A Diagnostic Challenge: Leukemia Cutis Masquerading as Infantile Hemangioma

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Abbreviations: B-ALL: Acute B-Cell Lymphoblastic Leukemi. TdT:Terminal Deoxynucleotidyl Transferase.

To the Editor:

Infantile hemangiomas are benign vascular tumors in infants, typically presenting as solitary lesions that regress spontaneously[1]. However, atypical presentations can obscure underlying pathology. We describe an 8-month-old girl with a giant nodular lesion initially misdiagnosed as an infantile hemangioma, which was later identified as leukemia cutis secondary to acute B-cell lymphoblastic leukemia (B-ALL).

Case Presentation

An 8-month-old girl with an unremarkable prenatal and birth history presented with a giant red nodular lesion on her left shoulder. The lesion first appeared at 7 weeks of age as a solitary, small vascular-appearing red papule, not exceeding 1 cm. Two dermatologists diagnosed it as an infantile hemangioma with no systemic involvement. No treatment was initiated due to its location, lack of ulceration, and small size. The parents were advised to monitor the lesion, anticipating typical growth and spontaneous regression.

At 8 months of age, the infant was brought to the emergency department with fever and lethargy. Routine blood tests revealed pancytopenia and elevated C-reactive protein levels. A peripheral blood smear showed a few blast cells (Fig. 1b), leading to admission for severe neutropenic fever.

During hospitalization, the lesion on the left shoulder had grown to 16 cm (Fig. 1a). Examination revealed a highly erythematous, giant nodular lesion that was firm on palpation with overlying ulceration. No bruit or thrill was detected on auscultation, and Doppler ultrasound showed no vascular malformation. Bone marrow and skin biopsies were performed under general anesthesia.

The skin biopsy revealed perivascular atypical large lymphoid cells infiltrating the dermis (Figure 2a), and immunohistochemistry confirmed B cells via positive terminal deoxynucleotidyl transferase (TdT) and CD20 markers (Fig. 2b). The bone marrow biopsy confirmed acute B-cell lymphoblastic leukemia. The diagnosis of leukemia cutis secondary to B-ALL was established. The patient was promptly started on induction chemotherapy (vincristine,dexamethasone, asparaginase, and doxorubicin), and the skin lesion drastically regressed in size after the first cycle (Fig. 2c), demonstrating a positive response to treatment.

Discussion

Leukemia cutis is rare, affecting approximately 3% of leukemia patients[1]. It can present as papules, nodules, plaques, erythema, purpura, or eczematiform rash. Typically, lesions are multiple; solitary lesions are very rare, and ulceration and severe erythema are uncommon[2]. Notably, no previous reports describe a hemangioma-like appearance as observed in our case. Generally, leukemia cutis appears in individuals already diagnosed with leukemia, and it is exceedingly rare for it to be the initial sign of hematologic malignancy (aleukemic leukemia cutis)[3]. Although our patient presented with a hemangioma-like lesion at 7 weeks of age, aleukemic leukemia cutis could not be ruled out as no laboratory tests were performed at that time. The initial presentation as an infantile hemangioma, combined with the lesion's atypical firmness on exam and the presence of systemic symptoms, suggested a more serious etiology. Biopsy remains the gold standard for accurate diagnosis in atypical cases[4].

Conclusion

This case highlights the critical importance of considering alternative diagnoses such as leukemia cutis when a lesion does not follow the expected course of an infantile hemangioma, particularly in the presence of systemic symptoms.

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Figure 1: a) giant nodular red lesion measuring almost 16 cm, with overlying ulceration and crusting on the patient left shoulder. b) peripheral blood smear showing blast cell.

Figure 2: a) HE stain x100 showing atypical large lymphoid cells in a perivascular pattern in the dermis without epidermal involvement. b) immunohistochemistry positive for tdt and CD2 makers. c) rapid amelioration and involution of the lesion after the first cycle of chemotherapy.

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