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Case Study: Esophageal Stricture Secondary to Hairball Esophageal Foreign Body in a Cat

By Dr. Greg Chambers (AVIMP)

Dale, a seven-year-old female spayed domestic long-haired cat, presented to the emergency service for a three-day history of "spitting up" food soon after eating. The owners reported that Dale drooled excessively and kept her neck extended, especially when trying to swallow. On physical examination, Dale was found to be about 7 percent dehydrated and have a large alopecic area on the abdomen from compulsive grooming.



Figure 1: Radiograph of a cat with a large esophageal foreign body. Please note the ventral displacement of the trachea and heart by the esophageal soft tissue opacity.

Radiographs taken by the emergency service revealed an esophageal foreign body in the distal third-most aspect of the esophagus (See Figure 1). Endoscopy was performed and revealed a large hairball (See Figure 2). Because only a small portion of the hairball was found to be in the esophagus and a much larger portion was still

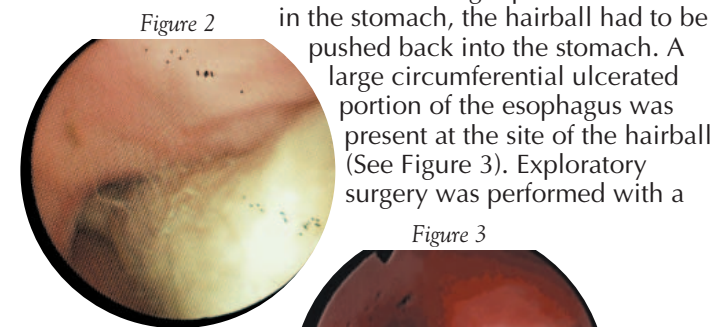


Figure 2

in the stomach, the hairball had to be pushed back into the stomach. A large circumferential ulcerated portion of the esophagus was present at the site of the hairball (See Figure 3). Exploratory surgery was performed with a

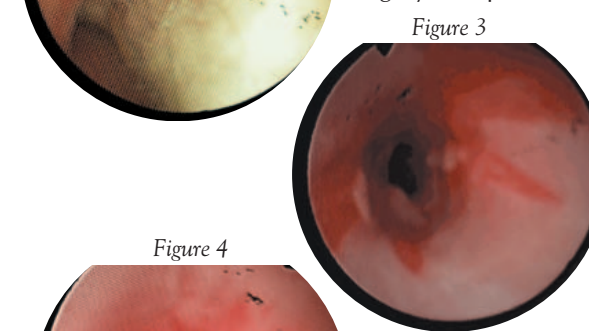


Figure 3

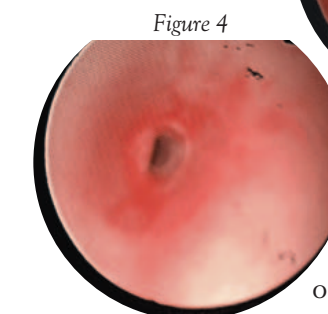


Figure 4

gastrostomy allowing for removal of the hairball (about the size of a small fist) and surgical placement of a gastric feeding tube. Dale was started on metoclopramide, omeprazole

via the gastric feeding tube, and carafate suspension by mouth.

Endoscopy was later performed and showed severe esophageal stricture (See Figure 4). Balloon catheter dilation was completed with endoscopic-guided triamcinalone injections. After the balloon catheter dilations and local steroid injections, a one-month scope was performed and revealed that the previous stricture site had 90 percent plus patency and Dale's feeding tube was removed.

Esophageal strictures can result from foreign bodies, anesthetic procedures, severe vomiting (parvovirus), caustic agents, drugs (especially doxycycline tablets in cats) and gateroesophageal reflux. The most important common denominator in all of these causes is increased contact time of acidic gastric contents with esophageal mucosa.

The esophagus does not have the protective "mucus cap" that coats the stomach and is very susceptible to severe ulcerations that extend down into the muscular layer of the esophagus, producing large amounts of scar tissue that contract and form strictures. This is best illustrated with anesthetic procedures. While under sedation, the esophagus is not able to perform peristalsis and rid itself of the caustic gastric contents. In as little as 20 minutes, the ulcerations can develop deep into the muscular layer and result in esophageal strictures. It is therefore imperative that all patients undergoing balloon catheter dilation be aggressively treated for esophagitis.

Medical therapy for esophagitis involves decreasing acid production, increasing the tone of the lower esophageal sphincter, coating of any ulcerated tissue and resting the esophagus. The perital or acid producing cells in the stomach are turned on by one of three different signals from the body: acetylcholine secretion from muscarinic nerve fibers, gastrin or histamine. Two or three signals at the same time act synergistically and allow the perital cell to produce more acid than one signal alone. Histamine 2 blockers such as cimetidine, ranitidine and famotidine block only one of the signals, allowing acetylcholine and gastrin to still signal for acid production. This increases the pH from two to four or five.

Antacid therapy is best accomplished with a proton pump inhibitor such as omeprazole. This paralyzes the hydrogen potassium ATPase pump and can bring the pH up to a near-neutral seven. Increasing the tone of the lower esophageal sphincter is accomplished with the use of metoclopramide. This medication should be used even if there is no vomiting. Coating of ulcerated esophagus after a ballooning procedure or after removal of a foreign body is accomplished by using a sucralfate suspension such as carafate. Sucralfate tablets dissolved in water prior to administration also can be used, but are less effective. Placement of a gastric feeding tube allows the esophagus to rest and prevents any further irritation from having to swallow foods. This is needed in any case in which esophageal perforation is thought to be present or in cases in which ulceration affects near 360 degrees of the esophagus.

Balloon dilation of the esophagus allows for a more normal diameter of the esophagus by breaking down early scar tissue and allowing it to heal in a more normal manner. Esophageal stricture usually occurs within the first one to three weeks. Unfortunately, not all patients with esophageal stricture are good candidates. Patients with greater than one-third of the esophagus affected or patients that have multiple areas of stricture generally do not respond as well to treatment. Some patients have a loss of normal peristalsis secondary to too much scar tissue formation and can develop megaesophagus orad to the stricture. Balloon dilations should be spaced two to three days apart and most patients undergo a minimum of four procedures, but can take as many as 12 to 13. Local steroid injections can help in decreasing inflammation and the rate of scar tissue formation.



Practice Points

Northeast Ohio Internal Medicine Associates (NEOIM) has added some new faces to the professional staff. Dr. Mariah Frank became chief internal medicine resident on June 1. Dr. Frank completed a rotating internship with Metropolitan Veterinary Hospital last summer and her internal medicine internship with NEOIM in May. She is a 2007 graduate of Ross University (DVM). Dr. Sarah Beechler joined NEOIM as a first-year internal medicine resident in July. Dr. Beechler is completing a rotating internship at The Animal Specialty Group in Los Angeles. She was in private practice in Illinois prior to starting her internship. Dr. Beechler is a 2007 graduate of Ross University. With the additions of Dr. Frank and Dr. Beechler to the staff, we will now be available for appointments on Monday in addition to our regular Tuesday through Friday availability. Further information concerning our practice is available at www.metropolitanvet.com. The practice can be reached at 330.670.2355.

Ohio Veterinary Cardiology. Dr. Hitchcock and technicians Hally Niehaus and Rachel Liguore attended the ACVIM conference in Montreal to learn about the latest developments in veterinary cardiology. Hally is pursuing her technician specialty certification in cardiology, and this meeting helped fulfill some of her CE requirements. There was much discussion of biomarkers at the meeting, particularly NT-proBNP as a marker of occult cardiac disease in dogs and cats and as an aid in distinguishing between respiratory and cardiac causes of dyspnea. Though NT-proBNP shows promise in tracking cardiac changes in some disease processes, there are significant limitations in the currently available test that should be considered. Please look for our article in an upcoming issue of Metropolitan Minutes for more information. Call the practice at 330.670.2376.

The Akron Veterinary Internal Medicine/Oncology Practice (AVIMP) is pleased to announce our two oncology technicians, Marie Dietrich and Melanie Hostetler. Both have been a great addition to the practice. Dr. Gamblin's new schedule is Monday through Thursday. An oncology technician will be here on Friday to answer your phone calls. If you have an oncology case that cannot wait until Dr. Gamblin is in the office, you can contact the internal medicine doctors. They are available six days a week for appointments and consults and are in the hospital Sunday mornings to evaluate in-house cases and transfers. We'd also like to congratulate Dr. Greg Chambers on the addition of his son, born on April 30, 2009. Bradley is Wendy and Greg's first child. Contact AVIMP at 330.670.2351.

Ohio Veterinary Surgery and Neurology (OVSN). Drs. Bowman, Padgett and Daye are excited to welcome a new partner to Ohio Veterinary Surgery and Neurology. As of 2009 Dr. Todd Axlund (DACVIM Neurology) has become the fourth partner in our growing practice. His addition assures excellent

and consistent neurology and neurosurgical service to area veterinarians and their patients for many years to come. Dr. Axlund has been an associate with OVSN for two years.

Subdivision of the practice into soft tissue, orthopedic, and neurology/neurosurgery fields has allowed all the doctors of OVSN to improve the quality and diversity of the services we offer. Growth of the neurology practice specifically has been brisk thanks to the offering of excellent care and services formally unavailable in Northeast Ohio or nearby Pennsylvania. Please help us welcome Dr. Axlund into what we expect to be a long and mutually beneficial relationship with all the veterinarians of our greater metropolitan area and the surrounding regions. Call the practice at 330.670.2358.

Veterinary Ophthalmology Services of Northeast Ohio (VOSNEO). We currently have hired Christa Thompson as a registered veterinary technician to assist Kristine Slansky and RoxAnn Hardy. Early in May, VOSNEO participated in providing ophthalmologic examinations for service dogs in Northeastern Ohio. This event was sponsored by the American College of Veterinary Ophthalmology and Merial, with this being the second year for our clinic to participate. The response was great and we were able to meet a lot of great canine service dogs. Please feel free to call Dr. Ellen Belknap with any questions or concerns regarding your ophthalmology cases. You can reach the practice at 330.670.2360.

Future Notes

Hear Metropolitan Veterinary Referral Group Members Presenting at Conferences

- Sept. 16, 2009** – Association of Zoos and Aquariums, Portland, Oregon – Dr. Riggs' topic, "What do Screening Test Results Really Mean?"
- Oct. 10, 2009** – International Wild Waterfowl Association, Raleigh, N.C. – Dr. Riggs' Topic "Wildlife Conservation in Cambodia"
- Nov. 8, 2009** – Toledo VMA – Dr. Gamblin's topics, "Soft Tissue Surgery" and "Oncology"

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Should You Buy a Digital Radiography System?

By Dr. Bennett Fagin (Vet-Rad)

Buying a digital radiography system may not cost you a penny. In fact, you may profit from going digital. How?

A quality CR digital system will cost approximately \$35,000, and can be leased for \$800 a month for 48 months.

For many veterinary practices, monthly expenditures for X-ray film, processing chemicals, film filing envelopes and processor maintenance total \$200 or more. Once you're digital, these expenses are eliminated forever. The result? You'll pocket \$200 a month.

Every veterinarian we know who has bought a digital radiography system radiographs more patients now than when he or she was using X-ray film. This increase in imaging volume averages 10 percent to 20 percent. Veterinary hospitals that radiographed 30 patients a month using X-ray film typically image 33 to 36 patients a month once they're digital. If you charge \$120 per patient for radiographs, an additional five patients radiographed per month results in \$600 of increased revenue.

Add \$600 of increased revenue to the \$200 you've pocketed by eliminating X-ray film, chemicals, film filing envelopes and processor maintenance, and you've got \$800 in hand, enough to lease a digital system. In reality, the increase in revenue generated by radiographing more patients, added to the savings realized by eliminating X-ray film, chemicals, film filing envelopes and processor maintenance often results in a net profit. Once your lease is paid off, your profit increases further.

Our practice is comprised of five board-certified radiologists with nearly 60 years of clinical experience. We consult with more than 500 veterinary hospitals across the United States and have reviewed radiographs from every digital system marketed to veterinarians. As clinical radiologists, image quality is our "gold standard." Quite often, we're asked for our opinion regarding mediocre digital radiographs. Many of these radiographs are produced by overpriced systems manufactured by companies that might not be around in a few years to service their product.

Please don't make the mistake some of our clients have made and purchase an overpriced digital system that produces mediocre radiographs.

If you're thinking of going digital, please call us toll free at 1.888.4.VETRAD (1.888.483.8723). We can recommend an affordable digital system that produces excellent radiographs, a system that we consider to be a "best buy" for veterinarians.

For many practices, the question isn't "should I buy a digital radiography system?" but "when should I buy a digital radiography system?"

If you go digital, we would appreciate the opportunity to have our information technology specialists connect your hospital to our state-of-the-art computer workstations at no cost to you. Once you're connected to our workstations over the Internet, we receive radiographs you send us in within seconds, and can provide you with rapid consultations. If need be, we're happy to consult with you over the phone about critical cases. This can be done immediately after radiographs have been taken, while your client is still at your hospital!

Forward Thinking

Introducing Palladia®: New Hope for Canine Mast Cell Tumors

The oncology service of the Akron Veterinary Internal Medicine Practice is excited about the introduction of Palladia® from Pfizer, a new drug marketed for the treatment of grade II and grade III mast cell tumors in dogs. Palladia (*toceranib phosphate*) belongs to a category of drugs known as tyrosine kinase inhibitors, with properties that function as both an antineoplastic agent as well as an antiangiogenesis agent.

The mechanism of action involves inhibition of Flk-1/KDR tyrosine kinase (vascular endothelial growth factor receptor), platelet-derived growth factor receptor, and stem cell factor receptor (KIT), with those mast cell tumors having the c-KIT mutation showing the best response. In early studies, Palladia has shown promise not only for treatment of mast cell tumors, but has potential application to carcinomas and sarcomas as well.

Palladia will be supplied to specialists beginning in mid-July, likely on a limited supply basis, with plans from Pfizer to market to all veterinarians in 2010.

Palladia, while promising, is not without its side effects however, with the possibility of significant GI upset and neutropenia. Due to these side effects, frequent monitoring will be necessary through physical exams and lab work in the initial stages of drug use.

While criteria for usage of this drug is not yet established, at this time it will likely be reserved for those patients who have failed traditional chemotherapy or have significant disease that is inoperable.

If you have a case you think qualifies for the use of Palladia or if you have additional questions regarding this drug, please contact the Akron Veterinary Internal Medicine Practice at 330.670.2351 for more information. We look forward to working with you in advancing the quality of care for oncology patients.