Top 5 Diseases of Domestic Ferrets

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Ferrets are playful, curious, and relatively docile—characteristics that have made them increasingly popular as pets. Because of their curious nature, unique biology, and increased average lifespan due to improved care, ferrets are prone to specific diseases and conditions that can be debilitating.

1 Adrenal Gland Hyperplasia or Neoplasia

Adrenal gland hyperplasia or neoplasia most often affects middle-aged ferrets, particularly those between 3 and 4 years of age.[1,2] Affected ferrets frequently display symmetrical hair loss (***Figure 1***, next page), which usually begins on the back and/or tail. Spayed ferrets can have vulvar enlargement. Male ferrets can develop prostatomegaly and secondary dysuria, stranguria, anuria, and/or urinary obstruction. Male and female ferrets may display increased sexual behavior or aggression. The cause is unclear; early spaying and neutering, increased period of exposure to light, and genetics have been suggested.[1-3]

Clinical signs can be used to make a presumptive diagnosis, which can be confirmed with an adrenal panel (available at University of Tennessee Veterinary Medical Center [utmedicalcenter.org]).

TOP 5 DISEASES OF DOMESTIC FERRETS

1. Adrenal Gland Hyperplasia or Neoplasia
2. Pancreatic Islet β-cell Tumor
3. Foreign Bodies
4. Dental Disease
5. Diarrhea

Ferrets with adrenal disease commonly have elevated concentrations of estradiol, androstenedione, and/or 17-hydroxyprogesterone.[1,4] Other diagnostic tests (eg, abdominal ultrasonography) may be used adjunctively.[1]

Surgical resection of adrenal glands and pharmacologic treatments are common approaches for treating hyperadrenocorticism.[1] For ferrets that are good surgical candidates, surgery not only alleviates the clinical issue but also enables evaluation for other abdominal diseases (eg, insulinoma). Among pharmacologic options, deslorelin acetate implants have proven effective[3,5] and are relatively convenient, which can improve owner compliance. Based on recent studies showing that ferrets medically treated with deslorelin had longer relapse times as compared with those treated surgically, deslorelin acetate implants have been recommended as a first-line treatment.[2,3,5]

2 Pancreatic Islet β-cell Tumor

Also known as insulinomas, pancreatic β-cell tumors commonly affect aging ferrets with disease onset typically occurring around 4 years of age (range, 2-7 years).[2] Insulinomas are relatively less aggressive and have a better prognosis in ferrets as compared with dogs.[2]

▲ **FIGURE 1** Alopecia typical of adrenal disease

Affected ferrets can be clinically normal. Clinical signs can include irritability, mental dullness, weight loss, ptyalism, vomiting, pawing at the mouth, ataxia, hindlimb weakness, and, in severe cases, generalized seizures or death.

Presumptive diagnosis can be made based on a fasting blood glucose level of <70 mg/dL in the presence of clinical signs and resolution of signs with glucose treatment.[2,6] Ferrets should be closely monitored during fasting to prevent severe hypoglycemia. Abdominal radiography and ultrasonography are usually unhelpful; most insulinomas are only a few millimeters in size and are difficult to detect.[2,6] Definitive diagnosis can be made only by histologic examination of surgical biopsy specimens.[2,6]

Insulinoma treatment, focused on managing hypoglycemia, begins with dietary management (ie, reduction of sugar and carbohydrates, frequent high-protein meals) with the addition of antihypoglycemic agents (eg, glucocorticoids with or without diazoxide) as needed.[2,6] When combined with medical management, surgical excision—the treatment of choice—is associated with longer survival times as compared with medical management alone.[2,6]

Regardless of treatment, insulinoma is progressive. Lifelong evaluations and adjustment of medical therapy will be required. Any disease (eg, anorexia, diarrhea) that affects nutrient absorption can exacerbate a well-controlled ferret with insulinoma.

3 Foreign Bodies

The frequent occurrence of foreign body GI tract obstruction in ferrets has been attributed to the animal's curious nature and propensity to gnaw and chew on objects. Foreign objects reportedly found in affected ferrets include rubbery toys, sponges, pencil erasers, leather straps, hairballs, and wine cork pieces.[7] Preventive measures include restricting access to these

objects and cage confinement when direct supervision is not possible.

Obstruction can occur along any part of the GI tract. Presumptive diagnosis often can be made based on a history of anorexia, abnormal abdominal palpation, and diagnostic imaging findings. Some affected ferrets will display dehydration, vomiting, nausea, and diarrhea. Severely ill animals may be in shock. CBC and serum chemistry profile results are variable, although in some cases elevated levels of aspartate aminotransferase and alanine aminotransferase—with or without hypoproteinemia and hypoglycemia—have been reported.[7]

Surgery is the treatment of choice and is associated with a good prognosis, particularly in cases in which obstruction is identified early with minimal intestinal necrosis.[7] Presurgical supportive care should be provided.

4 Dental Disease

Tooth fracture (***Figure 2***), dental calculus, and periodontal disease are common in ferrets.[8,9] Tooth resorption, dental caries, stomatitis, and oral tumors are rare.[8,9]

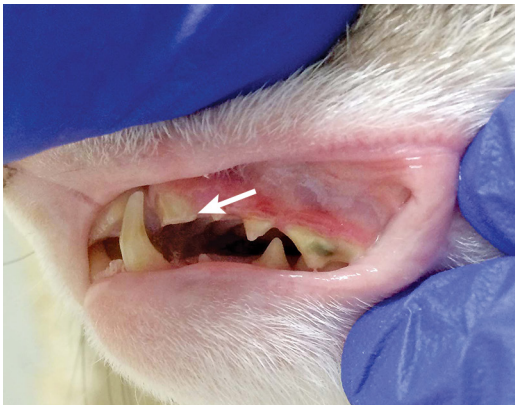
Tooth fracture has been linked to cage confinement, environmental trauma, and abuse.[8] In a study, dental calculus accumulation was shown to be accelerated when ferrets were fed with moist canned cat food supplemented with sucrose and mineral salts, and use of dentifrices decreased calculus accumulation.[9,10] Dentifrices and tartar-control treats are commercially available, and their use may limit dental calculus formation and associated periodontal diseases. Commercially available dentifrices and tartar-control treats may limit dental calculus formation.[10] Immunosuppressed and older ferrets may be at increased risk for developing severe periodontal disease.[9]

Complicated tooth fracture can lead to pulpitis, pulp necrosis, and periapical infection, which can be detected by a combination of thorough oral and dental examination and full-mouth dental radiography. Other associated clinical signs include face-wash strokes (ie, pawing at the mouth or face), headshakes, forelimb flails, ear grasps, tongue protrusion, and chin rubbing.[8] Complicated fractures can be treated with endodontic treatment or extraction. Clinicians should consider ruling out potentially predisposing diseases (eg, diabetes mellitus, immunosuppressive conditions). Although these are rare in ferrets, the author recommends considering these conditions and examining for them when appropriate; this recommendation is based on observation in humans.[11]

Treatment for periodontal disease in ferrets is similar to that in other species.

5 Diarrhea

Various causes of diarrhea in domestic ferrets have been implicated, including viral (eg, Aleutian disease virus, ferret enteric or systemic coronavirus, rotavirus), bacterial, protozoal (eg, *Eimeria* spp, *Isospora* spp), and other parasitic infection (eg, intestinal worms).[9,12,13] Diarrhea also can be caused by neoplastic or inflammatory bowel disease (eg, lymphoplasmacytic inflammation)



▲ **FIGURE 2** Tooth fracture (**arrow**) in a ferret

or food sensitivity.[1,9,13] In some cases, multiple underlying disease conditions may be involved, and stress can exacerbate the condition.[9]

Clinical severity of diarrhea can be highly variable, with disease ranging from only a change in fecal consistency to diarrhea with severe systemic disease. Diagnosis can be challenging because of the various etiologies, the presence of many potential pathogens in healthy ferrets, and poor understanding of the causes of many diseases.

Further diagnostics such as bacterial culture and susceptibility and specific pathogen testing, including fecal flotation and molecular methods (eg, polymerase chain reaction), can help rule out bacterial, viral, and parasitic involvement. Positive results may suggest specific antibiotic or antiparasitic therapy. Depending on severity, treatment can also include fluid-deficit correction, nutritional support, and other supportive care.

Neoplasia and inflammatory bowel disease require GI biopsy. Neoplastic conditions may be treated surgically or with specific antineoplastic therapeutic regimens. Inflammatory bowel disease treatment is largely aimed at reducing inflammation via anti-inflammatory therapy but can include other strategies (eg, dietary antigen exclusion).[9]

Conclusion

Ferrets are likely to encounter one or more of these clinical problems in their lifetime. Knowledge of these common clinical problems should facilitate diagnosis and treatment.

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