GI Disease in Foals

Despite advances in veterinary medicine, the first few weeks of a foal’s life can still be risky. Many health problems can arise, including myriad gastrointestinal (GI) disorders that can quickly drain a youngster of health, vigor, and sometimes life.

Dr. Brady J. Bergin, assistant professor and rural veterinary practice clinician in the College of Veterinary Medicine at Oregon State University, said, “Foals will develop evidence of GI disease manifested as diarrhea from a number of causes, including nutrition, bacteria, viruses, septicemia (blood-borne infection), parasites, and even around the time of a dam’s first heat. GI disease is an especially serious problem in foals due to their weak (yet developing) immune and digestive systems.”

Other troubles in the GI tract present as the inability to pass meconium, inappetence, failure to thrive, lethargy, teeth grinding, and colic.

Here’s a look at some common and not-so-common GI problems in foals.

**CLOSTRIDIAL ENTEROCOLITIS**

This is very common in young foals, according to Dr. Kim A. Sprayberry of the Loomis Basin Veterinary Center in Loomis, Calif. “It is a bacterial infection of foals from several days to three months of age,” she said. “The disease typically strikes very rapidly, with the first signs being decreased nursing and depression.”

Dr. Charlie Dickinson, assistant professor of equine medicine, and Dr. Josie Traub-Dargatz, professor of equine medicine, both from Colorado State University, said other clinical signs include colic, diarrhea that might contain blood, and abdominal distension. Another might be a lack of nursing (the mare’s bag is full, sometimes streaming with milk).

Cause: *Clostridium perfringens*, a type of bacteria that produces several different types of toxins that damage the intestine.

Diagnosis: “Use anaerobic (low oxygen environment) culture of the manure/feces,” stated Dickinson and Traub-Dargatz.

“If Clostridial bacteria are identified, further laboratory testing is warranted to define the specific type of Clostridial bacteria and if toxins are present in the feces or manure. Other tests (i.e., complete and differential blood count, biochemistry profile) define the severity of the disease process and the need for certain treatments, but do not lead to the specific causal diagnosis of Clostridial enterocolitis.”

Treatment: “Many foals require hospitalization and aggressive support with intravenous fluids and antibiotics,” Sprayberry said. “In others, the disease is more self-limiting so foals can be monitored and supported at home.”

Prognosis: With timely, appropriate intervention, many foals recover, but others can die from dehydration and toxemia, Sprayberry said.

Note: Other organisms that cause bacterial enterocolitis in foals include *Salmonella*, *Escherichia coli*, *Klebsiella*, *Bacteroides fragilis*, and *Rhodococcus equi*.

**ROTAVIRUS**

The primary cause of viral diarrhea in foals is rotavirus, and it is extremely contagious. Affected foals develop malodorous diarrhea, depression, inappetence, dehydration, and fever.

Cause: A viral organism shed in the feces that can persist in the environment for up...
The condition of the gastrointestinal tract reflects the overall health of the horse. When the tract functions normally, the horse digests forages and feeds effectively. But when the tract is thrown off-kilter, a horse’s health often hangs in jeopardy, and colic, diarrhea, and ulcers may result.

The horse’s gastrointestinal system operates best when it processes a continuous flow of forages. In natural situations, a horse grazes for hours at a time. This digestive pattern serves the horse well. First, chewing and swallowing forages generate saliva, which is critical to stomach health. Steady introduction of saliva into the stomach neutralizes gastric acid and coats the sensitive lining, reducing the likelihood of ulceration. Second, a constant supply of forages optimizes the ability of the hindgut to digest nutrients.

In modern management practices, few horses consume forage whenever they choose. Instead, they are fed two or three large meals daily. As a result, the gastrointestinal tracts often become stressed. Heap on the stress placed on Thoroughbreds by weaning, shipping, sales preparation, training, racing, and stalling for long periods, and horses are far removed from the lifestyle nature intended for them.

The stomach is often hit hardest by today’s management schemes. When the stomach is not bathed in saliva regularly, the sensitive lining of the stomach ulcerates, leaving patches of painful tissue. Gastric ulcers cause negative changes in performance and disposition. Horses may not train or race to their potential and may develop a sour or resentful attitude. Ulcers may also adversely affect a horse’s appetite, which will ultimately influence its performance, both on the racetrack and on the breeding farm.

While the stomach often bears the brunt of stress, the hindgut can be affected also, as it harbors a delicate population of beneficial bacteria that helps digest hay and pasture. In times of stress, the hindgut loses bacteria, thereby decreasing the ability of the hindgut to digest nutrients. Appetite dwindles as digestion slows. If digestion slows too much, gas accumulates in the hindgut, which may bring about colic.

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Strongyles and ascarids or roundworms cause by the parasitic migration through the lungs.” Bergin said. “However, threadworms (Strongyloides westeri) and ascarids or roundworms (Parascaris equorum) can produce clinical disease in foals during the first few weeks of life.” Parasites disrupt the health and function of the intestinal tract, decreasing the foal’s ability to absorb nutrients, and they can damage the heart, lungs, liver, or kidneys.

“Primary clinical signs associated with threadworms and roundworms include diarrhea with subsequent weight loss, decreased appetite, lethargy, rough or dull hair coat, pot-bellied appearance, and a failure to thrive and grow at a normal rate,” Bergin said. “Respiratory distress, or what appears to be a respiratory infection, may also be noted due to the damage caused by the parasitic migration through the lungs.”

Causes: Threadworm larvae can persist in a mare for many years without any signs of infection, according to Bergin. Then they are shed into the mare’s milk, subsequently passing into the foal during suckling, penetrating the skin, or being ingested during grazing. Ascarid/roundworm eggs can be ingested from contaminated pasture, bedding, waterers, or the nursing surface of the udder.

Diagnosis: Use a fecal flotation test from fecal samples. Noted Bergin, “A single fecal exam may not be accurate, as the amount of shed eggs varies depending on the state of parasitic maturation.”

Treatment: Use a parasite control program to reduce parasitic contamination and administration of dewormers.

Consult with a veterinarian prior to initiating treatment as certain dewormers are not approved for use in young foals, and it is critical that the appropriate class and dose be used for the specific parasite,” Bergin warned.

Prognosis: Generally very good, although prognosis can be worsened by higher degrees of infestation. Untreated or not properly treated, parasites could lead to intestinal obstruction, colic, and possibly death.

Prevention: “Establish and maintain an effective parasite control program specific for your horse and geographical location,” Bergin said. “Monitor the effectiveness of your program through fecal exams done two to three times a year or 14 days following treatment.” Manage horses to reduce exposure (remove fecal matter from stalls, chain drag or harrow pasture to break up fecal piles and kill larvae at the proper time of year, rotate pastures, avoid overcrowding/overgrazing pastures, and quarantine all new additions).

MECONIUM IMPACTION

Meconium (first feces) impaction might occur during the first two or three days of life in affected foals. Dr. Julia H. Wilson, associate professor and division head of large animal medicine at the University of Minnesota, said: “Signs are usually rapid in onset, but can be more gradual, particularly in miniature foals, which tend to end up with their entire small colon impacted. The very firm meconium requires considerable effort to pass, and it can readily become impacted in the small colon and/or rectum if the foal is debilitated for other reasons. The impaction makes the foal strain and/or show signs of colic. Over time, the foal can become bloated, violently painful, and dehydrated.”

Cause: Unknown, but weakness due to a variety of causes seems to be a common finding, Wilson said.

Diagnosis: Response to an enema, finding meconium in the rectum on digital palpation, and no production of “milk stool” (which is less firm and usually light tan/orange in color). “Ultrasound and abdominal radiographs further refine the diagnosis, but are often unnecessary,” Wilson stated.

Treatment: “We use enema solutions such as Fleet, mild dish soap diluted in
lots of warm water, or acetyl cysteine (Mucomyst) diluted in water,” Wilson said. She warns that repeated enemas could irritate or damage the foal’s fragile rectal lining, and/or cause electrolyte imbalances. “In severe cases, a veterinarian may need to also give the foal fluids to rehydrate it, and may also choose to give digestive tract lubricants such as mineral oil via nasogastric tube. Surgery should be considered if the foal remains obstructed.”

Prognosis: Most foals respond to a single enema and quickly recover uneventfully, according to Wilson. “Sick neonates tend to require more intensive treatment,” she added.

**LETHAL WHITE SYNDROME**

Foals with lethal white syndrome (ileocolonic aganglionosis) appear normal at birth, but cannot pass meconium due to a lack of nerve cells in a portion of the large intestine, according to Dr. Molly McCue, postdoctoral fellow in veterinary population medicine at the University of Minnesota. “Signs of colic appear within 12 hours of birth,” she explained. “The disease affects foals that are either completely

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white or have very little pigmented hair around the muzzle, base of tail, and hooves. Their eyes are blue and their skin is pink.”

Cause: “Foals inherit abnormal genes from both dam and sire,” McCue said. “Overo to overo Paint breeding results in the highest number of lethal white foals; however, Paints with other coat patterns and solid color horses can be carriers.”

Diagnosis: Appearance of the foal, breeding history, and lack of response to appropriate treatment comprise the diagnosis. A genetic test is available from the University of California, Davis, Veterinary Genetics Laboratory.

Treatment: “There is no effective treatment for lethal white,” McCue said, “although treatment for meconium impaction may be warranted as the foal may not have the syndrome.”

Prognosis: Fatal (from constipation) within 48 hours.

Prevention: Identify carriers through DNA testing of breeding stock and avoid mating carriers.

**ATRESIA COLI**

This is the absence of a segment of the colon, according to McCue. “Foals appear normal at birth, but are unable to pass meconium and exhibit signs of colic within first 12-24 hours,” she said.

Cause: Atresia coli is possibly due to a congenital lack of blood supply.

Diagnosis: Contrast radiography with barium enema delineates the colon on radiographs. With atresia coli, the barium stops at the blind end, which can be seen on the films.

Treatment: “The condition) may be surgically correctable, depending on the site of the absent segment,” McCue said.

Prognosis: Poor with surgical correction, lethal without surgery.

**ATRESIA ANI**

This is similar to atresia coli, McCue noted, except the blind end is at the rectum. Diagnosis is the same, although it can sometimes be made by palpation, and treatment/prognosis are similar.

**GASTRIC ULCER**

This is a break in the tissue lining of the stomach, which is uncomfortable and often makes the foal decrease its
nursing or feeding, Wilson said.

“In chronic cases, the ulcers can lead to stricture of the stomach’s outflow, which leads to splashing of stomach acid up into the esophagus; this is very painful,” she said. “If the ulcer perforates (fully penetrates the stomach wall), the foal will usually die of peritonitis.”

Clinical signs can be absent or include discomfort during eating, backing off of feed or nursing, teeth grinding, and colic.

“With perforations, the foal is colicky and rapidly progresses into shock,” she said. “In a few cases of small perforations, the leak may be plugged by omental tissues (abdominal tissue folds), leading to abscesses that lead to fever, intermittent discomfort, and weight loss.”

Cause: Stress, use of non-steroidal anti-inflammatory drugs (NSAIDs).

Diagnosis: This is best made with an endoscope to examine the stomach lining, but it is often based on clinical signs or response to treatment.

Treatment: Pain management and stress reduction. “Use ranitidine to immediately block acid secretion concurrently with omeprazole (GastroGard), which is the most potent acid inhibitor, but takes 24-48 hours to take full effect,” Wilson said. “After 48 hours, the ranitidine is usually discontinued. If the foal has a history of NSAID use, sucralfate may also be given. If the foal is not eating, intravenous feeding may be needed. Any suggestions of ulcer leakage should be treated with broad-spectrum antibiotics and consideration of surgery. Similarly, foals with signs suggestive of gastric outflow restriction and esophageal reflux can benefit from gastrojejunostomy (surgical procedure to connect the stomach and the middle section of small intestine to bypass the stricture) if they do not respond to more conservative
therapy.”

Prognosis: This depends on the severity of the ulcers and concurrent disease. “Simple gastric ulcers are very responsive to acid suppression with ranitidine and omeprazole,” Wilson reported. “Foals with duodenal strictures and resultant stomach outflow problems seldom do well even with surgery; consequently, some surgeons consider the surgery option as a salvage procedure.”

Prevention: Stress reduction, lowest possible dose of NSAIDs when they are needed.

COLIC

This can occur at any age, including the first few hours of life. Bergin said, “Colic in foals typically manifests itself very acutely and will progress at variable rates depending on the cause and severity. Due to a foal’s delicate gastrointestinal system, it is important to take even the low-grade levels of discomfort seriously because some of those cases can become life-threatening in a matter of hours.” Colic generally presents as restlessness (stress), pawing, lying down frequently, rolling up on the back, and/or a decrease in nursing frequency. “As conditions worsen,” Bergin said, “these signs may proceed to a more violent rolling or thrashing behavior. Condition-specific clinical signs include straining to defecate, tail flagging, straining to urinate, and grinding of the teeth.”

Causes: There are many varied causes, a few of which include congenital abnormalities, meconium impaction, uroabdomen (urine in the abdomen), gastric ulceration, small intestinal volvulus, and diarrhea.

Diagnosis: This involves the foal’s history, age of onset, owner’s observations, thorough physical exam, and blood tests. “Depending on the condition of the foal,” reported Bergin, “other useful tests include passing a nasogastric tube into the stomach to relieve any gas or fluid accumulation, abdominal ultrasound, abdominal radiographs with the use of barium for a contrast study, gastroscopy, or abdominal exploratory surgery.”

Treatment: This includes sedatives, pain medications, IV fluids, antibiotics (or other medications for specific conditions), and/or surgical correction.

Prognosis: The outlook ranges from good to grave. “Cause, severity, and duration will markedly affect the outcome and prognosis,” said Bergin.

TAKE-HOME MESSAGE

Foal owners should know that many GI diseases in foals, particularly those that cause bowel inflammation and/or overt diarrhea, are accompanied by the development of ulcers, warned Sprayberry.

“Diarrhea can also be caused by the presence of severe gastric or duodenal ulcers,” she explained. “Many foals, therefore, should either be assessed for or empirically treated with ulcer medications until their GI disease has resolved.”

It’s critical to act promptly if you observe inappetence, lethargy, or diarrhea in your foal. At the very least, closely monitor the foal’s condition by checking its rectal temperature, heart rate, and hydration (via capillary refill time). Said Sprayberry, “Because foals meet both their nutritional needs and hydration needs at the same time via their all-milk diet, when they are not nursing adequately, they can quickly grow seriously dehydrated and ill beyond what they can self-correct. Dehydration is a serious problem with diarrhea, as foals do not have the compensatory reserve of adults.”

Therefore, when a foal displays inappetence, diarrhea, lethargy, or depression, prompt veterinary consultation is merited. Waiting until tomorrow to see if your foal improves could be a serious—even fatal—decision for the foal.

Marcia King is a freelance writer based in Ohio. She specializes in articles on equine and pet health, care, training, and behavior.
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