THE ABCs OF DENTAL DISEASE IN EXOTIC SMALL MAMMALS – A TECHNICIAN’S ROLE

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WHAT IS DENTAL DISEASE?

Dental disease is a generic term used for exotic small mammals such as rabbits, chinchillas, and guinea pigs who have acute or chronic abnormalities and overgrowth of the teeth, usually causing medical problems such as pain, anorexia, drooling, and ocular and/or nasal discharge, to just name a few.

COMMON SIGNS, SYMPTOMS, AND PRESENTATIONS

There are many different signs and symptoms associated with dental disease. Patients may present to the clinic with several different symptoms or only a few. It is very important to be familiar with the different signs and symptoms so a common and life-threatening problem such as dental disease is not overlooked. The following examples are common reasons why clients bring their pet rabbits, guinea pigs, and chinchillas to the veterinarian.

- My bunny, Fluffyman, has not eaten in two days; I don’t think he feels well.
- My son’s chinchilla, Bob, has not pooped since yesterday morning.
- BunBun has discharge coming from her eyes. I think the left eye might be bulging.
- My guinea pig, Mr. Chilly Willy, has lost weight over the last few weeks and hasn’t been eating as well.
- I noticed my rabbit, Jorge, has crusty stuff on his legs and is drooling. I think he is over grooming, too.

If a client mentions any of the above situations, dental disease should be at the top of the list as the causative agent.

Common signs associated with dental disease include the following: weight loss; poor coat quality; not eating well or at all; anorexia; dehydration; change in fecal output, size, appearance and moisture; over grooming; excessive drooling or salivation; ocular and/or nasal discharge; general signs of pain; and crusting on front legs. It is important to note that when a rabbit, guinea pig, or chinchilla presents for any of the above mentioned signs it should be considered a potential emergency situation. A painful rabbit, chinchilla,
or guinea pig that is not eating should be considered an emergency and supportive care should be started immediately. Basic supportive care includes fluid therapy, pain management, and syringe feeding. The patient’s teeth should be trimmed as soon as it is able to withstand anesthesia as this is the only way to provide true, longer term relief.

**CAUSES OF DENTAL DISEASE**

Dental disease can be caused by a variety of different primary or secondary conditions such as poor nutrition, trauma to the jaw or skull, poor genetics, and general malocclusion of the teeth.

**THE THOROUGH PHYSICAL EXAMINATION**

A thorough physical examination should be performed on any patient that presents to the veterinary clinic. The exotic small mammal physical examination is performed similarly to other small animals such as dogs and cats. All items that may be needed during the physical examination should be out and within hand’s reach before you start. Exotic small mammals can become easily stressed so it is essential to keep the “time in hand” to a minimum when necessary. Before you start the hands-on portion of your examination, perform a visual examination. The visual examination should include information about the cage as well as the appearance and mentation of the animal. It is important to note any toys, furniture, and bedding in the cage as well as the diet offered to the animal.

Obtaining the patient’s weight and temperature should be the first part of the physical examination. Since many of the small mammal patients are very small, it is best to use a scale that weighs to the nearest gram. Obtaining a temperature can be challenging, but a quick digital thermometer is generally the quickest and best method (unless the patient is just too small).

A general rule of thumb for performing a physical examination is to start at the head and work your way down to the tail. This will help ensure nothing is overlooked. As stated above, the weight and temperature should generally be obtained first. It is also a good idea to obtain both a heart and respiratory rate as soon as the animal is removed from the cage. If the respiratory rate seems exaggerated, recount the rate upon completion of the examination and after the animal has been placed back into the cage. The primary deviation from the “head to tail” method of a physical examination in exotic small mammals is the oral examination. In dogs and cats the mouth is usually examined when the head is examined. The oral examination can be very stressful for exotic small mammals and therefore is generally done last.

It is important to palpate the limbs and the abdomen during your physical examination. Palpation should include checking for any masses (especially in rats), old wounds or lesions, or any other potential abnormalities on the body. In many species of exotic small mammals, the stomach, kidneys, cecum (if present), spleen (especially in ferrets), and
bladder (if full) can be easily palpated. After palpating the abdominal cavity, examine the feet and genitalia. You should always extrude the penis from the prepuce of chinchillas during the physical exam as it is common for fur to gather around the base of the penis causing constriction. It is also important to examine the skin and look for any signs of dermatophytes or ectoparasites.

The heart and lungs should be auscultated using an infant or pediatric stethoscope. It is important to note the presence of any potential heart murmurs, arrhythmias, harsh lung sounds, or anything that may sound abnormal. This is performed in the same manner as would be performed on a dog or cat. A body condition score should also be assigned to the patient. The same system used with dogs and cats is also used with exotic small mammals, with 1 out of 9 being emaciated and 9 out of 9 being grossly obese.

The hydration status of the patient should be evaluated during the physical examination. This is done in the same manner as a dog or cat. The mucous membranes should be moist and pink. As with most other mammals, the capillary refill time should be between 1 and 2 seconds. A common sign of dehydration is dry or tacky mucous membranes. Another sign of dehydration is sunken eyes and lack of skin turgor. The skin should be tented or pulled upward to assess dehydration.

As part of the examination, a detailed history should be obtained including information about husbandry, diet and history of previous illnesses including trauma. It is extremely important that a thorough dental and oral examination is performed at this time as well. Performing a complete dental examination should start by looking at the eyes, nares and external portions of the mouth and jaw. The eyes should be clean, clear, and free of discharge. There should be no signs of exophthalmos or protrusion. The nares should be clean and free of any discharge. The skull and jaw should be palpated. The jaw should be symmetric and free of lumps and bumps. The outer portion of the mouth should be clean and free of drool or saliva. The legs should also be clean and free of discharge. Rabbits with nasal discharge usually clean their nose with their legs. You will often find evidence of the dried nasal discharge on the medial aspect of the rabbit’s legs. Performing an oral examination on rabbits, chinchillas, and guinea pigs is difficult. Their mouths do not open very widely, especially when awake. Their mouths are also very fleshy and generally full of chewed food. To examine the oral cavity thoroughly, the patient usually needs to be sedated or placed under anesthesia. Proper tools such as a rodent/rabbit mouth gag, cheek pouch dilator, and a light source should be used to properly observe the teeth. It is important to note in the record any abnormalities observed. Teeth abnormalities include inappropriate or reverse angulations, points on the buccal and lingual aspects of the teeth, tongue entrapment, and incisor overgrowth. It is not appropriate to simply lift the lips away from the teeth and examine the incisors. In many cases, the incisors are completely normal and much of the dental abnormalities are found in the pre-molars and molars. If sedation or anesthesia cannot be performed, a human nasal specula, vaginal specula, or otoscope cone can be used to look in the patient’s mouth. This does not often give a full view of the teeth and important dental abnormalities can be missed.
THE DIAGNOSTIC WORK-UP

It is important to properly work up the patient for dental disease. After the initial physical examination, a diagnostic plan should be put in place. Obviously the diagnostics performed on the patient will depend on what the owner is willing to do, but a gold-standard diagnostic plan should always be offered to the client. If they decide to do everything, that is great; if they cannot do all diagnostics at one time (or if the patient is not well enough to have all diagnostics performed at once) then a step-wise fashion should be taken and the most important diagnostics should be chosen first. Different diagnostics will hold different levels of importance based on the individual needs and level of illness of the patient.

Common diagnostics for a dental work-up include the following: complete blood count (CBC) and chemistry panel, whole body radiographs including the skull (skull radiographs should include a lateral, ventrodorsal (V/D) or dorsoventral (D/V), left and right obliques, and a skyline view, also called rostrocaudal view), complete oral examination under sedation or anesthesia, +/-computed tomography (CT) scan.

THE OCCLUSAL ADJUSTMENT

Once the dental work-up has been completed, a plan of action should be put in place. In many cases an occlusal adjustment of the overgrown teeth will be performed. This must be done under general anesthesia and the proper equipment should be used. A dental handpiece attached to an appropriate dental unit should be used. An appropriate bur such as a round diamond bur should be used to adjust the teeth. A high speed handpiece is usually used to trim the incisors. It is inappropriate to trim the teeth with toenail trimmers and it is inappropriate to attempt performing an occlusal adjustment without general anesthesia. Nail clippers are never used because the clipping can cause a fracture line in the tooth potentially leading to endodontic disease. If the tooth is heavily damaged, it can die leading to further problems including the need for extraction. Nail clippers may also cause sharp points and edges on the teeth leading to tongue lacerations, pain, and potential anorexia.

Rabbit, guinea pig, and chinchilla teeth grow continuously. This in turn means that an occlusal adjustment needs to be performed on a regular basis to keep the teeth “normal.” In general, most patients need to have an occlusal adjustment every 4 to 8 weeks. This becomes a huge financial commitment on the owner’s part. An estimate of cost is about $250 to $350 per visit.

DENTAL DISEASE AND SUPPORTIVE CARE

Supportive care plays an integral role in managing the emergency patient that presents to the clinic with dental disease. It is a common occurrence that the owner did not realize the animal was sick until it was too late. It is considered an emergency situation once the
animal has stopped eating normally, is painful, and has reduced or no fecal production. Gastrointestinal (GI) stasis usually occurs within hours of not eating and supportive care needs to be started. When a patient presents for GI stasis, a fluid therapy regime should be started. Depending on the severity of the patient, fluid therapy can include intravenous (IV) catheter placement and fluid therapy or subcutaneous fluid therapy. Pain management should be considered in these cases as well. Not only does dental disease cause pain, but bloating and GI stasis can cause pain in the patient. Nonsteroidal anti-inflammatory drugs (NSAIDs) such as meloxicam and/or opioids such as butorphanol, buprenorphine, or oxymorphone should be considered and chosen based on the analgesic needs of the patient. Butorphanol and buprenorphine should not be used in patients experiencing severe pain.

If the patient is anorexic, syringe feeding should be started immediately. Hand or syringe feeding is an essential skill to conquer when working with exotic small mammals. There are several different hand feeding formulas that can be offered to herbivores. Herbivorous animals such as rabbits, chinchillas, and guinea pigs can be hand or syringe fed such formulas as blended pellets, vegetable baby food, canned pumpkin, or the commercial diet Oxbow Critical Care for Herbivores. For example, a homemade formula may consist of canned pumpkin mixed with garden vegetable baby food or blended pellets. Homemade formulas such as the one mentioned above are perfectly acceptable to feed as long as they are high in fiber, low in sugar, and otherwise meet the nutritional needs of the patient. Oxbow Critical Care for Herbivores can also be used to hand or syringe feed the patient. Oxbow Critical Care is manufactured commercially and consists of a balanced diet that can be used to provide nutritional support to convalescing herbivores.

There are two techniques that can be used to syringe feed herbivorous patients. The first technique consists of loading a 60-cc catheter tip syringe and simply feeding the animal by placing the tip of the syringe into the patient’s mouth. This technique works well with patients that are actively interested in eating. Some patients will actually lick the food from the syringe as it is pushed out. The other technique also consists of loading a 60-cc catheter tip syringe with the hand feeding formula but instead of feeding the patient directly with the 60-cc syringe, several 1-cc or 3-cc syringes will be back-loaded from the 60-cc syringe. The smaller syringes can be placed directly into the patient’s mouth with the entire amount the food in the syringe squeezed into the mouth at one time. This seems really drawn out and tedious (and it really can be!) but for most patients, this technique works the best. If the animal is only fed one small syringe of food at a time, more food actually ends up in the patient and less on the patient, technician, exam table, etc. When necessary, the animal can be tube fed using a soft rubber feeding tube.

In some species of small mammals, such as rabbits, a nasogastric tube can be placed if needed. This is done is the same manner as other mammalian species. A feeding tube with a radiopaque line should ideally be placed. A small amount of lidocaine (Xylocaine) jelly can be swabbed on the skin at the opening of the nostrils. This should sit for several minutes to become more effective. The tube is inserted into either the left or right nostril and advanced through the nasal passage and into the esophagus. It is extremely important
to take a radiograph and confirm proper placement prior to feeding the patient. The tube is small and can easily be inserted into the trachea. Once placement is confirmed, the tube is secured in place with a butterfly piece of tape and sutured to the top of the head with a few simple interrupted sutures. The feeding tube should be flushed with sterile saline or water before and after each use. If the patient coughs during the flush, a recheck radiograph should be taken to confirm proper placement. It is unlikely that the tube would slip out of the esophagus and into the trachea, but it is possible.

**THE TECHNICIAN’S ROLE IN DENTAL DISEASE**

The technician plays an important role in helping patients with dental disease. First, the technician is responsible for helping the doctor perform a complete physical examination, including an oral examination. The technician should be able to recognize the common signs and symptoms of dental disease. In many cases the technician is responsible for taking a thorough history from the owner. He or she should be able to ask the appropriate questions to obtain a proper history including detailed questions about diet and husbandry. The technician may also help educate the client about dental disease and how to recognize signs in their pets. The technician also plays a crucial role in providing nursing and supportive care for the critical patient presenting with dental disease. Lastly, the technician should also have the experience and knowledge to perform anesthesia on rabbits, guinea pigs, and chinchillas. Providing anesthetic care is an extremely important aspect of dealing with dental disease.

**SUMMARY**

Dental disease is commonly seen in rabbit, guinea pig, and chinchilla patients. Signs and symptoms include weight loss; poor coat quality; not eating well or at all; anorexia; dehydration; change in fecal output, size, appearance and moisture; over grooming; excessive drooling or salivation; ocular and/or nasal discharge; general signs of pain; and crusting on the front legs. Causes of dental disease include poor nutrition, trauma to the jaw or skull, poor genetics and general malocclusion of the teeth. In many cases, patients that present to the hospital for dental disease should be considered a potential emergency. Supportive care should be provided when necessary. Supportive care includes fluid therapy, pain management, and syringe feeding. Technicians play a crucial role in helping patients with dental disease. Technicians must have a good overall knowledge and understanding of dental disease since they fill many roles from educating clients to providing anesthetic care to these sick patients.