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DIAGNOSIS AND BASICS OF SEPTIC PERITONITIS FOR PRIVATE PRACTITIONERS

Septic peritonitis is an all too common cause of sepsis in veterinary medicine. It is most commonluy caused by perforating foreign objects, perforating gastrointestinal ulceration (which often occurs due to the administration of NSAIDs in hypoperfused patients), rupturing urogenital abscesses (prostatic or paraprostatic abscesses, pyometra), or even secondary to neaoplstic processes. This condition is a true emergency, and patients not seldomly require intesive monitoring and tailored treatment to improve their prognosis. A septic peritonitis should always be excluded and suspected in case of the identification of an exudate (please see the appropriate proceedings for more information on the diagnosis of exudates). The definitive diagnosis of a septic peritonitis is made on a positive culture or identification of intracellular bacteria under microscopy. Unfortunately, cultrures take several days before results are communicated. Moreover, the sensitivity of microcsopy to diagnose a septic peritonitis has been reported to be only around 70%. Although this may come as a surprise (most veterinarians would argue they are capable of spotting bacteria), the truth is that smears are often difficutl to read because of the large amounts of cellular debris, and the amount of bacteria present in the exudate sometimes is surprisingly low.

Fortunately the diagnosis of septic peritonitis based on biochemical markers, available via point of care tests has been described. Indeed, glucose and lactate concentrations can assist in the diagnosis of a septic peritonitis, and handheld devices and benchtop devices are easily available, even to the general practitioner. Bacteria use glucose and produce lactate, moreover the septic environment also forces cells to switch to an anaerobic metabolism, further raising the lactate concentrations in the exudate. Subequently glucose concentrations in the exudate are typically more than 20mg/dL below blood concentrations, while lactate concentrations in the exudate tend to be over 2mmol/L above those measured in the bloodstream. As with every test, 100% does not exist, and 'false positive' test results have been described in case of neoplastic processes, and when a drain has been in situ for a prolonged period. The diagnosis of intracellular bacteria, or glucose& lactate concentrations in favor of a septic peritionitis always indicates the need for rapid diagnostic imaging and surgical intervention after satbilization.

Regarding the treatment of septic peritonitis, the main lines of the surviving sepsis campaign 2016, as described in human medicine apply. Although often ignored, or at least too easily forgotton, broad spectrum antibiotics should be administered as soon as a sample for culture has been obtained. Postponing instoration of proper antibiotic treatment has a well demonstrated negative impact on human patients, and the same probaly applies to our compaion animals. Patients should also be properly resuscitated and volume status should be normalised as soon as possible. The restoration of a proper volume status can be complicated in these patients due to the losses into the abdomen as well as the gastrointestinal tract, and frequent monitoring and adaptation of therapy is key to achieve these goals. Whenever crystalloids and/or colloids and blood products do not allow to obtain normal blood pressures and organ perfusion in septic peritonits patients presented in septic shock, vasopressors should be added to the treatment protocol sooner rather than later.

As soon as a stable cardiovascular status has been achieved, exploratory laparotomy with abdominal lavage should be performed. Although open drainage has been described, this technique requires 24h technical staff to be present and is associated with more important protein losses, and closed drainage therefore is preferred by the author. Drain production and consistency as well as microscopic evaluation should be tracked. It is also recommended to perform a rapid minimal baseline at the end of the surgery. At our institution this implies a hematological profile, protein and electrolyte balance and renal parameters, as well as a coagulation profiel in patients suspected to be in or be at risk of the development of disseminated intravascular coagulopathy (DIC). Patients tend to have a urinary sonde placed in the first hours post-operatively, to closely monitor urine production and intervene rapidly in case of oliguria or anuria. Electrolyte abnormalities are corrected by adapting the fluid regimen and/or complementing electrolytes via intravenous infusions. In case of severe hypoalbuminemia, this is ideally corrected via canine albumin (rarely available) or human albumin (which can only be used once, and should be monitored carefully).

In practice, the decreased colloid osmotic pressure can also be corrected through the use of colloids, although a big debate exists to the safety of this product in septic patients. Patients suffering from DIC should be treated with plasma transfusions and possibly via anticoagulants such as heparin (although much evidence regarding the ideal dose and monitoring still needs to be gathered). Finally, as in any critical care patient, the nutritional requirements should also be met, and therefore the placement of feeding tubes is not seldomly required if the patient is not expected to eat spontaneously within the first days postoperatively.

Is is safe to say that every septic peritonits patient, even the most stable at diagnosis should receive a complete work-up to determine their underlying cause as soon as possible. If owners are willing to provide optimal care for their pet, surgery should be performed as soon as possible after stabilisation, and patients should always be closely monitored during the first hours postoperatively. In the best case scenario, patients will remain stable throughout the procedure and recover uneventfully. However, in sight of the reported prognosis ranging from 70 to 50% survival, the veterinary team must be alert as complications aren't seldom.

Good luck
Kris