

**Crash! Critical Care Management of Exotic Pets**  
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The stoic nature of exotic pets can lead to a real-challenge for a pet owner determining when their pet is ill. For many of these presentations, the underlying disease problem is chronic in nature, rather than acute. The purpose of this presentation is to provide veterinarians with an emergency medicine management plan to stabilize exotic pets presented to their facility. Once stabilized, the job of diagnosing the underlying disease condition can be pursued.

Exotic pet patients that present in severe shock can develop respiratory arrest, followed by cardiac arrest. Although the success rate for recovering exotic pet patients with respiratory/cardiac arrest is limited, attempts to revive these animals may be pursued. The basic tenants of emergency medicine should be followed: A: establish an airway, B: breathing, C: stimulate cardiac function, D: use necessary drugs to stimulate and regulate breathing and cardiac function. Cardiopulmonary resuscitation in exotic pets should follow the techniques described for domestic mammals. For birds, a cuffless endotracheal tube should be used. The birds should be positive pressure ventilated to stimulate the movement of blood through the pulmonary vessels. Cardiac compressions can be performed by firmly pressing on the keel. Epinephrine may be used to stimulate the heart and dopram is often used to stimulate breathing. A catheter should be placed either intravenously or intraosseously to deliver fluids. For exotic small mammals, such as rabbits, a laryngeal mask is recommended to ensure direct oxygen delivery, as intubation can be challenging.

Exotic pets that present with dyspnea should be considered an emergency. A patient in severe dyspnea should be stabilized prior to performing any diagnostics procedures. The animal should be placed into an oxygen cage or given oxygen via a facemask/endotracheal tube to increase oxygen saturation. A pulse oximeter may be used to estimate oxygen saturation levels. In birds, if the dyspnea is associated with a tracheal obstruction, then an air sac tube may be used to alleviate the distress. Once the animal is stabilized, attempts to characterize the dyspnea should be made.

Acute hemorrhage in exotic pet patients, especially a small species, can be life threatening. Attempts should first be made to control hemorrhage. Sutures should be used to ligate large vessels. Active hemorrhage associated with blood vessels from the integument may be controlled using tissue glue and digital pressure. Replacing an animal's fluid loss is essential to controlling/preventing hypovolemic shock. An estimate of the volume of blood lost can be calculated by subtracting the animal's presenting weight from the animal's "normal" weight. Although this is only an estimate, it can be used to provide an initial fluid replacement volume while the animal is being stabilized. Isotonic fluids are appropriate for cases with acute blood loss.

For animals that are "stable", a physical examination should be performed. When working with exotic pets, it is important that the animal be restrained appropriately to prevent injury to the patient, the veterinarian, and the support staff. Fractious exotic pets often do better with sedation (e.g., midazolam). Many species of birds and small mammals may be anesthetized using isoflurane, delivered either via a

facemask or through an induction chamber. Injectable anesthetics, including the dissociative agents, alpha-2 agonists, propofol, or alfaxalone may also be used to provide anesthesia. A thorough and consistent physical examination should be performed. A problem list that includes the abnormal findings encountered on the physical examination should be recorded and a diagnostic plan formulated.

Prior to performing any diagnostic tests, it is important to stabilize the patient. Fluid therapy is one of the cornerstones of emergency medicine. Fluids may be delivered orally or parenterally. If the animal is mildly dehydrated and has a functional gastrointestinal tract, then fluids can be given orally. Subcutaneous fluids can also be used for mildly dehydrated patients. The subcutaneous route allows for large quantities of fluids to be delivered at a single point in time. Because the subcutaneous space is relatively avascular, fluid absorption from the subcutaneous space can be variable. Intravenous and intraosseous routes should be used for animals with moderate to severe dehydration.

Anti-inflammatories are frequently used to manage animals in shock. Corticosteroids may be used to stimulate gluconeogenesis and glycogenolysis, decrease peripheral uptake of glucose, stabilize cell membranes, and reduce the production of endogenous toxins. Prednisone sodium succinate is the preferred corticosteroid for injuries to the spinal cord. This drug should be given within the first 6-12 hours to be effective. Dexamethasone and dexamethasone sodium phosphate may also be used to manage emergency cases; however, their value in treating central nervous system inflammation is questionable. Although no research study has been performed to evaluate the effectiveness of these compounds in exotic pets, subjectively, the author believes these drugs are effective in managing shock in these species. Non-steroidal anti-inflammatories, such as carprofen and meloxicam, may be used to manage cases where the immunosuppressive effects of corticosteroids would be contraindicated.

Antibiotics are used extensively to manage exotic pet emergencies. Unfortunately, antibiotics are often used in cases where they are not warranted. Veterinarians should reserve systemic antibiotics for cases with systemic disease. Topical antimicrobials should be used for focal lesions of the integument. Most of the bacterial infections reported in exotic pets are associated with opportunistic Gram-negative bacteria. Fungal infections should also be considered, especially in cases that are non-responsive to antibiotics. The author prefers to perform a cytological examination of a sample prior to submitting a sample for culture. Antimicrobial selection should be based on antimicrobial sensitivity testing and the antimicrobials should be given for an appropriate length of time (3-5 days' post-resolution of signs).

Analgesics are generally underutilized in exotic pet medicine. There are a number of different analgesics that are available to veterinarians. The author prefers to use opioids, including morphine, hydromorphone, tramadol, butorphanol and buprenorphine, and non-steroidal anti-inflammatories, such as carprofen and meloxicam, to manage pain in exotic pet emergencies. Relieving pain can speed recovery times.

Fractures or joint dislocations should be stabilized to minimize pain and prevent further injury. Orthopedic injuries should only be manipulated under anesthesia. Coaptation techniques, such as figure-of-eight bandages, can be used to stabilize an orthopedic injury in a bird. Radiographs and a surgery should only be considered once the animal is stabilized.

Skin lacerations are a common finding in exotic pets that have experienced a traumatic injury. If the duration of the injury is unknown, then the wound should be treated as a contaminated wound. Delayed

primary closure may be performed once the wound has been decontaminated. Topical disinfectants, including dilute chlorhexidine and betadine, may be used to clean and disinfect skin wounds. The author generally prefers to use hyperosmotics (50% dextrose, honey) to decontaminate wounds. Topical antimicrobials, such as triple antibiotic and silver sulfadiazine, may be used to provide a protective barrier to the underlying integument. Focal wounds should be managed topically and generally do not require systemic antimicrobials.

Exotic pet emergencies can provide veterinarians with unique, challenging, and rewarding experiences. For those who are interested in working more closely with these species, it is essential that you learn about their basic life histories and husbandry, as deficiencies in these subjects often lead to the emergency presentation.

## **Reference**

Carpenter JW. 2018. Exotic Animal Formulary. Elsevier, St. Louis, MO, pp: 701.