

Immunohistochemical study of dendritic cells in foetal skin and lymph-nodes supporting the hypothesis for the neural crest origin of Langerhans cells.

Pietro Muretto

Department of Pathology, San Salvatore Hospital, 61100 Pesaro, Italy.
E-mail address: pietro.muretto@virgilio.it

Key words: Langerhans cells, dendritic cells, foetal skin, lymph-nodes, melanocytes, neural crest.

SUMMARY

An immunohistochemical study on foetal skin and lymph-nodes was undertaken in 35 foetuses with the aim to obtain some evidence supporting the hypothesis for the neural crest origin of the Langerhans cells (LCs). Specimens from the axillary and inguinal areas including the skin, subcutaneous tissues and lymph-nodes have been examined.

For immunohistochemistry a panel of antibodies were used such as CD1, Langerin, Melan A, HMB45, S100 protein, CD21, subsets for B and T lymphocytes, CD68, Myeloperoxidase, CD31 and CD34. Immunohistochemistry using Melan-A or HMB45 resulted on the detection of melanocytes in the basal layers of epidermis during the first months of gestation. At the same time CD1 allowed the identification of LCs as scattered starry cells in the basal and supra-basal of epidermis layers. Similarly, in the subcutaneous lymph-nodes, LCs could be demonstrated already from the 4th month of foetal life, likely in relation to their known migratory and circulating ability (veiled cells). Immunohistochemical results demonstrated that LCs are intimately correlated to melanocytes during the foetal life, they and both become apparent in the same gestational time and similarly increase in number during the last months of foetal life.

The neural crest origin for melanocytes has been universally accepted; the same site origin for Langerhans cells and their biological meaning are discussed.

Probably LCs, which can be observed in embryonic tissues of ovary teratomas, in the epidermis of foetal skin and lymph-nodes, and from literature reported in the epidermis of all living beings, represent ancestral cells related to the T lymphocyte compartment acting as a primary defence mechanism against invading micro-organisms of the natural outer habitat.