Equine gastric ulcer syndrome is common in performance horses and foals. The clinical syndromes of gastric ulceration are age dependant. In neonates the glandular mucosa is most often involved. Clinical signs in foals as are follows: diarrhea, abdominal pain, intermittent nursing, weight loss, reduced appetite, ptyalism, bruxism &/or unthrifty appearance. Foals with gastric outflow obstruction are typically 2-6 months of age. Often foals that have gastric outflow obstruction will have a history of enteritis.

Diagnosis of gastric outflow obstruction is based on endoscopy, ultrasonography, and determining the ability of the stomach to empty using contrast radiography. Endoscopic evaluation should include the esophagus, glandular & nonglandular portions of the stomach, pylorus, and proximal duodenum. Reflux esophagitis is often present in foals with severe gastroduodenal ulceration. Evidence of duodenal thickening, poor motility and gastric dilation may be seen using ultrasonography. Contrast radiography should be used to determine if the stomach is emptying in an appropriate amount of time. This diagnostic test involves administering barium contrast at a dose of 10ml/kg via a nasogastric tube and taking serial lateral radiographs of the foal in the standing position. Radiographs should be taken at the time of barium administration and at 5, 10, 15, 20, 30, & 60 minutes post administration. A normal foal should have evidence of barium in the duodenum by 5 minutes post administration.

Medical management of a foal with delayed gastric emptying due to gastroduodenal ulcers is very complex. Nasogastric decompression is required in foals with gastric dilation. Intravenous fluid therapy is necessary since these foals are NPO. Nutritional support is required as well. This can range from dextrose supplementation to the intravenous fluids to parenteral nutrition (partial or total). The primary medications used include H2-receptor antagonists (ranitidine, cimetidine), proton pump inhibitors (omeprazole), mucosal protectants (sucralfate), and antacids. Synthetic prostaglandin E1 analogs (misoprostol) have been used in humans to treat gastric and duodenal ulcers. Inhibition of gastric acid secretion and mucosal cytoprotection are the proposed mechanisms of action. Prokinetic drugs such as bethanechol and metoclopramide can aid in gastric emptying provided an outflow obstruction is not present. Concomitant disease(s) must be addressed as well.

Signs of improvement include decrease or resolution of nasogastric reflux, ptyalism, and/or bruxism and the foal’s ability to nurse without development of abdominal pain or gastric distention. Surgical intervention should be considered if medical management is unsuccessful. Recommendation for surgery is on a case by case basis and early surgical intervention is preferred.

The surgical principle in treating gastric outflow obstruction is creating a bypass to avoid the obstructed section of the gastrointestinal tract. The bypass technique(s) that can be performed depend on the location of the obstruction. A gastroduodenostomy can be performed if the foal has an obstruction of the pylorus without duodenal involvement. A gastrojejunostomy and jejunojejunostomy are indicated in cases with pyloric and duodenal involvement. The technique(s) that are necessary is based on palpation and observation of the anatomic structures during surgery.

Preparation for surgery is standard for an exploratory laparotomy. A ventral midline incision will be made to the level of the xiphoid so adequate clipping and draping for this length
of incision is required. Additional equipment that is helpful includes a headlamp, Balfour retractors, long handled instruments, and gastrointestinal stapling equipment. A thorough and complete abdominal exploratory is required. Once the area(s) of involvement is identified it is helpful to exteriorize as much of the gastrointestinal tract and pack it off from the abdomen using moist laparotomy sponges. The Balfour retractor should be positioned at the cranial extent of the incision. This will aid in exposing the surgical site. A gastroduodenostomy is performed as a hand sutured anastomosis to bypass a pyloric stenosis. The seromuscular layer of the duodenum is sutured to the seromuscular layer of the stomach in continuous Lembert pattern using a synthetic absorbable suture material (3-0 size). An incision is made in the stomach and duodenum and the mucosal layers are sutured in a simple continuous pattern using a synthetic absorbable suture material (3-0 size). To complete the anastomosis the seromuscular layer of the duodenum and stomach are sutured using synthetic absorbable material (3-0 size) in a continuous Lembert pattern.

A gastrojejunostomy and jejunoojejunostomy are performed to bypass an obstruction of the pylorus and duodenum. The gastrojejunostomy is performed first by aligning a section of jejunum along a relatively avascular portion of the stomach and creating a side to side anastomosis. This can be hand sewn or stapled. Typically the seromuscular layer of the jejunum is sutured to the seromuscular layer of the stomach in a continuous Lembert pattern using a synthetic absorbable suture material (3-0 size). Then a linear stapler can be used to create the anastomosis. The anastomosis is completed by suturing the seromuscular layer of the jejunum is sutured to the seromuscular layer of the stomach in a continuous Lembert pattern using a synthetic absorbable suture material (3-0 size). This should incorporate the “stab incisions” that were made to place the stapler. The jejunum should be aligned from left to right (oral to aboral) along the stomach. A side to side jejunoojejunostomy is then performed to allow outflow of the contents of the proximal small intestine. This side to side anastomosis can be hand sewn or stapled. The abdomen is lavaged and closure is routine.

Manuscripts by Zedler, et al. and Coleman, et al. report a better long term prognosis than previous literature. In the paper by Zedler, et al. gastric outflow obstruction was treated by gastroduodenostomy or gastrojejunostomy with or without jejunoojejunostomy. Long-term follow-up was available for 36 of 39 foals; 25 (69%) survived >2 years. All 8 foals with pyloric obstruction survived >2 years, whereas only 11 of 21 (52%) foals with duodenal obstruction survived >2 years. Six of 8 foals with obstruction of the duodenum and pylorus survived >2 years. Obstruction of the duodenum, adhesions to the duodenum, and postoperative ileus were significantly associated with decreased long-term survival. Coleman, et al. reported on 16 foals that were treated with a gastrojejunostomy. All of the foals survived to discharge from the hospital. Eight (50%) survived to racing age, with 7 of those entering training and 3 raced.

References
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