

Septic Shock in Cats

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Sepsis, an overwhelming infection in the body, results in severe inflammation. Untreated it results in severe sepsis, which can cause multi-organ failure (e.g., acute kidney failure, acute respiratory distress syndrome, liver failure). When severe sepsis overwhelms the body, it results in septic shock. Even with aggressive treatment, septic shock can be fatal in [dogs](#) and cats; reported mortality ranges in dogs and cats from 20% to 68%.

While we all know that cats differ tremendously from dogs, this is especially key when it comes to septic shock. Cats demonstrate very different clinical signs of septic shock so it's important to recognize the clinical signs immediately (see below). The sooner you recognize the subtle signs, the sooner septic shock can be treated and the better the prognosis.

Causes of septic shock in cats

Common causes for septic shock in cats include:

- Ruptured intestines (typically from intestinal cancer or a [linear foreign body](#) obstruction secondary to ingested string)
- Pyothorax (a pus infection in the chest cavity)
- Kidney infection (pyelonephritis)
- Severely infected wound (e.g., abscess or bite wound)
- Feline infectious peritonitis (FIP)

Rare causes for septic shock in cats include:

- Severe dental disease resulting in a blood infection (called bacteremia)
- Uterine infection in intact females (pyometra)
- Pneumonia
- Ruptured organs (e.g., a ruptured bladder secondary to bladder stones or a ruptured gall bladder secondary to gall bladder stones)

Symptoms of septic shock

Unfortunately, cats often don't show signs until a moderate to advanced disease state. In cats, signs of septic shock include:

- Not eating
- Complete Anorexia
- Hiding
- Vomiting
- Drooling
- Pale pink gums
- Dehydration
- Increased respiratory rate
- Difficulty breathing
- Abdominal pain
- Diarrhea
- Straining to urinate or defecate
- Collapse
- Excessive licking of the rear end
- A foul odor from the rear end
- Vaginal discharge
- Fever
- A distended abdomen
- Death, even with treatment

On physical examination your veterinarian may detect additional signs such as:

- Dehydration
- Poor femoral pulses (indicating a very low blood pressure)
- Fever or hypothermia
- Increased respiratory rate
- A slower heart rate (this is very different than dogs, where sepsis typically causes an elevated heart rate)
- Jaundice
- Abdominal pain
- Abnormal fluid in the abdomen

Testing for septic shock in cats

Unfortunately, the clinical work up for septic shock can be expensive as it requires an aggressive workup (including certain diagnostics). These include:

- Complete blood count (looking at the white and red blood cells and platelets)
- Chemistry (looking at the kidney and liver function, protein, blood glucose, electrolytes)

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- Urinalysis
- Urine culture (especially if a secondary kidney infection is suspected)
- Chest and abdominal x-rays
- Coagulation testing (including a PT, PTT, and platelet count)
- Abdominal ultrasound (to rule out cancer or a kidney infection, etc.)
- Fluid analysis if there is abnormal fluid in the abdomen or chest
- Catscan or MRI
- Ultrasound of the heart (echocardiogram)

Typically, blood work findings may include:

- Highly elevated blood glucose (hyperglycemia). More typically seen with cats, as they rarely develop hypoglycemia ([which is more common in dogs with septic shock](#)).
- A highly elevated white blood cell count is typically seen with cats. Less commonly, low white blood cell counts may be seen although this is more common in dogs with septic shock.
- A decreased red blood count (from “anemia of chronic disease”); sometimes an elevated red blood cell count may be seen secondary to severe dehydration
- Evidence of jaundice on blood work, including increased liver enzymes
- Increased kidney values which are often due to severe dehydration or even kidney failure
- While disseminated intravascular coagulation ([DIC](#)) can be seen in cats, it is not common.

Treating septic shock in cats

Treatment for sepsis is similar between dogs and cats; it includes removing the source of infection (which is typically done by surgery, if involving the abdomen) or symptomatic supportive care. Specific treatment to counter septic shock includes:

- Intravenous (IV) fluids
- IV colloid fluids (e.g., Hetastarch [to help increase the protein in the blood stream and blood pressure])
- IV antibiotics

- Anti-vomiting medication
- Pain medication
- Vasopressors to increase the blood pressure (e.g., dopamine)
- Nutritional support (e.g., a feeding tube or intravenous nutrition called total parenteral nutrition)
- Blood work monitoring (specifically of the electrolytes, blood sugar, white and red blood cell count, and clotting)
- Surgery, if indicated
- Possible plasma transfusions if DIC is present

Unfortunately, even with aggressive treatment, the prognosis is poor to grave once septic shock has set into the body. The best thing that an owner can do is to seek veterinary treatment immediately. My general rule? As soon as a cat starts [hiding](#), something serious is wrong—when in doubt, as soon as your cat starts showing any of the signs mentioned above seek veterinary attention immediately!

If you have any questions or concerns, you should always visit or call your veterinarian -- they are your best resource to ensure the health and well-being of your pets.