

MORPHOLOGY AND ENZYME HISTOCHEMISTRY OF ISOLATED HUMAN FOLLICULAR DENDRITIC CELLS

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Follicular dendritic cells (FDC) have been described in cell suspensions of lymphoid organs as multinucleated giant cells (1). In tissue sections a large proportion of FDC appears to be binucleated. This difference in appearance prompted us to study the three dimensional morphology of FDC.

FDC could be recognized in touch imprints of tonsils on basis of morphology and doublet arrangement of their nuclei. In cytocentrifuge preparations of enzymatically prepared cell suspensions binucleated FDC were present free or in complexes with lymphoid cells. Larger complexes contained more than one pair of nuclei apparently belonging to FDC. The staining pattern of FDC for ecto-5-nucleotidase, alpha-naphthyl acetate esterase and acid phosphatase differed from that of macrophages. A proportion of FDC stained positive for alkaline phosphatase, whereas macrophages were negative for this enzyme.

Ultrastructurally, isolated FDC (Fig. 1) had a striking similarity with FDC present in germinal centres. In smaller complexes FDC were located at the periphery. Cell bodies of FDC partially enclosed centrocytes and centroblasts with broad cytoplasmic protrusions, leaving openings at one pole of the complex. Remarkably, lymphoid cells were observed adhering at the surface of FDC (Fig. 2). Larger complexes of FDC and lymphoid cells were composed of more than one FDC, indicated by the presence of desmosomes and of plasma membranes separating the nuclei.

From these results it may be concluded that FDC are mostly binucleated cells. Their giant cell appearance in suspension is the result of complex formation with other FDC and with germinal centre cells. Membrane contacts between FDC and germinal centre cells may contribute to this complex formation. The close connection between these cells of different origin suggests that FDC influence the B-cell differentiation in germinal centres by direct cell contact.

1. Gerdes et al. (1983) Virchows Archiv B, 42: 161-172.

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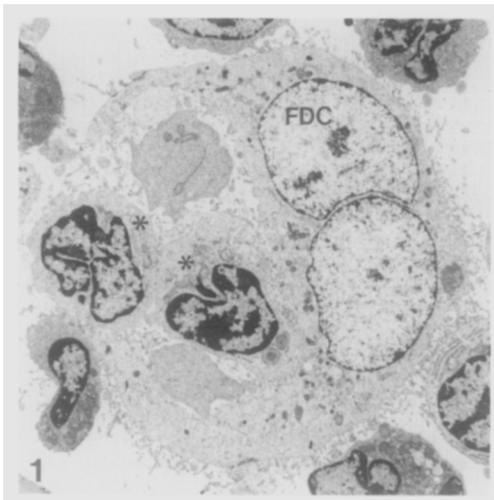


Fig. 1. Electron micrograph of small complex of FDC and lymphoid cells (*). x 3.700.

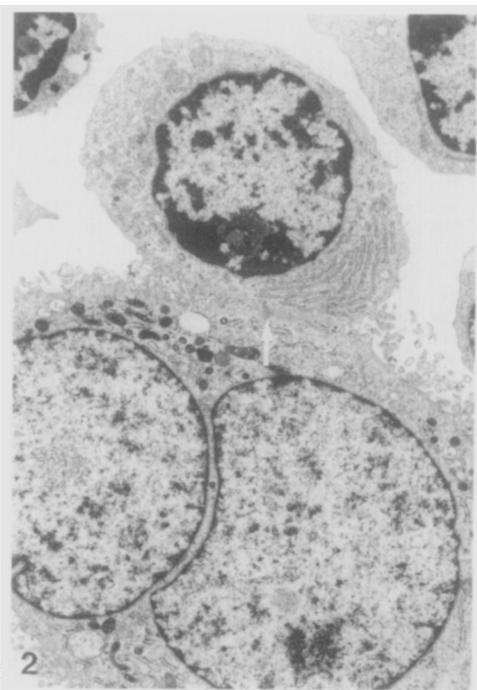


Fig. 2. Part of isolated FDC with lymphoid cell adhering at the surface. Arrow: contact area of membranes of lymphoid cell and FDC. x 7.400.