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ANATOMIC NOTES ON WILD ANIMALS FOR THE CLINICIAN

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Non-domestic animals present the clinician with a wide spectrum of anatomic variations which could influence the methods of surgery, administration of medications or radiographic interpretations. Routine necropsy of exotic animals frequently will yield information of clinical significance. The healthy animal and the common exotic species that die from self-inflicted trauma or from environmental hazards should not be exempt from necropsy since a normal structure may be quite unusual in similar families of exotic or domestic animals. Also, a very rare species may not be a candidate for a complete necropsy and similar species may allow extrapolations of anatomy when surgery or other therapy is required. The following are a few of the observations gleaned from routine necropsies and a few clinical experiences.

Varanid lizards have a more caudal localization of the heart compared to all other lizards so far encountered including iguanids, agamids, gekkonids, scincids, lacertids, teiids, eublepharids, helodermatids and cordylids. Most lizards have the heart situated in the anterior thorax just behind the thoracic inlet. In contrast, the varanid heart is situated caudal to the edge of the sternum or notch formed by converging ribs. CPR techniques in varanids must take this anatomic variation into account if valuable time and effective treatment is to be achieved.

Great anatomic variation occurs in the respiratory tract of snakes. At least four variations have been encountered. Colubrid and elapid snakes have a simple trachea and a single lung with air sac (occasionally a second vestigial lung is present). Viperid and crotalid snakes have a short trachea and a singular, long tracheal lung with air sac. Boas and pythons have a single trachea, short bronchi and two lungs with air sacs. The Javan Wart Snake has a continuous cylindrical tracheal lung and no obvious air sac. The lungs and air sacs of snakes usually do not extend beyond the mid-portion of the body but in a few species, the air sac extends to the caudal abdominal region. The Javan Wart Snake's tracheal lung extends the length of the body. Radiographic interpretation and treatment of pneumonia in snakes will vary accordingly. Air sacs may also be useful for contrast radiography when trying to evaluate other internal disease processes.

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Surgical procedures in the abdominal region of reptiles is complicated by very large blood vessels. In contrast to mammals, the ventral midline is not the safest and vessel-free approach for abdominal surgery. In snakes the epigastric artery is intimately attached to the abdominal wall along the midline and in most lizards this vessel is suspended in the midsaggital plane just above the abdominal wall.

Miscellaneous normal anatomic structures in mammals include gutteral pouches in wildebeest, a special plate of glandular mucosa in the dorsal hilus of the koala stomach, sublingual appendages in many South American primates and lemurs, comb teeth in lemurs and interdigital pouches and/or glands in many artiodactyls (including the Okapi).

Anatomic variations in birds include a vocal pouch associated with a tracheal cleft in emus, a bald spot on top of the ostrich head associated with the pineal complex, a convoluted trachea in a Curassow and several other species. The size, shape and distribution of thymus in the neck region varies greatly and could make evaluation of an animal's immune system difficult. The variation in cecal size, shape and presence or absence could influence dietary adjustments. Knowledge of the color variations of testes could make surgical sexing of monomorphic birds much easier.

The clinician can obtain many useful bits of information through routine necropsy of animals that die in the collection for which they provide service. Only when the normal anatomy is understood can the unusual and the abnormal be fully evaluated and appropriate treatment be instituted.