

PRELIMINARY STUDY OF THE CHINESE ALLIGATOR ANATOMY (*ALLIGATOR SINENSIS* FAUVEL, 1879)
USING MEDICAL IMAGING (SCANNER AND MRI) COMPLETED WITH DISSECTION

DAMAS N., BOURGUIGNON C. et al., 2012

ONIRIS - Ecole Nationale Vétérinaire de Nantes, route de Gachet 40706, F-44307, Nantes CEDEX 03
Laboratoire d'anatomie comparée - claude.guintard@oniris-nantes.fr

29th Congress of the EAVA (European Association of Veterinary Anatomists), Department of Veterinary Anatomy, Histology & Embryology, Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria
July 25-28, 2012

INTRODUCTION:

The Crocodylidae family has been studied many times, especially in phylogenesis. The Alligatorinae (Alligators & Caimans) sub-family anatomy is still unexplored. During the past year, the laboratory received a Chinese alligator from "La Planète des Crocodiles", [Civaux, France] which was scanned in three dimensions (S.A.R.L. Image ET, Mordelles, France), then analysed using MRI (Oniris, Nantes, France) and finally dissected.



METHODS :

- Dissection
- Scanner for bones : CT-Scan examinations: 16-slice Computed Tomography from Siemens (Sensation 16 by IMAGE ET). Helical acquisitions with a HR collimation (High Resolution, 16 x 0.75 mm): constants were 100 kV and 180 mAs.
- MRI for soft tissues : MRI examinations with a 1 Tesla supraconductor magnet (Harmony Siemens). A standard body coil was used. T1 (TR = 516 to 656 ms and TE = 13 ms) and T2 (TR = 3840 to 5170ms and TE = 91 to 115 ms) sequences in three planes (virtual sagittal, horizontal (= coronal) and transversal).



RESULTS :

Dissection and MRI show the Chinese alligator's trachea features: it seems to split on the cervical part but it is actually curling up. We cannot say for the moment if it is a physiological advantage.

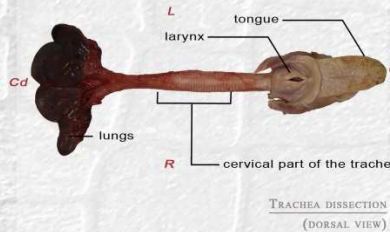
It shows cardiovascular features too. The Chinese alligator has two aortas. The left aorta comes the right ventricle and the right aorta comes from the left ventricle.

In the gizzard, lots of vertebrae from prey were found.

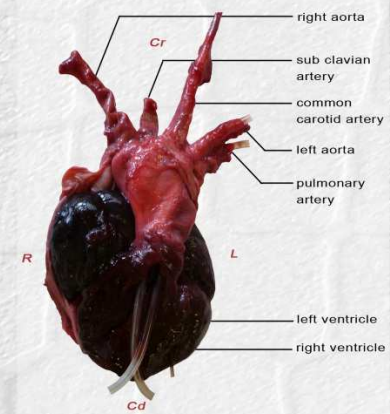
Large masseter muscles are shown with MRI.

Scanner shows osteoderms which are flat square shaped bones situated on the back of the alligator. It is located just under the skin and offers an efficient protection against predators.

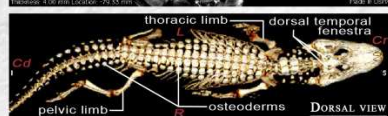
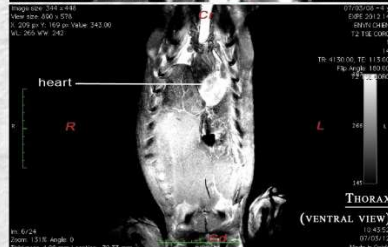
Gastralia are visible too: these are ventral dermic bones that exist in other reptiles. It is like a breast-shield.



TRACHEA DISSECTION (DORSAL VIEW)



HEART DISSECTION (VENTRAL VIEW)



Authors: Damas N., Bourguignon C., Borisov A., Iavernier C., Betti E., Fusellier M., Bordat T., Borvon A., Marinval M.-C., Chanet B., Richaudeau Y., Madec S., Raphaël C., Boisgard T. and Guintard C.
Acknowledgments: Manuel Comte, Frédéric Lebatard, Charlotte Guyon, Marc Bridou, Ian Nicholson, Catherine Picard, Pascale Bugnon, Catherine Comte.

