

Histomorphology of the salivary glands of yak—A preliminary study*

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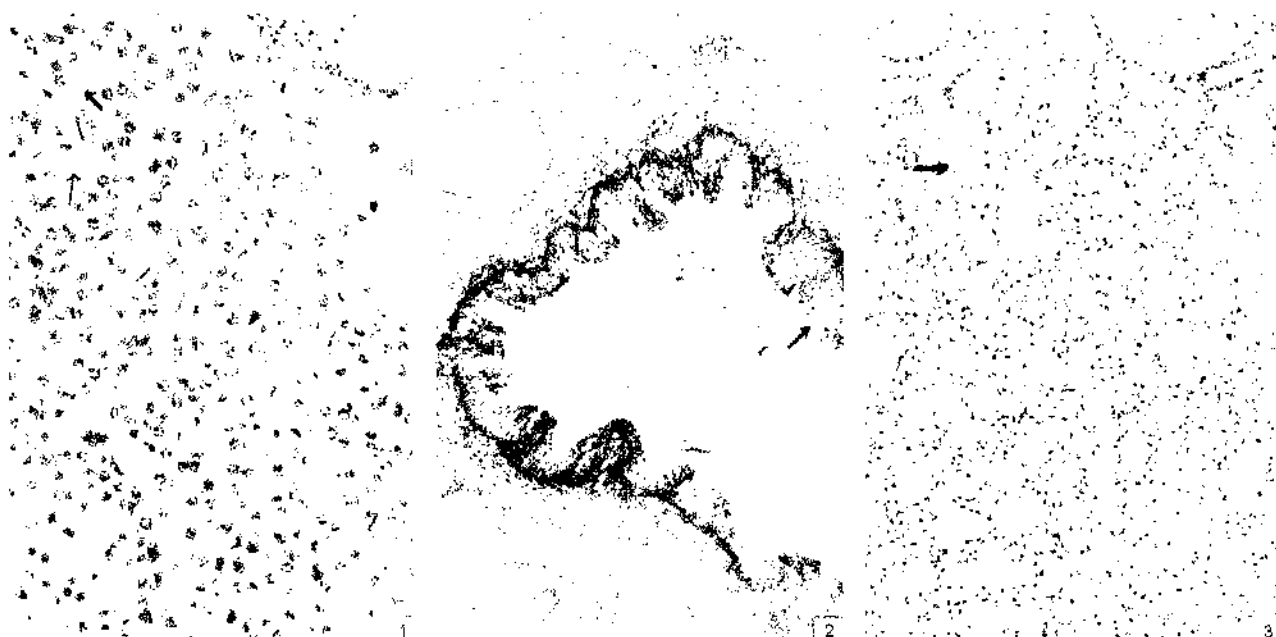
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Histological studies on the salivary glands of yak were not found in the existing literature. Hence the present investigation was undertaken.

The three salivary glands, viz. parotid, mandibular and sublingual glands were dissected in the head of an adult yak, which was earlier embalmed (as a part of the research work on yak in the department). The ducts of the parotid and

mandibular glands were also dissected till their termination. Small pieces, one piece from each gland, were collected from the salivary glands. From the duct of the glands, three pieces, one from the initial part, one from the middle part and one from the terminal part, were collected. The tissues were processed for paraffin embedding technique using routine alcohol-benzene schedule. Thin sections were cut using



Figs 1–3. 1. Parotid gland of yak showing serous end-pieces lined with cuboidal epithelium with very small lumen. Capillaries filled with blood (arrows) between the end-pieces can also be seen. HE×132. 2. Parotid duct of yak showing transitional epithelium. Goblet cells (arrow) within the epithelium can also be seen. HE×33. 3. Mandibular gland of yak showing predominantly mucous end-pieces. Some serous units (arrow) can be seen on the left side. HE×66.

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rotary microtome. They were stained with haematoxylin and eosin stain for general histomorphology, Verhoeff's method with Van Gieson counter stain for elastic and collagen fibres and PAS method for carbohydrates (Luna 1968).

Parotid gland

The parotid gland of yak was a compound tubulo-alveolar

serous gland surrounded by a thin capsule composed of collagen fibres. The septa were few and thin dividing the gland into lobules (Fig. 1). In the lobules the glandular parenchyma consisted of serous end-pieces and ducts. The former were lined with cuboidal epithelium with very small lumen (Fig. 1). Most of the end-pieces showed clear cytoplasm while the rest of them showed mild eosinophilic reaction. At the base of the end-pieces, elongated nuclei were seen which might belong to those of myoepithelial cells. Solid end-pieces and capillaries filled with blood, between the end-pieces, were found in the parenchyma (Fig. 1). In the interlobular connective tissue of the gland, blood vessels and nerves were also found. The intercalated ducts were lined with low cuboidal epithelium. The smaller intralobular ducts were lined with cuboidal to stratified cuboidal epithelium while the larger intralobular ducts were lined with low columnar epithelium. The parotid duct was lined with transitional epithelium with goblet cells, throughout its length (Fig. 2). Presence of goblet cells in the duct system epithelial cells was reported in the parotid gland of camel (Nawar and El-Khaligi 1975).

The goblet cells found in the epithelium of the ducts showed strongly PAS-positive cytoplasm indicating presence of neutral mucins.

Mandibular gland

The mandibular gland of yak was a compound tubulo-alveolar mixed gland being composed of predominantly mucous end-pieces (Fig. 3). It did not show distinct capsule and septa. The lobules were separated from each other by the connective tissue in which blood vessels, nerve fibres and autonomic ganglia were found. The mucous units of the lobules had typical appearance (flattened nuclei at the base with lightly staining vacuolated cytoplasm). They were lined with columnar epithelium. The serous units were lined with cuboidal epithelium with eosinophilic cytoplasm and spherical nuclei (Fig. 3). Many serous demilunes were observed among the glandular units. The capillaries between the end-pieces were few unlike the parotid gland. The intercalated ducts were very few and were similar to those observed in the parotid gland. The intralobular ducts were lined with cuboidal or columnar epithelium. The interlobular ducts were lined with stratified cuboidal or stratified

columnar epithelium. The main duct was lined with transitional epithelium, which showed goblet cells in the initial and middle parts. The epithelium became stratified squamous keratinised at the termination of the duct. Serous demilunes, goblet cells in the epithelium of the main duct and its transformation into the stratified squamous type were all observed in the mandibular gland of domestic animals by Stinson and Calhoun (1976). They stated that the gland was innervated by both sympathetic and parasympathetic nerve fibers and stimulation of these systems might affect demilune cells and acinar cells, respectively.

Sublingual gland

The sublingual salivary gland of yak was similar to that of the mandibular gland being compound tubulo-alveolar mixed gland (predominantly mucous). It showed strong reaction for PAS activity indicating the presence of neutral mucins in them. The serous units were few and were similar to those found in the parotid gland. Serous demilunes were not observed. The intercalated ducts were very few and were lined with low cuboidal epithelium. The smaller intralobular ducts were lined with cuboidal epithelium. The larger intralobular ducts and interlobular ducts were lined with stratified cuboidal epithelium. These observations more or less resembled those of ox and other animals (horse, sheep and pig) as reported by Stinson and Calhoun (1976).

SUMMARY

The present investigation was undertaken to study the histomorphology of the salivary glands of yak. Parotid, mandibular and sublingual glands were studied.

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