

# Case History of Zinc Poisoning

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*and*

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In the last issue of Watchbird, Dr. Kristen Chapman presented an overview of the problem of avian zinc toxicity. Because of the many sources of heavy metals in the average home of companion parrots, metal toxicity is a problem that occurs all too frequently. It is often overlooked when the health problems of pet birds are diagnosed because it mimics other illnesses. Lead is a frequent problem and there are several other metals that cause problems for birds, but zinc seems to be the most frequent cause of metal toxicity in companion birds.

The following case history is that of a male Eclectus parrot with a serious case of zinc toxicity. He was three years old when he was adopted by Betsy Hayes, who was unaware of the bird's medical condition at the time of the adoption. Except for an overgrown beak, he appeared to be perfectly healthy. On his first vet visit, he had a beak, nail, and wing trim and was pronounced healthy by the vet. Sensing that something was not quite right, Beauty's owner took him to a different vet, Dr. Sheree Everett, who had been highly recommended. Dr. Everett insisted on blood work and she was concerned about the overgrowth of the beak. Beauty's liver enzymes and uric acid levels were borderline high but in his former home, he had lived on an all-seed diet with only an occasional slice of apple for variety, which is an incomplete diet that would not necessarily assure perfect blood work.

Beauty's diet was changed to a variety of sprouts, fresh, organic fruits and vegetables, pasta, rice, whole grain breads, a quality seed mix, meats, eggs, nuts and a maintenance pellet. The vet agreed that this was an improvement in the diet but based on the results of the blood work, she added a prescription pellet for birds with liver problems.

During the next year, things went well for Beauty. His weight remained steady and there was a decrease in the rate of beak growth. Beak trims were needed less often so both vet and owner believed that the improved diet was all that Beauty needed. However new blood work revealed that Beauty's liver enzymes and uric acid levels were still high, although somewhat lower than they were on the first test. Within the next few months, it became obvious that Beauty was not well when he stopped eating and began sleeping excessively. More blood work showed high liver and kidney enzymes as well as a very high uric acid level. Additional tests for Polyoma, Chlamydia and PBFID were

negative so Dr. Everett decided to test for metal toxicity.

The vet began taking him home at night and on weekends in order to gavage feed him three times daily. A calcium supplement was added to combat his low calcium level and he was given Aloe Detoxifying formula after he began "toe tapping and wing flipping", as well as mutilating his feet. By the time zinc poisoning was confirmed Beauty's normal weight of 425-430 grams had dropped to 329 grams. Beauty's zinc level was 3.9 parts per million (PPM) so we at last had a diagnosis.

His next blood work showed improvement, but not enough. Beauty's vet took X-rays but saw nothing abnormal. In some cases, X-rays show metal present in a bird's digestive tract. Beauty still was not eating on his own and he grew weaker every day. Chelation was discussed but both vet and owner were hesitant because of the patient's weakened condition. They were hoping that he would resume eating and gain enough strength to undergo chelation therapy, which can be toxic. The term "chelation" (pronounced key'-lay-shon) is from the Greek word for "claw" because this process binds a metallic element to another substance. The chelated minerals, often iron and zinc, are generally bonded to amino acids (the building blocks of protein).

Beauty's condition worsened and everyone feared the worst for him. Betsy started keeping him at home again and transported him three times daily to the vet clinic for gavage feeding. She felt at this point that she had brought him home to die. Betsy shared, "I cannot describe the tender moments that I spent holding him and humming to him gently, just hoping that if he could feel my heartbeat and my great love for him, he would try harder to get well. I was, in effect, willing him to live but I knew that it would take much more to heal him. I could not give up on Beauty so the vet and I finally agreed that there was no choice other than to try chelation to remove the toxic level of zinc that was making him so ill."

It was painfully obvious that Beauty was near death so as a last resort, a three week course of the chelating agent, Dimercaptosuccinic Acid (DMSA), was begun. During this time he required force feeding and he had no energy. Later during the treatment, Dr. Everett had to go out of town for two days and since Betsy could not tube feed Beauty, they could only hope that he would resume eating on his own. To

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everyone's surprise, he did just that and his weight soon climbed to 351 grams.

Beauty survived the DMSA treatments and then his zinc level was re-tested. The results were encouraging. The zinc level was down to a "below low normal" reading of less than 1.0 PPM. His blood work looked much better overall and Beauty's owner and his vet were elated with the improvement. Just one week later, though, he weighed in at a whopping 478 grams and was having trouble breathing. Apparently he was now suffering side effects from the DMSA treatment.

The vet decided to take X-rays which revealed that three-fourths of both Beauty's lungs were congested. After consulting with an avian radiologist, Dr. Everett prescribed Vibramycin for a period of ten days to clear Beauty's lungs. His weight then climbed to an alarming 560 grams with no apparent water retention. His eating slowed even more and he was constantly tired. He no longer had the will nor the strength to fight being medicated. He was losing control of his feet and could no longer perch.

Betsy said, "He was giving up and all I could think about was the tragedy of losing him after all he had been through. I kept him under a heat lamp to help him stay warm and added a humidifier to help him breathe more easily. We had put up a long, hard fight but I was now concerned with the quality of the time that Beauty and I had left together. He wanted to be with me constantly so when he was not on my lap, I carried him close to my heart (literally) in a fanny pack tied around my chest. At night, he slept in a basket between the pillows on my bed. I refused to let him go without a fight.

Then suddenly and unexpectedly, Beauty's breathing improved and his excessive weight began to rapidly drop, just as we had hoped it would. Another X-ray was taken to check his lungs and his left foot that he now could not use at all. His leg and ankle were swollen with no apparent cause. The X-ray showed improvement in his lungs although they were not yet perfect. Soon, Beauty's weight had dropped to a more nearly normal 390 grams and when he uttered his first "hello" after four months of silence, tears of joy and relief streamed down my face. He became more alert but he still could not use his left foot. Upon examination, the vet found that his leg had swollen more and there was a tiny lump on his ankle. The lump was removed for testing which revealed what looked like a tiny grain of white sand which turned out to be a uric acid crystal. Beauty had developed a case of gout. He was prescribed aspirin and Allopurinol, (brand name Zyloprim), which is a xanthine oxidase inhibitor used to lower blood levels of uric acid. He was still alert and he was talking more but there was no change in his foot. When he was re-tested for zinc for the third time in the three months after treatment, the reading was 2.4 (normal is .8 to 2.5 PPM). The reading was in the high normal range but not high enough to begin chelation

drugs again.

Dr. Everett explained that it is not uncommon for levels to rise after chelation therapy because the metals that were stored in bones and other tissue then leach back into the bloodstream for excretion from the body. This is why blood levels of zinc are re-tested approximately every two months after chelation treatments. If levels should increase above normal range, chelation therapy would once again be needed. For awhile, Beauty did well and seemed almost back to normal except that he did not use the affected foot. Because he had gout, his blood level of uric acids was watched on a regular basis to prevent crystals from forming on his kidneys and elsewhere. He was kept on a diet of low purine foods which meant that he could not eat organ meats, shellfish, fatty fish, red meats, poultry, asparagus, mushrooms, spinach nor most legumes, dry beans and peas. Fats and refined carbohydrates were restricted as well.

Eventually Beauty started to use his left foot again and he now gets around quite well. He is bright, alert, talks well and does lots of beak grinding to confirm his contentment. Betsy is still cautious about his diet. She said that Dr. Everett had practiced in her town for over fifteen years and had never seen a metal poisoning case as serious as Beauty's. She is convinced that Beauty had this illness when Betsy acquired him. Because testing for metal toxicity is expensive, it usually is done only when it is difficult to diagnose an illness.

Unfortunately, Dr. Everett and other veterinarians who treat birds have become all too familiar with the tell-tale signs of metal poisoning as more birds are being diagnosed with excessive zinc and other toxic metals than ever before. If a bird's test results indicate higher than normal liver and kidney enzymes and uric acid levels, a test for metal toxicity should be done to rule it out or diagnose the problem.

Checking the habitat of companion birds for sources of dangerous metals like zinc and lead is preferable to spending months fighting for a companion bird's life. Here are some tips to prevent metal poisoning of companion birds.

- \*Remove all sources of dangerous metal hardware from cages and open perches.

- \*Try making your own bird toys with safe wood and plastic parts.

- \*Use untreated leather, stainless steel wire, or natural tightly woven rope to attach toy parts.

- \*Bird dishes should be stainless steel or safe crockery with lead-free glaze.

- \*Avoid home-made or imported pottery products which can contain toxic metals. \*Perches should be assembled with stainless steel parts or plastic.

- \*Quick links of stainless steel or sturdy plastic should be used rather than zinc.



*In these two top photos, Beauty is clearly showing distressful symptoms of a mysterious disease that took a long time for owner and veterinarian to find the cure for. After considerable treatments and tests, zinc poisoning was determine to be the cause.*

\*Cages should be made of stainless steel or other safe metals with powder coating.

\*Chipped paint and rusty areas on cages should be repaired immediately.

Other sources of toxic metals are galvanized cage wire, zinc quick links, pennies minted after 1982, some paints, staples, nuts, bolts and washers, zinc ointments, keys, nails, zippers, hardware cloth, anti-rust paints, and some shampoos.

It is the nature of parrots to hide illness until they are very sick but fortunately, Beauty's zinc toxicity was discovered in time to save him. We hope that the sharing of this experience might save someone else the heartache of this preventable avian illness. ❖

*Two photos below show Beauty finally enjoying good health again after chelation therapy*

Photos by Betsy Hayes

