Gastrointestinal Disease in Guinea Pigs and Rabbits

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KEYWORDS

• Gastrointestinal disease • Rabbit • Guinea pig • Stasis • Enteritis • GDV
• Liver torsion

KEY POINTS

- Dental disease is a commonly encountered problem in guinea pigs and rabbits.
- Even minor changes in the diet or digestive process can lead to significant gastrointestinal (GI) disease in guinea pigs and rabbits.
- Diarrheal disease is common and frequently results from alterations in intestinal microflora balance.
- Several cases of dilatation have been documented in guinea pigs.
- Rabbits secrete higher levels of gastric acid and pepsin than do rats and guinea pigs, likely contributing to their higher incidence of gastric ulceration.
- Signs of lead toxicity in rabbits include neurologic presentations, such as seizures, torticollis, and blindness, but more common signs may be nonspecific and include anemia, anorexia, loss of body condition, and GI stasis.
- One of the authors has documented 16 cases of liver torsion in rabbits at a single referral institution in 5 years.

DENTAL DISEASE, GASTROINTESTINAL STASIS, AND DYSBIOSIS IN GUINEA PIGS AND RABBITS

Dental disease is a commonly encountered problem in guinea pigs and rabbits. Guinea pig and rabbit teeth are elodont (continuously growing/erupting), aradicular (open rooted), and hypsodont (long-crowned) and contain incisors and cheek teeth (premolars and molars). With insufficient wear, particularly from low-fiber, low-abrasion diets,

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molar crowns elongate and alter the slope of the occlusal plane, eventually creating sharp points that inhibit closure, often resulting in secondary incisor elongation.[1] Malocclusion also results from diets deficient in vitamin C in guinea pigs because it is critical for gingival health and anchoring of teeth. Trauma, infection, and genetics are also implicated. Dental disease can lead to oral ulcerations, infection, abscess formation, and tongue entrapment in guinea pigs. Guinea pigs are more sensitive to subtle occlusal changes than rabbits, and even mild disease can lead to anorexia and malnutrition.[2] Buccal ulcerations generally form along the upper arcades and lingual ulcerations along the lower arcades in rabbits. Congenital deformities can also result in malocclusion and produce dental disease at several months of age. In rabbits with mandibular prognathism, most commonly seen in dwarf rabbits, misalignment causes overgrowth of unopposed incisors, with upper incisors curving inward and upward toward the roof of the mouth and lower incisors curving outward and upward, sometimes into the upper lip or nose.[1,3,4]

Clinical signs of primary dental disease include anorexia, dysphagia, excessive salivation and drooling, weight loss, emaciation, and changes in fecal appearance and quantity. The presence of facial masses, excessive swelling, exophthalmos, and purulent nasal discharge suggests secondary infection/abscess formation. Animals with anorexia or dysphagia from a systemic disease, or with ocular disease restricting feeding, can develop secondary dental disease.[4] Diagnosis requires a routine physical examination, including thorough oral examination of the incisors, cheek teeth, periapical structures, bone, tongue, and oral mucosa. Complete dental examinations require extraoral radiographic studies from multiple projections (lateral, obliques, ventrodorsal, and rostrocaudal) using high-definition (mammography) film[5] as well as a thorough examination with patients under anesthesia, assisted by oral endoscopy, when available.[6] Diagnosis of periapical disease and abscess can be aided by CT, when available.[7]

Dental correction involves shortening of overgrown teeth, restoring the occlusal plane, extracting any diseased teeth, and treating abscessation. Dental procedures[8] and anesthetic and analgesic considerations[4,8,9] have recently been reviewed. Surgical treatment must be combined with medical therapy to manage pain, restore health (hydration, diet correction, and vitamin C supplementation for guinea pigs), and minimize infection as well as the risk of postoperative GI stasis.[2] Long-term management of dental disease includes providing a high-fiber diet with Timothy grass hay (ad lib),[10] adequate vitamin C for guinea pigs (10–30 mg/d), and regular rechecks with tooth trimming as needed.

Guinea pigs are less prone than rabbits to develop periapical infections and osteomyelitis, although they frequently present with more advanced disease and poor prognosis.[11] Periapical infection, abscessation and/or osteomyelitis of the surrounding bones are common sequelae in rabbits with dental disease. Treatment typically requires extraction, opening and excising an entire abscess capsule, careful débridement of bone, marsupialization with secondary closure, and packing the surgical site. Antibiotic therapy should be based on culture and sensitivity results and can include combinations of oral and/or injectable agents as well as impregnated beads.[11]

GASTROINTESTINAL HYPOMOTILITY AND STASIS

GI stasis is a common problem in guinea pigs and rabbits. The GI tract is specialized for its high-fiber herbivorous diet; even minor changes in the diet or digestive process can lead to significant GI disease. GI stasis has a multifactorial etiology. In animals receiving an adequate diet, GI stasis can result from reduced intake secondary to one of several or a combination of factors causing anorexia, including dental disease,