GALL BLADDER MUCOCELE

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Introduction: Patients diagnosed with gall bladder mucocele are often candidates for surgical exploratory. This decision is generally based on history, physical examination findings, response to medical therapy and results of serial ultrasonographic findings of the gall bladder and liver.

Presurgical Considerations: Preoperative treatment of patients with gall bladder mucocele is dependant upon the patients presenting signs and results of physical and ultrasonographic findings. If the patient is stable and there is no evidence of gall bladder rupture the patient can be pretreated with fluid and antimicrobial support prior to exploratory laparotomy. However, if there is a high index of suspicion that the mucocele is ruptured the patient is treated as an urgent care case, stabilized as best as possible with fluid and antimicrobial support. An exploratory laparotomy should be scheduled as an emergency procedure.

Biliary Surgery Facts: Normal bile is sterile. In cases of cholecystitis and cholangitis, however, bile frequently contains bacteria. Bile leakage can induce chemical peritonitis resulting in tissue irritation and permeability changes that may result in subsequent bacterial growth. Administration of preoperative and postoperative antimicrobials is indicated in the preoperative treatment of these patients. Antibiotic therapy should be based on culture and susceptibility testing, however empirical use of biliary antibiotics include ampicillin, cephalosporins, and chloramphenicol because they are excreted in the bile.

In cases of prolonged obstructed biliary disease, a deficiency of prothrombin and vitamin K-dependent coagulation factors can develop. Administration of vitamin K or a fresh whole blood transfusion may be indicated.

Suture Materials and Patterns: Suture materials best suited for biliary surgery include synthetic monofilament absorbable suture (i.e., Maxon, Biosyn, Monocryl, PDS) or synthetic monofilament nonabsorbable suture (i.e., nylon, polypropylene, Novafil). Multifilament synthetic absorbable sutures (i.e., Vicryl, Dexon, Polysorb) can be used but their braided nature may result in excessive tissue drag.

Suture needles recommended are similar for those used in intestinal surgery; fine taper, taper cut, or reverse cutting needles. The recommended suture pattern is single layer simple continuous apposition; each bite penetrates all layers of gallbladder wall. Single layer simple interrupted appositional suture pattern can also be used. Inverting suture patterns should be avoided as they tend to create unacceptable lumen compromise. Suture size is dependent upon the species and structure being sutured.

Gall Bladder: cats: 4-0 or 5-0
small dogs: 4-0 or 5-0
large dogs: 4-0

Surgical Anatomy: Biliary tract surgery is generally limited to the extrahepatic biliary system including hepatic ducts, common bile duct, cystic duct, and gallbladder. In the dog, hepatic ducts enter the cystic duct and common bile duct separately. The cystic

duct extends from the neck of the gallbladder to its junction with the first hepatic duct. Distal to this, the duct continues to the duodenum as the common bile duct. The common bile duct empties into the duodenum at the major duodenal papilla. Blood is supplied to the gallbladder via the cystic artery, which originates from the left branch of the proper hepatic artery. The extrahepatic biliary tract is most often approached via a midline xyphoid to pubis celiotomy.

Cholecystectomy: Indications for cholecystectomy include gall bladder mucocele, irreparable damage to the gallbladder or cystic duct, neoplasia, calculi, and necrotizing cholecystitis.

Technique: The liver and gallbladder are exposed via cranial ventral midline celiotomy. The gallbladder is adhered to the right medial and quadrate lobes via peritoneal attachments. These visceral peritoneal attachments are incised along the junction of the gallbladder and liver. While applying gentle traction, the gallbladder is freed from the liver by blunt dissection. The gallbladder and cystic duct are freed to their junction with the common bile duct, being careful not to damage the common bile duct or hepatic ducts. The cystic duct and cystic artery are clamped and double ligated with 2-0 monofilament absorbable or nonabsorbable suture. The duct is transected between ligatures and the gallbladder removed. Bleeding from the raw surface of the liver is controlled by direct pressure from a gauze sponge, a hemostatic substance such as Gelfoam or Vetspon, or by incorporating an omental pedicle flap. A sample of bile and gallbladder wall is taken for culture and susceptibility testing and the remainder of the gallbladder submitted for histopathologic examination.

Patients presenting with gall bladder mucocele rupture should have a xyphoid to pubis exploratory laparotomy. Mucocele contents are often thick and tenacious. After gall bladder rupture these contents are disseminated throughout the abdominal cavity. Careful exploratory of all areas of the abdomen are essential in order to retrieve all contents of the ruptured mucocele.

Remnants of the gall bladder wall are excised from their attachments on the liver lobes. The cystic ducts' communication with the common bile duct is identified and ligated. The abdomen is generously lavaged with sterile physiologic saline solution until the fluid is clear and devoid of any evidence of bile staining.

In order to provide continued abdominal drainage postoperatively, one or two Jackson-Pratt drains are placed in the abdomen to provide postoperative abdominal drainage. In patients over 25kg two drains are used; one is placed in the cranial abdomen between the liver and diaphragm and the second is placed in the caudal abdominal quadrant. The drains are exited at a point distant from the primary abdominal incision. Drains remain in place postoperatively until the character of the fluid cytology/quantity returns to normal (i.e., healthy neutrophils, no bacteria, decreasing fluid quantity)

Postoperative management: Patients presenting with an intact gall bladder (i.e., early surgery) require careful postoperative observation for the first 12 – 24 hours after surgery. These patients can generally be discharged from the hospital within 24 to 36 hours after surgery.

Patients presenting with a ruptured gall bladder mucocele (i.e., late diagnosis/surgery) should recover in a critical care unit that can offer 24hr/day close observation to access

patient progress. Intravenous fluids, antimicrobial therapy, abdominal drain management, and close CBC and electrolyte evaluation should be available.

Prognosis: The prognosis for patients presented prior to gall bladder rupture is favorable to excellent. Patients' presented with gall bladder rupture generally have a guarded prognosis, however the sooner these patients are explored the better the overall prognosis.