

Close this window to return to IVIS
www.ivis.org

Proceedings of the 36th World Small Animal Veterinary Congress WSAVA

Oct. 14 - 17, 2011
Jeju, Korea



Next Congress:



Reprinted in IVIS with the permission of WSAVA
<http://www.ivis.org>



GENERAL APPROACH TO ACUTE ABDOMEN

Luis H. Tello, MV, MSc, DVM

Lead Dr. Portland Hospital
International Medical Advisor
Banfield Pet Hospital, USA

The term “acute abdomen” is a reference to the human syndrome characterized by intense pain, systemic signs as vomiting, diarrhea, fever, commonly with a sudden onset and without known origin.

As general approach the main causes for abdominal emergencies may be divided as traumatic or non-traumatic. A high percentage of these cases defined as abdominal emergencies are surgical cases that should be rushed into operation rooms, however the clinicians must be aware that not all of them are surgical, and often the decision can be very difficult. In general there are 3 situations that can be described as abdominal emergencies: Intra-abdominal lesions that require urgent surgical intervention after previous stabilization, medical conditions that not require immediate surgical intervention and other conditions that simulate an abdominal emergency.

Burrows in 2002 listed these differential diagnoses for acute abdominal conditions

1. Digestive system

Gastric or duodenal ulcer, Gastritis, gastroenteritis, Gastric dilation-volvulus, Intestinal obstruction (foreign body, intussusceptions, incarcerated strangulated hernia), Intestinal perforation, volvulus, Pancreatitis, pancreatic abscess, Gastroenteritis, Inflammatory Intestinal Disease (parvovirus, panleukopenia, hemorrhagic gastroenteritis, hookworm infection), Portal hypertension, Ruptured bile duct, necrotic cholecystitis, Ruptured diaphragm with gastrointestinal tract compromise

2. Urinary system

Obstructive calculi in ureter or urethra, Urethral obstruction with or without hydronephrosis, Uroperitoneum (ruptured bladder, urethra, ureter), Acute nephritis (acute renal failure), Pyelonephritis, Urethral obstruction, feline lower urinary tract disease, Neoplasia

3. Reproductive system

Ruptured Pyometra, Metritis (post partum, Labor/dystocia, Uterine torsion, Testicular torsion)

4. Peritoneal Cavity

Hemoabdomen, Trauma, Vascular Neoplasia, Coagulopathy, Diapedesis, Septic Abdomen, Gastrointestinal tract perforation (ulcer, tumor, loss of blood supply, foreign body), Splenic torsion, Ruptured pancreatic abscess, Trauma, Blunt trauma (tissue necrosis, infection), Penetrating trauma (bite, knife, gunshot wound), Uroabdomen

5. Infectious disease

Infectious canine hepatitis, Leptospirosis,

6. Musculoskeletal

Intervertebral disc disease, Ruptured abdominal muscle

7. Trauma

Ruptured viscera, Organ's fractures, Shock,

8. Miscellaneous

Ruptured tumor, Poisoning (lead, thallium and arsenic can cause abdominal pain)

Probably the term acute abdomen is the icon and it is the best to describe the concept of a non-traumatic abdominal emergency. The term acute abdomen came from human medicine to describe as an often multi-etiological group of signs and symptoms characterized by the sudden onset of intense abdominal pain and associated signs which include: nausea, shock, vomiting and diarrhea, changes in gastrointestinal peristalsis, fever, anorexia, secondary dyspnea and lack of response to anti-inflammatory or analgesia medication.

Medical decisions about the management of these patients can only be made after establishment of an accurate diagnosis. All the patients with acute abdomen signs should be assessed with diagnostics exams. A gentle yet thorough and complete history and physical examination are the most important diagnostic tools for the emergency doctors. Physical examination should look for areas of possible trauma (bruises or wounds), areas of specific pain (i.e. cranial but no caudal) presence or not of free fluid (fluid wave) and changes in size, symmetry and color of the abdomen. Dogs with abdominal pain may adopt aberrant posture as the "praying position" that helps them to alleviate the abdominal pressure and discomfort. Cats may stand with their heads extended and elbows abducted, similar to the posture adopted with respiratory distress.

Additional diagnostics as survey and contrast radiographs, abdominocentesis, peritoneal lavage or abdominal ultrasound (if available) shall be performed based on the physical exam. Some tests should be carried out on all patients; others are indicated only to confirm a provisional diagnosis. A minimum data base should be considered: CBC and total proteins including a differential white cell count, chemistry including hepatic enzymes, creatinine, BUN, glucose and electrolytes and also urinalysis and fecal examination. Also more specific tests as CPL to rule out pancreatitis and ELISA Parvo test should be considered according with the

signs.

The leukocyte differential can suggest an acute, chronic or degenerative response and may provide some information about possible sepsis. The urinalysis may provide information about the presence of urinary hemorrhage or trauma or a potentially severe pyelonephritis. However the final diagnosis requires further test to be performed.

Paracentesis and abdominal lavage are relatively simple and non-expensive diagnostic tools in the evaluation of abdominal disease and should be considered in patients that have had a history of trauma, a possible peritonitis or evidence of ascites. Chemistry and cytological evaluation of any fluid obtained often may provide valuable information about the condition affecting the patient.

When available, radiographic examination of the abdomen may reveal important data and should be part of the diagnosis, monitoring and therapy of any patient with acute abdominal disease. Survey radiographs of the abdomen may reveal pathologic changes within a shorter period of time than the results from many laboratory tests.

Loss of abdominal serosal detail should raise suspicion of free fluid as hemoabdomen or uroabdomen. Free peritoneal air should be interpreted as possible rupture of a hollow organ or a non-detected penetrated injury as animal bites of projectile wound.

In cases when the clinician suspect about a rupture or an obstruction of the gastrointestinal tract, contrast radiographs may define such conditions. It is important to use iodine contrast instead of barium if there is a possibility of rupture. In cases where the practitioner needs to define the integrity of the bladder or the urethra a pneumocystogram or a positive contrast cystogram may be used.

Perforation or rupture of the GI tract can be diagnosed via cytology on fluid obtained through abdominocentesis or peritoneal lavage. A simple approach is measuring the glucose level of the abdominal fluid. If the glucose of the fluid is low (< 50 mg), and if there is a difference of more than 20 mg/dL of the abdominal fluid as compared to serum glucose, a septic fluid is likely.

Most of those cases require surgical management after medical stabilization. However there are controversial reports about no real differences in the outcome of these patients when they are treated only medically compare with surgical.

All the penetrating wounds as bites should always be surgically explored. Due to the enormous pressure that animal bites can deliver, internal organs may be affected and the wounds had penetrated to the abdominal cavity without being readily apparent on initial examination. If a body cavity has been communicated with the exterior because the bite, and therefore may be contaminated, these areas should be explored thoroughly for underlying tissue damage, followed with careful and gentle cleaning. The surgeon shall decide the need for place drains if dead space is present and also the urgency to perform an open exploration of the abdominal cavity.

Patients that arrive to the hospital with penetrating foreign bodies in place should be sedated, and explored. All the attempts to remove a penetrating foreign body should be performed under surgical conditions and never

shall be attempted by the owner.

Uroabdomen is relatively common condition in small animals and may be secondary to blunt trauma or to rupture of the urinary tract due to obstructions. Usually the diagnosis is supported by the physical exam of a depressed animal with vomiting, diarrhea and uremic halitosis. The lack of urination is often another clue reported by the owner.

The finding of free fluid into the abdomen using ultrasound, radiographs or palpation should be followed by the determination of its creatinine and/or potassium levels in the fluid compared with serum. A recent research reported that increased ratios of 1.4 for creatinine and 2.0 for potassium are diagnostics for uroperitoneum. The treatment is a surgical repair of the damaged structures, previous stabilization of the patient, particularly for the potential hyperkalemia and hypothermia.

Another abdominal emergency is the hemoabdomen or hemoperitoneum, a relatively uncommon emergency in cats compared to dogs. The condition may be caused by different types of trauma; ruptured neoplasia; especially HSA in the spleen; and less frequently, due to a coagulation disorders. Therefore all these patients should have a coagulation profile performed as part of their minimum data base. Whenever is possible, an ultrasound exam of the abdomen shall be performed.

Currently the hemoabdomen caused by trauma is not considered a surgical disease, unless the hemodynamia of the patient cannot be stabilized using crystalloids, colloids and blood products. Recent reports notice that the outcome is better if an emergency surgery is not attempted during the first 24 hours.

After the abdominocentesis the PCV should be determined and compared against the peripheral blood. Free blood in the abdomen may have higher PCV due to the water extraction from the fluid, by the peritoneum. Also should be noted that the contact with the peritoneum extract the fibrinogen from the blood, therefore there is no clot formation.

The Initial management of hemoabdomen cases consists in the administration of oxygen, fluids: crystalloids, colloids and/or blood products depending on the patient's hemodynamic status, but, if a stable condition cannot be achieved with these measures, exploratory surgery may be indicated.

A new approach to these patients with active hemoabdomen is known as hypotensive therapy and the goals in that approach is to avoiding remove any possible clot formed in the traumatized areas, reaching sub-normal values of blood pressure when using products as fresh frozen plasma (FPP), fresh plasma, or commercial products as Oxyglobin®. The end-point treatment is systolic pressures lower than 90 mmHg or mean pressures lower than 60 mmHg.

A very controversial issue about the treatment of these patients is the usage of an abdominal bandage placed for the purpose of stopping the hemorrhage into the abdomen. There are controversial reports about the real effect of such a practice and many authors believe that indeed do not reduce the ongoing hemorrhage and actually reduce the perfusion of the abdominal organs.

GDV is a relatively common emergency in large breed dogs. These patients can evidence a large variation of symptoms upon presentation, with almost no clinical signs or may presented recumbent and in shock. Typically, the client describe the dog has episodes of non-vomiting retching, salivation, discomfort and restlessness. Most of the owners may have noticed signs of discomfort such as vocalization, panting or reluctance to lie down. The temperature may be normal, with a rapid and shallow respiration, the femoral pulse are often weak with a heart rate most often elevated over 180 bpm.

The approach to GDV patients include IV fluids, gastric decompression whenever is possible, pain management and hemodynamic assessment. The usage of lactate level as biomarker for a prediction of the outcome has been advocate in different studies. Values over 6.0 were related to higher mortality, while values of 3.3 had survival rates around 95%.

The most common complications in GDV patients are cardiac arrhythmias as VPC's (ventricular premature contractions) and VT (ventricular tachycardia), while the blood pressure often evidence hypotension.

These patients should have a patent IV access, preferably in the forelimbs instead of hind limbs as the venous return may be impaired. Use the large bore catheters possible for each patient. Minimum data base should include CBC, Chemistry, Electrolytes, and whenever is possible a coagulation panel, blood gases and lactate. Aggressive fluid therapy including crystalloids, colloids and blood products may be used to achieve pre surgical stabilization. Monitoring blood pressure and lactate levels can be used to assess the success of the therapy.

References available upon request