HISTOCHEMICAL STUDIES OF THE SECRETORY PROCESSES IN BOVINE SALIVARY GLANDS

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Salivary glands from 12 bovine animals were dissected, weighed and sampled for histological examination. The total salivary gland weight was positively correlated with body weight but there were not normally consistent differences between the weights of left and right glands. However, in animals that had chronic re-entrant cannulations of the left parotid and mandibular ducts, the ipsilateral glands were always lighter. The histological features of salivary glands and the histochemical reactivity of their secretory and duct cells were examined. Parotid gland secretory endpieces were elongated and their individual cells contained PAS+ve granules. These cells were shown by immunohistochemistry to be the site of protein secretion and thus were classified as proteoserous cells. Chronic parotid duct cannulation in association with duct obstruction caused dilation of the secretory endpiece lumens and degenerative changes within the endpiece cells. Intralobular duct cells contained PAS+ve granules which may be the secretory component that is associated

with secretory IgA. Variable numbers of intrastriated duct cells occured in the parotid glands of different animals and in retrospect, this was found to correlate positively with the animals known susceptibility to bloat. The parotid excretory duct contained many goblet cells which contribute a small amount of mucosubstance to the proteoserous secretion.

Secretory endpieces of the mandibular gland were composed of mucous cells which were PAS, AY and weakly AB+ve and demilune cells which were PAS and AB+ve as well as acidophilic and pyroninophilic. Clumps of plasma cells were observed in the intralobular connective tissue. The effect of obstruction of chronic duct cannulation on the mandibular gland was to dilate endpiece and intralobular duct lumens, cause degenerative changes in mucous and demilune cells and increase the numbers of small lymphocytes, PMN neutrophils and mast cells in the connective tissues of the gland. By contrast with the excretory duct of the parotid, that of the mandibular contained no goblet cells but simply a stratified columnar epithelium.

Mucous cells of the sublingual gland were PAS+ve, AY+ve and weakly AB+ve and arranged into long tubular endpieces. The demilune cells contained abundant PAS+ve, AB+ve, AY-ve granules. Many plasma cells were present in the connective tissue between the secretory endpieces and around the intralobular and interlobular ducts. In animals with chronic cannulations of parotid and mandibular glands the ispilateral sublingual gland weighed less than the contralateral gland.

The posterior tongue, soft palate, pharynx and the lingual

aspect of the epiglottis contained extensive areas of glandular tissue. The secretory endpieces consisted of a high proportion of mucous cells and a few scattered proteoserous demilune cells. The glandular tissue of the epiglottis contained abundant plasma cells in the intralobular connective tissue.

Based on their histochemical reactivity the demilune cells of the intermediate buccal glands produced a purely serous secretion. In addition, the intermediate and dorsal buccal glands contained many AB, AY and PAS+ve mucous producing cells.

The labial glands were small, scattered lobules of secretory tissue found at the labial commisures. The glandular lobules were composed of tubular secretory endpieces capped with large proteoserous demilune cells which were AY-ve, PAS+ve, strongly acidophilic and pyroninophilic. Large numbers of plasma cells were found in the connective tissues within and around the secretory tissue.

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