

Rabbit Dental Disease

Dental disease in the pet rabbit remains one of the most common problems seen by veterinarians. In recent years we have come to a better understanding of causes, prevention and treatment of these diseases.

Anatomy of rabbit teeth

Rabbits are herbivores that are designed to eat a diet comprised of a wide variety of vegetation from succulent to tough, dry material. All of the rabbit's teeth grow continuously throughout its life to compensate for the pronounced wear created by long periods of chewing on abrasive foods.

Rabbits have a total of 6 incisors (the teeth you see in the front), two sets upper and one set lower, and no canine teeth. The cheek teeth consist of three upper premolars and three upper molars, and two lower premolars and two lower molars on each side. The teeth are worn down at a rate of approximately 3mm per week.



Normal Occlusion

The normal structure of the jaw AT REST allows the incisors to touch, but not the cheek teeth. A rabbit can use its incisors to cut food material without interference from the cheek teeth. Food is taken into the mouth with the prehensile ("grasping") lips and incisors and then moved via the tongue to the cheek teeth. When ready to chew, the rabbit changes the position of the jaw and brings the cheek teeth into contact. At this time the incisors are no longer in contact allowing the rabbit to chew without interference.

Rabbits chew their food with a wide side to side movement. A normal shape to the jaw is very important to the normal wearing of the teeth. It is important to note that dental disease can start in either the cheek teeth or incisors, but over time will ultimately involve both sets of teeth. The lesson here is that we must always

be concerned with the health of ALL the teeth, even when we initially see disease in only a few.

The top part of the tooth that is visible to us is called the crown and the bottom is called the root. The root is only visible with the aid of a X-ray. Improper wear of a rabbit's tooth can lead to overgrowth or crooked growth of either the crown or the root. Overgrown crowns are generally easy to see, but overgrown roots can be overlooked. Severely overgrown roots in the lower jaw can cause a lump to form along the bottom edge of the jawbone. Overgrown roots in the upper jaw can block the drainage of tears through the tear duct and cause lumps behind the eyes.

Rabbit teeth have a natural curve as they grow. If the crown of a cheek tooth becomes overgrown it can come into contact with either the inside of the cheek or the edge of the tongue resulting in painful ulcers. These ulcers can be painful enough to cause the pet to stop eating.



Malocclusion

Causes of dental disease

* Genetics - Unfortunately human interference in the breeding of rabbits has often resulted in anatomical changes that can lead to disease. In the case of dental problems, changing the shape of the skull can drastically change how the teeth contact and wear on each other. The most obvious example is the lop-eared rabbit, in which the length of the jaw has been shortened. The changed the jaw structure results in malocclusion of the teeth and ultimately elongated teeth (because they are not being worn down) that must be trimmed or removed. This type of dental problem is usually seen in young rabbits before one year of age and is often first noted in the incisors. However, if left untreated, the cheek teeth will also be affected in due course. There is no cure for this problem other than life-long control and maintenance of the abnormal tooth growth. The ultimate solution is to breed rabbits with normal jaw anatomy.

* Trauma - Trauma to the face can result in changes in the jaw or malocclusion of the teeth. If the jaw is broken it may heal in an abnormal position. If the teeth are broken (most typically the incisors) and they grow in at an improper angle, it will throw off the anatomy of the mouth and lead to multiple tooth problems. One of

the most common incisor trauma is caused when a tooth breaks off below the gum line as a result of trimming the incisors with dog nail trimmers. (See the section on Treatment for safer methods of trimming incisors). However, accidents do occur and it is essential to get immediate care for you pet should a facial trauma occur to provide the best possible chance for a normal recovery.

* Systemic disease - Some systemic diseases can result in a change in dental health. For example, diseases that alter calcium levels in the body can cause a change in the bone surrounding the tooth, which will cause the tooth to shift its position and lead to malocclusion. Rabbits too weakened by disease to chew on solid food can develop overgrown and maloccluded teeth due to improper wear. It is important for your veterinarian to monitor the dental health of your pet while it is experiencing any serious systemic disorders because dental disease may occur as a secondary problem.

* Dental infections - Dental infections are not a common cause of dental disease. More often, abscesses of the tooth roots are the result of long term dental problems, particularly where the tooth root has overgrown and resulted in inflammation.

* Diet - Next to genetics, this is probably the most common cause of dental disease in the pet rabbit. In our modern world, we were trained to believe that a commercial pelleted diet is the best diet for a rabbit. After all, it is convenient, tidy and contains all the nutrients that the rabbit needs. The commercial rabbit diet was originally developed for the "production rabbit," meant for a short life ending in the meat or fur market, or for laboratory rabbits who also experience a shorter life span. For these purposes it is an efficient means of growing a rabbit quickly, but is a poor diet for rabbits kept as pets for the full span of their life.

The problem is that rabbits were never designed to eat a diet that is essentially already "chewed up" or pulverized. A pellet breaks apart easily in the mouth and there is little work for the teeth to do and thus little wear. In addition, because pellets are a concentrated nutrient source, the VOLUME of food is a fraction of what a rabbit would be eating in the wild and therefore the actual amount of time a rabbit spends chewing in a day is drastically reduced. Both the small volume and composition of an exclusively pelleted diet are both adversely affect proper tooth wear. We do not recommend commercial pellets as a main source of food for any pet rabbit for this reason.

Disease caused by an improper diet may not be evident for many years. Affected rabbits are usually 3 years or older. Dental changes may be very subtle at first, but if the situation is not quickly corrected, advanced dental disease can occur

Signs of dental disease

There are a variety of signs associated with dental disease ranging from almost undetectable to severe. If the disease is mild, the rabbit may not show any obvious problems and the problem may only be discovered on a routine physical examination. However, most dental problems eventually become painful and the rabbit will give some obvious indications of discomfort or inability to eat properly.

* Anorexia (loss of appetite)- This is a common finding because of the pain of either a tooth spur causing an ulcer of the cheek or tongue, an elongated tooth root or because the teeth are so out of alignment the rabbit can't pick up or chew food. There are many other causes of loss of appetite.

* Being more selective about the food - As rabbits start to develop malocclusion of the teeth or dental pain they may stop eating certain items such as carrots, pellets and occasionally hay. They will continue to eat soft foods like fruits and some leafy greens, but cannot eat the harder foods.

* Dropping food out of the mouth - The rabbit still tries to eat, but can't completely chew the food and some of it falls back out of the mouth.

* Excessive tear production - This is a common sign of dental disease that involves the upper incisors. The tip of the upper incisor root is in close proximity to the tear duct. Inflammation or elongation of the root can partially or totally block the tear duct. The tear gland will still produce tears but they spill over onto the face as opposed to going down the duct. The corners of the eyes appear wet or accumulate a crusty white material that is an accumulation of salt and mucous. Secondary bacterial infections cause inflammation of the tear duct as well as the production of pus.

* Nasal discharge - If the roots of the upper incisors are inflamed or elongated there may be irritation to the sinuses and with resultant nasal drainage. This can be difficult to differentiate from true upper respiratory disease, and it is essential to have a high detail X-ray to aid in the diagnosis.

* Salivating excessively - This can happen because of pain or the inability of the rabbit to properly close its mouth due to overgrown teeth. The saliva accumulates on the fur in the corners of the mouth, the chin and the dewlap.

Other causes of excessive salivation include overheating, eating something that has an unpleasant taste, foreign bodies in the mouth and extreme general weakness.

* Tooth Grinding - This is more often seen with abdominal discomfort, but some people have noted that rabbits with dental disease may grind their teeth more

frequently. Occasional tooth grinding can be normal, but if it is heard continuously there may be a problem.

* Bulging of the eye - Abscesses of the upper premolars or molars can lead to pressure behind the eye. The eye will be pushed slowly out until the optic nerve is stretched and damaged and the pet loses its sight. Tumors behind the eye can also cause a similar sign.

Diagnosing dental disease

* History - The history of the rabbit may reveal changes in eating habits that indicate dental disease. As I have said many times, it is vitally important that you observe your pet closely and share your observations with your veterinarian.

* Physical examination - Every rabbit should have a thorough mouth examination done at least once a year. It is my opinion that every rabbit should have a mouth examination performed each time it comes into the veterinary clinic. The earlier we can detect dental disease the greater the chances for success of treatment. The examination is usually performed without anesthesia in the healthy pet. There are a number of instruments that can be employed to examine the cheek teeth without discomfort in the conscious pet. In cases where the pet is difficult to handle or where dental disease is difficult to see due to its position, it will be necessary to use sedation for the mouth examination.

In addition to the mouth examination, a complete physical examination is vital to determine any other disease problems that might be present.

* Radiographs (X-rays) - Rabbits that have dental disease need to have radiographs taken of the skull to determine the extent of the disease and to determine the appropriate treatment approach. Without a radiograph, it is impossible to assess the condition of the tooth roots. Several views of the head need to be taken in order to see all the teeth. It is necessary and also much less stressful to the rabbit to use anesthesia for this diagnostic procedure.

* Blood tests - If the rabbit is suspected of having concurrent disease that may have lead to the dental disease, your veterinarian will recommend that certain blood tests be performed.

Treatment of dental disease

The most valuable key to treatment and management of dental disease is EARLY DETECTION. This is why a thorough mouth exam coupled with your keen observations of your pet are critical.

* Diet - A diet full of food items that require chewing is essential. A healthy diet is necessary in the treatment of dental disease to minimize further damage and to attempt to prevent reoccurrence.

* Grinding/cutting overgrown teeth - Incisors should not be cut with side cutters or dog nail trimmers. Although there are individuals who have employed these methods for years with success, it only takes one occurrence of breaking off an incisor below the gum line that leads to a lifetime of dental problems. It is not worth the risk. Overgrown incisors are best cut with a dental burr or a small grinding attached to a low or high-speed motorized handle. In this way teeth can be trimmed without fear of breakage. This procedure can be performed at a veterinary clinic or by a person experienced in this technique. It is generally performed painlessly and quickly while your pet is awake. Occasionally, a very nervous rabbit is difficult to handle and may have to be sedated for this procedure.

Overgrown cheek teeth are more difficult to trim in the conscious pet. The rabbit has a narrow mouth opening making it difficult to access all areas easily in the conscious pet. It is usually necessary to anesthetize your pet to properly manage all but the mildest cheek tooth overgrowth. The treatment that has been used for years is to simply cut back the overgrown crowns with a bone-cutting instrument. The problem with this treatment in all but the mildest of dental disease is that it does not allow for correction of the alignment of ALL the cheek teeth. It is rare that only one or two teeth are malaligned. Although this procedure can often be done without anesthesia, the likelihood of rapid (4 to 6 weeks) reoccurrence of the overgrowth is high. In addition, some rabbits object vigorously to this procedure and because it is often being performed blindly, there is a possibility of injury to the cheek, gums or tongue. In cases of moderate to severe disease it is preferred to anesthetize the pet and use a dental burr to grind and reshape all the cheek teeth at the same time to encourage proper realignment. This treatment addresses the entire anatomy of the mouth rather than just one or two teeth. In early cases, this treatment may be curative. In chronic or more severe disease, the procedure will need to be repeated, but the length of time between treatments is much longer than with a simple clipping. Your veterinarian can advise you on the best treatment regimen for your pet.

* Extracting teeth - Extraction of abnormal teeth, either cheek teeth or incisors, is a viable and often more humane option for your pet than frequent trimming. Rabbits can successfully live without their incisors because they can use their prehensile lips to move food into the mouth. Rabbits can also live and eat without one or more cheek teeth. We have helped many rabbits that otherwise would not have been able to survive by removing the abnormal teeth permanently. Diet modifications may have to be made in these cases. Specifics should be discussed with your veterinarian.

* Treating abscesses - The treatment of abscesses of the face is a topic for an entire column, so I will not attempt to go into it here in detail. Suffice it to say that dental disease must be considered anytime a rabbit develops an abscess on the face or jaw and X-rays should be taken to assess the problem. There are many options now available for the treatment of dental abscesses including complete surgical excision, antibiotic bead impregnation, and various injections into the wall of the abscess. Please discuss these options with your veterinarian.

Another case of maloccluded incisors.



Prevention of dental disease

* Diet - It is obviously not possible to prevent all types of dental disease. Dental problems caused strictly by diet, however, can be avoided. Your rabbit should be fed a diet of unlimited grass hay and a good amount and variety of fresh leafy greens daily. Avoid feeding an exclusive diet of commercial pellets. You can find specific information on the healthy diet of the House Rabbit in our Care Of Rabbits handout. In addition offer other items to chew upon such as fresh tree branches (from trees that are NOT sprayed with chemicals), untreated wood pieces and unvarnished, unpainted wicker baskets. Providing a healthy diet will ensure adequate wear of all the teeth.

IT IS NEVER TOO LATE TO CONVERT A PET TO A HEALTHY DIET. A natural diet has a myriad of benefits beyond just good teeth; it is literally the foundation for good health.

* Examinations at home - Be familiar with the appearance of your pet's teeth. You will only be able to see the incisors, but take a good look at least once a month. Your veterinarian or experienced rabbit friend can help show you how to perform the exam. Report any changes in shape, color or texture of the teeth to your veterinarian as soon as possible.

* Veterinary examinations - As mentioned, your veterinarian should examine your pet at least once a year. Part of a thorough physical examination on a rabbit is a dental exam. Merely examining the front teeth is not sufficient. Cheek teeth may have early disease that will be missed so the entire mouth needs to be examined.

Conclusion

Dental disease is common in the pet rabbit. Diet is the best means of prevention and is essential as well in treatment. Your pet's teeth should be thoroughly examined at least once a year. If your pet does develop dental disease, there is a good possibility it can be controlled effectively if diagnosed early.