

## GROSS ANATOMICAL STUDIES OF NASAL CAVITY OF RHINO-CALF (*RHINOCEROUS UNICORNIS*)

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Anatomical studies on the nasal cavity have been reported in Ox (Sisson and Grossman, 1953; ICAR, 1964; Hare, 1975), buffalo (Dhingra and Kumar, 1978), camel (Grossman, 1960), horse (Hare, *loc.cit.*) pig (Hillman, 1975), and in gaddi goat (Gupta *et al.*, 1992) but there is paucity of data on the anatomical description of the nasal cavity of Rhino (*Rhinoceros unicornis*) and hence an attempt has been made to elucidate the gross-anatomical features on the nasal cavity of the Rhino-calf.

**Materials and Methods :** Soon after death, the heads of 3 Rhino-calves were collected from the National park, Kaziranga and the State zoo of Assam. The specimens were brought to the department and fixed in 10% formol solution (Bancroft, 1975) and fixed heads were sectioned sagittally to study the Nasal conchae and meatuses.

**Results and Discussion :** The nasal cavity of Rhino-calf extended from the nostril to the ventral margin of sella turcica. It was bounded dorsally by basal part of the frontal bone, laterally by the lacrimal, malar, maxilla and the nasal process of the pre-

maxilla, but ventrally by the palatine process of premaxilla and maxilla. Similar observations were also reported in ox by Sisson and Grossman (*loc.cit.*) and in sheep by Sharma *et al.* (1989).

The nasal cavity of Rhino-calf was short, narrow rostrally and widest at the level of the angle of the mouth. The nasal cavity was divided into two equal halves by the nasal septum. A similar observations was also made in ox by Nickel *et al.* (1979). The median nasal septum was mainly cartilaginous. The nasal cavities of either side, communicated freely with each other through the naso-pharyngeal meatuses. This is in accordance with the findings in buffalo made by Dhingra and Kumar (*loc.cit.*). There were 2 nasal conchae, the dorsal concha was smaller and originated from the crest of the nasal bone and extended from the ventral floor of the rostral nasal bone up to the caudal margin of the great ethmo-turbinate. However, this finding is contrary to the findings in ox made by Hare (*loc.cit.*). The anterior part of the dorsal nasal concha was tapered and increased

in width towards the caudal part up to the level of great ethmo-turbinate.

The ventral part of the dorsal concha had a strong straight basal fold connected to the craniolateral part of the ventral nasal concha. A similar observation was also made in ox by Nickel *et al.* (*loc. cit.*). The ventral nasal concha was larger and projected ventromedially from the palatine bone and it extended from the ventromedial margin of the nostril upto the caudal boundary of the hard palate. These findings were also reported in goat by Gupta *et al.* (*loc. cit.*). The height of the ventral concha increased caudally and was widest at the part dorsal to the middle half of the hard palate. A strong alar fold was found in the craniolateral margin of the ventral concha which blended with the mucous membrane of nostril. There were six ethmo-turbinates in the nasal cavity of Rhino which sprang from the cranial border of the cribriform plate of ethmoid

bone. The largest ethmo-turbinate was located most cranially. There were 4 meatuses in the nasal cavity of Rhino; the dorsal meatus extended from the basal part of the rostral nasal bone up to the dorsal margin of the cribriform plate, which lay above the dorsal nasal concha. The middle nasal meatus extended from the dorsolateral part of the nostril upto the craniolateral margin of the great ethmo-turbinate, which lay between the dorsal and ventral nasal concha. The ventral meatus was very short and it extended only from the middle part of the ventral nasal concha. This observation is contrary in ox reported by Nickel *et al.* (*loc. cit.*). The common nasal meatus extended from the vestibule to the ethmoid bone on either side of the nasal septum, which communicated with all the three nasal meatuses. These observations are in accordance with the findings in ox by Hare (*loc. cit.*) and in Yak by Sharma and Gupta.

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### IN MEMORIAM

**Dr. C.R. Ananthasubramaniam, B.V.Sc., M.S., Ph.D.**

We learn with profound sorrow of the sudden demise of Dr. C.R. Ananthasubramaniam, Retired Professor of Animal Nutrition, College of Veterinary & Animal Sciences, Mannuthy, Thrissur on 12-2-96 at Thrissur due to massive cardiac arrest. Dr. Ananthasubramaniam graduated from the Madras Veterinary College in the year 1953 and took his M.S. from the University of Tennessee, Knoxville, U.S.A. in 1963. He was the pioneer scientist who studied the nutrient requirements of Indian elephants for which he was awarded Ph.D. Degree in 1979 by the Kerala Agricultural University. After serving 4 years in the Departments of Animal Husbandry of the Composite Madras State and Travancore-Cochin State he joined on the staff of the Kerala Veterinary College in the Department of Animal Nutrition in 1958. He worked as Research Officer in the All India Coordinated Research Project on Agricultural by-products and subsequently as the Project Coordinator (Cattle & Buffaloes) till his retirement. He has published over 50 scientific papers. He was a member of a number of learned societies. As a teacher and researcher, he won the esteem of one and all. We offer our heartfelt condolences to the members of the bereaved family.