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ULTRASTRUCTURAL ANALYSIS OF GERMINAL CENTRES IN LYMPH NODES AFTER HIV-1 INFECTION.

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Germinal centres were analyzed by qualitative and quantitative electron microscopical methods in lymph nodes with follicular hyperplasia from 15 patients with HIV-1 infection and compared with control follicular hyperplasia (FH). Using a pattern recognition method, within the germinal centres of HIV and FH lymph nodes two main clusters were recognized. This distinction was mainly based on the frequencies of small centroblasts and centrocytes. All FH lymph nodes and six HIV-1 lymph nodes (HIV-Cl1) were placed in cluster 1; nine HIV-1 lymph nodes (HIV-Cl2) formed cluster 2. Germinal centres in the HIV-Cl2 lymph nodes were characterized by a cell composition of predominantly lymphoid blasts by decreased numbers of centrocytes, but without altered numbers of mitotic figures.

The absolute number of follicular dendritic cells did not differ between the germinal centres in these two clusters. After HIV-1 infection the relative volume fraction of FDC was increased the HIV-Cl1 group. In all HIV-1 lymph nodes the cytoplasm of FDC was enlarged. Ultrastructural analysis of FDC present in normal lymph nodes revealed the presence of seven distinct subtypes. The distribution patterns of these FDC types in HIV-Cl1 and control FH lymph nodes were similar. The distribution patterns of these FDC subtypes differed between HIV-Cl1 and HIV-Cl2. In HIV-Cl2 the less differentiated FDC type 3 predominated, as result of a decreased proportion of the highly differentiated FDC types 4 and 5. The frequencies of FDC types sho-

wing a regressive morphology, type 6 and 7, were slightly increased in cluster 2. We conclude that 9 out of 15 lymph nodes with HIV-1 associated follicular hyperplasia show changes in FDC morphology indicative of a less differentiated functional stage of FDC. This is accompanied by an inverted blast/centrocyte ratio within the germinal centre B-cell population, but with no increase in mitotic activity. Our observations suggest that the conversion of centrocytes from centroblasts is altered and point to an impaired support of B-cell differentiation by FDC after HIV-1 infection. A possible role of HIV-1 components in this process is suggested.