GROSS AND HISTOLOGICAL STUDY ON THE MINOR SALIVARY GLANDS OF CAMEL (Camelus dromedarius)

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ABSTRACT

Histological and histochemical investigations were carried out on the minor salivary glands of 7 adult male one-humped camels (Camelus dromedarius). All minor salivary glands of the camel (except the von Ebner's glands), were tubuloacinar and mixed (predominantly mucous). The von Ebner's glands of the camel were acinar and purely serous. The labial, buccal and palatine salivary glands were compound. In the interior portion of the cheeks, in addition to mixed glands there were also purely serous glands. The von Ebner’s glands and lingual salivary glands were present at the root of the tongue. The palatine salivary glands were located in the caudal part of the hard palate and in the entire length of the soft palate. The palatine gland was most numerous at the apex of the soft palate. There was lymphatic tissue (like a tonsil) in the soft palate.

The results of histochemical studies were shown that the minor salivary glands of the camel were rich in both neutral and acidic mucopolysaccharides. The finding of the present study was compared with those reported for human and other vertebrates.

Key words: Camel, histochemistry, histology, minor salivary glands

Salivary glands are one of the most important exocrine glands that secrete saliva. The major salivary glands are the parotid, mandibular, and sublingual. The minor salivary glands are named according to their location, e.g., labial, lingual, buccal, palatine, molar (cats), and zygomatic (carnivores) (Eurell and Frappier, 2006). Although the saliva secretion from the minor salivary glands is small in quantity compared with the whole saliva secretion, the broader distributions of the minor salivary glands are advantageous for the protection of the oral cavity against pathogens (Sumi et al., 2007). The minor salivary glands are of great importance in the physiology and pathology of the oral cavity (Sonesson et al., 2003).

Much literature is available on the histological structure of the major salivary glands of one-humped camel (Nabipour et al., 2003), but the minor salivary glands have received little attention, especially from the histochemical point of view.

The purpose of the present study is to provide more information about the histological and histochemical features of the minor salivary glands in the one-humped camel.

Materials and Methods

The histological structure and histochemical features of the minor salivary glands including labial, buccal, lingual and palatine were studied by using routine histological techniques in 7 adult male slaughtered one-humped camels (Camelus dromedarius) from the industrial slaughterhouse of Mashhad.

Samples were taken from right and left sides and middle part of both upper and lower lips, dorsal, middle and ventral parts of the cheeks, apex, body and root of the tongue, cranial, middle and caudal parts of the hard palate and cranial and caudal parts of the soft palate. The samples were flushed with normal saline and were fixed in 10% buffered formalin for 71 hours. Tissue samples were then dehydrated and cleared by a series of graded alcohols, xylene and eventually embedded in paraffin. Sections at 5 μm thickness were stained with methods of Haematoxylin & Eosin, green Masson's Trichrome for collagen and muscle fibres, and Alcian Blue-Van Geison and Periodic Acid Schiff (PAS) for the histochemistry of the mucosubstances. Sections were examined under light microscope (Olympus CX21).

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