

## **Supplementary Material: Additional Results**

### *Peri-Operative Diagnostics:*

Aerobic and anaerobic bile cultures were performed in all 23 cats, and 8/23 (34.8%) had bacterial growth of the following organisms: *E. coli* (2), *Actinomyces* (2), *Pasteurella multocida* (1), *Pseudomonas aeruginosa* (1), *Streptococcus minor* (1), *Enterococcus* (1), and *Klebsiella pneumoniae* (1). One cat had growth of two organisms (*E. coli* and *Pasteurella multocida*) in the bile. Two cats had cultures obtained from liver biopsy samples, and both were negative for growth. Two cats had cultures obtained from pancreatic biopsy; one showed growth of *E. coli* and the other was negative for growth.

Cholelith analysis was performed in two cats, and results were consistent with calcium carbonate (1/2) and calcium stearate (1/2) composition.

Histopathology samples were obtained in 22/23 (95.7%) cats. Histopathology of the liver was performed in 20 cats and revealed changes consistent with cholangitis/hepatitis in 19 cats and cholangiocarcinoma as well as cholangitis in one cat. Histopathology of the pancreas was performed in 12 cats and results were consistent with pancreatitis in eight cats, nodular hyperplasia in two cats, normal pancreas in one cat, and one pancreatic sample contained no observable pancreatic parenchyma to evaluate. Histopathology of the duodenum was performed in 10 cats and revealed evidence of enteritis in eight cats, lymphoma in one cat, and no abnormalities in one cat. Samples of the jejunum were submitted for histopathology in four cats and results were consistent with possible lymphoma in two cats, enteritis in one cat, and normal intestine in one cat. Stomach samples from two cats were submitted and both appeared histologically normal. Samples of ileum from two cats were submitted and both revealed changes consistent

with enteritis. Mesenteric lymph node samples were histopathologically evaluated in seven cats and revealed hyperplasia in six cats and no abnormalities in one cat.

Histopathology of the gallbladder was performed in six cats and results were consistent with cholecystitis/cholangitis in five cats, and one gallbladder had transmural fibrosis with coagulative necrosis and intraluminal hemorrhage. Two cats had samples of spleen evaluated histologically and both showed evidence of lymphoid hyperplasia. One bile duct sample was evaluated and showed signs of cholangitis with fibrosis, and one major duodenal papilla sample was submitted and results were consistent with papillary hyperplasia and lymphoplasmacytic inflammation.

*Intra-Operative Diagnostics, Treatments, and Outcomes:*

All cats had at least one additional surgical procedure in addition to the choledochal stent placement: liver biopsy/surgery in 22/23 (95.6%), pancreatic biopsy/surgery in 11/23 (47.8%), gastrointestinal biopsies in 11/23 (47.8%), esophagostomy tube placement in 9/23 (39.1%), cholecystectomy in 7/23 (30.4%), mesenteric lymph node biopsies in 7/23 (30.4%), choledochotomy with cholelith removal in 5/23 (21.7%), gastrostomy tube placement in 4/23 (17.4%), biliary system biopsies in 3/23 (13.0%), abdominal drain placement in 2/23 (8.7%), choledochoduodenostomy in 1/23 (4.3%), splenectomy in 1/23 (4.3%), and splenic biopsy in 1/23 (4.3%).

*Post-Operative Diagnostics, Treatments, and Outcomes:*

Post-operatively, CBCs were performed in 10 cats, coagulation panels were performed in three cats, and urinalysis was performed in one cat. Repeat serum biochemistry panels were performed in 14 cats prior to discharge, and repeat CBCs were performed in four cats prior to discharge. CBC was first performed at a median of 2.5

days (range 0-5) post-operatively with repeat CBC prior to discharged performed at a median of 4 days (range 2-5) post-operatively. Biochemistry panel was first performed at a median of 1 day (range 0-5) post-operatively with repeat biochemistry panel prior to discharge performed at a median of 4 days (range 2-11) post-operatively.

Analgesic medications administered post-operatively included fentanyl (12/20), buprenorphine (3/20), fentanyl and ketamine (2/20), methadone (2/20), and oxymorphone (1/20); analgesic medications were not documented for three cats. Ursodeoxycholic acid was reportedly administered to five cats post-procedure.

Antibiotics administered included ampicillin/sulbactam and enrofloxacin (6/18), ampicillin/sulbactam (5/18), ampicillin/sulbactam and pradofloxacin (1/18), metronidazole and pradofloxacin (1/18), amoxicillin/clavulanic acid and enrofloxacin (1/18), ampicillin and enrofloxacin (1/18), metronidazole, clindamycin, and enrofloxacin with subsequent cefoxitin and cefpodoxime (1/18), metronidazole and enrofloxacin (1/18), and piperacillin/tazobactam (1/18).

One cat (cat 2) that died within 24 hours of surgery was noted to have intra-operative hypotension that was not responsive to vasopressors. This cat later suffered respiratory arrest and was treated with positive pressure ventilation without return of spontaneous ventilation; this cat was subsequently euthanized. Another cat (cat 12) that died within 24 hours of surgery had persistent hypotension post-operatively that was not responsive to crystalloids, colloids, blood transfusions, or vasopressors, and this cat was euthanized. The final cat (cat 16) that died within 24 hours of surgery experienced respiratory arrest and required ventilatory support; this cat was subsequently euthanized. The cat (cat 10) that died 5 days post-operatively had two episodes of cardiopulmonary

arrest with successful resuscitation 2 days post-operatively, and then 5 days post-operatively the cat had another cardiopulmonary arrest event and return of spontaneous circulation was not achieved. The cat (cat 15) that died 7 days post-operatively had a necropsy performed, which documented severe pulmonary edema and congestive heart failure, megacolon, severe chronic membranous glomerulopathy, inflammatory bowel disease, hepatic encephalopathy, and severe fibrosing pericholangitis with cirrhosis, pancreatic fibrosis, and pancreatic and bile duct obstruction; the choledochal stent was in place at the time of necropsy.

For the cat (cat 18) that had suspected recurrent EHBO at 4 days post-operatively, persistent hyperbilirubinemia was noted, but outpatient management was elected. The hyperbilirubinemia progressed, and abdominal radiography 14 days post-operatively revealed passage of the stent. The cat was successfully managed medically until recurrent EBHO occurred at 226 days post-operatively (as detected by laboratory diagnostics and abdominal ultrasonography). Abdominal ultrasonography at that time showed regrowth of a previously excised hepatic mass (biliary cystadenoma) and portal hypertension with partial biliary obstruction. Exploratory laparotomy was offered and declined, and medical management was continued. The cat was subsequently lost to follow-up. The cat (cat 3) that developed suspected recurrent EHBO 6 days post-operatively based on laboratory diagnostic tests and abdominal ultrasonography was still noted to have the choledochal stent (a 5 Fr red rubber catheter) in an appropriate position when evaluated ultrasonographically. Medical management was continued in this cat. The cat was lost to detailed follow-up but is known to have died 931 days following discharge due to unknown causes. For the cat (cat 19) that developed recurrent EHBO 7 days post-

operatively, abdominal ultrasonography revealed that the stent had passed. The cat underwent another laparotomy with cholecystoduodenostomy and omentalization of a pancreatic cyst, and the cat was discharged 6 days later. The cat (cat 8) that was suspected to have recurrent EHBO 24 days post-operatively based on laboratory diagnostics did not undergo imaging. The cat suffered cardiopulmonary arrest within 1 day of presentation, and the stent location at that time was unknown. The cat (cat 17) that developed recurrent EHBO 146 days post-operatively had signs of acute pancreatitis and no visible choledochal stent on abdominal ultrasonography. Diagnostic testing revealed systemic fungal disease for which the cat was treated medically with itraconazole and terbinafine. The cat (cat 23) with recurrent EHBO 268 days post-operatively had previously been documented to have passage of the stent (42 days post-operatively), and this cat was euthanized shortly after diagnosis with EHBO. The cat (cat 20) with recurrent EHBO 564 days post-operatively had no visible choledochal stent on abdominal ultrasonography 45 days post-operatively. This cat was diagnosed with septic peritonitis and underwent exploratory celiotomy with choledochotomy, cholelith removal, choledochal stent placement using a 5 Fr red rubber catheter sutured in place with polypropylene, and abdominal drain placement. The cat was discharged 11 days post-operatively.