Taking the “Ow” out of “Meow”

WHEN IT COMES TO PAIN relief in cats, our options have been limited. In the past, many of us have resorted to reaching for human medications, which are not approved for such use. The good news is that one of these medications has recently been approved by the FDA for postoperative pain relief in our feline patients. Abbott Animal Health, a BluePearl Partner in Education, recently announced the approval of Simbadol, their new injectable buprenorphine product.

Buprenorphine, an opioid narcotic, is the most commonly used feline pain medication in our practice. It acts by binding to presynaptic opiate receptors on neuronal cells within the central nervous system. Once bound, it inhibits the release of neurotransmitters responsible for transmitting pain. In field trials of cats undergoing both soft tissue and orthopedic procedures in veterinary practices around the country, Simbadol was found to be a potent analgesic.

Simbadol is approved for once daily subcutaneous injections. It appears to be rapidly absorbed, inducing analgesia within one hour. Studies have suggested that pain relief will last 24 hours. According to the label instructions, injections can be repeated two additional times to achieve 72 hours of pain control. Because Simbadol is metabolized by the liver, it should be used with caution in cats with impaired hepatic function.

Historically, we have found buprenorphine to be a very safe analgesic in cats. Similarly, safety trials performed using Simbadol in over 200 cats found adverse effects to be very uncommon. Abbott reported that potential adverse reactions could include hypotension, tachycardia, hypothermia, hyperthermia, hypertension, anorexia and hyperactivity. Simbadol, however, has not been evaluated in breeding, pregnant or lactating felines.

For those of you who have been using human buprenorphine products, you will be excited to learn that Simbadol, comes in a 10 ml multiuse vial (1.8 mg buprenorphine/ml). The ability to draw multiple injections as needed from a single vial is a tremendous time saver, especially compared to the single dose ampules many of us were previously using.

Diphallia: It occurs in people and dogs!

Kevin Winkler, DVM, DACVS

DIPHALLIA IS A CONDITION in which the patient is born with two penises. In humans, it is believed to be a result of injury or chemical stress on the fetal mesoderm between 23 and 25 days of gestation. Though very rare (1 in 5 million human males), there have been around 100 reported human cases since the condition was first reported in 1609. In veterinary literature, there have been few canine cases published. Scientists have not confirmed whether the canine cause is the same as the human cause. The condition can also occur in other species, including cattle and rabbits.

BluePearl Case

We recently treated “Rudy,” a 10-month-old, mixed breed terrier with two penises. On exam, Rudy was determined to have two descended testicles and a presumed nonfunctional accessory penis (photo 1). The accessory penes contained a palpable os penis but no visible urethral meatus. The two penises merged at the level of the bulbus glandis. An abdominal ultrasound was normal. A contrast study of the lower urinary tract showed the urethra did not communicate with the accessory penis. Surgery was performed to remove the accessory penis and reconstruct the prepuce (photo 2). While this particular patient was reconstructed without complications, if we consider the condition in human patients, we should assume canine cases could be very complicated with two fully functional penises. Human patients have also been reported with hypospadias, bladder duplication, imperforate anus and bifold scrotum. There is also a higher risk of spinal bifida in people with diphallia. A similar condition may occur in women, but with a much greater frequency. Uterus didelphys occurs in 1 in 3000 women. Mother Nature truly is mysterious at times!

Osteosarcoma: What’s new?

Osteosarcoma (OSA) is the most common bone tumor seen in dogs. The presence of osteosarcoma should be suspected when large breed dogs present with lameness associated with radiographic evidence of a mixed lytic and proliferative lesion involving one of the long bones. Fine needle aspirates of the bone lesion can confirm osteosarcoma in up to 83% of patients. Staining for the presence of alkaline phosphatase enzyme in the cancer cell membrane can help confirm the cytologic diagnosis. To achieve a definitive diagnosis, a biopsy of the lesion using a Jamshidi needle or Michele Trephine may be required.

Evidence of pulmonary metastasis, elevation of the ALP value on blood work, lymph node involvement, and advanced tumor grade have long been known to be poor prognostic indicators. Recently, elevated lymphocyte and monocyte counts have also been suggested to be negative prognostic indicators.

Osteosarcoma can be seen in both limbs.
Sniff…

Meet our specialist…

Lori MacDougall, DVM, DACVS-SA

As a busy working mother of two small boys, Lori MacDougall, DVM, DACVS-SA, isn’t surprised that people describe her as a perfectionist, as well as organized and empathetic. She would also add that as a “proud Canadian” she does fit the Canadian stereotype of “being polite.”

Dr. MacDougall, who joined our hospital in 2007, enjoys the fact that as a surgeon her day is never the same, always presenting something new to learn from a case or a client. Her favorite part of the day is when she’s in surgery and focusing on fixing something. “I get a temporary reprieve from my busy outside world and get to enjoy my job,” she says. Get to know Dr. MacDougall…

What’s something people might be surprised to know about you?

I am a sweet person until I step onto a tennis court – then I’m very competitive (mostly towards myself) and love to go after the ball.

What was your first job?

For three and a half years through high school, I worked at McDonald’s. It taught me that you can make the most of any job by working hard. The majority of life skills – organization, time management and hard work – can be learned anywhere.

What can you do to benefit our veterinary community?

I have a passion for a comprehensive approach to pain and anesthesia management. In the surgery service we continually look to apply “best practices” to make the patients as comfortable as possible, with the goal of preemptively treating pain to ensure a smoother recovery. I also personally enjoy presenting CE on this topic, as well as consulting with other specialists on our team.

Was there a college professor that changed your life?

An internal medicine professor in my senior year of veterinary school encouraged me to apply for an internship. At that point in my life, I thought I would be a mixed animal practitioner in rural Alberta, Canada. This was a turning point, as I was encouraged to apply for an internship, which ultimately brought me to Atlanta.

What was the best advice you were ever given?

“You miss more for not looking than not knowing.” This comes to mind almost daily, as it’s even more critical to be thorough when you are busy.

Is there a case that either touched your heart or stretched you as a clinician?

Like most clinicians, I remember the tough cases that take more work and more risk, but give bigger rewards. Some of these are successful and make you remember why you took the risk. Others are sad but help you manage cases to come. My favorite cases are those where the owners hug me and say, “Thanks for everything,” even when they lost their pet but felt they tried all they could.

If you didn’t choose veterinary medicine, what do you think you’d be doing today?

I would like to think I would be a baker, but if I couldn’t keep the cookies out of my mouth I would have to choose another profession.
Feline Kidney Failure? Don’t forget ureteral stones

Have you ever been presented with a cat with acute severe azotemia? The patient has no prior history of illness, no known toxin exposures and appears to be in great body condition. Your physical exam, with the possible exception of mild dehydration, is normal. What happened?

Acute interstitial, renal lymphoma, and pyelonephritis are on the short list for acute unexpected kidney failure, but don’t forget about ureterolithiasis. Ureteral obstruction is common in cats due to their narrow ureter lumens, and ureteral calculi are one of the more common causes for acute renal failure in cats diagnosed in our hospital.

For azotemia and clinical signs to be present, both kidneys have to be compromised. In many of these cases, ureteral obstruction on one side is likely to have occurred in the past and been compensated for by renal hyperplasia on the contralateral side. The previously damaged kidney is frequently smaller than the newly affected kidney. Only when the second side becomes obstructed is azotemia and illness noted. Of course, other conditions could have previously damaged the kidneys leading to one final ureteral insult.

Ureteral obstruction can be complete or partial. Cats with partial obstructions, or who have only one ureter affected, will continue to produce urine. Unfortunately, partial obstructions will still cause enough retrograde pressure to slowly damage the associated kidney. The production of urine continues despite loss of glomerular filtering ability.

Because of the risk of ureteroliths causing kidney damage, plain abdominal radiographs should be taken on all cats with acute kidney failure. An enema may be needed to prevent faces from obstructing the view. Ultrasound evaluation of the urinary systems may demonstrate ureteral and renal pelvic dilation and ureteral calculus. However, because it can take days for dilatation to develop, it may not be apparent during an acute episode. Unfortunately up to 20% of ureteroliths will not be seen with radiographs or ultrasound evaluation. CT or radiographs performed after injection of contrast into the renal pelvis may help to confirm obstruction.

It looks like ureteroliths. Now what?

An initial diagnostic plan might include the administration of IV fluids, diuretics, mannitol and/or glucagon (smooth muscle relaxant). Because of the risk of ureteroliths causing kidney damage, plain abdominal radiographs should be taken on all cats with acute kidney failure. An enema may be needed to prevent faces from obstructing the view. Ultrasound evaluation of the urinary systems may demonstrate ureteral and renal pelvic dilation and ureteral calculus. However, because it can take days for dilatation to develop, it may not be apparent during an acute episode. Unfortunately up to 20% of ureteroliths will not be seen with radiographs or ultrasound evaluation. CT or radiographs performed after injection of contrast into the renal pelvis may help to confirm obstruction.

Most ureteral calculi are composed of calcium oxalate. Therefore, dissolution of the ureterolith is not a medical option.

Unfortunately, return of urine flow to the bladder does not guarantee a successful outcome. There is no guarantee that the obstructed kidney will recover its previous function. In approximately half of affected cats, some degree of azotemia will persist indicating permanent loss of kidney function. Remember the contralateral kidney also had to be significantly compromised for ureteral obstruction to cause azotemia. Unfortunately, there is no easy way to assess the adequacy of the obstructed kidney’s function prior to relieving the obstruction.

Resolution of the obstruction also does not preclude future episodes of ureterolithiasis. Studies suggest that ureteroliths will recur in up to 40% of cats at some point in the future.

Should you have a cat with acute azotemia or ureteroliths, please don’t hesitate to give us a call for our most recent recommendations.

Pancreatitis in Dogs

Cathy Meeks, DVM, DACVIM
BluePearl in Florida

Pancreatitis is an inflammation of the pancreas resulting in symptoms such as anorexia, vomiting, diarrhea and lethargy. The etiology is unknown; however, studies have suggested some factors may place dogs at a higher risk for developing pancreatitis (obesity, elevated triglycerides, diabetes mellitus, Cushing’s disease, high fat diets, certain drugs and trauma).

Pathophysiology

The major enzymes that digest food are located in pancreatic acinar cells, packaged in an inactive form called zymogens. Packaging these digestive enzymes in an inactive form prevents autodigestion of the pancreas. Zymogens are released into the duodenum where the enzymes are activated to allow normal breakdown of food. If zymogens are prematurely activated within the pancreas, the pancreas will inappropriately digest itself resulting in pancreatitis.

Diagnosis

A CBC and chemistry should be done in all dogs with symptoms of pancreatitis. A neutrophilic leukocytosis is the most common finding on a CBC. The amylase and lipase also are often elevated. Urea, creatinine and immunoreactivity (cPLI) may be the most useful laboratory diagnostic test as cPLI measures lipase that only originates from the exocrine pancreas. Although this test is one of the most useful tests we have for pancreatitis, a recent study showed the SNAP cPL and cPLI results may provide a “false positive” diagnosis of pancreatitis in up to 40% of dogs presenting with acute abdominal disease. There was good overall agreement between SNAP cPL and cPLI, however, 10% of dogs with a positive SNAP cPL had a normal cPLI. Therefore, if a SNAP PL is positive, further diagnostics are warranted (such as cPL and abdominal ultrasound), especially if the patient is not responding to therapy.

Abdominal ultrasonography is another way of screening for pancreatitis and ruling out other possible causes of an elevated PL, including pancreatic neoplasia, pancreatic abscess, etc. In acute cases, an enlarged hypoechoic pancreas is often surrounded by a hypoechoic area that is due to fat necrosis. Peritoneal effusion is also a common finding in pancreatitis.

To promote urine flow hoping to induce passage of the calculi. In most cases the calculi will not pass and more intensive options need to be considered.

1. Lithotripsy has been attempted in cats. Unfortunately it is not readily available and has failed to resolve the condition in many patients due to the small ureteral diameter.

2. Ureterotomy has been described to remove the ureterolith. Complications associated with ureterotomy are common and include urine leakage and stricture of the ureter at the surgery site.

3. For distal ureteral obstructions, reimplantation of the proximal ureter into the bladder can be very successful.

4. Stenting of the ureter, similar to humans, has been described in cats. However, only a few institutions have the equipment and experience necessary to achieve a favorable outcome.

5. At some BluePearl hospitals, a new technique, called subcutaneous ureteral bypass (SUB) is available. A new “ureter” composed of specialized synthetic tubing is surgically implanted connecting the kidney to the bladder bypassing the patient’s obstructed ureter. Recent experience with the procedure has shown it to be very effective.

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Pancreatitis in Dogs

CONTINUED FROM PAGE 3

Treatment
There are no specific treatments for pancreatitis, and therapy is aimed at controlling the symptoms. Fluid therapy (crystalloids +/- colloids), pain medications and anti-nausea medications are most important in the patients’ recovery. In cases that require hospitalization, careful monitoring of the electrolytes and albumin are essential to prevent complications. Feeding patients with pancreatitis has been controversial; however, a recent study showed early enteral nutrition delivered proximal to the duodenum (such as with nasoesophageal feeding) was well tolerated and resulted in less complications than parenteral nutrition.

Complications
Extrahepatic biliary tract obstruction (EHBO) can occur with acute pancreatitis. This often resolves spontaneously as the acute pancreatitis improves, although, in rare cases surgery is necessary. Acute pancreatitis may also result in respiratory difficulty due to pleural effusion (from low albumin and/or vasculitis), pulmonary edema (as can be seen with acute respiratory distress syndrome) and pulmonary thromboembolism. In some cases, pancreatitis can be severe, resulting in an abscess or necrotizing pancreatitis that may require surgical intervention. Chronic pancreatitis may result in exocrine pancreatic insufficiency and diabetes mellitus.

Summary
There is currently no specific test for pancreatitis in dogs, and diagnosis should be based on a combination of compatible clinical, clinicopathological and imaging findings. Amylase and lipase can be useful in the diagnosis of pancreatitis; however, there are other causes of elevations in these enzymes, and normal enzyme concentrations do not rule out pancreatitis. Abdominal ultrasound has assumed a major role in the diagnosis of pancreatitis and the differentiation of pancreatitis from other pancreatic disorders. The prognosis depends on the severity of disease with mild disease having a good prognosis and severe or recurrent pancreatitis having a guarded prognosis.

Continuing Education

BLUEPEARL IS STRONGLY COMMITTED to the veterinary community. One of the ways we demonstrate this commitment is through our continuing education program, which is subsidized in part by our Partners in Education.

All BluePearl CE lectures are free and open to all area veterinary professionals. Registration is required, please. Programs begin with a light dinner prior to the presentation, which starts at 7:30 pm. To RSVP, please email kimberly.demeza@bluepearlvet.com.

For the most current information about BluePearl CE, please click the For Veterinarians tab on our homepage: bluepearlvet.com/georgia.

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