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Research Article

Histological study of lingual papillae in male hamster, *Mesocrictus auratus*

Methak AL-ALSHEMKHI[1], Zainab Sajid MOHAMMED[*2], Radhwan M. HUSSEIN[2], Zahraa S. OMRAN[2], Wijdan Rajh Hamza AL-KRAITY[3], Duaa A. ALTAWEEL[2]

[1]*Faculty of Education for Girls, Kufa University, Iraq.*
[2]*College of Pharmacy, AhL Al Bayt University, Karballa, Iraq.*
[3]*Department of Medical Laboratory Techniques, Al-Toosi University College, Iraq.*
[*]Email: dr.zaineb1988@gmail.com

Abstract

This work aimed to describe the anatomical and histological structure of tongue hamster papillae. For this purpose, a total of 10 adult male hamsters, *Mesocrictus auatus* were obtained. Based on the results, the keratinized stratified squamous epithelial is formed on the dorsal surface of the tongue. The results revealed filiform papillae projected from the dorsal surface of the tongue, filiform papillae-like bristles with conical shapes, and the tips of filiform as partial keratinized. The detailed histomorphology of the male hamster's tongue was described.

Keywords: Tongue, Papillae, *Mesocrictus auratus*, Morphology.

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Introduction

The tongue is a muscular body organ, covered with str. sequamous epithelium, which is used to vocalize and convey food particulate matter (Covalle & Bassert 2008). On the tongue's surface, there are diverse forms of papal, including filiform, fungiform, and ringed papillate, each with various morphological structures (Dyce et al. 2010). The feeding mechanism is a key aspect in the success of vertebrates' adaptation and persistence to their environment (Darwish 2012). The language is frequently regarded as an important breakthrough in developing a land lifestyle since it enables animal food particles to be transported by the oral cavity (Herrel et al. 2005). The language and the hyobranchial system are also designed for a broad range of tasks, including prey catch, drinking, breathing, and defense behavior (Darwish 2012).

The hamster is a rodent used in experiments, and it is now one of the most important laboratory animals for scientific research on human medical conditions, including various types of cancer and metabolism diseases. It is used to diagnose human conditions worldwide (Samudson 2007). Therefore, this study aimed to investigate the anatomical and histological characteristics of the tongue in the male hamster, *Mesocrictus auratus*.

Material and method

The investigation was carried out on 10 Syriac male hamsters with ages of 14-15 days and weight of 300-400g, obtained from one animal store, Najaf city. The animals after anesthesia using chloroform, their tongues body and root were removed for histological examinations. The tissue was embedded into paraffin wax in plastic molds after preparations and 4-6µm histological sections were prepared and stained with a hematoxylin-eosin, and finally, they were examined under light-microscopic (Eagderi et al. 2003).

Abbreviation: F, Filiform papillae; FO, dome shape filiform papillae; C, conical filiform dorsal papillae;

CT, connective tissue; D, ductal system; MLS, mucus salivary glands; VS, ventral surface.

Results and Discussion

Based on the results, the keratinized stratified squamous epithelial are formed on the dorsal surface of the tongue. Four different types of the lingual papilles, including mechanical, fungiform, violated and foliate papillae, were found in the dorsum tongue, and taste buds were reported. These findings agree with previous findings (Aqeel 2016). The core of the hamster tongue was composed of an abundant mass of striated muscle fibers that were arranged in all directions; these findings were consistent with previous work studies on the mammal tongue (Dellmann 2006; Barbara et al. 2006), which discovered that the core of the human and some mammals tongues are composed of striated muscle fibers that were interlaced in different directions.

The current study revealed some histological observations on the filiform papillae. These papillae were projected from the dorsal surface of the tongue; filiform-like bristles or conical shapes, the tips of the filiform papillae had partial keratinization, and these findings are different from the study of Ayfer & Yusuf (2009) on the puppy rats' tongue, the specified, that the filiform papillae showed a large rise in keratinization, and elongation and bifurcation tip ends of filiform papillae. The fungiform papillae in the hamster tongue, which appeared as a mushroom or dome shape, were observed. The fungiform papillae in the lesser mouse tongues were pyramidal like dome-shaped (Agungpriyono et al. 1995).

The filiform papillae of the hamster were conic-forms, and some filiform papillae had bifurcated tips. These findings were as same as filiform papillae of various domestic animals (Abdul-Hadi et al. 2014), which indicated that some differences occurred in mammalian lingual papillae (Abdul-Hadi et al. 2014). The ventral surface of the hamster tongue was devoid of lingual papillae and covered with stratified squamous epithelium. Beneath the epithelium, there were lingual salivary compounds, and that secret

Fig.1. The keratinized stratified squamous tongue covers the tongue's dorsal area. Filiform lingual papilla in the dorsal project at the ends of some filiform papillae bifurcations have appeared.

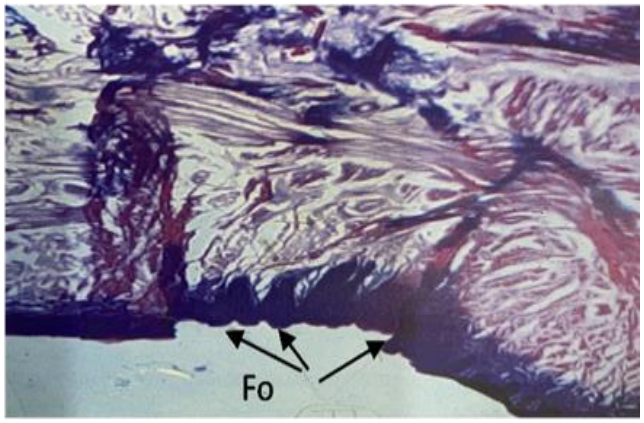

Fig.2. Lingual dorsum of the tongue with dome-shaped fungiform papillae, which looked like mushrooms, and epidermal expansions at the bases of these papillae.

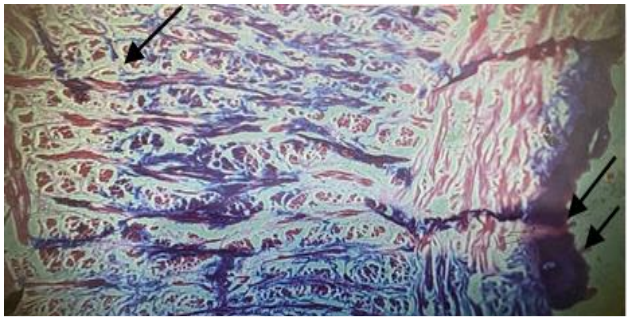

Fig.3. Hamster language, which covers the long, conical filiform dorsal papillae with keratinized squamous epithelium, was projected, and fungiform papillae with flavor palms stretched to the lingual papillae in the dome-shape. The striated muscle fibers in the core of the hamster tongue are arranged in a direction, with circular striated muscle fibers located beneath the lingual epithelium, and vertical striated muscle fibers running the length of the core mass of the hamster tongue. There are many longitudinal striated muscle fibers among the vertical striated muscle fibers.

Fig.4. Hamster tongue muscles core, constituted in all directions of striated muscle fiber. Some of the orientations of these muscle Fibers were vertical and there are longitudinal streamed muscles fibers in the vertical muscle fibers; the connective tissue was split between vertical and longitudinal muscle fibers.

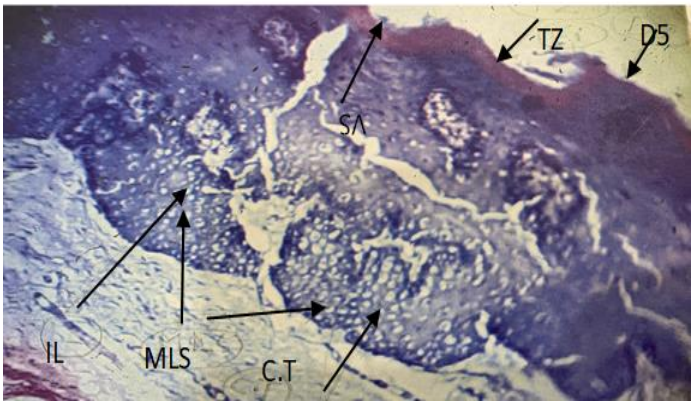

Fig.5. Transitory area of the Hamster-language surface at the end of the filiform papillae dorsal surface. Whereas, under the lingual ventral surface, the mucous lingual salivary glands groups were situated, covered by keratinised, stratified, squamous epithelium; those glands were compound tubule acini, which had a ductal system lined by a single cuboidal epithelium, the lingual mucus salivary glands in the hamster; it has a simple cuboidal epithelium, lined by an abundance of connective muscle fibers, under the accumulation of lingual mucous salivary glands in the glands.

mucous corresponded as observed in monkeys (Sarawathi 2003).

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