

The Little Tumor That's Almost Always Deadly

There's only one treatment for this small tumor that causes your pup pain and discomfort. What to do if that treatment fails. Plus, how you can make your beloved pet's life more comfortable and help him maintain his quality of life.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- Neuroendocrine tumors are small masses that usually develop in the gastrointestinal tract, liver, or gall bladder. They are slow-growing, but typically metastasize
- Symptoms of a neuroendocrine tumor depend on the location and size of the tumor, and may include loss of appetite, vomiting, constipation, and weight loss
- Diagnosis requires multiple approaches since blood tests often appear normal – veterinarians typically use imaging (X-rays, ultrasound, CT, MRI) to locate tumors, but definitive diagnosis can only be made through tissue biopsy and microscopic examination
- There is no cure for this type of cancer unless the tumor can be completely removed with surgery. Alternative therapies often offer the best option for maintaining a pet's quality of life
- Medicinal mushrooms, particularly *Coriolus versicolor*, have shown promising results in extending survival times for dogs with cancer

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Neuroendocrine tumors, also called carcinoid tumors, are small tumors that typically occur in the gastrointestinal tract, liver, or gall bladder. Neuroendocrine cells produce hormones that work with the central nervous system to support a wide range of activities that maintain internal stability of the body.

Concentrations of neuroendocrine hormone-producing cells can be found throughout the body and in organs, including the lungs, liver, intestine, esophagus, mouth, and skin.

Neuroendocrine tumors are slow growing, but typically metastasize (spread). They can develop from the endocrine cells of the mucosal lining of organs such as the stomach and intestine.

Fortunately, carcinoid tumors are rare in animals. They are seen primarily in dogs over the age of 9, and almost never in kitties. As with many types of cancer, the cause and risk factors for neuroendocrine tumors are unknown.

Symptoms of Neuroendocrine Tumors

Most carcinoid tumors do not produce hormones. Symptoms are primarily related to the size of the tumor and its effect on nearby tissues and organ function.

Clinical signs in pets vary greatly and depend on the location of the tumor and how advanced the metastasis is. Primary tumors are usually found in the stomach, small intestine, colon, lungs, heart, gallbladder, or liver.

General symptoms can include loss of appetite, vomiting, constipation, weight loss, liver failure, and heart disease. Occasionally, neuroendocrine tumors can also cause hair loss and elevated blood calcium levels in certain animals.

Diagnosing Neuroendocrine Tumors

Blood tests and urinalysis in patients with carcinoid tumors can look relatively normal. There may be mild non-regenerative anemia, electrolyte imbalances, or elevated liver enzymes, but not in every case. Unfortunately, there is no one specific blood test for cancer.

X-rays, ultrasounds, computed tomography (CT) scans, or magnetic resonance imaging (MRI) may be used to locate primary tumors and determine if they have spread into the abdomen or other areas of the body.

The only way to make a definitive diagnosis of the presence of neuroendocrine tumors is through a biopsy of affected tissues to look for substances that are typically secreted by the tumors.

In most cases, microscopic examination of tissues by a veterinary pathologist can provide a diagnosis and prognosis. But occasionally, additional laboratory procedures such as electron microscopy or immunocytochemistry are required to eliminate the possibility of other types of tumors.

Treatment Options

If the tumor can be completely removed with surgery, it can cure the condition. And of course, that's the goal. Reducing the size of an obstructive tumor with surgery may help or eliminate symptoms, but it doesn't cure the patient.

In cases where the tumor cannot be completely removed, routine follow-up blood tests will be necessary to check for metastasis to vital organs like the liver. Yearly ultrasound exams should also be performed so that any metastasis can be treated promptly to preserve organ functionality.

Beyond surgery, there are no prescribed therapies to treat carcinoid tumors. Your veterinarian will suggest a treatment protocol based on your pet's individual situation. It's at this point that you should consult with an integrative veterinarian who treats cancer in pets, as alternative therapies often offer the best chance of maintaining your pet's quality of life.

Alternative Therapies for Pets with Cancer

- **Medicinal mushrooms** – In a published study conducted at the University of Pennsylvania's School of Veterinary Medicine, dogs with hemangiosarcoma – an aggressive, malignant cancer that develops in the cells

of blood vessels – were given a compound derived from a type of mushroom, *Coriolus versicolor*.

According to researchers, the patients given this compound had the longest survival times ever reported for dogs with this form of cancer. This is promising news, as this mushroom compound could offer an alternative to chemotherapy or a complementary treatment to traditional cancer therapies for dogs and people.

- **Chinese herbal medicine and acupuncture** – Dr. Betsy Hershey is a board-certified veterinary oncologist and owner of Integrative Veterinary Oncology in Phoenix, Arizona. Dr. Hershey is also certified in veterinary acupuncture and has received extensive training in traditional Chinese veterinary medicine.

Dr. Hershey routinely incorporates Chinese herbal medicine and acupuncture, along with good nutrition, in her protocols for cancer patients. She is seeing dogs live longer with cancer when they receive complementary therapies in addition to chemotherapy. She is seeing years of remission time in these dogs, where chemotherapy alone only offers, on average, a year of remission and survival time.

- **Ozone therapy** – Ozone therapy as a treatment for cancer is based on a very simple concept: Healthy cells thrive on oxygen. By contrast, the microbes that cause diseases like cancer are typically anaerobic, meaning they thrive in the absence of air or free oxygen. Total immersion of anaerobic life forms, like those that cause cancer, in an energetic form of pure oxygen (ozone) for a sufficient period of time has the ability to extinguish these disease-causing microbes.

There are many methods of administering ozone, however, it is primarily used in an IV fluid solution. It can also be used topically.