

Extra-Hepatic Biliary Tract Obstruction (EHBO)

Associated Terms:

Gallstones, Bile Peritonitis, Cholelithiasis, EHBDO, Obstructive Jaundice, Bile Duct Obstruction, Biliary Obstruction

OVERVIEW

Extra-Hepatic Biliary Tract Obstruction (EHBO) is the **blockage of the normal flow of bile from the liver to the intestinal tract**. The most common causes of EHBO include:

- pancreatic disease
- stone formation within the biliary system (gallstones)
- cancer of the pancreas, bile duct, or intestine

In dogs & cats, bile (a secretion made in liver) flows from the bile canaliculi (very small ducts within the liver) into larger ducts that leave the liver & eventually into the bile duct, & is then stored in the gallbladder. The gallbladder is drained by the cystic duct into the common bile duct, which empties into the first part of the small intestine, the duodenum. Bile aids in digestion & contains bilirubin, a breakdown product from red blood cells.

It is easy to understand that if bile is not allowed to flow into the intestine your pet will become very ill. The build up of red blood cell (RBC) breakdown products in the blood has a negative effect on many organs, including the heart, kidneys, lungs & brain. If bile salts are blocked from getting into the intestine, digestion & absorption of fats & fat soluble vitamins will also be prevented & toxic bacteria will flourish.

CLINICAL SIGNS

Animals with biliary obstructions are often some of the most critically ill patients that animal owners bring to their primary care veterinarians. Clinical signs in dogs & cats with surgical diseases of the biliary tract & gallbladder are nonspecific & mimic other abdominal disorders. Signs may come & go for several weeks until the pet is taken to the veterinarian. The most frequently reported signs in animals with biliary tract obstruction are:

- Icterus (jaundice, yellow discoloration of the mucous membranes, whites of the eyes & skin)
- Decreased appetite
- Diarrhea
- Lethargy
- Vomiting

Many animals with bile duct obstruction are not examined until clinical signs of icterus develop. These animals often have complete obstruction of their biliary tract & are much sicker than they may appear.

DIAGNOSTICS



Bile duct obstruction causes an increase in total serum bilirubin, the body's mechanism for the removal of RBC break down products & often causes liver enzymes to be abnormally elevated. In very severe cases, animals will have elevated kidney values, abnormal clotting ability, low blood pressure, a high fever & high levels of circulating white blood cells (WBCs).

Radiographs (x-rays) are taken in animals with clinical signs & laboratory abnormalities consistent with biliary disease. Radiographs are useful in detecting stones in the biliary system & other abdominal disease that may be related to the biliary tract obstruction (Figure 1). The use of abdominal ultrasound is a very sensitive indicator of the cause the obstruction & should be performed in every animal suspicious of having an obstruction of the bile ducts or disease of the gallbladder (Figure 2).

Bile peritonitis is the inflammatory response of the lining of the abdominal cavity to the presence of free bile. Bile peritonitis is caused by rupture of the extrahepatic bile ducts, the gallbladder, or tears in liver lobes allowing bile to spill into the abdominal cavity. Rupture may be due to blunt trauma, neoplasia, a [gallbladder mucocele](#), inflammation of the wall of the gallbladder or obstruction from gallstones, cancer, or parasites. Your pet's veterinarian may run tests comparing the bilirubin concentration of the abdominal fluid to the bilirubin concentration in the blood. Bile peritonitis is a surgical emergency.

TREATMENT

The main goal of surgery is to confirm the underlying disease process, establish a patent biliary system, & minimize peri-operative complications. Due to the complexity of biliary surgery, your veterinarian may refer you & your pet to a veterinary surgeon. Surgical options that your veterinary surgeon may discuss with you include:

- Cholecystectomy - removal of the gallbladder
- Cholecystotomy - incision into the gallbladder
- Cholecystostomy Tube - a tube placed into the gallbladder to provide drainage
- Choledochotomy - an incision into the bile duct, usually to remove a stone
- Choledochoduodenostomy - reattachment of the bile duct to a new location in duodenum
- Biliary-enteric anastomoses (cholecystoenterostomy) - attaching the gallbladder to the small intestine for permanent drainage
- Choledochal Stenting - placement of a temporary or permanent stent in the bile duct
- Laparoscopic Cholecystectomy - removal of the gallbladder using a laparoscopic

AFTERCARE & OUTCOME

Patients having biliary surgery often require intensive care after surgery in a hospital with 24-hour nursing care available & may be hospitalized for days. Nutritional support is often needed with the placement of temporary feeding tubes. Pain medications & antibiotic therapy as well as liver targeted medications are often given.

Patients having biliary surgery have a high mortality rate (28–60%), though rates vary considerably depending on the causative condition.

Dogs with biliary tract obstructions are at an increased risk of acute kidney failure that develops due to the presence of bacterial endotoxemia. In dogs & cats, many authors have evaluated risk factors associated with outcome in patients undergoing surgery of the extrahepatic biliary tract. Factors besides kidney failure include:

- Presence of septic bile peritonitis,
- Elevated white blood cell count (WBC),
- Prolonged clotting times,
- Low blood pressure,
- Sepsis, and
- Disseminated Intravascular Coagulation (DIC)

The outcome for dogs & cats with bile peritonitis varies widely. If bacteria are present in the abdominal fluid (septic bile peritonitis) the prognosis is poor. If no bacteria are present in the abdominal fluid, the prognosis is favorable with surgical treatment, if the causative condition can be corrected.

Surgical biliary intervention in cats with EHBO has about a 50% mortality rate overall & almost a 100% mortality when cancer is involved. Causes of death in these cats included clinical deterioration, bile leakage, & cardiopulmonary arrest. Cats who survive the initial surgery may experience long-term complications such as cholangiohepatitis (inflammation/infection of the liver), chronic weight loss, & recurrence of obstruction.

If you have any questions, please feel free to ask your primary veterinarian &/or veterinary surgeon.

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