

Equipment for Exotic Mammal and Reptile Diagnostics and Surgery

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Abstract

The practice of veterinary medicine is facilitated by appropriate equipment, and exotic pet medicine is no exception. Exotic practitioners use standard or modified veterinary and human equipment, and now even enjoy the benefit of specialized products manufactured specifically for exotic pet practice. Copyright 2006 Elsevier Inc. All rights reserved.

Key words: exotic mammal; reptile equipment; endoscope; diagnostics; surgical equipment

In years past, specialized equipment for the practice of exotic animal medicine was nonexistent. Today, equipment is modified from what is available for human or traditional pet medicine, or even manufactured specifically for exotic patients. This has provided the practitioner with tools to greatly improve quality of care and offer services at the same high standard of medicine that were previously only available for dogs and cats.

Diagnostics

Blood sample collection techniques used for exotic mammals and reptiles are modified from traditional pet medicine and utilize a variety of needles, syringes, and other collection devices and containers. Techniques for blood collection are described in detail elsewhere. Most reference laboratories are willing to provide the practitioner with specimen containers designed for smaller volume samples, such as micro-gel separator tubes, both plain and coated with lithium heparin, and smaller calcium or sodium ethylenediamine tetraacetic acid tubes for submission of whole blood. Submitting small volume samples in standard-sized tubes containing anticoagulant may result in dilutional artifact because of improper ratio of anticoagulant to sample (Fig 1).

Human neonatal- or pediatric-sized culturettes are available from reference laboratories for the collection of culture specimens from locations such as the nasal cavity of rabbits or the ear canal of rodents.

Radiography in very small exotic patients is greatly facilitated by high-speed cassettes and film or mammography film. Techniques for ultrasonography of small exotic mammals and various reptile species have also been described. Ultrasound machines should be equipped with a transducer suitable for the size of the animal, with a small footprint or contact area. Transducers with frequencies from 7.5 to 12 MHz will be the most useful. Many standard ultrasound machines can be fitted with probes of this frequency. Color Doppler is advantageous for assessing blood flow, but it is harder to interpret. Most new ultrasound machines are capable of digital recording to facilitate further review after contact with the patient is completed. Ultrasound-

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Figure 1. Blood tubes. Proper handling of blood samples for laboratory submission requires specialized collection tubes. Small separator tubes (third from left) increase the volume of serum or plasma that can be obtained from smaller samples.

guided biopsy of organs can be performed as in traditional pet species.

Another useful diagnostic modality that has recently received increased attention is diagnostic endoscopy of exotic animals. Rigid endoscopy for determination of sex is well recognized in birds maintained in pet and zoo collections. Recently, more attention has been given to diagnostic endoscopy and the collection of endoscopic-guided samples.^{1,2}

Diagnostic endoscopy uses rigid endoscopes, most commonly 2.7 and 1.9 mm in diameter. Endoscopes use a high-intensity light source for illumination. The endoscope and light source are the minimum equipment required for visualization of the oral cavity, ear canal, and nasal cavity of small exotic mammals (Fig 2). However, more advanced techniques such as endoscopic evaluation of the urethra, bladder, and vagina, and abdominal or thoracic endoscopy require a diagnostic sheath to allow insufflation of sterile fluid or air to enhance visualization. The diagnostic sheath also allows introduction of a variety of instruments for sample collection for cytology, culture and sensitivity, and/or biopsy.³ All endoscopic procedures benefit from the addition of a camera to allow viewing of images on a monitor, and an image capture system to save images for education, documentation, or teaching purposes. In reptiles, diagnostic endoscopy is most often used to examine the oral cavity, coelomic cavity, vent, urinary tract, and even portions of the reproductive tract of female animals.^{4,5}

Collection of diagnostic samples is only half the challenge of obtaining meaningful data. Samples must be submitted to laboratories that are familiar with the process and have some degree of expertise in the evaluation of exotic animal specimens. Many veterinary diagnostic laboratories are willing to accept these samples, and a number of facilities actively develop unique tests specifically for exotic animals (for example, tests for viral or bacterial pathogens). A few facilities are



Figure 2. Endoscopes. Rigid endoscopes (2.7 and 1.9 mm) are the most versatile for use in small exotic mammals and reptiles.

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