



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2019; 7(5): 1107-1109

© 2019 JEZS

Received: 16-07-2019

Accepted: 20-08-2019

Shalini Suri
 Division of Veterinary Anatomy,
F.V.Sc & A.H, SKUAST-J, R.S
Pura, Jammu & Kashmir, India
Jasvinder Singh Sasan
 Division of Veterinary Anatomy,
F.V.Sc & A.H, SKUAST-J, R.S
Pura, Jammu & Kashmir, India
Kamal Sarma
 Division of Veterinary Anatomy,
F.V.Sc & A.H, SKUAST-J, R.S
Pura, Jammu & Kashmir, India

Gross anatomy and biometry of the buccal cavity of stump-tailed monkey (*Macaca arctoides*)

Shalini Suri, Jasvinder Singh Sasan and Kamal Sarma

Abstract

Present study was conducted on the buccal cavity of stump-tailed monkey. The hard palate formed the roof of the cavity. It was of uniform width rostro-caudally. It presented transverse ridges (8 pairs) which were smooth and concave posteriorly. Between 1st pair of ridge and upper incisors was located bottle shaped elongated papilla incisive. The total length of the hard palate was 6.5 cm. The width of the hard palate was 2.2 cm rostrally, 2.9 cm in middle and 2.4 cm posteriorly. The dorsal surface of tongue presented "C" shaped impressions corresponding to the transverse ridges of the hard palate. From the ventral surface of the tongue arise single median frenum linguae. The apex was rounded. The dorsal surface was devoid of torus linguae and lingual fossa. Fungiform papillae were numerous towards the apex. Vallate papillae (2 pairs) were distinct and located near the root of the tongue. The root was connected to the soft palate by two lateral palate-glossal arches. The length of the tongue was 7.8 cm. The width of the tongue was 1.93 cm rostrally, 2.65 cm in middle and 2.01 cm posteriorly. Floor of the cavity consisted pre-frenular part and two lateral sublingual recesses. Pre-frenular part was narrower rostrally but widens towards frenum linguae. Each halve of the lower and upper jaw presented two incisors, one canine and five cheek teeth. The upper canines were much longer than the lower canines. Diastema was absent.

Keywords: buccal cavity, frenum linguae, *macaca arctoides*, hard palate, papilla incisive

Introduction

Stump-tailed monkey belongs to family Cercopithecidae. It is also known as bear macaque. This species of macaque is generally found in South Asia. Its distribution ranges from India and southern China to the West Malaysia. It not only thrives on raw fruits but also hunts frogs, bird eggs and insects^[1]. Its body is covered by dark brown fur. It has short tail which measures between 32 and 69 mm. Males are generally much larger than females.

The buccal cavity is the first section of alimentary tract which generally receives food. It performs different functions related to digestion which includes prehension, mastication and salivation. Thus, proper knowledge about the anatomy of buccal cavity is of great significance to fully understand the process of digestion. In literature, anatomy of buccal cavity is fully explained in ruminants^[2] but anatomical peculiarities of buccal cavity of monkey are meager. To bridge the deficiency, the present work was undertaken.

Materials and Methods

The present study was conducted on the buccal cavity of the monkey obtained from the clinical complex, SKUAST-J, R.S Pura after post-mortem examination. It was cleaned and washed. The buccal cavity was opened for anatomical study. Gross morphology of the different parts of the buccal cavity was observed and recorded. Biometry was done with the help of thread, measuring scale and Vernier Caliper. Following parameters were recorded:

1. Total length (cm) of hard palate
2. Width (cm) of hard palate at three sites:
 - a. Rostral
 - b. Middle
 - c. Posterior
3. Distance (cm) between 1st pair of transverse ridge and upper incisors
4. Distance (cm) between two successive transverse ridges
5. Total length (cm) of tongue

Corresponding Author:**Jasvinder Singh Sasan**
 Division of Veterinary Anatomy,
F.V.Sc & A.H, SKUAST-J, R.S
Pura, Jammu & Kashmir, India

6. Width (cm) of tongue at three sites:

- Apex
- Middle
- Root

Results and discussion

Buccal cavity was bounded by cheeks laterally, hard palate dorsally, soft palate behind and mandible and mylohyoideus muscle ventrally.

a. Hard palate

Hard palate formed the major part of the roof of the buccal cavity of monkey. It was of uniform width rostrally-caudally. Similar observation was made in the hard palate of goat [3]. However, in sambar deer, hard palate was wide both rostrally and caudally whereas it was narrow in the middle [4]. In Indian civet cat, hard palate was narrow anteriorly but wide posteriorly [5]. Most part of the hard palate presented transverse ridges (Fig. 1) which were arranged in pairs. A total of eight pairs of ridges were recorded (Fig. 1). These ridges were smooth and concave posteriorly. Sreeranjini *et al.* [4] recorded 15 transverse ridges in sambar deer which were curved with serrated free edges. Archana *et al.* [5] recorded 9-10 palatine rugae on the hard palate of large Indian civet cat. Rostro-caudally, these transverse ridges decreased in size. The 1st pair of ridge was 1.2 cm from the upper incisor border and the distance between two successive pairs of ridges was 0.5 cm. The 1st pair was at the level of the upper canines (Fig. 1). Between 1st pair of ridge and upper incisors was located bottle shaped elongated papilla incisive (Fig. 1). Sreeranjini *et al.* [4] observed diamond shaped incisive papilla between dental pad and 1st pair of ridges in sambar deer.

The hard palate of monkey was 6.5 cm in length. The width of the hard palate was taken at three sites. It was 2.2 cm rostrally, 2.9 cm in middle and 2.4 cm posteriorly. As observed from the data, the overall width almost remained uniform rostro-caudally. The increase in width was about 31.82% from rostral to the middle whereas from middle towards the caudal end, the width showed a decreasing pattern (17.24%). From rostral to caudal end, there was slight increase in the width which was about 9.09%.

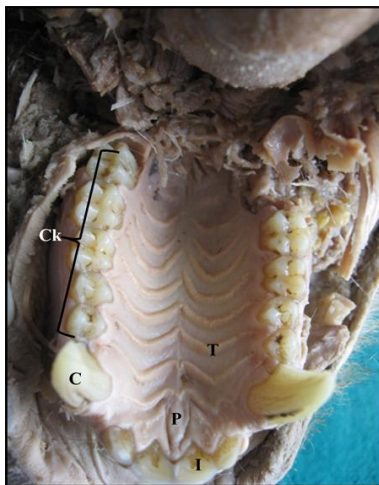


Fig 1: Photograph of the hard palate of monkey showing transverse ridge (T), papilla incisive (P), incisors (I), canines (C) and cheek teeth (Ck).

b. Tongue

The tongue occupied the floor of the buccal cavity as in

domestic animals [6]. It was elliptical in outline with maximum width in the middle. The tongue presented for description three parts, namely apex (rostral), body (middle) and root (caudal). It had two surfaces, dorsal and ventral. The dorsal surface faced the hard palate whereas the ventral surface faced the floor of the buccal cavity. The dorsal surface had "C" shaped impressions of the transverse ridges of the hard palate (Fig. 2). From the ventral surface of the tongue arise single median frenum linguae which extended upto the floor of the buccal cavity. The apex was rounded whereas it was flat in white fellow deer [7] and sambar deer [4].

The body formed the major portion of the tongue. The dorsal surface was devoid of torus linguae and lingual fossa. Fungiform papillae were numerous towards the apex (Fig. 2). Vallate papillae were distinct and located near the root of the tongue. There were two pairs of vallate papillae (Fig. 3) on either side of the midline. Of each pair, one papilla was located towards the median plane whereas the other was located towards the lateral border of the tongue. Foliate papillae were not marked. The root was connected to the soft palate by two lateral palate-glossal arches (Fig. 3).

The length of the tongue was 7.8 cm. The width of the tongue was measured at three sites. It was 1.93 cm rostrally, 2.65 cm in middle and 2.01 cm posteriorly. The increase in width was about 37.31% from rostral to the middle whereas from middle towards the caudal end, the width showed a decreasing pattern (24.15%). From rostral to caudal end, there was negligible increase in the width which was about 3.98%.

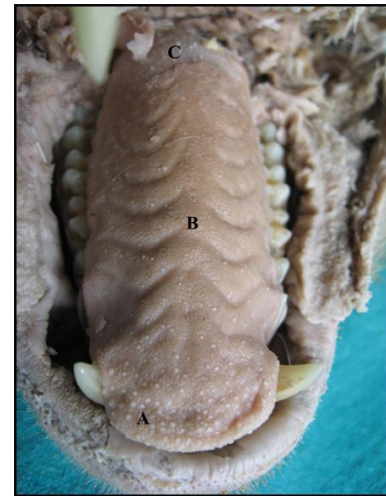


Fig 2: Photograph showing dorsal surface of the tongue of monkey.

A: Apex showing numerous fungiform papillae

B: Body showing impressions of transverse ridges of hard palate

C: Root

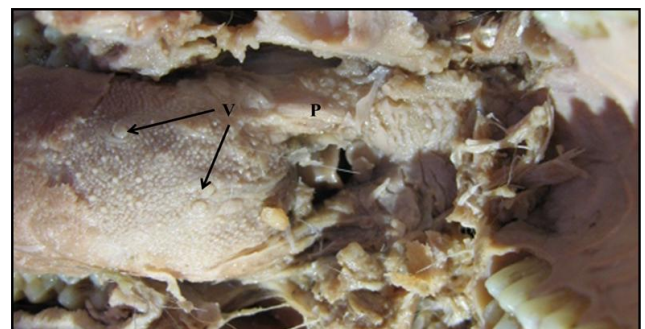


Fig 3: Photograph of root of tongue showing vallate papillae (V) and palato-glossal arch (P)

c. Floor of the buccal cavity

It consisted of pre-frenular part and two lateral sublingual recesses. The pre-frenular part lied under the apex of the tongue. It was bounded by the lingual surface of the lower incisors rostrally. It was narrow rostrally but widens towards frenum linguae.

d. Dentition

The dental formula of stump-tailed monkey was $2(I\ 2/2, C\ 1/1, Ch\ 5/5) = 32$ (Fig. 1). Four incisors were present in both the upper and lower jaws. The size decreases from first to the second. In Indian civet cat, there were six incisors and all were of same size^[5] whereas in dogs, there were six incisors and size increased from first to third^[8]. Canine teeth were large, conical and curved medially. The upper canines were much longer than the lower canines. The distance between upper canines was 2.2 cm. Diastema was absent.

References

1. Cawthon Lang KA. Primate Factsheets: Stump-tailed macaque (*Macaca arctoides*) Taxonomy, Morphology, & Ecology. http://pin.primate.wisc.edu/factsheets/entry/stump-tailed_macaque, 2005.
2. Dyce KM, Sack WO, Wensing CJG. Textbook of Veterinary Anatomy, 2nd Edn, WB Saunders Company, Philadelphia, 1996, 62-64.
3. Nickel R, Schummer A, Seiferle E. The viscera of the domestic mammals. 2nd edn, Verlag Paul Parey, Berlin, Hamburg, 1979, 81-85.
4. Sreeranjini AR, Rajani CV, Ashok N. Gross anatomical studies on the hard palate, tongue and buccal floor in sambar deer (*Cervus unicolor*). Tamilnadu Journal of Veterinary & Animal Sciences. 2010; 6(4):151-156.
5. Archana, Kalita A, Sarma K, Roy R. Anatomy of the mouth cavity of large Indian civet cat (*Viverra zibetha linnaeus*). Indian Journal of Veterinary Anatomy. 2007; 19(2):47-49.
6. Sisson S. Sisson and Gressmon's The Anatomy of the Domestic Animals. Getty, R, 5th Edn. W B Saunders Co., Philadelphia, 1975.
7. Sarma M, Choudhury KB, Sarma K, Gogoi B. Gross anatomical observations on the tongue of an adult white fallow deer. Indian Journal of Animal Sciences. 2006; 76(12):1028-1029.
8. Evans HE, de Lahunta A. Miller's Anatomy of the dog. 4th edn. Elsevier Saunders, 2013, 288.