Ferret Medicine and Surgery: Venipuncture, Urinary Catheterization, GI Disease, Cutaneous Tumors

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Note: The lecture will concentrate on techniques that are best described with visual aids: urinary catheterization, venipuncture, catheter placement and anesthesia. The following written information contains additional facts regarding ferret husbandry and disease.

Ferrets are strict carnivores (which leads to a short GI track and very frequent defecation). They are subject to several diseases that may have a genetic component, including adrenal gland disease that produces excessive gonadal hormones, insulinoma and lymphoma. Their life span is generally 7-9 years with good medical care.

Additional medical and behavioral oddities of ferrets include

1. The development of marked splenomegaly with age, that is not malignant, but does coincide with an increased PCV and an increased propensity to bruise severely post-operatively. The bruising remarkably disappears on the 6th day as rapidly as it appeared.
2. Development of mast cell tumors which are often multicentric, tend to recur, but are generally not malignant.
3. Canine teeth that may often fracture or discolor. Due to the short length of the pulp, these do not generally cause pain or infection.
4. Gingivitis is much more common in ferrets than is significant tartar accumulation.
5. Possess the body structure of a slinky; allowing them to crawl into small spaces from which it is difficult to retrieve them. * They will also squeeze through cage bars and either get stuck or get loose.

Some primary points regarding hospitalization include

1. Providing a secure cage environment
2. Since ferrets prefer to sleep buried, always providing a towel or T-Shirt in the hospital cage for this purpose.
3. Being aware that ferrets will
    a. Spill any water bowls that are not ceramic and wide-based
    b. "Wick" the water out of the bowls they don't spill by putting their towels or T-shirts into them.
4. May be accustomed to only dry food, but when sick can be encouraged to ingest A/D or Oxbow carnivore care by adding very warm/hot water and producing a thin broth. **Almost all sick ferrets will drink this broth from the top**, but stop when they get to the A/D with texture. Repeatedly adding hot water will allow the ferret to rehydrate and consume needed calories. **This simple nursing step cannot be overemphasized!** It can and has saved many ferrets' lives, especially since it can be continued by the owner at home.

Venipuncture

A pre-caval sample is generally the easiest to obtain. Jugular and cephalic are also possible. After scruffing the ferret, hold the head nearly 90 degrees from the vertical body, with the neck supported over your wrist. Palpate the U shaped divot where the clavicle meets the manubrium. Aim your needle towards the opposite back leg. Pre-caval venous access is usually more superficial than anticipated; keep backpressure on the syringe as it is introduced and advanced or retracted.

Anesthesia

Ferrets are relatively easy to intubate – though most can only accommodate 2.5-3.0 mm E.T tubes.

A non-rebreathing system should be utilized to ensure sufficient ventilation. Intermittent positive pressure ventilation should be used even if the ferret appears to be breathing well on its own. Both isoflurane and sevoflurane are suitable inhalant anesthetics.

The most common anesthetic problem in ferrets undergoing either prolonged or open body cavity surgery is hypothermia. Be sure to monitor body temperature and provide thermal support.

Post-anesthetic vomiting is fairly common. Fasting for at least 4 hrs prior to anesthesia is recommended, and we often administer metoclopramide as a pre-anesthetic to reduce the chances of regurgitation.

IV catheter placement

Cephalic catheters – 23-25 gauge. Best performed under anesthesia – scoring the skin with a 20 gauge needle prior to introduction of the catheter needle to increase success – ferret skin is tough!

Jugular catheters can be used for extremely ill ferrets or when higher volumes of IV fluid are needed rapidly. A 21 - 22 gauge catheter is generally selected.

Gastrointestinal presentations in ferrets

(Diarrhea, lack of appetite and vomiting)

Numerous gastrointestinal conditions occur in ferrets. These include infection with *Helicobacter mustelidae*, proliferative bowel disease, inflammatory bowel disease, foreign body ingestion and the rapidly contagious diarrhea associated with a coronavirus, referred to as epizootic catarrhal enteritis (E.C.E.). Intestinal lymphoma also occurs with some frequency in ferrets. Differentiation between these diseases is not always easily accomplished. Having a short, carnivorous GI track also predisposes ferrets to diarrhea from an array of metabolic diseases (insulinoma and renal disease being common in adult ferrets).

E.C.E. (Epizootic catarrhal enteritis, corona viral enteritis, or green slime disease)

An apparent latent carrier state is established in many recovered ferrets, that persists for an indefinite period of time. Recurrences of the disease in the same ferret have been documented. Clinical signs generally include severe, fluorescent, watery, light green diarrhea, generally after recent exposure to a new, but asymptomatic ferret. In young, healthy ferrets, very little treatment other than supportive care is required. Older ferrets with concurrent problems are the ones at risk for complications, including severe dehydration, emaciation, and death. The incubation period is extremely short, and the disease is highly contagious.

Realize that ferrets often have a green, (especially dark green) stool or diarrhea for a variety of other reasons.

Foreign body ingestion

Young ferrets present with a multitude of problems, including frequent foreign body ingestion. However, the occurrence of projectile (violent) vomiting, or any vomiting, with gastro-intestinal foreign bodies is not consistently found in ferrets. Diarrhea, lack of appetite, and lethargy are the most common presenting signs. Luckily, the abdomen of ferrets is amenable to palpation and detection can often be made in this manner. Both plain film and contrast radiography (X-rays) and ultrasound may be utilized to help confirm the diagnosis.

Inflammatory bowel disease – (both lymphocytic-plasmacytic and eosinophilic enteritis)

This disease, or group of diseases, appears as a more insidious and chronic condition. Mild to moderate loss of appetite, diarrhea and decreased activity are often noted. The disease involves reaction of the gastrointestinal tract to some agent to which it is sensitive – this may be a food allergy, bacterial sensitivity, or even the development of sensitivity to agents that are normal within the ferret's body. Peripheral eosinophila is often associated with eosinophilic enteritis. The bowel loops are generally palpably thickened and uncomfortable but not acutely painful on palpation. Multi-systemic eosinophilic disease also occurs, which may involve the liver, respiratory tract, lymphatic system, and isolated eosinophilic infiltrates. The specific causes of these syndromes are often not identified, but most cases are responsive to glucocorticoids (prednisone). Some ferrets will recur with inflammatory bowel disease when the glucocorticoid therapy is discontinued, while others may be successfully tapered off of therapy.

Recently, the production of cysteine urinary stones has been related to the consumption of some diets designed for IBD treatment in cats. This author has seen three young adult ferrets from the same household develop multiple, and in two cases fatal, cystic, renal and ureteral calculi after being on a rabbit and pea diet for several months.

Helicobacter mustelidae

With Helicobacter gastritis, gastric ulceration and hemorrhage may cause either the vomitus or the stool to contain denatured blood (black or coffee ground appearance). These ferrets are generally very painful upon gastric palpation. The prevalence of *Helicobacter m.* enteritis seems to be rising, though that impression may be skewed by an increased awareness of its existence, (partially due to the pathophysiology of the same genus in gastric ulcers of people) and an increase in histopathology submissions. Affected ferrets are often adults, although the syndrome is also reported in juveniles. Often the stress of a concurrent syndrome, such as an insulinoma or adrenal disease, may precipitate the clinical manifestation of an infection. These ferrets seem to be in considerable distress, and may exhibit facial and ear "twitching" and pawing at the mouth. Antibiotic combinations may be prescribed such as Flagyl (metronidazole) and amoxicillin. Additional medications that have been found useful include sulcrafate (Carafate) and H_2 receptor blockers such as cimetidine (Tagamet).

Non-gastrointestinal syndromes may cause clinical signs of diarrhea, anorexia, nausea, and occasionally vomiting. These include renal failure, liver disease (including hepatic lipidosis and lymphoma) insulinoma, systemic viruses, autoimmune diseases, and various neoplastic (cancerous) conditions.

References

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