

# the INS&OUTS of Cat Digestion

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Last year, a new vet joined the veterinary practice where I take my cats. When I took several kittens in for their first exam at two months, I noticed that he felt around each kitten's jaw and throat, then worked his way along to the tail. While I watched, the children's song "Head, Shoulders, Knees and Toes" I kept going through my head. When I had issues with a two-month-old kitten last spring, another breeder mentioned that maybe it could have been caused by Megaesophagus. Turns out that there is also a condition called Megacolon that can affect the other end of a cat. Now that I'm aware of these conditions, I believe the vet was checking for things that all of us need to be aware of. It is important that food, etc. gets into the cat however it is equally important that it also gets out.

## What is Megaesophagus?

While the name conjures up images of something that belongs in a Jurassic Park movie, it actually involves the esophagus (the tube that carries food and liquid between the mouth and stomach). When the esophagus is functioning normally, food in the mouth stimulates nerves that send signals to the swallowing center in the brainstem. This, in turn, stimulates the swallow reflex<sup>2</sup> (waves of muscular contractions called peristalsis<sup>3</sup>). Megaesophagus is considered a combination disorder in which the esophagus dilates (gets larger) and loses motility (its ability to move food into the stomach). There are two types of megaesophagus—congenital and acquired. Congenital megaesophagus (present at birth) is actually developmental and causes regurgitation starting at weaning when kittens begin eating solid food. Acquired megaesophagus occurs later in life, in young adults and middle-aged animals.<sup>2</sup>

Regurgitation is the most common sign of megaesophagus. However, symptoms also include bad breath, signs of pneumonia from aspirating food and/or liquid, fever, rapid breathing, abnormal lung sounds, muscle weakness, wasting from slow starvation<sup>2</sup> and a gurgling sound coming from



the throat.<sup>3</sup> You may notice that a kitten that was eating solid food stops eating and begins to lose weight or fade away. They may also cry in distress if you try to syringe food into them, then throw up. A kitten with these symptoms should be checked out by a vet ASAP. Regurgitation puts them at risk of aspiration pneumonia. Symptoms of pneumonia include moist cough, labored breathing, and fever.<sup>3</sup>

## Is it Vomit or Regurgitation?

While the spots on the floor may look somewhat the same, the process of how they got there can be different. In a multi-cat household, you may need to separate cats to determine which one is having the issue. When a cat is feeling sick, it will heave, gag, and retch as the contents of the stomach are actively expelled. They may also drool or lick their lips prior to vomiting. There can be several reasons for cats to vomit such as food sensitivity, pregnancy or even a trip to the vet. Regurgitation, on the other hand, is a passive process. Food and water sloshes around in the esophagus and with the help of gravity, is released back up. There is no heaving, gagging, or retching prior to regurgitation. Megaesophagus is the most common cause of regurgitation in cats.<sup>2</sup>

## Causes of Megaesophagus

The most common cause of megaesophagus in adult animals is idiopathic, which means that an underlying cause cannot be definitively identified. Idiopathic megaesophagus is a diagnosis made by eliminating other potential causes first<sup>3</sup>. This means your vet will probably ask you lots of questions and want to run multiple tests. Acquired megaesophagus may be caused by esophagitis (in-

flammation of the esophagus), Myasthenia gravis (a chronic immune mediated disease between the muscles and nerves), hypoadrenocorticism (also known as Addison's disease), toxins such as lead, organophosphates, botulism or tetanus. It may also occur in just a segment of the esophagus if there is an obstruction such as a swallowed foreign object, a tumor, a stricture (scar tissue) and/or a vascular ring anomaly (a congenital abnormality of blood vessels around the esophagus).<sup>3</sup> It is good idea to keep things such as elastic bands, thread, etc. away from where a cat can get to them. Once a cat has found such an item, they will keep checking the same spot looking for more.

## Diagnosis and Treatment

Cats with megaesophagus typically regurgitate both food and water. This may lead to developmental issues in kittens, while adult cats may lose weight. They may hypersalivate and "gurgle" when they swallow. In some individuals, you can actually see a bulging of the esophagus at the base of the neck and touching that area may be painful.<sup>2</sup> In other cases you may not see anything. You may be pestered for food only to watch the cat only take a bite or two then run off. They tend not eat very much to avoid the unpleasantness that they now associate with eating.

Vets can use X-rays to determine the dilation of the esophagus. Accumulation of food, fluid, and gas in the esophagus may displace the windpipe. Additional testing can help rule out various underlying causes in the case of idiopathic megaesophagus. This may include screening bloodwork, urine analysis, an acetylcholine receptor antibody titer to test for myasthenia gravis,

cortisol levels to screen for hypoadrenocorticism (Addison's disease), an esophagoscopy (endoscopic evaluation of the esophagus) and blood lead levels (in certain cases)<sup>3</sup>

For cats with acquired megaesophagus, the treatment is dependent on the underlying cause as well as treatment for any associated factors. Overall treatment is focused on managing the symptoms by preventing regurgitation and allowing food to move through the gastrointestinal tract in order to be digested.<sup>2</sup> If an obstruction is present, endoscopic treatment may be used to relieve the obstruction. However, depending upon the severity of the condition, it may not resolve despite treatment.<sup>3</sup> One *Cat Talk* staffer had a cat that developed megaesophagus following an emergency c-section; it became unable to digest dry food without regurgitation but was still able to eat canned pate. In this case, treatment consisted of switching the diet completely and the cat thrived on her pate.

For cats with congenital or idiopathic megaesophagus and for those with unresponsive acquired megaesophagus, care is supportive. Unfortunately, there are no proven medications able to directly improve esophageal peristalsis (motility). However, cats with megaesophagus are often prescribed medications to decrease

acid reflux.<sup>3</sup> Motility drugs can sometimes help manage megaesophagus cases.

Cats will often need a high calorie food and there may need to be some trial and error\ testing to find the right consistency of the food that will enable successful feeding. Cats should be offered frequent small meals in an upright position. They may require a period of training to learn to eat from a platform. An upright position should be maintained for 10-15 minutes after eating so that gravity can assist entry of food into the stomach. Owners may accomplish this by holding the cats over their shoulder following meals.<sup>4</sup> Using a Bailey chair can also facilitate upright feeding. It is similar in design to a highchair for human babies expect that is engineered for the cat to be positioned upright. [www.baileychair.blogspot.com](http://www.baileychair.blogspot.com) and [www.k9megaesophagus.com/bailey-chair.html](http://www.k9megaesophagus.com/bailey-chair.html) provide instruction on how to construct a Bailey chair. For cats who are not able to use a Bailey chair, or for whom upright feeding has not worked, a permanent feeding tube can be placed. This tube goes through the pet's side directly into the stomach, bypassing the esophagus altogether.<sup>3</sup>

However, the potential for complications is quite high, malnutrition and aspiration pneumonia are the leading causes of death. If megaesophagus is caused by a failure of the nervous system, there is a risk for other neurologic problems to develop. Successful treatment of underlying conditions may actually improve esophageal function.<sup>2</sup> Make sure to have the vet run the required tests to determine what is causing the issue. If you have pet insurance for your cat, check your policy to see if they provide coverage (before you may need it). However, for owners able to dedicate the significant amount of time and care needed for management of megaesophagus and cats that adapt well, some affected cats can have a good quality of life.<sup>3</sup>

### What is Megacolon?

As the name implies, this condition relates to issues with the colon. Constipation (infrequent or difficult defecation with retention of feces in the colon and/or rectum) is fairly common in cats. If it occurs only occasionally there's usually not much to worry about. However, in some cats, constipation begins to occur more and more

frequently, ultimately leading to obstipation: constipation that can't be controlled by medical means.<sup>5</sup>

Megacolon is a chronic condition that occurs most often in cats and is basically a mega-sized, stretched-out, weakened colon. In cats this can cause devastating health consequences as the colon fills with old, hardened feces, and is not strong enough to pass the "cemented stool."<sup>6</sup> Megacolon itself is not a specific disease entity, but it will usually result in obstipation (inability to defecate), since feces is retained in the colon in a larger diameter than is able to pass through the pelvis.<sup>7</sup> There are many potential causes of obstipation, including congenital megacolon (presumed to be due to developmental abnormalities of the intestinal nervous system) and either congenital, traumatic, or acquired diseases of the bones in the pelvis, tumors, strictures, and hernias of the rectum/anus can also contribute to the development of megacolon or constipation but over half result from idiopathic (meaning unknown cause) megacolon.<sup>5</sup>

Try to keep an eye on the litter box habits of your cats. In multiple cat households, or with indoor/outdoor cats, it may not get noticed until after constipation has been present for a while. When you clean the litter box, take note of the condition of the stool and how much there is. If you think that your cat may be constipated, placing them in a separate area with their own litter box will help with the diagnosis and you will know exactly whose stool it is.

### Symptoms and Causes

The most common clinical signs of megacolon in cats include severe, painful constipation, fewer bowel movements and unusually hard feces. There may also be watery diarrhea when the liquid stool is forced around a stuck fecal ball or mass. As megacolon progresses, your cat may: have less energy, lose their appetite, vomit, have a firm, palpable mass in their abdomen (depending on their body condition),<sup>6</sup> experience tenesmus (straining to defecate)<sup>7</sup> and become dehydrated.<sup>6</sup>

The most common cause of feline megacolon is unrelieved or recurrent constipation. Another cause of megacolon begins when a cat loses proper nerve function within their colon. This prevents the muscles of



the colon wall from functioning properly to pass along stool. The muscles become stretched, and the colon gets wider. Fecal material accumulates and does not get pushed out, resulting in severe constipation, or worse, obstipation, where the cat stops defecating altogether<sup>6</sup>. It can also be caused by an injury to the spinal cord, in addition to obstruction caused by tumors, foreign bodies, hairballs, and strictures.<sup>8</sup>

Megacolon with obstipation is most commonly diagnosed in middle aged, male domestic shorthaired, domestic longhaired, and Siamese cats<sup>5</sup>. Cats affected with idiopathic megacolon are usually between 5–9 years old<sup>7</sup>. However, it has also been seen in cats as young as three to four years old.<sup>8</sup> The Manx is another breed with a high incidence of the condition.

Constipation can be caused by a number of things: an abnormal narrowing of the pelvis (either congenital or resulting from injury, such as a car injury), paralysis of the anal region, chronic gastrointestinal (GI) diseases, disease that results in dehydration, physical obstruction (tumors, foreign bodies that get stuck along the intestinal tract, hairballs, and naturally occurring strictures in the colon). With all of these causes, if constipation is not relieved, the distended colon loses normal muscle strength, which exacerbates the constipation.<sup>6</sup>

## Diagnosis and Treatment

Megacolon is often diagnosed by clinical signs which can include straining to defecate, weight loss, lethargy, vomiting, and anorexia (lack of appetite). On physical examination, the cat may have a painful abdomen, as well as be dehydrated and depressed. Upon palpation of the abdomen, an enlarged colon filled with hard fecal material is often found and a rectal exam reveals impacted feces. Further testing includes radiographs (X-rays) of the abdomen to assess the size of the colon and detect any abdominal masses that may be present. It is important that your veterinarian perform a rectal exam to check for old collapsed pelvic fractures, obstructive masses, or hernias located either inside or outside of the colon or rectum.<sup>8</sup>

Vets will generally try a medical approach first and look at doing surgery for unresponsive or advanced cases. For idiopathic megacolon (underlying cause is not identified), initial management is also medical.

Cats with mild or moderate forms (or perhaps those with early stages of the disease) often benefit from increased dietary fiber, administration of laxatives or stool softeners of various kinds, and drugs called prokinetic agents (such as cisapride) that stimulate the muscles of the colon. As things progress, the occasional enema performed at a veterinary hospital may be necessary. Unfortunately, the need for enemas or other methods of removing feces from the colon often becomes more and more frequent, and ultimately, cats with advanced stages of the disease simply stop responding to medical therapy and the colon becomes little more than a big, flaccid bag containing a mass of hard feces.<sup>5</sup> You may have to make several trips to the vet to relieve your cat's constipation. Things may return to normal if caught early, though there is a high chance of recurrence.

While medical treatment may be successful for a while at some point it will generally stop working. If the problem continues long term, a cat's colon may eventually stop functioning. Surgical removal of the affected area of the colon is often necessary. A procedure called subtotal colectomy removes the non-functioning part of the colon. Although this procedure may involve removal of most of the colon, the anal sphincter will be left intact so the cat should not lose bowel control. Most cats do reasonably well after this procedure with few permanent side effects.<sup>8</sup> Although occasionally a total colectomy (removal of the entire colon) is required.

Cats with pelvic obstruction secondary to pelvic trauma can be treated by removal of the abnormal pelvic bones (pelvic osteotomy) to allow normal passage of feces again. Unfortunately, if the megacolon has been present for greater than four to six months, dilation and loss of function may be irreversible. The colon is not able to return to normal function after this extended period of time. Therefore, most cats with impinging pelvic fractures are also treated with the same surgery (subtotal colectomy).<sup>7</sup>

The most common postsurgical problem is diarrhea, but most cats begin to form stool of an acceptable quality within several weeks of having this procedure. Life often returns to normal, or near normal, within several weeks. Though a subtotal colectomy is not necessarily a perfect solution, the majority of people whose cats have had one are quite pleased with the results. They continue to share life with a feline friend who, with-

out the surgery, would not have survived.<sup>5</sup> Having to clean up loose stool or deal with a poopy-butted cat for several weeks is small price to pay if you still have your beloved feline companion. If you have pet insurance for your cat, check your policy to see if they provide coverage (before you may need it).

## Outcome

Recovery for cats with megacolon that are treated medically is uncertain and best evaluated on a case-by-case basis. If muscle function returns and constipation resolves with therapy, the prognosis is fairly bright; however, recurrence is common in many cats. For these patients, pet parents must be diligent in monitoring stool output to prevent severe recurrence. If a cat is otherwise healthy and has a functional colon, they may benefit from targeted or prescription diets and medications. If no complications occur after surgery, most cats do quite well. Unfortunately, megacolon seems to be a devastating condition for many young kittens who develop the condition.<sup>6</sup>

### Sources

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