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Guinea pig standards of care

ORLANDO, FL – State-of-the-art improvements in how we feed and provide medical and surgical care for the pet guinea pig has resulted in a greater lifespan. Understanding basic standards of care will help veterinarians provide optimal care for this beloved family pet, explained Peter G. Fisher, DVM, Dipl ABVP (Exotic Companion Mammal), speaking at the North American Veterinary Community Conference.

Nutrition

The guinea pig is a hindgut fermentor and as such, a maintenance diet of one ounce of high fibre pellets per kg of body weight and ad libitum grass hay is recommended. High fibre pellets that are 18-20% crude protein, 10-16% fibre, and contain a stabilized form of ascorbic acid are recommended. For assist feeding, Oxbow Critical Care for Herbivores or Lafeber's Emeraid Herbivore can be syringe fed. Dr. Fisher explained that as guinea pigs lack L-gulonolactone oxidase, the enzyme required to synthesize vitamin C from glucose, this species requires approximately 10 mg/kg of supplemented vitamin C daily. Without this, connective tissue abnormalities in the form of defective elastin, type IV collagen and laminin may occur. The resulting compromise in blood

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Dr. Dianna Stewart with Buttercup and Westley
Abbey Animal Hospital, Oakville, ON

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North American Veterinary
Community Conference,
Orlando, FL

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What's new with parvovirus?

By Justine A. Lee, DVM, DACVECC, DABT; CEO, VETgirl

Canine parvovirus (CPV) is a common pathogen affecting young dogs that are unvaccinated, under-vaccinated, or immunosuppressed. Since first identified in 1967, the virus has evolved and now there are a variety of sub-types. The prevalence is higher during warm summer months, and spread occurs via ingestion of bodily fluids containing the virus (e.g., vomitus, diarrhea, etc.). Without treatment, CPV can be life threatening due to severe fluid losses and electrolyte derangements secondary to anorexia, vomiting, and diarrhea. In order to ensure the best outcome, treatment should focus on symptomatic supportive care, aggressive fluid therapy, anti-emetics, antibiotic therapy, and nutritional support.

Risk factors/signalment

Parvovirus is often seen in more urban environments with affected pups coming from poor husbandry backgrounds. Dogs affected are typically between 6 to 20 weeks of age. Certain breeds (American pit bull terrier, Rottweiler, German shepherd, and Doberman pinscher) are thought to be at increased risk.

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What you need to know about treating wounds in horses

By Dean A. Hendrickson, DVM, MS, DACVS



There are many different cleaning agents and dressings marketed for treating equine wounds, but not all of them have evidence of safety or efficacy. Therefore, it is prudent to understand what effect they will have on the wound before using it.

Wound cleaning agents

Wound cleaning involves removing the necrotic tissue and other debris from the wound, while reducing the bacterial load. This will help the wound heal more effectively, both functionally and cosmetically. Every cleaning agent and technique will cause some trauma

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vessel integrity may cause joint and gingival hemorrhage, swollen joints and costochondral junctions, dental apical disease leading to loose teeth, and an increased susceptibility to bacterial infections.

Blood collection

When collecting blood for hematology and serum chemistries, the maximal safe blood sampling volume is 10 ml/kg body weight. Venipuncture options include the vena cava, lateral saphenous, and cephalic veins. Dr. Fisher said that for most guinea pig blood draws, he prefers to use 1 ml tuberculin syringes with 0.50 x 16mm needles for vena cava venipuncture.

Imaging

Radiology is used routinely to assess the gastrointestinal (GI), urogenital, respiratory, cardiac, and skeletal systems, and is also part of an overall oral health assessment. An increase in normal GI gas along with the large size of the herbivore cecum (60% of the GI) may make abdominal ultrasonography more challenging.

Fluid therapy

It is often necessary to physiologically stabilize the patient using intravascular fluids, whether associated with illness or surgery. Catheterization with 0.56 to 0.46 mm gauge indwelling IV catheters, using the cephalic vein, is routine in guinea pigs. Most calm animals tolerate catheterization with mild sedation and local infiltration or topical application (EMLA[®] cream) of lidocaine. Consider intraosseous vascular access when unsuccessful at passing an IV catheter. Dr. Fisher said he uses a 0.50x25mm neonatal spinal needle introduced through the trochanteric fossa of the femur. An infusion pump is a necessity in accurate administration of maintenance fluids at rates of 4-6 mL/kg/hr.

Analgesia

Like humans, the exotic mammal may show individual variability in both its pain threshold and tolerance, and recognition of pain in these animals relies on skill, experience, and professional judgment.

The duration of food consumption and grooming, movement frequency and duration, teeth grinding, guarded or aggressive behaviour, are just some of the changes that have been used in the assessment of pain in guinea pigs. A variety of analgesics including NSAIDs, opioids, and alpha 2 agonists may be used in the guinea pig to control pain.

Medical therapy

The following is a summary of several common medical problems and the standards of care in developing a diagnostic and treatment plan. Vitamin C supplementation is warranted in any disease condition that results in anorexia.

Respiratory disease

Affected guinea pigs show signs of repeated sneezing, nasal discharge, brown to red ocular discharge, and head tilt if the infection enters the inner ear. Pathological processes associated with respiratory disease in guinea pigs include:

- Bacteria: *Streptococcus pneumoniae* and *Bordetella bronchiseptica* are frequently incriminated. *Haemophilus spp.* and *Chlamydomphila caviae* have also been reported to cause conjunctivitis and rhinitis in guinea pigs
- Viral: guinea pig adenovirus
- Underlying conditions may include overcrowding, improper nutrition, and housing-related issues (poor ventilation, sudden changes in humidity and temperature gradients)

Treatment includes antibiotic therapy (enrofloxacin, 10mg/kg PO q12h, doxycycline, 5mg/kg PO q12h, or azithromycin (20mg/kg q24h, 7 days) and improving diet and husbandry. Guinea pigs with respiratory distress secondary to pneumonia can be placed in an anesthetic induction chamber for minimal-stress nebulization therapy several times a day.

Gastrointestinal stasis

GI tract dysfunction may diminish normal muscular contractions of the stomach and intestines and with time create an imbalance in the cecal flora. Environmental and metabolic stressors, pain from other underlying conditions, and feeding an inappropriate diet may all be contributory factors. The affected pig will be anorexic or have a reduced appetite, have limited stool production, and may be hunched-up or grind its teeth in response to pain. Depending on the severity of the condition and clinician discretion a variety

of treatment measures may include:

- Analgesics if showing signs of pain
- Fluid therapy: type, route of administration, and volume all depend on patient assessment
- Assist feeding an enteral nutrition product
- Appetite stimulation in the form of vitamin B complex injections and cyproheptadine (1-4mg/pig PO q12-24h) has been empirically advocated to stimulate the appetite
- Prokinetics
- Abdominal massage and encouraging movement and exercise may stimulate gut motility

Gastric dilatation/volvulus (GDV)

Dr. Fisher explained that guinea pigs presenting in obvious distress and with a palpably enlarged, non-compressible stomach warrant a diagnostic workup with radiology and an initiation of critical care. Survey radiographs often show a severe gas dilatation, filling 50% of the abdominal cavity, which often differentiates GDV from gastric stasis. Tachypnea, lethargy, anorexia, and abdominal splinting are all clinical signs seen with GDV and these patients are often in decompensatory shock and pain. The prognosis is guarded, however, supportive care in the form of aggressive shock and fluid therapy, pain management, decompressing the stomach with an orogastric tube, and surgical correction have resulted in positive outcomes.

Dental disease

Feeding free-choice grass hay stimulates constant chewing action, which helps wear down the continuously growing incisors, premolars and molars, and helps prevent acquired dental disease. Metabolic bone disease associated with a poor diet and inadequate calcium or vitamin C deficiency can also cause malocclusion and overgrown dental crowns. General loss of condition, decreased appetite, digestive disturbances, and ocular discharge may all be associated with dental disease.

Skull radiographs, sedation, and the use of specialized dental tools to aid visualization are all required when determining the existence and extent of dental disease.

Mammary gland tumours

Dr. Fisher cited a retrospective study of guinea pigs with mammary tumours which found that males and females were equally represented, but that those tumours found in males were more likely to be malignant versus benign. Benign hyperplasia was the more likely diagnosis in those female pigs with mammary gland enlargement.

Urolithiasis

In one study, 100% of the stones analyzed were calcium carbonate. Definitive causes of cystic calculi are largely unknown with nutrition, anatomy, genetics, water intake, environment, and infection possibly all contributing. Clinical signs include hematuria, stranguria, dysuria, incontinence, and bruxism secondary to abdominal pain. Recurrence is common.

Ovarian cysts

These are very common in guinea pig sows, with prevalence estimates ranging from 58-100%.

The most common source is the rete ovarii, followed by periovarian structures, overgrown Graafian follicles, neoplasia, and infection. Clinical signs, including bilateral, non-pruritic alopecia of the flanks, are likely the result of excess steroid production by follicular cysts. Rete cysts are not believed to be steroidogenic. The most sensitive diagnostic test is abdominal ultrasonography, while the most specific is histopathologic analysis of the cysts. Ovariohysterectomy is the definitive treatment for all ovarian cysts; ovariectomy without hysterectomy is not recommended, as ovarian cysts have been associated with several uterine diseases.

Sarcoptic mites

Trixacarus caviae is the most important mange ectoparasite in guinea pigs. Because *Trixacarus spp.* burrow and tunnel into the skin, they often elicit a cell-mediated immune response resulting in extreme pruritus with subsequent erythema, crusts, hyperkeratosis, alopecia, and secondary bacterial dermatitis. Dr. Fisher said that he advocates the use of both topical selamectin (15mg/kg) and ivermectin (400ug/kg SC) for the treatment of *Trixacarus caviae*. CV