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Retinoblastoma

The Relationship of Proliferating Cells to Blood Vessels

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In 150 retinoblastomas the authors found a uniform thickness of the cuff of viable retinoblastoma cells that surrounds blood vessels. The mean thickness was 98.7 μm with a standard deviation of 11.9 μm. The cross-sectional area of the cuff was negatively correlated with the mitotic activity in the cuff and positively correlated with the diameter of the central vessel. The mitotic activity in the cuff of cells was inversely related to the distance from the central blood vessel. When the cuff was divided into three concentric rings, the inner ring contained a mean of 6.2 mitotic figures, the middle ring contained a mean of 2.9 mitotic figures, and the outer ring contained a mean of 0.6 mitotic figures. This pattern of growth is similar to that observed in other rapidly growing neoplasms in humans and experimental animals. In these tumors this pattern results from reduction in oxygen tension with increased distance from the central blood vessel.

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Impact of Androgen Therapy in Sjögren's Syndrome: Hormonal Influence on Lymphocyte Populations and Ia Expression in Lacrimal Glands of MRL/Mp-lp/lpr Mice

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Recent research has demonstrated that androgen treatment dramatically curtails lymphocyte infiltration in the lacrimal glands of a mouse model of Sjögren's syndrome. The purpose of the current study was to determine whether this androgen action involves the selective suppression of specific lymphocyte populations or Ia expression in lacrimal tissue. Autoimmune female MRL/Mp-Ipr/Ipr mice were administered placebo- or testosterone-containing compounds for 0, 17, or 34 d. Then lacrimal glands were obtained and processed for immunohistochemical evaluation. Results demonstrated that in pretreatment mice, lacrimal lymphoid foci were composed predominantly of Thy 1.2^+ cells, bearing L3T4 (helper T cell) or B220 surface antigens. In contrast, suppressor T cells (Lyt 2^+) and surface IgM-bearing B cells represented minority populations in the immune infiltrates. Class II antigen (Ia) expression was observed on over 40% of the infiltrate lymphocytes and occasionally on epithelial cells close to the lymphoid focus. During the experimental time course, the extent of lymphocyte infiltration increased in glands of placebo-treated mice. This cellular accumulation was associated with an elevation in the frequency of $B220^+$ cells, but not that of other lymphocyte subclasses. Testosterone administration induced a striking diminution in the area encompassed by all immune cell populations. Moreover, hormone therapy significantly reduced the frequency of $B220^+$ cells in focal infiltrates. Overall, these findings demonstrate that androgen exposure stimulates a decrease in the quantity, but not necessarily the entire lymphocyte composition, of lymphoid aggregates in lacrimal glands of MRL/Ipr mice.

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Corneal Topographic Changes Following Strabismus Surgery in Graves' Disease

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A computerized topographic analysis system was used to evaluate corneal changes after strabismus surgery in eight eyes of five patients with Graves disease. All patients underwent inferior rectus muscle recession; three eyes also had medial rectus recession. Corneal topographic analysis revealed that, postoperatively, corneas steepened inferiorly and inferotemporally at 1.5 mm from corneal apex ($p < 0.05$). The opposite effect was observed in the superior quadrant (average flattening of 1.20 ± 0.32 D at 1.5 mm from corneal apex, and 1.08 ± 0.39 D at 3.0 mm from corneal apex; $p < 0.05$). Superotemporally, the cornea flattened by an average of 0.65 ± 0.26 D at 3.0 mm from corneal apex, and superonasally 0.72 ± 0.19 D at. 3.0 mm from corneal apex ($p < 0.05$). Central, nasal, and temporal cornea did not show statistically significant changes. Spherical equivalent did not change significantly after surgery. The amount of restriction and upgaze measured preoperatively was correlated weakly with inferior corneal steepening ($r^2 = 0.44$; $p = 0.046$). These results are indicative that corneal topography may be influenced by strabismus surgery for Graves' disease through alteration of extraocular muscle tension or intraocular pressure.

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Immunohistochemical Evaluation of Uveal Melanocytic Tumors

Expression of HMB-45, S-100 Protein, and Neuron-Specific Enolase

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The authors compared the immunohistochemical reactivity of 13 uveal nevi and 20 uveal melanomas for HMB-45, S-100 protein, and neuron-specific enolase (NSE) in formalin-fixed, paraffin-embedded sections. All 33 of the lesions were positive for HMB-45. The false-negative rates for S-100 protein and NSE were 21% and 18%, respectively. If only strongly positive reactions were considered, more than 50% of the tumors would be interpreted as negative for S-100 protein and NSE. Nevi stained with less intensity than melanomas using all three antibodies. The expression of HMB-45 appeared to be greater in active nevi than in inactive nevi. There was a weak association between S-100 protein reactivity and the ability of the uveal melanomas to metastasize ($P = 0.1$); however, the standard deviation of nucleolar area was a much better predictor ($P = 0.02$). These results indicate that pathologists will find HMB-45 to be a useful tool in differentiating uveal melanoma from nonmelanocytic tumors.

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Immunohistochemistry Findings in Primary Intraocular Lymphoma

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Dracunculiasis of the Orbit and Eyelid

Light and Electron Microscopic Observations of Two Cases

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Dracunculiasis, an infection caused by the nematode parasite, *Dracunculus medinensis*, usually affects the skin and subcutaneous tissue. The authors studied two cases of dracunculiasis involving the orbit and eyelid in African children. In the first case, the patient presented with proptosis and the clinical diagnosis was Burkitt's lymphoma. In the second patient,the eyelid lesion was diagnosed as a dermoid cyst. Histopathologically, the orbital lesion showed a degenerated and partially calcified worm within a large intraconal abscess. The eyelid lesion contained a well-preserved gravid female worm filled with larvae. The results of transmission and scanning electron microscopic studies are discussed.