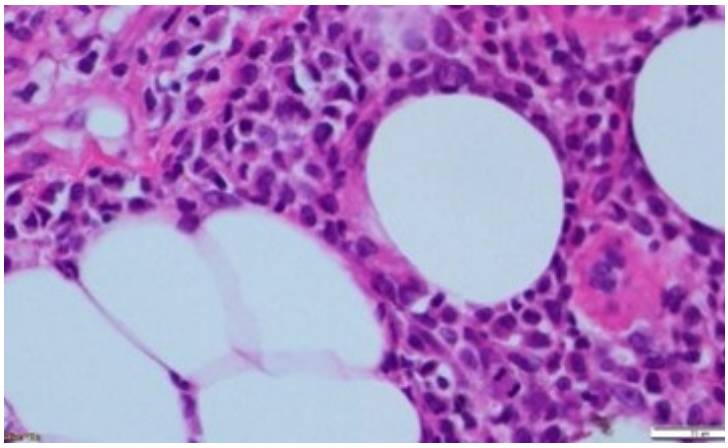

Figure 4. Tumoral infiltration of the subcutaneous cellular tissue.

TREATMENT

Treatment targets the leukemia itself. However, chemotherapy is sometimes not enough to eliminate dermatological lesions. Consequently, in addition to chemotherapy, a combination with electron beam treatment or PUVA (psoralen and ultraviolet A) for lesions resistant to antineoplastic chemotherapy (2).

CASE EVOLUTION

The patient received chemotherapy treatment. However, during hospitalization, the patient acquired a nosocomial infection which despite antimicrobial treatment took her life.

DISCUSSION

In 13% of patients diagnosed with leukemia, skin infiltration known as leukemia cutis is present.

Clinically, it is seen as an infiltrate plaque, almost always erythematous, and is more common in hematological malignancies with a monocytic or myelomonocytic component, specially M4 and M5 subtypes.
The hyperpigmentation on the legs observed in this patient along with the clinical data prior to its onset suggest a diagnosis of erythema nodosum, which is usually associated with malignity in less than 1%, specifically in leukemia is exceptional, with only 9 cases reported in literature up to 2017, therefore it is of great interest.

The scarce proportion of patients with leukemia cutis in relation to the total number of leukemias in our setting may be related to the fact that dermatological manifestations are often overlooked and not referred to dermatology department, or because a biopsy of the lesions is not performed in a timely manner because a direct association with leukemia is not made.

CONCLUSION

There are many dermatological manifestations associated with malignant neoplasms; in the case of leukemia, there are some that are specific to it, such as leukemia cutis, and others that are not, such as erythema nodosum, which is not only non-specific but also rare. For the above reasons, it is therefore important to be aware of the association with these

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entities and in case any patient has a history or symptoms suggestive of malignancy, to correlate and make the appropriate approach.

The approach to seriously ill patients or patients with a systemic pathology must be comprehensive. In many cases, the dermatological manifestations are the first manifestations of systemic pathologies, which obliges us to study them and give them an important role in the current illness. In the case presented, it is common for the hematological diagnosis to come first before the dermatological diagnosis; however, in our case it was the other way around.

REFERENCES

1.Guzmán RA. Dermatología. Atlas, diagnóstico y tratamiento. McGraw-Hill Education; 2019.

2. Anan, T., Imamura, T., Yokoyama, S., & Fujiwara, S. (2004). Erythema nodosum and granulomatous lesions preceding acute myelomonocytic leukemia. The Journal of dermatology, 31(9), 741–747.

3.Martínez-Leboráns, L., Victoria-Martínez, A. M., Torregrosa-Calatayud, J. L., & Alegre de Miquel, V. (2016). Leukemia Cutis: A Report of 17 Cases and a Review of the Literature. Leucemia cutis. Serie de 17 casos y revisión de la literatura. Actas dermo-sifiliograficas, 107(9), e65–e69.

4.Klaus Wolff, Richard Allen Johnson, Arturo P. Saavedra, Ellen K. Roh. Fitzpatrick. Atlas de Dermatología Clínica. McGraw Hill Education; 2014.

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