

Tumors of the Small Intestine

Surgery Service



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Locations

Auburn Hills

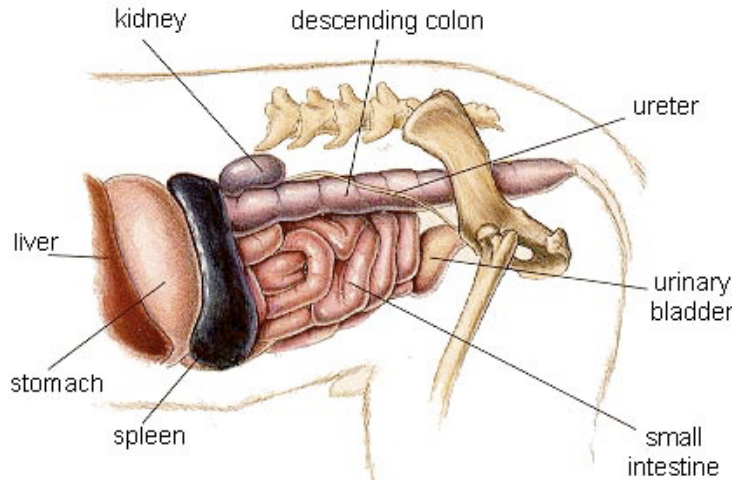
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Anatomy

The gastrointestinal tract consists of a tube that runs from the mouth to the anus. Its function is to digest food and absorb nutrients into the body. The stomach is a dilated part of the GI tract that produces acid which helps with the initial breakdown of proteins. The small intestine extends from the stomach to the colon and serves to further breakdown food into absorbable nutrients. The colon is the reservoir for stool, serves as a water absorber, and is the site for

production of certain vitamins by bacteria.

Types of intestinal tumors

There are 3 major groups of intestinal tumors: lymphoma, adenocarcinoma, and leiomyosarcoma. In general 70% of adenocarcinoma tumors spread, whereas about 30 to 50% of leiomyosarcoma tumors spread. Collies and German Shepherds are more commonly affected by the adenocarcinoma and leiomyosarcoma intestinal tumors. Siamese cats are predisposed to developing intestinal adenocarcinomas.

Lymphoma has two forms in the intestine: one that is a mass in the intestine and another that has diffusely infiltrated the intestine. The diffuse (entire bowel is affected by infiltration of cancer cells) form causes malabsorption of nutrients. The mass form of lymphoma causes intestinal obstruction or may cause the intestine to rupture. There is no breed predisposition for lymphoma. Specialized DNA tests have shown the feline leukemia virus to be a potential cause of intestinal lymphoma in cats. Antibody tests used to detect the presence of feline leukemia viral infection commonly are negative.

Signs and diagnosis

The primary signs of an intestinal tumor include vomiting, diarrhea, anorexia, depression, weight loss, and dehydration (mouth becomes less moist and saliva becomes tacky). Patients that develop infection in the abdominal cavity as a result of rupture of the intestinal tumor, become very ill and may have signs of acute depression, vomiting, fever, and abdominal pain. Crying, whimpering, not willing to lie down or assuming a hunched or praying position (down on the forelimbs and up on the hind limbs) may be signs of abdominal pain.

The diagnosis of an intestinal tumor generally is made with abdominal ultrasound, however, abdominal x-rays may also be helpful. In some cases, barium (contrast agent) may be administered orally and then multiple x-rays of the abdomen made to see if the bowel is narrowed from the tumor at the site of the intestinal tumor. Blood work is used to rule out other internal organ problem diseases. Chest x-rays are done to evaluate the lungs and lymph nodes within the chest cavity for signs of spread of the tumor to these organs. It is

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important to note that microscopic spread of cancer cannot be detected with any imaging modality.

The day of surgery

Our anesthesia and surgical team will prescribe a pain management program, both during and after surgery that will keep your companion comfortable. This may include a combination of general anesthesia, injectable analgesics, and oral analgesics.

Treatments

An incision will be made into the abdomen to allow the surgeon to examine the internal organs. The portion of the intestine that has the intestinal tumor is removed. Biopsies are collected from the intestines, liver, lymph nodes, or another other organs and submitted to a pathologist for evaluation for metastasis.

While in our hospital, your companion will continue to receive intravenous fluids, electrolytes and in some cases plasma or an artificial plasma product called Hetastarch. Your companion will be carefully monitored in the intensive care and will be given narcotics to ensure a pain-free recovery. Most patients that have abdominal surgery leave our hospital within 24 to 72 hours.

Aftercare and results

After surgery, you can continue to give your companion a prescribed pain reliever to minimize discomfort. A commercially available diet (Hill's i/d or Eukanuba's Low Residue diet) or a home made diet (50:50 mix of cooked chicken breast, turkey breast or lean hamburger and potatoes or pasta) should be fed for 3 days at home; then wean onto the regular diet over the next three days. It's also extremely important to limit your companion's activity and exercise level for three weeks after surgery. The incision should be checked daily for signs of infection. Two weeks after surgery, the surgeon will evaluate the healing process. Short-term complications following surgery are uncommon and may include continued vomiting due to inflammation of the intestines and a localized infection of the incision. Bowel leakage with resultant infection (peritonitis) is a serious uncommon complication that occurs within the first 5 days after surgery. Signs of peritonitis include continued anorexia, vomiting, fever and abdominal pain. If the bowel is leaking, another operation will be needed to repair the bowel.

Following excision of leiomyosarcomas in dogs, the overall mean survival time is reported to be 21.3 months, yet another study reported survival times of only 8 months. Of these dogs, 50% had a perforated bowel at the tumor site and these dogs have an increased risk of death during surgery or shortly thereafter. Additional reports suggest that previous diagnoses of leiomosarcoma in some cases has been erroneous and these tumors are actually gastrointestinal stromal cell tumors. One report that differentiated the two types of tumors with special stains found the survival of the dogs with GISTs to be 37 months versus about 8 months with true leiomyosarcomas. Due to a lack of well-controlled studies, the benefit of chemotherapy is not known.

Cats that have adenocarcinomas of the intestine with visible spread of the tumor have a median survival time of 5 months after surgery; however with no visible spread of the tumor, survival time doubles to 10 months after surgery.

Following excision of intestinal adenocarcinomas in dogs, the overall median survival has been reported to be 10 months. Dogs with metastasis had a median survival time of 3 months, versus dogs with no visible metastasis had a median survival time of 15 months. The value of chemotherapy is not known at this time, but may be considered in some cases.



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Dogs with diffuse intestinal lymphoma generally have very short survival times, however, if a solitary lymphoma tumor in the intestine can be removed and the remaining parts of the bowel do not have extensive diffuse disease; survival is increased to 6 to 9 months with surgery and chemotherapy. In cats, the median survival time is highly dependant on whether the lymphoma is a small cell or large cell (blastic) lymphoma. Patients affected by the small cell lymphoma potentially can survive for 1 to 2 years, whereas the blastic form results in death usually within 4 to 6 months in most cases. One study showed that about 50% of the cats treated for intestinal lymphoma had complete remission with survival times greater than 650 days; 37% had partial remission and a resulting survival time of 122 days.

References

1. Cohen M, et al. Gastrointestinal leiomyosarcoma in 14 dogs. *J Vet Intern Med* 2003;17:107–110.
2. Crawshaw J, et al. Prognosis for dogs with nonlymphomatous, small intestinal tumors treated by surgical excision. *J An Anim Hosp Assoc* 1998;34:451-456.
3. Milner RJ et al. Response rates and survival times for cats with lymphoma treated with the University of Wisconsin-Madison chemotherapy protocol: 38 cases (1996–2003). *J Am Vet Med Assoc* 2005;227:1118–1122.
4. Phillips BS. Gastrointestinal tumors. IN: *Small Animal Clinical Oncology*, 3rd edition. Eds Withrow and MacEwen. WB Saunders, Philadelphia 2001; pp335-346.



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Assessment and recommendations

Patient: _____ Date: _____

Treatment

- Surgery is recommended
- Surgery is not recommended
- Please consult with an oncologist

The following has been prescribed

- No treatment is needed
- Regular diet
- Prescription diet: _____
- Antibiotic: _____
- Anti-vomiting medication: _____
- Antacid: _____
- Other medication: _____

Exercise

- Unlimited
- Confine your pet to the house other than very short leash walks necessary for bowel movements and urination
- Restrict exercise to leash walks 10 minutes twice daily

Preparation for surgery

- Start fasting your companion at midnight before the day of surgery; water should not be withheld
- Pepcid AC 10 mg tablets: give _____ tablet(s) with water (use syringe if needed) at 6 AM on the day of surgery

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