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"Happy Pets, Happy People"

Hairballs in Rabbits: Fact or Fiction

(Written for the Nation House Rabbit Society 4/96)

My rabbit hasn't pooped in about three days. My friend says he has a hairball in his stomach and I should give him pineapple juice, papaya enzyme tablets, Prozyme and a cat hairball laxative to dissolve the hairball. This doesn't seem to be working. Why did he get a hairball and what should I do?

The diagnosis of "hairball" or "wool block" is commonly made in rabbits. This is a condition that doesn't really exist as a primary disease in the opinion of a growing number of veterinarians who care for rabbits. By that I mean that the PRIMARY problem is not an accumulation of hair in the stomach, but rather a problem with sluggish motility of the gastrointestinal tract (GIT) leading to dehydration and impaction of material in the stomach and cecum.

So how does this happen? One needs to look at the GIT physiology of the rabbit to understand this condition. As discussed in HRJ Volume III number 3, the indigestible fiber in the diet "drives" the digestive tract, in other words, fiber determines the speed with which ingesta moves along. When there is an insufficient amount of this type of fiber present motility may be slowed.

Let's review the GIT of the rabbit to look at all the parts. (A detailed discussion and diagram was presented in HRJ volume III number 3). The stomach holds the food and essentially sterilizes it with a pH of 1 to 2. The food then moves out into the small intestine where nutrients are absorbed into the body. At the junction of the small intestine and the large intestine is a large blind sac called the cecum. This is where the digestible fiber and other portions of the diet that need to be fermented are deposited. A variety of microorganisms break down this material in the cecum and convert it into nutrients such as fatty acids, amino acids and vitamins. (Please note: *Lactobacillus* or *Acidophillus* are not significant microorganisms in a rabbit's cecum). The nutrient rich material is then excreted in the form of cecotropes (some people call these "night feces") which are eaten directly from the anus by the rabbit and redigested.

When the speed with which material moves through the GIT is altered it can affect how quickly the stomach and cecum empty. If the motility is reduced as in diets that are too low in indigestible fiber, then the stomach and cecum will empty slowly. The rabbit eventually stops eating and drinking possibly due to a feeling of fullness in the stomach. When there is no food coming into the system the GIT motility slows to nearly a standstill. Water is still needed by the body and it is extracted from the stomach and cecal contents. A vicious cycle sets up. The longer the rabbit doesn't eat, the more dehydrated and impacted the material in the stomach and cecum becomes and the less the rabbit feels like eating. Add to this a diet too high in protein or starch and the result can eventually be disastrous. Diets too high in protein and/or starch can result in changes in the cecal pH and thus the types of microorganisms growing there. These fragile communities are altered allowing the growth of bacteria such as *Clostridium spiriformes* which can result in death due to the production of iota toxins.

So where does the hair come from? Rabbits will always have some hair in their stomach contents. They groom themselves constantly and swallow the hair. A true "hairball" is comprised of nearly 100% hair as in the cat or the ferret. In the rabbit, hair is mixed with stomach contents in a loose mass. As this material dehydrates, the larger particles are left behind which includes the hair. The liquid stomach contents gradually turn into a solid tightly adhered mass. The stomach contents feel doughy and firm on palpation. Radiographs reveal a solid mass of material in the stomach, often with a distinctive halo or air around it.

To sum it up, the cause of this condition is NOT the presence of hair in the stomach, but rather a GIT motility disorder that RESULTS in firm impacted stomach and cecal contents. If we do not correct the underlying problem, then this condition is destined to reoccur.

How do rabbits act when they have impacted stomach or cecal contents? They will stop eating either suddenly or gradually over a period of time. The stools will get smaller, then stop altogether. Often, these patients will be bright and alter for several days after they stop eating. They may want to chew the paper on the bottom of the cage, the woodwork or the wall board (all sources of fiber that they are craving), but refuse to eat pellets. Some rabbits have had periodic soft, pudding-like stools prior to complete loss of appetite. Eventually these patients can become seriously ill and die if the condition is not treated.

How is a stomach impaction due to reduced GIT motility treated? First, it is important to have a thorough physical examination performed by your veterinarian before embarking on any form of treatment. Your veterinarian may suggest x-rays or other lab work. Since this is n impaction problem, the goal is to rehydrate the rabbit both through the circulatory system and through the GIT. Fluids are administered either under the skin or in a vein. Liquid high fiber food is given by syringe or naso-esophageal tube two to three times daily. Ground rabbit pellets or powdered alfalfa powder can be mixed with blenderized green leafy vegetables and an oral electrolyte solution for these feedings. Medications to stimulate the GIT and analgesics may also be used. It is rarely necessary to use antibiotics and in fact these might cause further disturbance to an already compromised GIT. Some people like to use laxatives, and enzymes. I too, have used these products in the past. But have found that they really aren't necessary. I have great success in treating this condition without enzymes. It is important to remember that enzymes of any kind (pineapples, papaya or pancreatic) DO NOT actually dissolve hair. The real keys to treating this problem are: hydration of the stomach/cecal contents and getting the GIT moving again.

I find that many rabbits presented with stomach/cecal impaction will take care of it themselves when they are given a selection of leafy greens to eat. The majority of rabbits that develop stomach/cecal impaction, in our practice have been on a primarily pellet diet and have had little or no access to greens or hay. They are craving fiber and fluids and the leafy greens can be just the ticket. In addition we give all these patients good quality grass hay. We completely remove pellets from the diet (rabbits usually won't eat pellets when they are will anyway). Whatever treatment is used one can expect stools to be produced within three days. It is rarely necessary to perform surgery for this condition in the otherwise healthy rabbit.

Other causes of GIT disease in the rabbit include dental disorders causing inability to eat (tooth root abscesses, overgrown teeth, enamel spurs), partial or complete blockages of the intestine with foreign material (often carpet fibers or large chunks of dried stomach content), post surgical adhesions, intestinal parasites, toxins (such as lead) and other systemic disease. A complete blockage of the intestinal tract is an emergency which usually requires immediate surgery. Rabbits with intestinal blockages will be very depressed and painful in the abdomen. It is IMPORTANT to have your rabbit thoroughly examined by your veterinarian to determine ALL the problems prior to instituting the treatment that I have described.

So, how do you PREVENT this situation? It really isn't difficult. The nature of the GIT physiology of the rabbit suggests that it is virtually important to provide a diet that is high in indigestible fiber as was

discussed in HRJ volume III number 3. This is easily provided in the form of grass hay (oat, timothy, Bermuda, etc). Grass hay is lower in calcium, protein and calories than legume hay such as alfalfa. Hay should be provided 24 hours a day. This way, the pet will never go hungry, will always have a source of nutrition and fiber. The next important part of the diet are fresh leafy greens. Dark leafy greens provide not only good fiber, but moisture (as well as other nutrients), and the moisture helps to keep things mobile. As quoted in HRJ volume III number 4, you should use at least three different types a day so as to provide a variety of nutrients and tastes. Examples include dandelion greens, kale, mustard greens, romaine, endive, carrot tops, parsley, etc. In my opinion rabbits can have as much o these foods as they want as long as they are eating the hay well. However, of you have never fed greens to your pet, it is best to introduce hay first for a couples of weeks and then add in the greens gradually over a few weeks. In this manner it is unlikely that your rabbit will experience any digestive problems. Rarely a rabbit will have a "reaction" to a food item and produce a soft stool. Just eliminate this from the diet. Other vegetables and fruits can also be given such as apples, pears, peaches, berries, pea pods, broccoli, papaya, mango, kiwi, tomatoes, melon, oranges, etc. Wash all fresh foods thoroughly as you would for yourself. Stay away from high starch foods such as legumes (peas and beans) and grains. Clean water should always be available in a water bottle or heavy crock bowl. You will notice that your rabbit will drink far less water on a diet high in greens than on one that is composed primarily of pellets.

As was discussed in HRJ volume III number 4, for the NONBREEDING house rabbit the least important part of the diet is the pellets. These concentrated food sources were designed originally for rabbits in production (for food or fur) and for laboratory rabbits. They are packed with calories and vitamins and minerals. Nonbreeding house rabbits do not need these extra calories and they produce most of their own vitamins through their cecotropes when provided a diet high in hay and fresh foods. I rarely recommend pellets as part of the diet for a house rabbit unless I am trying to increase the weight of a patient r in cases where hay cannot be given because it is unavailable or the humans in the household are allergic to it. We have seen hundreds of rabbits (including my own three; a Flemish Giant, a mini rex and a mixed breed) that are in excellent condition on a hay and fresh food diet alone. These rabbits rarely experience GIT disease.

It is so frustrating for me in practice to see the same myths perpetuated about "hairballs" and to see this disease used so often as a primary diagnosis. Let's stop using the term "hairballs" and replace it with "stomach/cecal impaction due to reduced GIT motility." Understand that impaction is rarely a CUASE of disease but the RESULT of underlying GIT problems. This condition is 99% preventable with an appropriate diet. It is unnecessary to routinely use laxatives, enzymes and other supplements. Let's stop trying to play "catch up" treating stomach crises all the time and feed our pets the type of diet they were designed to eat.

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