The functional anatomy of the masticatory muscles of the Malayan pangolin, *Manis javanica*

Hideki Endo[1)], Isao Nishiumi[1)], Masamichi Kurohmaru[2)], Jarujin Nabhitabhata[3)], Tanya Chan-Ard[3)], Nivesh Nadee[4)], Srihadi Agungpriyono[5)] And Junzo Yamada[6)]

1) Department of Zoology, National Science Museum; 2) Department of Veterinary Anatomy, Faculty of Agriculture, The University of Tokyo; 3) Natural Science Research Division, National Science Museum, Thailand; 4) Energy and Environment Research Department, Thailand Institute of Scientific and Technological Research; 5) Department of Veterinary Anatomy, Bogor University of Agriculture; 6) Department of Veterinary Anatomy, Faculty of Agriculture, Obihiro University of Agriculture and Veterinary Medicine

Accepted March 2, 1998

Abstract

The masticatory muscles of the Malayan pangolin, *Manis javanica*, were observed in dissection, and relative positions of the cranium and the mandible were examined under soft-X ray photographs. The *M. temporalis* was well-developed in the medial area of the zygomatic process of temporal bone. The *M. masseter* was found to consist of three large well-developed bundles between the zygomatic arch and the mandible. Based on these observations, it is suggested that the thin V-shaped mandible may act as a substantial support in the ventral portion of the oral cavity, and that the *M. masseter* and *M. temporalis* may serve to help fix the shape of mouth, when the pangolin uses the specialized tongue for feeding. We demonstrated that the *M. digastricus* is at least functionally able to depress and open the mandible. In addition, the well-developed *M. mylohyoideus* may contribute to the control of intraoral pressure during mastication.

Key words: digastric muscle, mandible, masseter muscle, pangolin, temporal muscle