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Dog Tips

Common Household Items That Could Harm Your Dog

Discover the surprising everyday objects in your home that contain zinc. Learn how to prevent accidental ingestion and keep your beloved pet safe from potential poisoning.

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STORY AT-A-GLANCE

- Zinc is an essential trace mineral that plays an important role in many biologic processes. Zinc exists in many forms, and ingestion of some forms can lead to toxicity; zinc toxicosis is most prevalent in canine companions
- Symptoms of zinc toxicosis include vomiting, diarrhea, black tarry stools, loss of appetite, lethargy, depression, jaundice, shock, cardiac arrhythmias, and seizures
- Diagnosis of zinc poisoning involves a physical exam, blood tests, and x-rays to detect a zinc-containing foreign object in the GI tract
- Treatment of dogs with zinc toxicosis involves supportive care (e.g., treating dehydration, shock, and electrolyte imbalances, and increasing urine output), along with removing the source of the zinc
- Common sources of zinc include batteries, staples, nuts and bolts used in pet carriers, zinc-oxide creams and ointments, zippers, certain types of lozenges, and U.S. pennies minted after 1983

Zinc, an essential trace mineral that plays a role in several important biologic processes, is abundant in nature and exists in many forms. However, ingestion of some forms of zinc can result in the creation of toxic zinc salts in the acidic environment of the gastrointestinal (GI) tract.

Zinc toxicosis occurs in humans and a wide variety of large and small animals, but it's most often seen in canine companions. Zinc-containing substances are readily available around most homes, and as we know, dogs have a habit of ingesting things they shouldn't.

Signs of Zinc Poisoning in Dogs

Most of the toxic effects of zinc occur when free zinc is released by stomach acid. Free zinc forms soluble zinc salts that damage the intestinal mucosa and are absorbed and quickly distributed to the liver, kidneys, prostate, muscles, bones, and pancreas. Zinc salts have irritant and caustic effects on tissue, interfere with the metabolism of other minerals such as calcium, iron, and copper, and inhibit the production and function of red blood cells.

The median lethal dose of zinc salts in cases of acute toxicity has been reported to be ~100 mg/kg. Also, diets containing high levels of zinc (>2,000 ppm) have been reported to cause chronic zinc toxicosis in large animals. A toxic dose has not been established in dogs; however, normal zinc serum concentrations are between 0.7 and 2 µg/ml.

Symptoms of zinc toxicosis begin to appear within a few days of ingestion, and the severity depends on the amount ingested. Clinical signs can range from mild vomiting to death. Early symptoms include vomiting, diarrhea, black tarry stools, and loss of appetite. Additional symptoms include lethargy, depression, orange-colored feces, jaundice, shock, cardiac arrhythmias, and seizures.

Diagnosis and Treatment of Zinc Toxicosis

Veterinarians look for specific physical signs of zinc poisoning, including pale mucous membranes, an irregular heartbeat or heart murmur, dehydration, jaundice, and abdominal pain. Neurologic signs range from mild lethargy to significant depression. There may be weakness, and in severe cases, **seizures**.

Your veterinarian will order laboratory tests, including a biochemistry profile, electrolytes, urinalysis, and a complete blood count (CBC). The CBC may suggest **anemia** (which results from zinc-related destruction of red blood cells), granules in red blood cells (Heinz bodies), and/or variations in red blood cell coloration known as polychromasia.

The biochemistry profile may point to high levels of hemoglobin and bilirubin. If there are also high levels of blood urea nitrogen, creatinine, liver, or pancreatic enzymes, it suggests multiple organ failure. Another test called the packed cell volume (PCV) is necessary to calculate the number of viable red blood cells to determine whether a blood transfusion is warranted.

To confirm a diagnosis of zinc toxicosis, laboratory tests to measure the levels of zinc in the dog's blood must be run. These tests can also provide information about blood clotting activity. X-rays are also often taken to confirm ingestion of a zinc-containing material.

Treatment of zinc toxicosis in dogs primarily involves supportive care and removing the source of the zinc. Initial efforts should be focused on treating dehydration, shock, and electrolyte imbalances, and increasing urine output.

If a zinc-containing foreign object is found in your pet's GI tract, it must be removed once he is stabilized. If the object is in the stomach, it can be removed by endoscopy. If it has moved into the small intestine, a laparotomy must be performed to remove it.

Drugs to lower stomach acidity and promote the release of zinc will be given. These typically include proton-pump inhibitors like omeprazole, or H2 blockers to decrease production of stomach acid in order to limit systemic absorption of zinc salts from the GI tract. If there is gastric irritation or ulceration, gastroprotectants may be given, and anti-nausea drugs and painkillers may also be indicated.

If there has been severe red blood destruction, blood transfusions may be required. Prompt treatment is necessary to save the life of a pet with zinc toxicity. Often, the levels of zinc in the blood drop quickly once the source is removed. Unfortunately, dogs with severe complications like multiple organ failure have much less chance of survival.

Common Sources of Zinc

Some of the items that can contain zinc may surprise you:

- Hardware used in pet carriers
- Zinc-oxide creams

- Batteries
- Certain cold remedy lozenges
- Zippers
- Herbal supplements
- Jewelry
- Paints
- Board-game pieces
- Automotive parts
- Staples and tacks
- Coating on galvanized metals
- Nails
- U.S. pennies produced after 1983

Another source of zinc is deliberate supplementation by pet parents who believe their dog (or cat) needs extra zinc in their diet. One of the possible reasons for this is a rare skin condition in some northern breed dogs called canine zinc-responsive dermatosis.

Some pet owners wrongly assume supplemental zinc will help with their pet's **dry, flaky, or allergic skin** and begin supplying zinc pills, which can cause fatal toxicosis in some cases. While zinc is required (via food or supplementation) in a homemade diet, all commercial pet foods already contain adequate zinc, so your pet should not be supplemented with additional minerals unless specifically suggested by your veterinarian.

Another way pet parents can accidentally feed their pets too much zinc is in the form of multivitamins. Some well-intentioned but misguided pet owners assume their pets will benefit from a multivitamin, and instead of buying one specifically for dogs, they offer their own vitamins, which can lead to a toxic overdose of many nutrients, including zinc.

According to veterinary journal dvm360, there are thousands of cases of zinc exposure in dogs each year, and hundreds in cats.[1] Most sources of zinc in these cases are metallic objects, multivitamins, and creams and ointments containing zinc oxide. Case reports and retrospective studies indicate that ingestion of pennies is the primary source of zinc intoxication, and **small-breed dogs** are the most frequent victims.

Sources and References

[1] dvm360, Toxicology Brief: Too much of a good thing: Zinc toxicosis in dogs, November 1, 2013