SKIN IMPRINTS IN CUTANEOUS LYMPHOBLASTOMA

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BECAUSE of their accuracy, speed and simplicity in the diagnosis of cutaneous lymphoblastoma, tissue imprints deserve greater clinical application. Recently, 2 cases of lymphoblastoma of the lymphocytic type involving the skin alone have been diagnosed in the Department of Dermatology, and in each instance the tissue imprint provided specific and more rapid information than the routine pathologic preparation of the tissue from which the imprints were made. One of these cases is reported.

Case Report

A registered nurse, aged 59, was first seen in the Cleveland Clinic on December 29, 1948. She had been in good health until October 1, 1948, when she noted the onset of lumps in the skin of the right lateral thigh. Microscopic examination of one of these lumps was reported

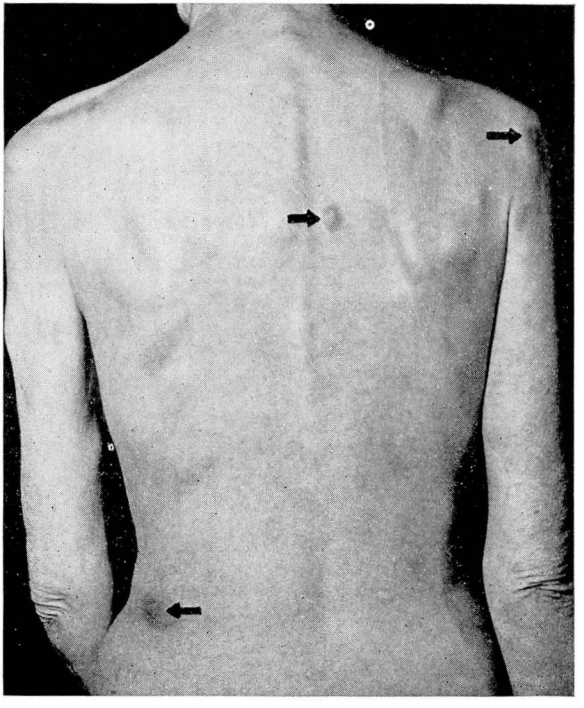

FIG. 1. Clinical appearance of lesions.

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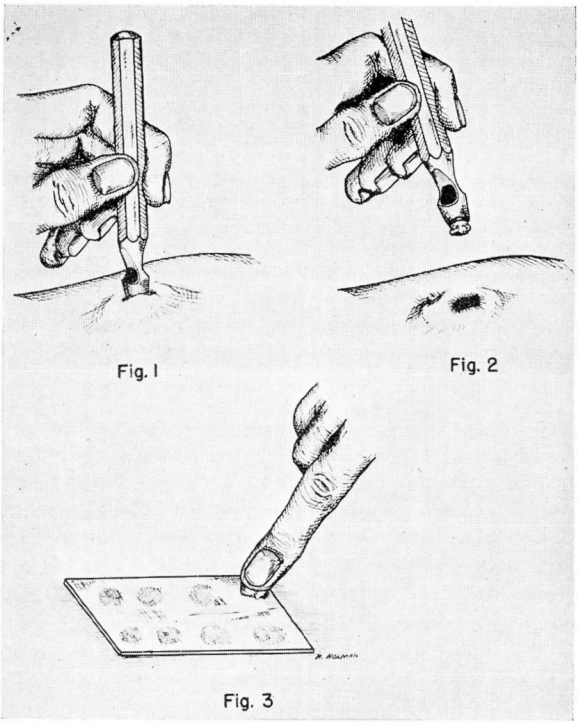

FIG. 2. Imprint technic.

as panniculitis. Other indurations appeared gradually at other sites, eventually involving most of the body and face (fig. 1). The lumps were indurated and bluish to purple in color. There was occasional pruritus. In December 1948 she developed many red streaks and patches of erythema which were attributed to phenobarbital. Stopping the drug had no effect on the lesions. A moderate degree of ankle edema developed. Her past history was non-contributory.

Physical examination revealed a well developed, well nourished tall white woman, weighing 120 pounds. Her temperature was 98.7 F. and the pulse rate was 100. The blood pressure was 120/68. The following positive findings were present: Moderately enlarged lymph nodes noted in the axillary, inguinal and cervical regions, thyroid diffusely enlarged, a soft grade II systolic murmur heard to the left of the sternum in the third and fourth interspaces. Dermatologic examination revealed diffuse blotches of erythema associated with bluish purple subcutaneous nodules. Periorbital edema was present as well as 2 plus ankle and sacral edema. There was no cutaneous atrophy. Laboratory studies were as follows: a specific gravity of 1.024 revealed by urinalysis; pH 5.5; absence of albumin and sugar; examination of the sediment revealed no cellular elements; the hemoglobin 11.5 Gm. per one hundred cubic centimeters and the erythrocyte count 4,360,000, with slight anisocytosis. The leukocyte count was 16,900 and the differential count showed 45 per cent neutrophils, 50 per cent eosinophils, 1 per cent lymphocytes and 5 per cent monocytes. The platelets were 340,000 per cu. mm. Bleeding and clotting time, prothrombin time and clot retraction studies were normal. Bone marrow examination revealed "Eosinophilia—all stages of development. No evidence of lymphatic leukemia." Roentgenologic examination of the chest was negative.

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One of the most indurated nodules was removed for biopsy, with a round cutaneous punch. This specimen was blotted dry and imprinted on a clean defatted glass slide. The biopsy was reported by Dr. John B. Hazard, head of the Department of Pathology, as follows: "Cutis and subcutaneous tissue densely infiltrated by round cells which for the most part were of the size and appearance of small lymphocytes. Larger cells with a fairly abundant pink staining cytoplasm and a small well differentiated nucleus were present, and in addition to these, other cells with somewhat more cytoplasm than the small lymphocytes and with a vesicular, round to slightly indented nucleus were noted. Occasional to frequent mitoses were present. The cells of infiltrate were densely massed in the subcutaneous and deep corium, and were found in greatest abundance about vessels and secondary structures of the skin. A few polys, plasma cells and eosinophils were present in scattered locations. Pathologic diagnosis: Lymphoblastoma of skin, lymphocytic type." Examination of the imprint revealed large numbers of immature lymphoblasts, associated with many lymphocytes. The lymphoblast was the predominant cell and in general outnumbered the more mature forms. The nuclei of the lymphoblasts were pale staining, with fine clumping of the chromatin.

Comment

Prior to the tissue imprint in the previously mentioned case clinical difficulties were encountered in the diagnosis. Because of a biopsy report the referring diagnosis was "Relapsing febrile nodular panniculitis (Weber-Christian's Disease)." In this respect the case simulated closely one reported in 1942 by Reimann, Havens and Herbut[1] in which the diagnosis of Hodgkin's disease was established at autopsy but in which Weber-Christian's disease was considered during life. Cases of leukemia cutis in whom the bone marrow and peripheral blood are normal have been noted in the literature, and it is now a well established fact that lymphoblastoma of all types may first involve the skin alone. In such cases imprint and tissue studies are of utmost value. It should be emphasized, however, that such investigations are of positive assistance only when the cutaneous manifestations of the lymphoblastoma are specific. Nonspecific alterations such as excoriations, urticaria, pigmentations, bullous eruptions and exfoliative dermatitis usually contain nonspecific histologic findings and produce negative imprints. With specific involvement of the skin by lymphoblastoma the tissue imprint may definitely establish the diagnosis, though it may or may not provide the exact type as specifically as the usual pathologic sections. The imprint provides the most precise information in the lymphocytic type of lymphoblastoma. In Hodgkin's disease and mycosis fungoides the skin imprint may fail to provide as reliable information as the histologic section.

Technic

The tissue is removed with a dermatologic punch, precautions having been taken to select a typical indurated lesion. The fresh unfixed tissue is blotted to remove excess blood and then pressed firmly on a clean glass slide (fig. 2). This is repeated several times. The slides must be fixed rapidly by drying or gentle heat to prevent disintegration of the nuclear patterns. The slides are stained with Wright's stain in the usual manner (fig. 3 a and b).

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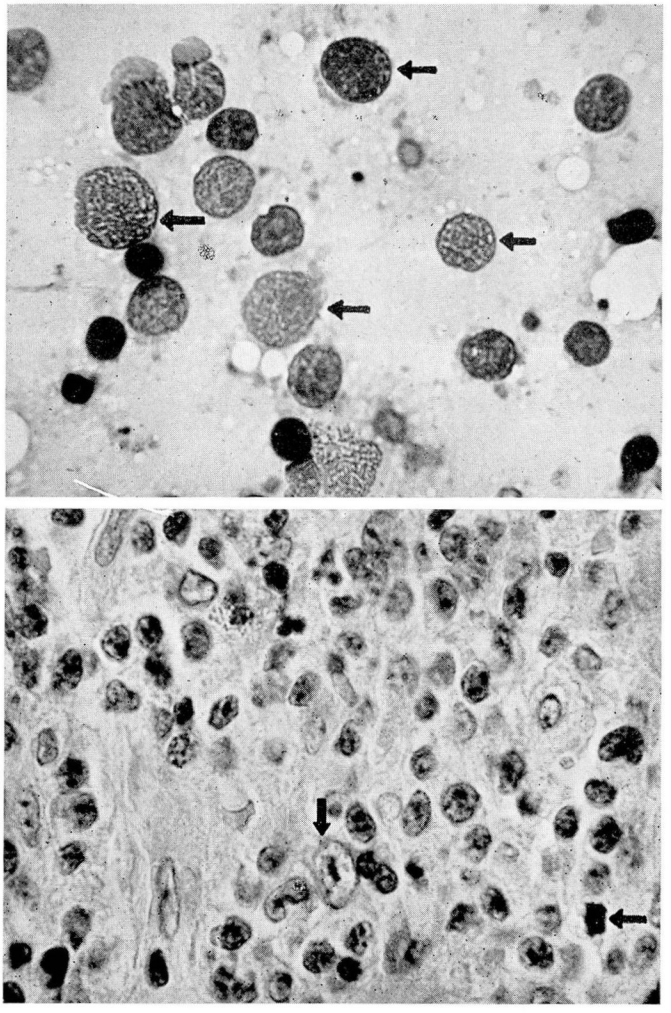
(a)



(b)

FIG. 3. (a) Photomicrograph showing large immature stem cells (arrows); (b) Photomicrograph showing same cells in section (arrows).

Imprints from normal skin usually provide only torn collagenous bundles and a few cells of the fixed tissue variety. In imprints of leukemia cutis, or lymphosarcoma cutis, there is ordinarily an abundance of cells available for study. The entire procedure takes only a few minutes and it can be done easily in the office.

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Summary

Specific cutaneous manifestations of lymphoblastoma may be diagnosed rapidly and accurately by imprinting the fresh unfixed tissue removed for biopsy. A case is reported in which these studies provided quick and valuable information. The technic is simple, inexpensive and merits wider clinical application.

References

1. Reimann, H. A., Havens, W. P., and Herbut, P. A.: Hodgkin's disease with specific lesions appearing first in skin. Arch. Int. Med. **70**:434-443 (Sept.) 1942.
2. Sweitzer, S. E., and Winer, L. H.: Ulcerative Hodgkin's disease and lymph node imprints. Arch. Derm. and Syph. **51**:229-236 (April) 1945.

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