

# Peritonitis

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## **Anatomy**

The peritoneal cavity is inside of the abdomen and houses vital organs such as the stomach, intestines, spleen, liver, kidneys, and bladder. A very thin membrane called the peritoneum covers these organs.

## **Peritonitis**

Inflammation by definition is redness, swelling, pain and discharge. Peritonitis is inflammation of the lining of the abdominal cavity. The most common cause of peritonitis is bacterial infection, which is introduced into the abdomen from an external wound, or more commonly from a perforation of an internal organ. The intestines or stomach may perforate and leak bacteria into the peritoneal cavity as a result of a tumor of the intestines or stomach, which weakens and ruptures the bowel. A perforating stomach or intestinal ulcer and associated peritonitis can be caused by an adverse reaction to certain types of medications (steroids and nonsteroidal anti-inflammatory medication). Other causes of peritonitis may include liver abscess, inflammation of the pancreas (pancreatitis), rupture of the gallbladder or bile duct, rupture of the bladder, rupture of an infected uterus (pyometra), previous abdominal surgery and viral infection in cats (feline infectious peritonitis). Primary bacterial septic peritonitis is a very uncommon condition in dogs and cats in which there is no underlying cause for the infection in the abdomen. It is possible that this type of infection is transferred from the mouth via the blood stream to the abdomen in these patients.

## **Signs and diagnosis**

In many cases, the patient will be seemingly well and then suddenly become very ill. Signs that may be noted at home include weakness, rapid respirations, vomiting, loss of appetite, diarrhea, black stools, and unwillingness to lie down or assuming a “praying position” (hind end elevated and front end and head lying on the ground). Signs that may be noted by your veterinarian may include fever, low body temperature, pale gums, jaundice, rapid heart rate, low blood pressure, fluid in the abdomen, pain upon palpation of the abdomen, and potentially a mass in the abdomen.

The diagnosis of peritonitis is based on clinical findings and analysis of fluid from the abdomen. Ultrasound may be needed to assist the collection of fluid from the abdomen. The fluid will contain inflammatory cells called neutrophils and in some cases bacteria. Tests done prior to surgery may include a complete blood count, blood chemistry profile, and urinalysis to evaluate the health of the internal organs. Chest x-rays and abdominal ultrasound may be recommended to rule out internal organ cancer.

## **The day of surgery**

Peritonitis should be treated on an emergency basis, as a “wait and see” approach will result in further debilitation of the patient and worsening of the prognosis. Our anesthesia and surgical team will prescribe a pain management program, both during and after surgery that will keep your companion comfortable. This will include a combination of general anesthesia, injectable analgesics, epidural analgesia, oral analgesics, and anti-inflammatory medication. Our surgeon will contact you after the surgical procedure has been completed.

# Peritonitis Continued...

## Treatments

Exploratory surgery and correction of the underlying problem (ruptured bowel, ruptured gallbladder, ruptured bladder, etc) is the key to the treatment of peritonitis. If no perforation of the bowel is present, the peritoneal cavity is rinsed with sterile saline to help eradicate the infection. At the discretion of the surgeon, one or two drains may be placed in the abdomen. In some cases, the abdomen may still be left open (with a bandage applied to keep the organs in place) to allow the infection to efficiently drain. A feeding tube may be placed in some cases. After surgery, intravenous fluids and antibiotics are administered. Commonly, plasma transfusion or administration of artificial plasma is needed to help your companion recover. Most patients remain in the hospital for 3 to 7 days after surgery, during which the drainage tubes will be removed.

Chemotherapy may be recommended if a malignant tumor is removed from the abdomen. This treatment is typically started two weeks after surgery. The treatments are typically done on an outpatient basis and may take a total of 90 minutes to complete each visit. Unlike humans, most dogs do not lose their hair and usually have only mild side effects from the medication, which may include transient loss of appetite and vomiting.

## Aftercare and results

After surgery, you can continue to give your pet a prescribed pain reliever to minimize discomfort. It's also extremely important to limit your dog'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 monitor the healing process and if indicated, our oncologist will initiate chemotherapy.

Complications following surgery may include persistence of infection and death of the patient. If the patient has cancer, it may metastasize to other internal organs, which ultimately will cause death.

Below is a summary of patient survival following treatment of septic peritonitis

Investigator	Bentley	Buthrauff	Staatz	Greenfield
% Survival	64% in early group; 57% in later group	69%	71%	79%

## References

1. Bentley AM. Comparison of dogs with septic peritonitis: 1988-1993 versus 1999-2003. *J Vet Emerg Critical Care* 17 (4):391-398, 2007
2. Ruthrauf CM, Smith J, Glerum L. Primary bacterial septic peritonitis in cats: 13 cases. *J Am Anim Hosp Assoc* 45:268-276, 2009
3. Staatz AJ, Monnet E, Seim HB. Open peritoneal drainage versus primary closure for the treatment of septic peritonitis in dogs and cats: 42 cases (1993-1999) *Vet Surg* 31:174-180, 2002
4. Greenfield CL, Walshaw R: Open peritoneal drainage for treatment of contaminated peritoneal cavity and septic peritonitis in dogs and cats: 24 cases (1980-1986). *J Am Vet Med Assoc* 191:100-105, 1987

## Assessment and recommendations

Patient: \_\_\_\_\_

Date: \_\_\_\_\_

- Surgery is recommended by a surgeon at Michigan Veterinary Specialists

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