Title:
Approach to the Acute Abdomen

Session Description:
Acute abdomen refers to the acute onset of abdominal pain. Rapid diagnosis, hemodynamic stabilization and treatment of the underlying etiology can lead to improved patient outcomes. We will examine common reasons for acute abdomen and diagnostic tools to differentiate etiologies in an efficient manner. We will then utilize a case-based approach to highlight a goal-directed approach to treatment.

Lecture Notes:
One of the most challenging, and possibly most important, tasks a veterinarian faces in the emergent patient is deciphering surgical versus non-surgical disease. This is most evident in the acute abdomen, defined as the acute-onset of abdominal pain. Rapid diagnosis, hemodynamic stabilization and treatment of the underlying etiology can help clinicians achieve a successful outcome.

As in any case, an accurate history is imperative and may be immediately helpful in making the distinction between surgical and non-surgical disease. Patients may have recently ingested a foreign object, eaten the entire tray of brownies, have had a recent heat cycle or may have recently demonstrated non-productive retching. That said, most cases we see come with a vague history of lethargy, vomiting or anorexia. The next piece of our diagnostic puzzle is the physical exam. In the ER, our triage exam focuses on the hemodynamic stability of our patients, as well as their respiratory and neurological status. Assessment of the patient's mentation, CRT, heart rate and pulse quality can help in determining their hemodynamic stability. The next question is whether the abdominal pain is focal or diffuse. Focal pain may be associated with mild pancreatitis, intestinal obstruction or intussusception; whereas diffuse pain may be associated with such diseases as septic/bile peritonitis, severe pancreatitis, visceral torsions or thromboembolic disease. While assessing abdominal pain, abdominal ballottement can be performed to help determine whether there is abdominal fluid present.

Although we obtain a great amount of knowledge from our histories and physical examinations, the decision to perform surgery is rarely made based solely on this information. The fact is history and physical exam help to focus our diagnostic pathway. In patients with questionable hemodynamic stability, we may want to follow up with assessment of blood pressure and cursory lab work, including a PCV/TS, blood gas, electrolytes, creatinine and lactate. It is important to remember that a normal or elevated blood pressure does not rule out shock or hypovolemia. While patients with compensated shock are unlikely to be hypotensive they may still benefit from a bolus of fluids. Concerning PCV/TS, it is important to keep in mind that patients with acute hemorrhage may have a normal to high PCV while the TS will be normal to low, owning this phenomenon to splenic contraction.

Abdominal imaging is a very important piece of our diagnostic puzzle. The most common modalities available to us as veterinarians are radiographs and ultrasound. Where the former has the benefit of less expense and ease of use, ultrasound has become the standard for assessment of the abdominal cavity. Abdominal focused assessment with sonography for trauma (AFAST) is a quick and easy way to identify fluid pockets within the abdominal cavity. We can obtain this fluid via paracentesis or a four-quadrant abdominocentesis. The latter method is typically employed when only small amounts of fluid are present within the abdomen. After clipping and applying sterile prep to the area of the umbilicus, four 22g needles are inserted into the peritoneum in a box formation about 2cm from the umbilicus. The idea is that omentum will flow toward the first 2-3 needles while a small amount of fluid may fill the needle hubs of the final 1-2 needles. Typically, there is only enough for cytological evaluation of the fluid. Often, patients with acute abdomen and peritoneal effusion are hypovolemic and/or dehydrated. A bolus of IV crystalloids can help

with hemodynamic stability, as well as increase the volume of effusion making it easier to obtain a diagnostic sample.

Assessment of abdominal fluid is an important step in determining whether a patient has a medical or surgical disease. Cytological identification of intracellular bacteria or bile pigment warrants surgical considerations. Biochemical analysis can help the process as well. Typically, fluid obtained from the peritoneal space should be assessed with a PCV/TS, creatinine and glucose, whenever possible, and compared to that of peripheral blood. A glucose differential of -20mg/dL between the peripheral blood and abdominal fluid is suggestive of septic peritonitis. A difference in abdominal and peripheral creatinine or 2 times is diagnostic for uroabdomen.

Ultimately, our history, physical exam and diagnostics may not yield a definitive diagnosis and as such a decision whether or not to perform an exploratory celiotomy must be made. With proper informed consent, this is an excellent modality to rule out the presence of significant abdominal disease. If the patient is found to have a "negative explore", taking biopsy samples of the gastrointestinal tract can be helpful in identifying the cause for the patient's abdominal disease. While the adage "you're not performing enough explores if you don't see negatives" is comforting, we must first feel comfortable with the steps we've taken go get there.

References:

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