

Gastroduodenal perforations can be classified as spontaneous when there is a perforation with no history of recent gastrotomy and/or anastomosis, external or iatrogenic gastric trauma, gastrointestinal foreign body or volvulo-gastric dilation. Spontaneous gastroduodenal perforations (SGP) are normally associated with pre-existing gastroduodenal ulcers or neoplasia. In cats, SGP has been uncommonly reported in the literature. The aim of this study is to describe cases of PGE in cats seen at UFRGS's Feline Medicine Service between March 2018 and November 2019, and its possible etiologies. Five adult cats were included, four of them were mixed breed and one was Persian, three females and two males, one of them was not neutered. All patients had a history of recent surgical procedure, with an average of eight days post-surgical time until the diagnosis of GP was made. The surgical procedures included: osteosynthesis of the mandible and tibia, hemilaminectomy, enucleation, and ovariosalpingohysterectomy. These patients were submitted to a similar anesthetic protocol, using methadone as a pre-anesthetic medication (mean of 0.3 mg/kg), and for anesthetic induction, propofol to the effect. Surgical maintenance was performed with isoflurane and fentanyl bolus when necessary. Intraoperative hypotension was related in one cat. Four patients received anti-inflammatory drugs, meloxicam was prescribed for three patients, at doses between 0.05 mg/kg to 0.1 mg/kg, for a maximum of 4 days, and one of them received a single dose of dexamethasone (0.25 mg/kg). Clinical presentation for SGP was diverse. Some patients had typical signs of gastrointestinal tract (vomiting, abdominal distension, and diarrhea), but most clinical signs were non-specific, including dehydration, prostration, pale mucous membranes, anorexia or hyporexia, weight loss, hypothermia, tachycardia, hypotension, tachypnea, and hyperthermia. On hematological analysis, 80% of the cats had anemia, leukocytosis, and neutrophilia. Left deviation, lymphopenia, and monocytosis were also observed, but, metamyelocytes, myelocytes, neutropenia, and leukopenia were present in only one patient. The most common finding on blood biochemistry was hypoalbuminemia, presented in four cats. Abdominal ultrasound was performed in one patient, that showed hyperechoic mesenteric fat, gastric wall thickening (0.46 cm), presence of free echogenic peritoneal fluid and reduced motility. Diagnosis was confirmed by exploratory surgery in three cats and necropsy in two. Gastric perforations in the pyloric antrum were more common (4/5), with just one perforation in the proximal duodenum. Three patients underwent necropsy, including one that died after exploratory surgery, and histopathological examination showed transmural necrosis at the perforation site. All cats had diffuse peritonitis and the necropsy findings did not show any predisposing lesion for the injury. Gastric perforation represents a medical emergency and the condition is particularly difficult to diagnose accurately. In our study, the mortality rate for cats was 80%. Although several etiologies for SGP have been suspected, it was not possible to identify the exact origin of the perforation as in the cases mentioned in this study. GP secondary to NSAID or corticosteroid treatment has already been described in cats, and the administration of these drugs may have masked clinical signs associated with acute peritonitis. A history of recent surgery and SGP have only been associated four times in the literature, it is believed that hemodynamic and pharmacological alterations promoted by surgery and anesthesia can lead to mucosal hypoperfusion and consequent predisposing the lesion. Our records showed that SGP

arising from surgical procedures are not uncommon as shown in the literature.

**ABSTRACT GI31** Fecal microbiome and metabolomic changes in dogs receiving antibiotics followed by placebo or synbiotics

**Jacqueline C. Whittemore**<sup>1</sup>; **Tamberlyn Moyers**<sup>2</sup>; **Joshua Price**<sup>1</sup>; **Jan Suchodolski**<sup>3</sup>

<sup>1</sup>University of Tennessee, Knoxville; <sup>2</sup>College of Veterinary Medicine, University of Tennessee; <sup>3</sup>Texas A&M

Antibiotic-associated gastrointestinal signs occur in  $\leq 100\%$  of dogs administered enrofloxacin with metronidazole; signs partially are mitigated by synbiotics. The objective of this study was to compare the fecal microbiome and metabolome of 24 healthy dogs administered enrofloxacin (10 mg/kg qd) and metronidazole (12.5 mg/kg BID), followed 1 hour later by placebo or synbiotics (Provable<sup>®</sup>-Forte with Provable<sup>®</sup>-SB), for 21 days with reevaluation 8 weeks thereafter. Fecal samples were collected on days 5–7 (baseline), 26–28, and 82–84. Sequencing of 16S rRNA genes for operational taxonomic units (OTUs) was performed and mass spectrometry used to determine metabolomic profiles.  $p < 0.05$  was considered significant, with Benjamini & Hochberg's False Discovery Rate used to adjust for multiple comparisons. Alpha and beta diversity differed significantly from baseline during treatment and on days 82–84. At the genus level, significant group-by-time interactions were noted for 15 OTUs, including *Adlercreutzia*, *Bifidobacterium*, *Slackia*, *Turcibacter*, *Clostridium*, *[Ruminococcus]*, *Erysipelotrichaceae\_g\_*, *[Eubacterium]*, and *Succinivibrionaceae\_g\_*. Group and time effects were present for an additional 6 OTUs, including *Collinsella*, *Ruminococcaceae\_g\_*, and *Prevotella*. Metabolite profiles differed significantly by group-by-time, group, and time for 28, 20, and 192 metabolites, respectively. Short-chain fatty acid, bile acid, indole, sphingolipid, polyamine, and cinnamic acid metabolites were affected, with some changes persisting through days 82–84 and differing between groups. Antibiotic administration causes sustained dysbiosis in dogs with similar changes in the microbiome and metabolome to those found in cats. Significant group-by-time interactions were noted for a number of OTUs and metabolites, potentially contributing to decreased antibiotic-induced gastrointestinal effects in dogs administered synbiotics.

**ABSTRACT GI32** Concurrent gastrointestinal signs in hypothyroid dogs

**George Lubas**<sup>1</sup>; **Eleonora Gori**<sup>2</sup>; **Giada Paolinelli**<sup>2</sup>; **Paola Gianella**<sup>3</sup>; **Alessio Pierini**<sup>2</sup>; **Veronica Marchetti**<sup>2</sup>

<sup>1</sup>Department of Veterinary Sciences, University of Pisa; <sup>2</sup>University of Pisa; <sup>3</sup>University of Turin

Few observations about prevalence and features of gastrointestinal (GI) signs in hypothyroid dogs (hypoT-dogs) are available. The study aimed (1) to evaluate concurrent GI signs in hypoT-dogs; (2) to analyze

clinico-pathological and ultrasound features of hypoT-dogs with and w/out GI signs, and (3) to analyzed GI signs follow-up after thyroid hormone replacement therapy (THRT). Medical records of hypoT-dogs from two Veterinary Teaching Hospitals were retrospectively reviewed. Dogs were classified as hypothyroid if TT4 or fT4 were low/normal with normal/high TSH or inadequate TSH-stimulation test response. Clinical history, GI signs (vomiting, diarrhea, constipation), hematobiochemical parameters and abdominal ultrasound were collected. HypoT-dogs were divided based on the presence of at least one GI signs (GI group and not-GI group). Twenty-seven GI dogs had 3–4 weeks recheck from the beginning of THRT and information on GI signs were recorded. A total of 166 dogs were included (GI group, n = 45, 27%; not-GI group, n = 121, 73%). GI dogs showed nausea (42%), vomiting (40%), constipation (22%), large bowel diarrhea (40%), small bowel diarrhea (4%), and aspecific diarrhea (40%). No significant difference between GI and not-GI groups on hematobiochemical parameters was found. GI group had significantly higher frequency (20%) of large intestine involvement than not-GI group at the ultrasound ( $p = 0.03$ ; Chi-square test). Twenty-one out of 27 GI dogs had a resolution of GI signs at recheck ( $p = 0.0001$ ; McNemar test). Most of hypoT-dogs had concurrent GI signs mainly due to large bowel involvement. After THRT beginning the concurrent GI signs in hypoT-dogs seem to be reduced.

**ABSTRACT GI33** Feasibility and complications of video capsule endoscopy in 38 dogs with suspected gastrointestinal bleeding  
*Jenny Stiller*<sup>1</sup>; *Alice Defarges*<sup>2</sup>; *Brigitte Brisson*<sup>2</sup>; *Alexa Bersenas*<sup>2</sup>; *David Pearl*<sup>2</sup>

<sup>1</sup>Ontario Veterinary College, University of Guelph; <sup>2</sup>University of Guelph

This study aimed to assess feasibility and complications of video capsule endoscopy (VCE) in dogs with occult or overt gastrointestinal bleeding (GIB). From August 2017 to November 2019, a total of 38 dogs (23.1 kg ± 11.2) were examined by VCE because of suspected occult (26) and overt (12) GIB. The ALICAM<sup>®</sup> was administered orally (28) or by endoscopic deployment (10) after 12 hours of fast. Preparation included enemas (29), administration of polyethylene glycol (19). A standard scoring system was used for GI visibility. All ALICAM<sup>®</sup> were administered uneventfully and excreted spontaneously. Median transit time of the capsule from administration to excretion was 30.5 hours (range 2.5 hours–8 days). Complications included incomplete studies due to temporary gastric retention (14), lost VCE (1), and unrelated sudden death (1), or euthanasia (1). GI visibility was good to excellent in the stomach and small intestine, limited to poor in the colon. Bleeding lesions were identified in 22 dogs (10 with overt GIB, 12 with occult GIB), and included gastric ulcerations (13 dogs), intestinal ulcerations (6 dogs) and gastric/intestinal/colonic vascular ectasia (2 dogs); intestinal lymphangiectasia was identified on ALICAM<sup>®</sup> in 2 dogs subsequently confirmed by endoscopic biopsies. In 2 dogs with overt GIB, a bleeding lesion was not identified. VCE is a safe procedure and can be used to diagnose a variety of bleeding lesions in the

GI tract of dogs. In ALICAM delivered per os, prolonged gastric retention leading to incomplete studies was frequently noted. Further studies are needed to improve study completion.

**ABSTRACT GI34** Use of a synbiotic for treating antibiotic-induced diarrhea in cats

*Jeremy A. Kiene*<sup>1</sup>; *Kelsey Dobesh*<sup>1</sup>; *Michael Lappin*<sup>2</sup>

<sup>1</sup>Center for Companion Animal Studies, Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University; <sup>2</sup>College of Veterinary Medicine and Biomedical Sciences, Colorado State University

Diarrhea is a common and potentially significant complication in cats undergoing antibiotic therapy. Data supporting the benefit of supplementing probiotics or synbiotics to cats when antibiotic-induced diarrhea has started is lacking. This study examines effects of supplementing a synbiotic (*Enterococcus faecium* SF68 and psyllium) to cats with pre-existing antibiotic associated diarrhea. Sixteen healthy, young-adult research colony cats fed a commercial dry food were administered amoxicillin-clavulanate (Clavamox) at 62.5 mg/cat twice daily. Using a standardized fecal scoring system, trained, masked personnel scored feces every twelve hours, with scores >4 considered diarrhea. Clavamox was discontinued if fecal scores were > 4 for 2 days. Cats were then randomized into 2 treatment groups, one supplemented with the synbiotic in 15 g of canned food once daily, the other supplemented with the palatability enhancer from the synbiotic in 15 g of canned food once daily. Diarrhea was less severe overall in the synbiotic group, with 24.5% of fecal samples scored >5, compared with 48.9% in the control group ( $p = 0.0132$ ). Time to diarrhea resolution was 4.5 periods from initiation of treatment in the synbiotic group, compared with 6.5 periods in the control group ( $p = 0.472$ ). Clinical resolution of diarrhea was achieved in all cats in the synbiotic group. Two cats in the control group had a rescue protocol instituted for diarrhea that failed to resolve during the study period. These results indicate that supplementing this synbiotic to cats with diarrhea provoked by administration of Clavamox reduces severity of diarrhea and may decrease time to resolution.

**ABSTRACT GI35** Comparing adipose-derived mesenchymal stem cells to prednisolone for the treatment of feline inflammatory bowel disease

*Craig B. Webb*<sup>1</sup>; *Tracy Webb*<sup>2</sup>

<sup>1</sup>Veterinary Teaching Hospital, Colorado State University; <sup>2</sup>Colorado State University

A 2015 proof-of-concept study confirmed the safety and potential benefit of treating feline chronic enteropathy with adipose-derived mesenchymal stem cells (fMSC). As a follow-up, this study was designed to compare the efficacy of fMSC to standard prednisolone therapy in confirmed inflammatory bowel disease (IBD). Cats were screened for significant concurrent diseases (history, PE, fecal, CBC,