

Macro Anatomical Study on the Heart, Lung, Trachea, Kidney and Liver of Common Rat Snake (*Ptyas mucosa*)

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ABSTRACT

The Common rat snakes (*Ptyas mucosa*) control the rat in paddy field so it is also called farmer's friend. The present study was conducted on the heart, lung, trachea, kidney and liver of Common rat snake (*Ptyas mucosa*) of about 2.5 years of age. The heart was found secured in the pericardial sac and two aortas originated cranially consisting of left and the right. Lung consisted of highly vascular anterior portion and avascular posterior portion called air sac. Both the kidneys were highly lobulated and elongated. Right kidney was closer to the head than the left one. The trachea had complete ring. The liver was elongated and no distinct separate lobes were present instead the surface of the liver appeared lobulated. These studies will be helpful to wildlife veterinarians in disease control regimes.

Keywords: Macro-anatomy, Study, Heart, Lung, Trachea, Kidney, Liver, Common rat, Snake

The Common rat snakes (*Ptyas mucosa*) are widely distributed and as per Indian wildlife protection Act, 1972 it comes under schedule II. This snake controls the rat population in paddy field, so it is also called farmer's friend. Literature on the heart, lung, trachea, kidney and liver of Common rat snake is found to be scarce. Therefore, considering the importance of this species of wildlife the present work was undertaken to elucidate the gross anatomical characteristics of the heart, lung, trachea, kidney and liver.

MATERIALS AND METHODS

The present study was conducted on the heart, lung, trachea, kidney and liver of Common rat snake (*Ptyas mucosa*) of about 2.5 years of age

which was brought to the Teaching Veterinary Clinical Complex, College of Veterinary Sciences, Khanapara, Guwahati for treatment by local NGO, but unfortunately the snake died, which might be due to egg bound syndrome. The above mention organs were collected immediately after death and morphological studies were carried out.

RESULTS AND DISCUSSION

The heart was found secured in the pericardial sac. The heart had three chambers, the right and left auricles, and a single ventricle. Two aortas originated left and right cranially. These findings were in accordance with the findings of Sridevu *et al.* (2013) in Indian Spectacled Cobra (*Naja naja*).

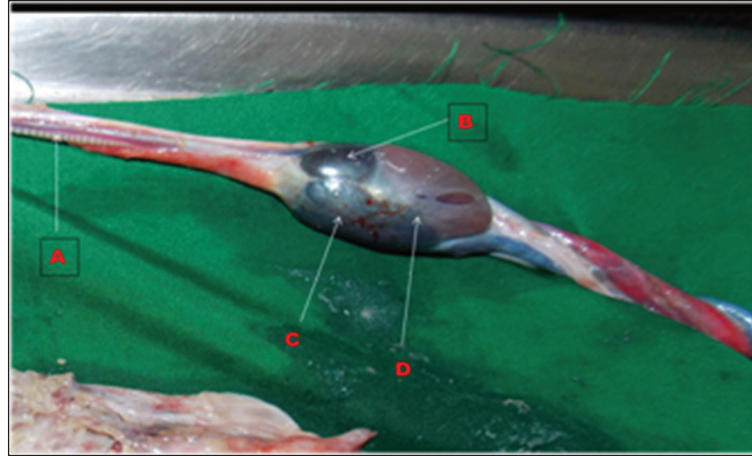


Fig. 1: Photograph showing the trachea (A), right auricle (B), left auricle (C) and Ventricle (D) of Common rat snakes (*Ptyas mucosa*)



Fig. 2: Photograph showing the highly vascular anterior portion of lung (A) of Common rat snakes (*Ptyas mucosa*).



Fig. 3: Photograph showing the spindle shaped liver (A) of Common rat snakes (*Ptyas mucosa*)



Fig. 4: Photograph showing the lobulated kidney (A) of Common rat snakes (*Ptyas mucosa*)

The Common rat snake had functional well developed elongated right lung and rudimentary left lung. Lung consisted of highly vascular anterior portion and avascular posterior portion also called as air sac. Lung originated immediately cranial to the heart and terminated at the mid length of liver and continued as air sac.

Both the kidneys were highly lobulated, elongated and located dorso-laterally in the posterior portion of the body anterior to the cloaca. Right kidney was closer to the head than the left one. Similar findings were reported by Banarjee (2015) in Indian Cobra (*Naja naja*).

The trachea had complete ring. Its colour varied from whitish to gray. Similar findings were reported by Kings and McLelland (1975) in domestic fowl.

The colour of the liver varied from light to dark shades of brown. It situated in the entire middle portion of the coelomic cavity. The liver was elongated, spindle shaped and in middle line and it had one narrow depression on dorsal surface. No distinct separate lobes were present instead the surface of the liver appeared lobulated. These findings corroborated with the findings of Rajathi *et al.* (2015) in liver of Cobra (*Naja naja*).

SUMMARY AND CONCLUSION

The heart was found secured in the pericardial sac and contained three chambers consisting of right and left auricles, and a single ventricle. It contained well developed elongated right lung and rudimentary left lung. Both the kidneys were highly lobulated, elongated and located dorso-laterally in the posterior portion of the body anterior to the cloaca. The trachea had complete ring. The liver was elongated, spindle shaped and in middle line had one narrow depression on dorsal surface. These studies will be helpful to wildlife veterinarians in many veterolegal cases in order to identify these organs from those of other reptiles as well as disease control regimes.

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N Deka *et al.*

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