

Histological, histochemical and ultra-structural studies of gland like structures of human pterygium

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Aetiology and alterations of connective tissue of pterygium have been well studied by BEARD & DIMITRY (1945), ASCHER (1954), KAMEL (1954), GILMAN, PENN, BRONKS & ROUX (1954), KERKENEZOV (1956), VASS & TAPASZTÓ (1964), CAMERON (1965), ELLIOT (1966), ANSARI, RAHI & SHURLA (1970), PECKAR (1972), but few authors refer to the changes which occur in the covering epithelium (DUKE-ELDER, 1965; YOUNGSON, 1972).

In an attempt to make morphological studies, we made histochemical analysis and observations on covering epithelium of human pterygia under light and electron microscope.

MATERIAL AND METHODS

Twenty pterygia were collected by surgery at the 'Hospital São Paulo' of 'Escola Paulista de Medicina' from patients of both sexes ranging in age from 20 to 60 years and fixed in Bouin's fluid for 24 h. As control biopsies of normal lacrimal gland and bulbar conjunctiva were performed. Paraffin wax embedded 6 μ m thick sections were stained with Haematoxylin and Eosin for comparative histology and tridimensional reconstruction of gland like structure found in some pterygia.

Drawing apparatus attached to the light microscope helped to draw the contours of 50 serial sections of one of these structures.

Histochemical methods have done according to the systematization of LIMA and SASSO (1976) to identify the glicosaminoglican of globular cells which form cluster in gland like structure.

Electron micrographs were obtained with electron microscope (Zeiss EM-95-2) from sections of fragments of pterygium treated according to procedure of HARVEN (1968), LUFT (1961), WATSON (1950) and REINOLDS (1963).

RESULTS

By the examination of some serial sections of pterygium, clusters globular cells invaginate with covering epithelium deep into lamina propria forming a gland like structure (Fig. 1 and 3).

The histochemical reactions of clusters of globular cells of gland like structure displayed presence of the neutral glicosaminoglican and sialomucins similar to the results obtained from globular cells and lacrimal gland cells used as from controls.

The electron micrographs of these structures showed an uniform electron densities among intracytoplasmatic secretory units of globular cells (Fig. 2), differing from those of typical goblet shaped cells. Many of nuclei of these globular cells presented varied stages of nuclear pyknosis.

COMMENTARY

Many investigators assume that globular cells of conjunctiva differ from intestinal goblet shaped cells because of their apocrine secretion (DUKE-ELDER, 1961).

Various steps of development of secretory unities accompanied by various degrees of nuclear degeneration observed in our electron micrograph confirm the apocrine nature of the globular cells which are present forming clusters in the epithelium of pterygium.

PODHORANYI (1966) and KESSING (1968) described an accessory lacrimal gland consisting of lumps of goblet cells in normal bulbar conjunctiva and BABEL & AVANZA (1966) observing limbal conjunctival cysts presumed they had originated from cripts present normally in sclerocorneal junction of foetus.

These gland like structures found in some pterygia likely develop because of variation of stimulus on covering epithelium and as a consequence of cellular modulation determine a morphological and functional responses evidenced by hypertrophy of the epithelial cells.

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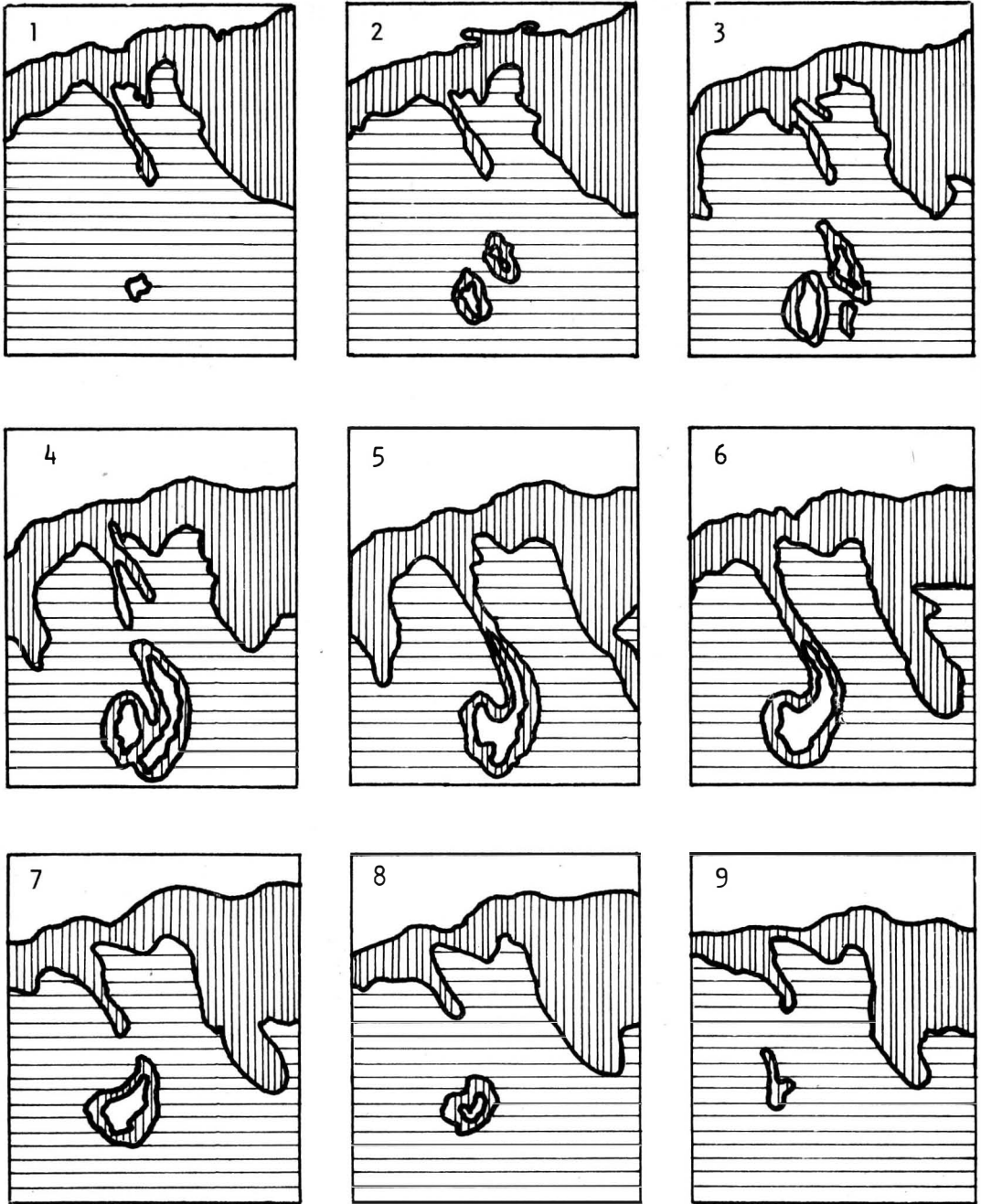


Fig. 1 — Illustration representing every 5th section of serial section of gland like structure of human pterygium.

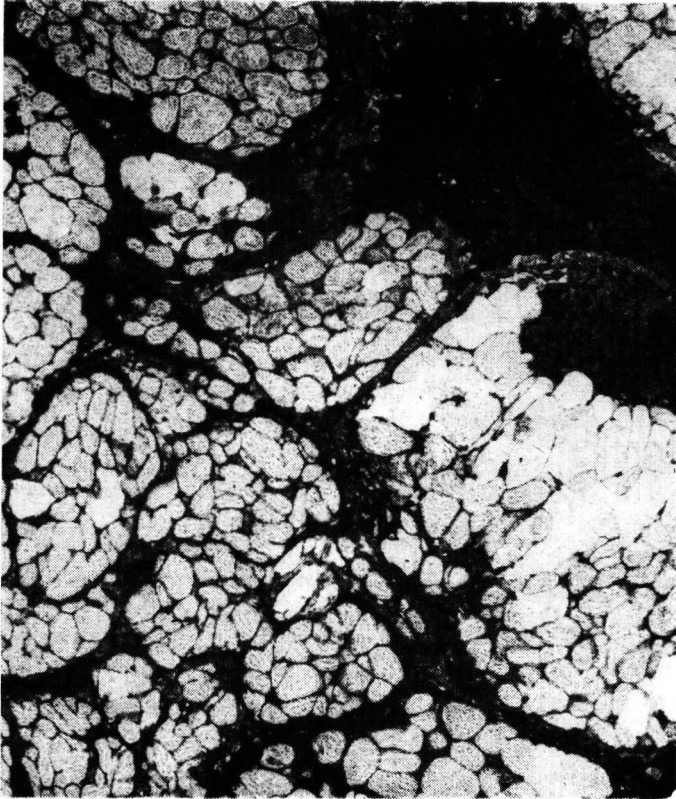


Fig. 2 — Electron micrograph showing cluster of globular cells within gland like structure of human pterygium; magnification x 13.200.



Fig. 3 — Photomicrograph of one of serial sections of gland like structure of human pterygium. H.E., magnification x 180.

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