

Medical Management of the Septic Patient - by Michael Coleman

Tai presented with an emphysematous spleen as a result of torsion. He was intensively managed for presumed septic systemic inflammatory response syndrome (SIRS). A full discussion of management of such a patient would take up much more space than we have here, so only brief, general information is provided! Treatment goals for the septic patient include:

Locating and eliminating the infection. The abdominal mass effect helped localise the problem to the abdomen. Abdominal radiographs showed lack of serosal detail. Multiple gas filled radiopacities were seen in the mid-abdomen. An abdominal ultrasound identified this structure as the spleen. Several blood vessels within the spleen without blood flow were identified using colour-flow Doppler imaging. The surgery department removed the spleen - you will find information on surgical management of spleens over the page. Broad spectrum IV antibiotic therapy was started immediately to cover gram positive and negative aerobes and anaerobes. Amoxicillin-clavulanic acid,



metronidazole and enrofloxacin were given in this case. Antibiotic therapy can be modified once the causative organism(s)

are cultured and sensitivity tests are performed.

Maintaining blood pressure and organ perfusion. This is important as multiple organ systems are compromised in the septic patient. IV fluid boluses can be given (15-20 mL/kg) until adequate perfusion is obtained, or evidence of volume overload occurs. Monitoring central venous pressure is the best way of assessing volume overload. Colloids may also be given to increase blood pressure - whether these are more beneficial than crystalloid fluids is not currently known. They may reduce the likelihood of pulmonary oedema developing. Vasopressors (e.g. dopamine) can be given if blood pressure is not increased with fluid therapy. Blood transfusions in the anaemic patient help maintain oxygen delivery to tissues. A blood transfusion was given to Tai as well as IV crystalloids. A urinary catheter was placed and urine output monitored. Electrolytes and blood glucose levels were also monitored.



Inhibiting the deleterious actions of cytokines. There are no proven treatments in veterinary medicine that accomplish this goal. Many have been trialled in human medicine - therapy with activated protein C is the only treatment that has been

shown to reduce mortality in large human studies. This is available, but extremely expensive. It has not been evaluated in dogs or cats. Other management issues we had with Tai included:

Hypoxaemia. This was detected on arterial blood gas analysis. Possible causes for hypoxaemia include low inspired oxygen levels, reduced respiratory effort, ventilation-perfusion mismatch, blood shunting and diffusion impairment. An increased respiratory rate combined with no dramatic changes on thoracic radiographs made us suspicious of pulmonary thromboembolism. Another differential diagnosis would be early acute respiratory distress syndrome (ARDS). Oxygen therapy was provided and treatment with low molecular weight heparin was given to reduce the chance of further thromboembolic episodes.

Ventricular arrhythmias. These were detected post-surgery, likely secondary to sepsis and hypoxaemia. After treating Tai's metabolic abnormalities lidocaine boluses were given, followed by a constant rate infusion. In Tai's case this did not abolish the arrhythmias. Fortunately they were not seriously compromising his cardiac output and resolved as he improved.

Gastric ulceration. Several days after surgery Tai vomited 'coffee grounds', indicative of upper gastrointestinal bleeding. This was likely to be a result of compromised blood supply to the gastrointestinal tract. Oral sucralfate slurry and an H-2 blocker were given and no further problems were seen.

