Case #1 Blastic plasmacytoid dendritic cell neoplasm (BPDCN)
Previously known as CD4+/CD56+ hematodermic neoplasm. Originates from resting plasmacytoid dendritic cells of myeloid origin. It is considered a precursor hematologic neoplasm. A relationship between BPDCN and myelogenous leukemia exists. WHO classification BPDCN is in section of AML and related precursor neoplasms. Usually confined to skin at presentation but leukemic spread is the rule. Mostly older adults with a male predominance. Solitary, localize or generalized plaques and tumors with a ‘bruise-like’ violaceous hue due to hemorrhage. Third of patients have constitutional symptoms and extracutaneous manifestations in particular thrombocytopenia, anemia, and neutropenia. Histopathology: diffuse, monomorphous infiltrate of medium sized neoplastic cells with blastoid morphology, and intratumoral hemorrhage.

Immunophenotype
Positive: CD4, CD56, CD123 (intense and diffuse), TCL-1, CD303.
Usually positive: TdT.
Usually negative: CD68.
Negative: CD3, CD5, CD20, TIA-1.
Molecular genetics: Germline configuration TCR and Ig genes (TCR gene rearrangement reported), complex karyotypes, whole-exome-sequencing analysis of three cases confirmed relationship to myeloid leukemias.

Must be differentiated from “aleukemic” leukemia cutis.
Histopathology: diffuse to nodular dermal infiltrates of medium sized cells with characteristic single files of neoplastic cells.
Immunophenotype: CD13, CD14, CD15, CD33, CD43, CD45, CD68, lysozyme, and myeloperoxidase. CD123 can be positive but usually patchy and blush.

References

Case #2 Inflammatory Vitiligo
Lichenoid inflammation can be observed in early (inflammatory vitiligo). Clinical and histologic overlap with CD8+ mycosis fungoides even when depigmentation does occur. Conventional lesions of vitiligo during follow up allow for diagnosis.
Histology: Dense band-like infiltrates of lymphocytes with exocytosis of cells in lower part of epidermis.
Immunology: CD8+ cytotoxic lymphocytes.

The clinical differential diagnosis for hypopigmented mycosis fungoides includes pityriasis versicolor, pityriasis alba, pityriasis lichenoides or vitiligo. Hypopigmented mycosis fungoides is more frequent in dark-skinned individuals. Most frequent variants seen in children. Repigmentation occurs with treatment.
Histology: Identically to mycosis fungoides. Immunology: CD3+, CD8+(-), CD4-(-).

Diagnosis of mycosis fungoides in children requires clinicopathologic correlation and time.

Reference