

# Peritonitis

## (Inflammation of the Lining of the Abdomen)

### Basics

#### OVERVIEW

- An inflammatory process involving the lining of the abdominal cavity; the lining of the abdomen is the “peritoneum”

#### SIGNALMENT/DESCRIPTION OF PET

##### Species

- Dogs
- Cats

#### SIGNS/OBSERVED CHANGES IN THE PET

- Initially signs may be vague and non-specific, are progressive
- Sluggishness (lethargy) and depression
- Lack of appetite (known as “anorexia”)
- Vomiting
- Diarrhea
- Abdominal discomfort or pain—localized or generalized throughout the abdomen
- Vomiting common
- A “praying” position—for relief of pain
- Low blood pressure (known as “hypotension”) and shock—may develop rapidly; shock characterized by rapid heart rate (known as “tachycardia”), rapid breathing rate (known as “tachypnea”); moist membranes redder than pink (known as “injected mucus membranes”), rapid refill of gums when pressure applied (known as “rapid capillary refill time”); irregular heartbeats (known as “arrhythmias”)
- Shock may transition to early decompensated—with poor pulses, depressed attitude, pale mucus membranes, sluggish capillary refill time
- The deepest shock is decompensatory phase, with slow heart, poor to absent pulses, severe depressed attitude, pale or bluish mucus membranes, prolonged capillary refill time
- Fever is not a consistent finding
- Weight loss in some animals



### CAUSES

#### Primary Inflammation of the Peritoneum (Peritonitis)

- Uncommon
- Results from direct infection through spread of the disease-causing agent (such as bacteria) through the bloodstream or lymph drainage vessels, translocation of the gut bacteria through the wall lining; feline infectious peritonitis (FIP)

#### Secondary Inflammation of the Peritoneum (Peritonitis)

- Most common form of peritonitis
- Results from disruption of the abdominal cavity or a hollow abdominal organ, such as the intestine (75% of cases); includes ulcer or volvulus full depth tears leading to leaking perforation, tumors,
- Other causes include breakdown of surgical sites; penetrating abdominal wounds; inflammation with abscess

formation of the pancreas (known as “pancreatitis”); infection and inflammation of the uterus, with accumulation of pus (known as “pyometra”); liver, kidney or prostatic abscesses; and rupture of the gallbladder, urinary bladder, or bile duct; bladder rupture with urine leakage

## **RISK FACTORS**

- Trauma
- Gastrointestinal surgery
- Undetected abscess of liver, pancreas, prostate, or uterus
- Treatment with non-steroidal anti-inflammatory drugs (NSAIDs) may predispose to perforation at stomach outflow area (pylorus)

## **Treatment**

### **HEALTH CARE**

- Inpatient care is needed because intensive monitoring is required
- Supportive medical care
- Fluid therapy and antibiotics, administered intravenously
- Potassium and glucose—may need to be supplemented in the intravenous fluids
- Blood parameters such as lactate and urine output, blood pressure and other vital parameters will be monitored closely
- The decision to treat the pet medically (drugs only) or surgically is dictated by the cause (if known) of the inflammation of the lining of the abdomen (peritonitis), the pet's response to initial treatment, and the anticipated cost of treatment; mild cases that seem to respond to medical treatment may not need surgery

### **ACTIVITY**

- Usually limited, as a result of hospitalization and confinement, degree of rest depends on severity of illness

### **DIET**

- The approach to nutritional support is determined by the circumstances of each individual pet
- Diet is dictated by the cause of the peritonitis, when identified, and any coexistent conditions (such as heart disease)
- Feeding tube, if necessary, may be placed for nutritional support
- Adequate nutrition—essential to optimize outcome

### **SURGERY**

- Most pets will require surgical exploration of the abdomen to clean and remove dead tissue and, if possible, identify and correct any underlying or contributing factor; will be done as soon as stable
- Known bacterial contamination or suspected chemical-related inflammation of the lining of the abdomen (peritonitis)—means surgical intervention is necessary
- Many pets will die, even with prompt surgical attention; parts of organs may need to be removed, sometimes a connection to the exterior is surgically placed—such as for pancreas or prostate abscesses
- Following surgery, the abdomen may be closed or may be left open for drainage; the decision to close the abdomen or leave it open is determined by your pet's veterinarian, based on the degree of abdominal contamination, ability to remove all debris, severity of the illness, and anticipation of complications from the presence of pus-forming bacteria

## **Medications**

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

- Antibiotics—early and aggressive broad-spectrum antibiotics will be used; and when possible, updated choices based on bacterial culture and sensitivity testing

- Pending results of bacterial culture and sensitivity testing—the veterinarian may use a combination of antibiotics, for gram negatives, including enrofloxacin, cefotaxime or amikacin; for gram positive bacteria, ampicillin or clindamycin; for anaerobes (those bacteria that do not use oxygen), metronidazole
- Medications to control pain (known as “analgesics”), usually opioid drugs (such as fentanyl) with others (“multimodal”) such as lidocaine, ketamine
- Digestive system protectants such as sulcrate
- Antacids such as famotidine, acid production inhibitors such as pantoprazole

## Follow-Up Care

### PATIENT MONITORING

- Fluid balance, electrolyte balance, blood gases for acid–base status—monitor closely
- Frequency of monitoring—varies with the pet's condition and response to treatment—may have to be very frequent until stabilized
- Bloodwork (including a complete blood count [CBC] and serum chemistry profile) and a urinalysis—every 1–2 days during periods of intensive monitoring, even in pets that are responding to treatment
- Urine output monitoring
- Nursing care to decrease risk of bed sores and urine scald, and turning patients frequently if not able to rise
- To oral feeding as soon as possible; tube feeding may be chosen initially
- Repeat ultrasound examinations and evaluation of the abdominal fluid as needed to monitor recovery

### PREVENTIONS AND AVOIDANCE

- Prevention—difficult, except when specific risk factors are identified (such as infection and inflammation of the uterus [pyometra])

### POSSIBLE COMPLICATIONS

- If cause not identified, may worsen
- Abdomen left open to allow peritoneal drainage—abdominal contents may pass through the opening (known as “herniation”), repeat sedation or anesthesia to change bandages; infection; loss of blood proteins through drainage into bandages; scar tissue inside the abdomen; draining tracts that do not heal well; increased cost if healing not progressing well
- Refeeding syndrome if off food a long time and back onto food suddenly—mortality due to shifts of certain blood component such as magnesium, phosphorus and potassium
- Death

### EXPECTED COURSE AND PROGNOSIS

- Prognosis—depends on rapid identification and successful management of the underlying cause, and appropriate follow-up care
- Inflammation of the lining of the abdomen with bacterial infection (known as “septic peritonitis”)—death rate of 30–68%; prognosis worse if complications
- Septic peritonitis—leaving the abdomen open to allow peritoneal drainage may improve survival
- Peritonitis due to leaking bile, survival rate 27%
- Antibiotic treatment started within the first hour improves death rate, to 42% from 80%
- Feeding tubes may have complications; reduces prognosis for favorable outcome—amount of change depends on type of complication

## Key Points

- If underlying cause is not identified and managed, the pet is at risk for complications
- Many pets with inflammation of the lining of the abdomen (peritonitis) will die, even with surgical exploration of the abdomen
- Treatment, extensive monitoring, and intensive care may be costly