Managing Visceral Pain

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Visceral pain is often ignored by veterinarians. Whereas somatic pain is easily localized by both the patient and the doctor, visceral pain is poorly localized and often consists of a dull aching character. Despite this, animals with acute abdominal pain have behavioral changes consistent with acute pain of the somatic type.

There are many sources of visceral pain including the abdominal wall, diaphragm, spine, gastrointestinal tract, liver, pancreas, the urinary tract, reproductive system and the peritoneum. The pain itself arises for several different reasons; abdominal wall distension, muscle contraction of hollow viscera, quick capsule distension of parenchyma, transient ischemia or necrosis of muscles, traction on visceral ligaments, irritating chemicals and hemo abdomen. As a result of this, the following pathophysiological changes are seen; general malaise, and autonomic reflexes including nausea panting and changes in heart rate and blood pressure. It should be kept in mind that the intensity of these effects are not always related to the severity of the cause of the illness.

A word should be mentioned about viscera-somatic reflexes. It is quite common for abdominal pain to manifest itself on the surface of the body. An example of this in humans is when a gall bladder attack can cause pain in the right shoulder. Even though the source of the pain may be visceral, you could see an animal paying attention to somewhere other than the location within the abdomen. This ads to the diagnostic challenges we already face in veterinary medicine; animals cannot self-report and even palpation can leave a very vague sense of where the pain is located. If we hurt a finger or another part of our body, if we go to the doctor and he asks where it hurts, we point to the spot. If we go with abdominal pain and are asked, at best we might be able to wave in the general direction of an abdominal quadrant. For this reason in animals, we often must rely on radiographs, ultrasound and lab tests before we can localize the issue and attempt a diagnosis.

NSAIDs are powerful pain relievers. They have many applications in visceral pain. The exception of where you might not want to use them is with certain gastric and intestinal issues, especially in the case of GI surgery. NSAIDs can and do inhibit the protective mechanism of COX

Opioids are one of the mainstays of abdominal pain. The first concern is that the initial dose often causes emesis, however repeated dosing usually does not if they are given before the previous dose has completely worn out. One way to avoid this is to use butorphanol which does not normally cause vomiting. You get the additional benefit that it attaches to the kappa receptors which are more prominent in the viscera. The major concern with butorphanol is that it has a short duration of action. For this reason I am still more likely to use other opioids besides butorphanol.

Alpha 2 Delta Ligand Antagonists, better known as gabapentin and pregabalin. These are usually used in cases where neuropathic pain exists in more chronic conditions, not in cases of acute somatic pain. This is why they work best in chronic pain states where neuropathy may play a roll. However, many causes of visceral pain including common ones like IBD and pancreatitis are often acute and may have a neuropathic component.

Sodium Channel Blockers have multiple applications in abdominal surgery. There are no specific warnings or concerns related to the viscera. Any time you use a local anesthetic you mostly need to be aware of toxic doses, especially if you are using the same local in different applications

NKI Blockers have had a lot of hype since the maripotant paper came out last year. It does have a lot of good applications for visceral pain but should not be substituted for opioids, but used in addition to. In cases of abdominal pain, maripotant is often given anyways because of nausea.

Serotonin reuptake inhibitors and Norepinephrine reuptake inhibitors help stop pain by the fact of their inhibition. Both classes of drugs also relieve stress and anxiety which is often present in pain states. At least in the case of IBD there is a significant connection between stress and the clinical signs of IBD. Amitriptyline is one of the most common ones used, but tramadol's main (only??) action is for SRI and NRI.

Alpha 2 Antagonists are mostly used in the perioperative setting but have a great effect on the management of surgical/visceral pain. It can be used as a post operative bolus or as part of a CRI

Acupuncture can treat visceral pain through the spinal segmental approach to pain treatment as well as some specific acupuncture points that help alleviate visceral pain

Treatment techniques include the use of CRI's abdominal diffusion catheters and epidurals

All abdominal surgeries should have several things in common. The premed should at least include an opioid, but I commonly add an alpha 2 in my non cardiac patients. These two agents together result in an increased safety profile through lower doses of induction agents and MAC gas anesthesia. There should also be a line block for the abdominal incision.

In OHEs in particular, remember that this is a major surgery made minor by experience and numbers performed by the surgeon. Dogs and cats are often way under medicated. A local anesthetic in the ovarian ligament along with a possible epidural, an NSAID, repeat opioids post operatively. Consider maripotant if there is inadequate pain control or vomiting.

Splenectomies and other abdominal surgeries where something is removed such as a kidney, liver lobe etc need extra pain meds. There is much more tissue manipulation meaning more pain during and after surgery. In many cases there is pre-existing pain, e.g. hemo-abdomen in the case of a bleeding spleen. Consider the addition of gabapentin. Epidurals? Only caudal to the umbilicus. NSAIDs where safe should be given pre-op. A CRI both operatively and post operatively should be given. A diffusion catheter in the abdomen is appropriate for most all major abdominal surgeries. I especially like this option where 24 hour care is not an option to an owner for financial reasons. Make sure and use a catheter appropriate to the size that needs to be covered and avoid having the tip at the site of any intra-abdominal sutures.

Intestinal surgeries should be covered by everything we have discussed so far. There are two things different about GI surgery. Do not use NSAIDs and I always add maripotant; post-op vomiting is very painful to the patent.

Bladder surgeries are almost always secondary to some chronic issue, so gabapentin, amitriptyline and amantadine are all appropriate. Epidurals work great on surgeries of the bladder. I usually do not use a diffusion catheter in these patients, I just don't see a difference in the pain control. If you know acupuncture points, do bladder points, and the renal "tiara."

Liver Pain can pose some challenges. Should an NSAID or acetaminophen be considered? If the only elevation is the alkaline phosphatase, then yes. If the GGT is normal and the ALT is only mildly elevated, then yes. If the gall bladder is involved, then actigal has helped in some patients. Gabapentin is always OK if only the liver is involved. I find these patients are also more comfortable when treated for nausea. Acupuncture can definitely help.

Pancreatitis can be frustratingly hard to control, and has a complex pain pattern. Many of these dogs/cats need to be on a 24-48 hours of a CRI to break the pain cycle. Opioids? May be chronically painful due to microglia, opioids could aggravate. I have had good luck with buprenorphine in the cases I have treated. Nausea should be treated with maripotant or ondasetron. I avoid the use of metoclopramide because it can reduce the blood flow to the pancreas. If appropriate, NSAIDs should be given. I generally put them all on a fluorquinolone to prevent infection.

Peritonitis treatment should be directed at the underlying cause. There may be more co-morbidities than in other causes of visceral pain, so always check organ function. You can consider the implantation of a diffusion catheter. Opioids are appropriate

Non-surgical bladder pain from bacterial cystitis is quite painful. When you choose your antibiotic, consider amoxicillin as it "might" have some anti-inflammatory properties. Add an SRI, do acupuncture, and add an NSAID. If it is from interstitial cystitis, then an SRI and Adequan are my first two choices. There are other manual techniques in human medicine such as bladder distention with saline under anesthesia to treat the pain and feelings of urgency. There are no studies I know of in veterinary medicine where these treatments have been shown to be effective.