Document Type : Thesis

Document Title : دراسات نسيجية مقارنة لغدة هاردر في إناث بعض القوارض

دراسات نسيجية مقارنة لغدة هاردر في إناث بعض القوارض

Document Language : Arabic

Abstract : Harderian gland in both rat and hamster females was located within orbital cavity posterior to the eye ball . It is surrounded by a thin capsule containing thin collagen fibers. The parenchyma consists of a group of lobes and lobules separated by scanty connective tissue with collagen fibers located mainly on the walls of small blood vessels. The present study showed that both glands are rich in reticular fibers which from the main fibers components. They are located as a network around Secretory units where they act as supporting lamina. They are also found in vascular wall and in the capsule surrounding the gland. The connective tissue stroma contains few cells fibroblasts , few lymphocytes. Besides few mast cells seen scattered in the C.T especially around the excretory duct. The Harderian gland in both animals is of compound Tubule-alveolar type . The alveolar units possessing a narrow lumen constitute the main part. They are opening or joining the tubular part , the latter has a wide lumen and containing various Secretory material . It was observed that the gland lacking a characteristic system of duct, like other gland . The single excretory duct is located at the surface of the gland near the eye lid , it was considered the way by which tubular Secretory parts empty their content . The excretory duct is lined with Pseudo-stratified columnar epithelium , associated with few mucous secreting goblet cells .The height of epithelial lining varies according to the amount of Secretory material within it is lumen . Secretory material is in the form of reticulated substance mixed with degenerated nuclei , same vacuoles and a varying amount of Porphyrin regarding the color or morphology . The excretory duct was surrounded by C.T rich in collagen and reticular fibers C.T cells mainly fibroblasts and few mast cells were observed along blood vessels located along the duct wall .The Secretory parenchyma of non-pregnant animals showed marked variations regarding the density of Secretory units of alveolar type were crowded where those having wide lumen (tubular part) appeared less crowded and having less stained basal Lumina , marked variations was also observed in the morphology of lining epithelium of these units . It was clear from the present study that in spite of this variations , two or three cell variations could be observed . The alveolar Secretory units are lined by large pyramidal cells having apical luminal surface (dome shape cells) . The cytoplasm stained acidophilic and showed numerous tiny regular rounded vacuoles most probably lipid droplets .The nuclei of the cells are rounded and basally located they have homogenous nucleoplasm with few chromatin granules , located mainly along the inner nuclear membrane .The size of nuclei varied from cell to cell and some contain more than one .The second type of cells is few and not present in all units it contains numerous cytoplasm rounded vacuoles with varying sizes . The nuclei of such cells are small , irregular , darkly stained and looked degenerated . Some Secretory units contained dark stained acidophilic cells lacking cytoplasm vacuoles and their nuclei look smaller and darker. The tubular part of the gland is lined by large cuboidal cells . Their nuclei showed marked variation in shape and staining , some cells in both types of Secretory units showed a single rounded cytoplasm vacuole that could be observed at different levels within the cells in it is way to fuse with apical cellular membrane . observed the Apocrine and Holocrine are the mode of secretion . Some Secretory units lack definitive cell lining appeared . Full with collection of degenerated alls and varying amount of Porphyrin substances. Porphyrin content is considered a unique feather of Harderian gland in both animals .The units containing the substances vary in both animals, with predominance in hamster, compared to rat .Histological studied showed that Porphyrin rarely observed within the living alls. However, granular Porphyrin material was frequently observed near or at the apical surfaces of the cells. Indicating that the material acquiring its color out side the cells . The content Porphyrin within secretary units Lumina varies from region within the gland. Both

morphological and color were also varied. The Tubular part was observed to be the site at Porphyrin accumulation where, the material present in the form at dark brown granules, homogenous masses and sometimes as acidophilic homogenous material making a background at Porphyrin masses. These may point to the presence of different chemical stage in the process of Porphyrin accumulation within the Lumina of Secretory units. The present study showed that histological appearance of Harderian gland showed variation in different gestational period, especially in the First two weeks. The changes may be attributed to hormonal secretion of Fetal placenta. In the First week , there is shrinkage or decrease in glandular lobar size. The Secretory units looked with irregular outlines, widely separated with a significant decrease in the units containing Porphyrin materials especially in hamster compared to rat . On the other hand , variation in lining epithelium observed in non-pregnant. The cells showed a decrease in the tiny cytoplasm vacuoles , and an increase in the basal acidophilic staining which many point to either an increase in emptying rat or a decrease in synthesizing these lipid droplets. The previous changes were more evident in the second week , Secretory unit looked irregular in shape, some appeared degenerated and distorted. The interesting finding is the appearance of cells with large vesicular nuclei indication an increase in cellular activity. Another finding associated with pregnancy was increase of both mast cells, plasma cells and lymphocytes, with apparent increase and dilation of blood capillaries in close relation to Secretory units in some specimens, capillary damage and extra vacation of cellular blood components were observed. No apparent changes were observed in connective tissue fibers, except of some decrease in the amount of reticular fibers in the first week of pregnancy. On the third week , the Harderian gland in both rat and hamster seen to restore its original structure observed before pregnancy, however the extent of recovery showed individual variations which may be related to some factors, such as the number and size of feta or the rate of decreases in placenta hormones. It was observed that still some cells showed large nuclei ,Mast cells also were observed in the vicinity of dilated blood capillaries. In conclusion, the present study confirm the previous research regarding the existence at both an exocrine and endocrine function of Harderian gland . In conclusion the present study confirm the previous research regarding the existence of the both or exocrine and endocrine functions of Harderian gland The poor ducts system and rich capillary bed among Secretory units points to it is endocrine function. Harderian gland cellular components seem to exhibits most patterns of Secretory secretion . The most unique features is the presence of Porphyrin within the lumen of Secretory units. A more precise designed study for close observation of changes during gestational period is needed to clearly the nature and mechanism of such changes .

Supervisor : د. محمد إبراهيم مجلد ، د. سعاد شاكر عبدالهادي ، د. سمر محمد السقاف

Publishing Year : 2006