ESTABLISHING LAMININ, COLLAGEN IV AND CHONDROITIN SULFATE PATTERNS IN OTOCYSTOGENESIS

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Basement membrane in embryonic epithelia establishes cells segregation at the bilaminary embryo. In addition to its support/separation function, it changes either completely or in part when epithelia are invaginated/evaginated, forming tubular or spherical cavities and permitting its expansion and growth. Localized changes might be attributable to the dynamic process of epithelium-mesenchyme interactions (Hay, 1991) which, in the case of statoacoustic gangliogenesis, affect a highly localized sector of the otic epithelial cells; with the migration of its, this responds to the signals of a morphologically homogeneous mesenchyme, destroying the basement membrane by which it is supported by means of an enzymatic-type process similar to the one visualized for the initial phase of tumorous invasions (Mignati and Rifkin, 1993). On the other hand, epithelial budding of the pulmonary and salivary anlages does not affect the continuity of the developing epithelial layer (Sanders, 1988).

Establishing a pattern for the different otic anlage basement membrane components, with consideration given to invagination/evagination and basement membrane rupture, may permit an analysis of the differences associated with such phenomena.

Chondroitin sulfate and laminin (fig, 1) were applied to chick embryos ranging from stages 13 and 20 H.H. (Hamilton and Hamburger, 1951); the former via the Critical Electrolysis Concentration technique (Scott and Dorling 1965) and enzymatic digestion with Chondroitinase ABC, and the laminin by means of immunostaining with an antibody provided by Prof. Foidart. Collagen IV (Fig.2) was applied to 11 to 13-day rat embryos via an antibody also supplied by Prof. Foidart.

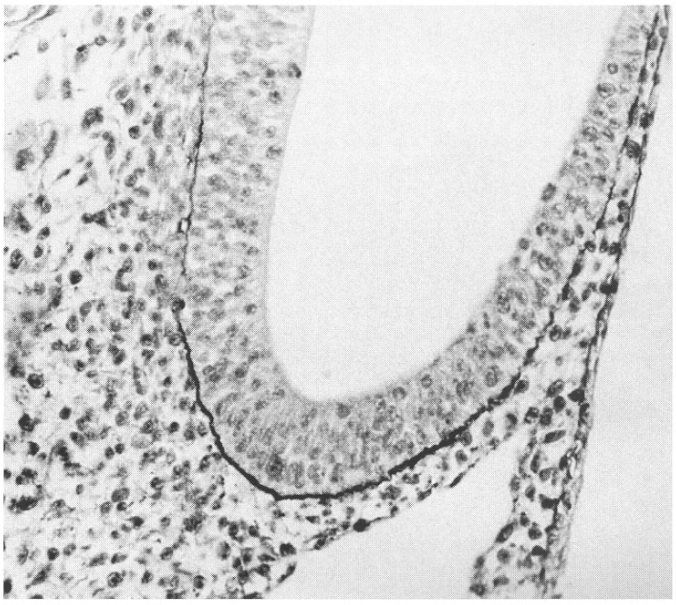

Fig.1.- Laminin immunostaining. 20 HH stage chick embryo. Observe the disappearance of stain on the internal and ventral wall, giving place to a group of cells which escape towards the ganglion. There also exists a difference in staining intensity between the internal and external wall. 40x.

An analysis of these components in the different parts of the anlage reveals a difference in distribution associated with evagination phenomena (endolymphatic duct), whose behaviour is similar to that of epithelial buds in glandular anlages, whilst the dissolution of the different basement membrane components analyzed at ganglionic migration zone level ressembles the initial stages of tumours invasion.

Given that the composition of basement membrane components changes together, our data do not permit the establishing of an individualized time sequence related to the phenomena in question.

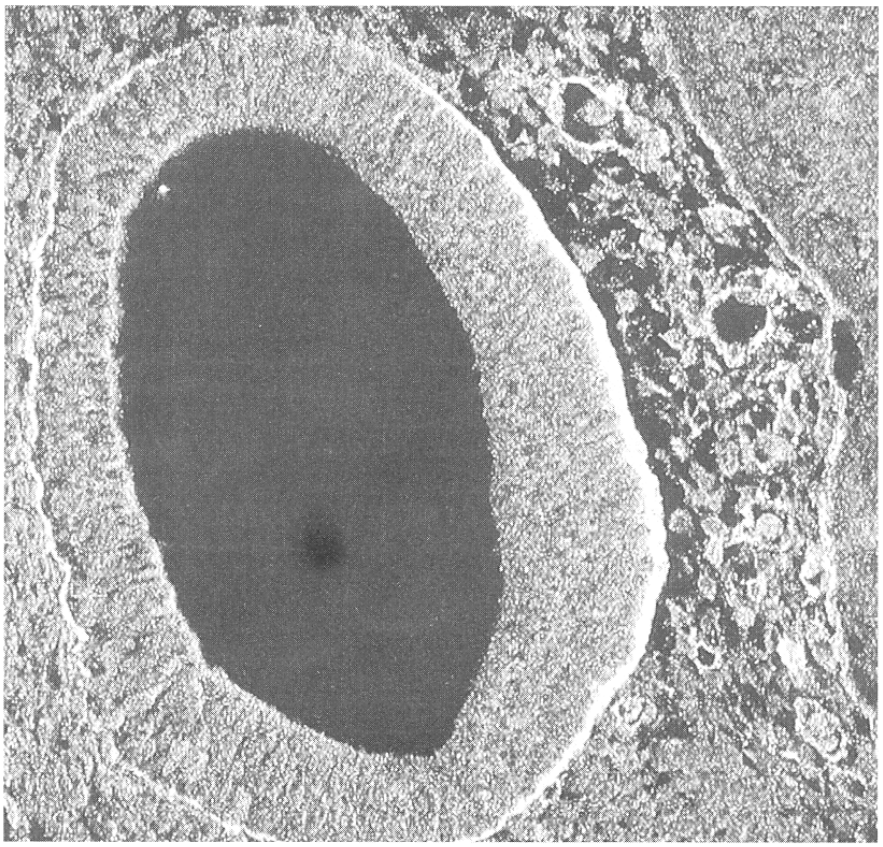

Fig.2.- Immunolocalization of type IV collagen in the rat otocyst of 11 day. Observe the differences of immunostaining between the medial, anterior and lateral walls. 8 microns cross-sections of confocal microscopy. 40x.

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