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Case Report

Xanthogranulomatous Lymphadenitis

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Summary. A case of an unusual type of granulomatous lymphadenitis, initially suspected of being a malignant lymphoma, is reported. Histologically, this lesion shows a striking xanthomatous appearance, due to collections of foamy histiocytes interspersed with chronic inflammatory cells, and resulting in a storage-like aspect.

Evidence indicates that this process merely represents the reabsorption and healing phases of an acute suppurative lymphadenitis, with histopathologic features comparable to those of xanthogranulomatous pyelonephritis.

The term xanthogranulomatous lymphadenitis is suggested for this previously inadequately described lesion, and the likely non-specific degenerative character of the xanthomatous response is stressed.

Key words: Lymph node, pathology – Lymphadenitis – Xanthogranuloma.

Introduction

Foamy transformation of histiocytes occurs in various organs, and is frequently related to suppurative lesions or infarcts. The kidney, lung, central nervous system, heart and pelvic soft tissues are known to undergo fatty degeneration in different disease conditions (Blackwood and Corsellis, 1976; Kunakemakon et al., 1976; Witzleben and Pinto, 1978). Recently, a similar transformation has been reported in the endometrium (Barna et al., 1978), and can also occurr in lymph nodes, where it simulates a xanthomatous disease.

Such a case is described in the present report.

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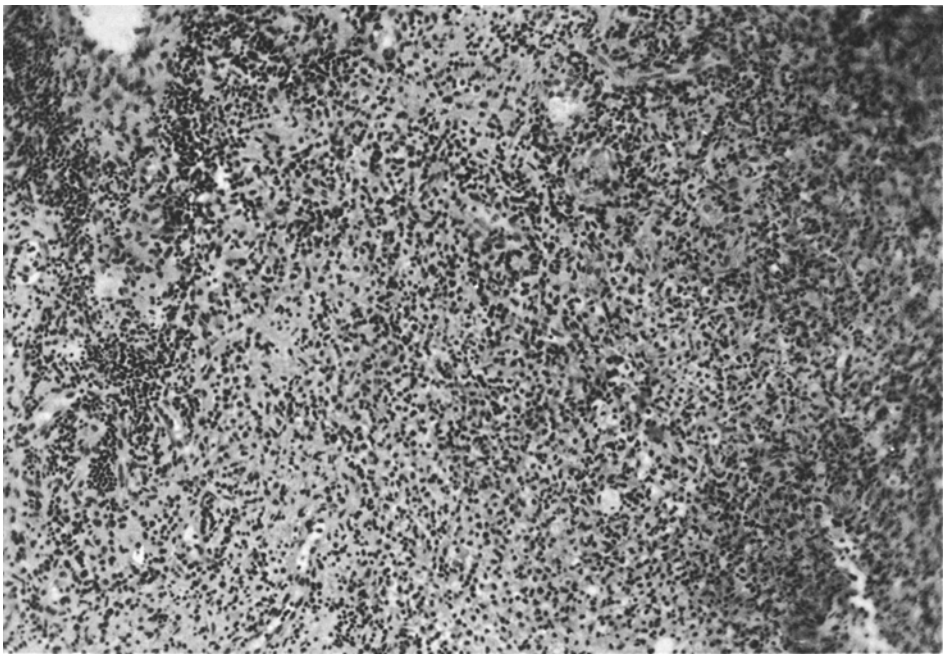

Fig. 1. Low-power view of the lymph node, showing effacement of the follicle structure. Residual lymphocytes are seen among the small clear spaces represented by foam cells (hematoxylin-eosin, original magnificatio $\times 100$)

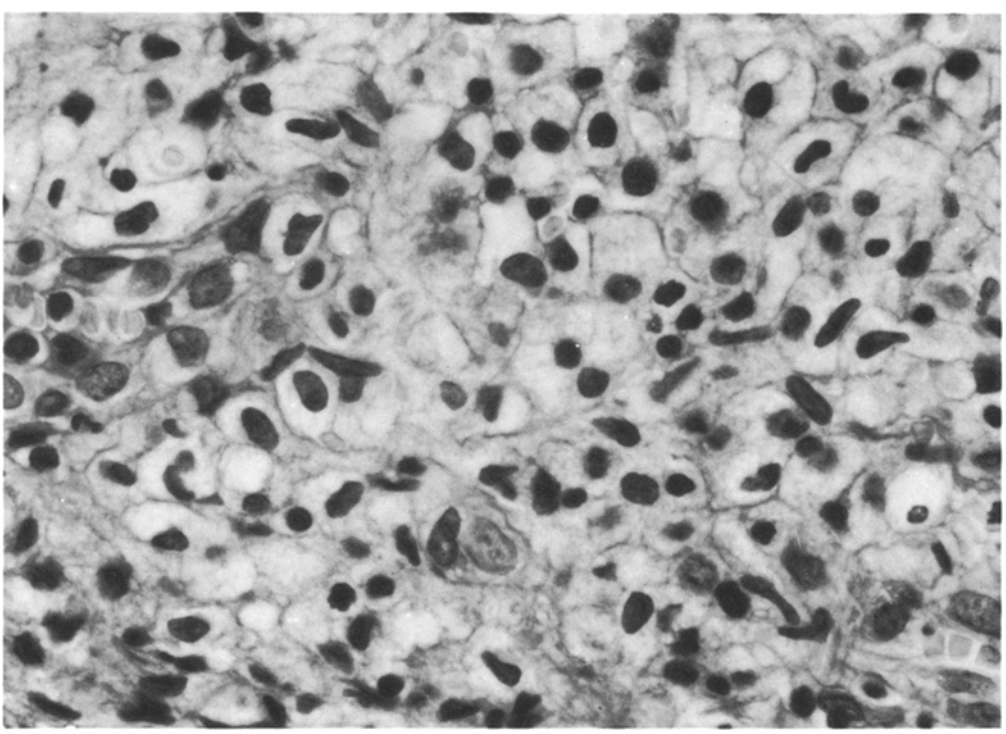

Fig. 2. The storage-like appearance of xanthogranulomatous lymphadenitis. Detail of the foam histiocytes. Round hyperchromatic and frequently eccentric nuclei, intensely vacuolated cytoplasm, and sharply defined cytoplasmic borders (hematoxylin-eosin, original magnification $\times 400$)

Case Report

A 14-year-old boy was referred to the Hematology-Oncology Department of Giannina Gaslini Children's Hospital in September 1977 with a single right axillary lymph node, 2×3 cm in diameter, present for 4 weeks. Antibiotic therapy prior to hospital admission had proven ineffective.

The lymph node continued to enlarge and became very firm. A malignant lymphoma could not be excluded clinically. At surgery, a friable, clotted and yellowish lymph node was found in the axilla.

Routine blood count, urinalysis, blood chemistries and a screening for plasmatic lipids were normal. A positive Dye-test for toxoplasmosis (1:1,000) was found.

Histopathological Findings

The location of the lesion within a lymph node could be ascertained. The xanthogranulomatous appearance of the process was particularly evident. The lymph node structure was completely obliterated and replaced by prominent granulomatous tissue composed of bands and sheets of tightly packed, lipid-laden histiocytes and foam cells, arranged in a mosaic pattern (Fig. 1).

The histiocytes had abundant eosinophilic or clear cytoplasm, in which coarse vacuoles and cellular debris were noted. When the histiocytes assumed a foam cell appearance, their cytoplasm became finely vacuolated, and their nuclei hyperchromatic and eccentric. The cellular borders of the foam cells were in very close contact with each other (Fig. 2). Numerous plasma cells were scattered or focally grouped. Russell bodies were present intra- and extracellularly. Abundant fibrin-like deposits, as well as numerous small blood capillary vessels were seen intermingled with the cells. At its edges the granulomatous tissue blended with the adjacent reactive fibrous tissue. Although the normal lymph node structure was almost completely unidentifiable, thin lymphocyte cords compressed by the granulomatous tissue could occasionally be seen (Fig. 1). Erythrophagocytosis and lymphophagocytosis were not noted. The Gomori methenamine-silver (GMS), PAS-Gridley, Gram's and Ziehl-Neelsen stains failed to reveal bacterial, protozoal or fungal organisms.

Frozen sections were stained with Sudan III fat stain. This revealed a large quantity of intracytoplasmatic neutral fat in the histiocytes. Unfortunately, not enough material was available to perform ultrastructural studies.

Discussion

The occurrence of cellular fatty degeneration in suppurative inflammatory processes has been recognized for many years (Aschoff, 1928; Kaufmann, 1961; Weichselbaum, 1892).

The histopathologic features described here are similar to those previously reported by Masshof in 1953 under the heading "abszedierende retikulozytäre Lymphadenitis". The latter described the mesenteric lymph nodes of children who underwent appendicectomy for acute appendicitis. These were characterized histologically by a suppurative and histiocytic picture, similar to cat-scratch disease, tularemia and brucellosis.

Table 1. The complex of histological differentiating features between xanthogranulomatous lymphadenitis and other lesions

Disease entity	Lymph node effacement	Foam cell transformation	Histiocytes	Acute inflammatory signs	Chronic inflammatory signs	Adipose tissue necrosis	Fibrous component
Histiocytosis X	incomplete	variable	numerous	absent	present	absent	tardive
Storage diseases	variable	marked	–	absent	scanty	absent	absent
Chronic granulomatous disease of children	absent	absent	present	prevalent necrosis	present	absent	–
Rosai-Dorfman disease	marked	present	numerous	absent	present	absent	present
Histiocytic medullary reticulosis	variable	absent	numerous, pleomorphic. Erithrophagocytosis	absent	variable	absent	absent
Soft tissue xanthoma	–	present	present	absent	present	absent	abundant
Weber-Christian disease	–	present	numerous. Giant cells	neutrophils	present	abundant	abundant in 3rd stage
Sclerosing lipogranuloma	–	present	numerous. Giant cells	absent	scanty	abundant	abundant
Hodgkin's disease with foam cells	marked	focal	present	–	present	absent	present
Xanthogranulomatous lymphadenitis	marked	marked	numerous	present	present	scanty	moderate

Subsequently, other similar reports of this lesion appeared in the German literature (Gibel, 1961; Herczeg and Rutkai, 1960). This mesenteric lymphadenitis has been related to Yersinia pseudotuberculosis infection (Finlayson and Fagundes, 1971). We have occasionally encountered this type of histiocytic transformation in deep-seated lymph nodes of children, but never demonstrating such striking xanthomatous changes as in the present case.

An extensive search of both the pathologic and pediatric literature failed to reveal any report of a suppurative lymphadenitis with a xanthogranulomatous response as extensive as that seen in our case.

Our case was referred to the Hematology-Oncology Department of our Hospital, because a possible primary malignancy was suspected. Such degree of foam cell transformation is not usually associated with infectuous lymphadenitis of bacterial, viral or fungal etiology (Ackerman and Rosai, 1974).

The lymph nodes in histiocytosis X lesions, usually do not show such a foam cell accumulation. More important, they lack the acute inflammatory component seen in our lesion (Rappaport, 1966).

In storage disease like Nieman-Pick, Tangier, and Wolman's disease, and in the mucopolysaccharidosis, fibrin and plasma cells are not interspersed with the foam cells (Kissane, 1975).

Other conditions, such as Rosai-Dorfman disease, histiocytic medullary reticulosis, and Hodgkin's disease with foamy macrophages can be easily distinguished by critical microscopy (Dehner, 1975; Rosai and Dorfman, 1974; Variakjis et al., 1971).

The soft tissue lesions such as the soft tissue xanthoma, Weber-Christian disease and sclerosing lipogranuloma, which may bear a superficial resemblance to xanthogranulomatous lymphadenitis, can be easily eliminated from consideration (Stout and Lattes, 1967; Smetana and Bernhard, 1950; Lever, 1967).

The complex of histological points helpful in differentiating between xanthogranulomatous lymphadenitis and the aforementioned lesions, is summarized in Table 1.

The similarity between xanthogranulomatous lymphadenitis and xanthogranulomatous pyelonephritis is impressive (Heptinstall, 1974; Bennington and Beckwith, 1975). Both diseases are characterized by a localized active granulomatous lesion with extensive lipidization and foam cell formation; an abundant exudative component; and destructive processes in the affected organ. In either lesion, a significant number of plasma cells are scattered among the foam cells, and a peripheral fibroblastic reaction ensues. Finally, both are infectuous diseases that may simulate a neoplasm.

In addition to the present case, further cases are needed to definitely establish the histologic characteristics of this lesion, as well as to ascertain if it must be considered a particular clinicopathologic entity.

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