

Medical and Surgical Emergencies in Ferrets



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KEYWORDS

- Small mammals • Seizures • Hypoglycemia • Critical care • Congestive heart failure
- Trauma • Intoxication • Chylothorax

KEY POINTS

- Hypoglycemic seizure is one of the most common emergencies in ferrets.
- Primary hypoparathyroidism needs to be considered in seizing ferrets with low calcium, high phosphorus, and maintained renal function.
- Anemia is a common consequence of hyperestrogenism, which typically results from uncontrolled estrus in female ferrets or adrenal disease; currently, medical alternatives to gonadectomy and adrenalectomy should be considered.
- Gastrointestinal foreign bodies and biliary disorders are both common causes of acute abdomen in ferrets.
- Congestive heart failure is usually secondary to valvular disorder, atrioventricular block, dilated and restrictive cardiomyopathies, and hypertension and requires immediate medical treatment (eg, diuretics, thoracentesis).



Video content accompanies this article at <http://www.vetexotic.theclinics.com>

INTRODUCTION

Ferrets presented for an emergency should be immediately triaged. The cardiovascular (mucous membrane color, capillary refill time, and pulse rate and quality), respiratory (rate and effort), and central nervous (consciousness) systems should be assessed early.¹ If the ferret is considered unstable, further evaluation of vital physiologic parameters (blood pressure, rectal temperature, oxygen saturation of hemoglobin [SpO₂], electrocardiogram [ECG], and blood glucose) is required together with a prompt institution of treatment (**Fig. 1**). If the ferret is considered stable, further historical questioning and a complete physical examination may proceed.

The author has nothing to disclose.

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Fig. 1. Preliminary hospitalization approach to an unstable ferret (A). Notice SpO₂ measurement, oxygen, and IV fluid therapy from the cephalic vein. During triage, pulse is easily obtained by palpation of the femoral arteries (B).

SEIZURES

Seizures commonly occur in ferrets and may be consequent to a wide variety of causes. However, true spontaneous epileptic seizures have never been described in ferrets, and seizures are usually reactive, that is, caused by metabolic or toxic conditions.² Hypoglycemia is considered the most common condition causing seizures in ferrets; however, other conditions, including electrolyte disorders, intoxication, hepatic encephalopathy, hypothyroidism, uremic encephalopathy, hypoxia, and hyperglycemia, may also be the cause.³

Hypoglycemia

Hypoglycemic seizures are an extremely common emergency presentation in ferrets. Typically, hypoglycemia in ferrets is the consequence of hyperinsulinemia caused by pancreatic β -cell tumors (ie, insulinomas).⁴⁻⁶ Other causes that should be included in the differentials for hypoglycemia include anorexia, liver disorders, and hypoadrenocorticism.⁷ Ferrets with severe hypoglycemic crises are usually stuporous and may present with opisthotonus ([Video 1](#)) and nystagmus ([Video 2](#)). Often the crises are accompanied by vocalizations ([Video 3](#)).

Diagnosis of hypoglycemia is based on detection of a blood glucose level lower than 60 to 70 mg/dL.^{8,9} Although tempting for its easiness, diagnosis of hypoglycemia should never be based only on the use of portable blood glucose meters (PBGM). PBGM for use in humans unpredictably underestimate blood glucose in ferrets¹⁰ and have specificity for diagnosis of hypoglycemia in ferrets of 50%,⁹ which means that half of the ferrets in which the PBGM detect hypoglycemia are actually normoglycemic (false positives).⁹ PBGM developed for canine and feline patients (Alphatrak, Abbott, Abbott Park, IL) provide results that are more in agreement with laboratory analyzers.¹⁰ However, given the clinical importance of the diagnosis, these methods should be mainly used for screening and monitoring instead of for diagnosing. Instead, the diagnosis on presentation should be based on a hexokinase-based laboratory analyzer whenever possible. An empirical approach to the ferret presented with suspected hypoglycemic seizures is as follows:

- Placement of an intravenous (IV) catheter preferably in the cephalic vein ([Fig. 2](#)) under manual restraint. Alternatively, catheterize the saphenous or jugular vein ([Fig. 3](#)).

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