Medical treatment of horses with ileal impactions: 10 cases (1990–1994)

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Objective—To evaluate clinical and laboratory findings for horses treated medically for ileal impactions.

Design—Retrospective case series.

Animals—10 horses with primary ileal impaction that were treated successfully with medical treatment alone.

Procedure—Medical records were reviewed for all horses with naturally developing ileal impaction seen at our hospital between 1990 and 1994.

Results—Transrectal palpation revealed an impaction in the midabdominal area in all horses. Generalized distention of the small intestine was evident in 6 horses, whereas 4 horses were examined early in the course of the condition and did not have intestinal distention. Treatment consisted of intravenous administration of a balanced electrolyte solution, nasogastric intubation and siphonage, and administration of analgesics. Mineral oil was administered after gastric reflux had ceased. Mean time for resolution of ileal impaction was 11.7 hours.

Clinical Implications—Medical treatment may be a viable alternative for horses that cannot have surgery, provided persistent signs of severe pain or progressive gaseous distention of the small intestine are not features of the condition. Improvement of cardiovascular status, reduction in signs of abdominal pain, decrease in distention of loops of small intestine during repeated transrectal examination, softening of the impaction, and decreases in amounts of gastric reflux were indicative of a response to medical treatment. (*J Am Vet Med Assoc* 1996;208: 898–900)

Ileal impaction is the most frequently reported cause of nonstrangulating obstruction of the small intestine in adult horses.[1,2] Surgical intervention has been the most popular method of treatment for correction of ileal impactions, because early recognition of the necessity for surgical intervention has been paramount to the successful treatment of horses with this condition.[3,4] Surgery generally is indicated when serial transrectal palpations of the abdomen reveal persistent distention of the small intestine, rather than an impaction of the ileum that becomes progressively smaller with time.[5,6] Deterioration of the horse's circulatory function, combined with progressive intestinal distention, provide the primary reasons for the decrease in survival rates associated with increasing time from onset of the condition to surgical intervention.[3]

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Veterinarians have been reluctant to treat horses with an ileal impaction by use of medical management alone. Horses with ileal impaction are often subjected to celiotomy for correction of ileal impaction even though cardiovascular status is good and signs of pain are controlled by the use of analgesics and nasogastric siphonage. To our knowledge, clinical reports have not detailed the use of medical management for the treatment of ileal impaction in horses. As a result, clinical signs, indications for nonsurgical intervention, and mortality rates associated with medical treatment are not well described. Therefore, the purpose of the study reported here was to describe the clinical course and medical management of horses with ileal impaction that caused acute onset of signs of abdominal pain.

Criteria for Selection of Cases

Medical records were reviewed for 48 horses that had ileal impaction between May 1990 and October 1994. Horses were included in the study when an ileal impaction was palpable per rectum and financial constraints imposed by the owners precluded the use of surgical intervention for correction of the condition. The following information was extracted from each record: breed, age, sex, duration of clinical signs before admission, rectal temperature, heart rate, respiratory rate, PCV, total protein concentration, quantity of material that refluxed through the nasogastric tube, results of the per rectal examination for the detection of gas or fluid distention of the small intestine, and interval from initiation of treatment until resolution of the impaction.

Results

Signalment—Horses ranged from 2 to 13 years old. Five horses were females and 5 were geldings. Breeds represented included Quarter Horse (5), American Saddlebred (2), Appaloosa (1), and Tennessee Walking Horse (1), and there was 1 mule. Number of hours for which signs of continuous, moderate abdominal pain were noticeable before hospitalization was 3 to 48 hours (mean ± SD, 11.6 ± 14.3 hours). At the time of examination at our hospital, 7 of 10 horses had a slight increase in heart rate (50 to 60 beats/min). All horses had a reduction in the frequency and volume of borborygmi, but respiratory rate, rectal temperature, mucous membrane color, and capillary refill time were considered normal. In all horses, an 8 to 10 cm in diameter, doughy impaction of the ileum was palpable just medial to the cecum. This impaction extended for 40 to 80 cm aborally from the base of the cecum. Signs of abdominal pain could be elicited when the impacted intestine was retracted ventrally. Reflux through a nasogastric tube and distended small intestine that was

easily palpable and taut were evident in 4 horses. Signs of pain were not elicited during manipulation of the distended small intestine in these 4 horses. Two horses had reflux through a nasogastric tube without evidence of small intestinal distention. Two horses did not have reflux through a nasogastric tube, but did have small intestine that was moderately distended with fluid, and 2 horses did not have reflux through the nasogastric tube and did not have distention of the small intestine.

Therapeutic Plan and Outcome

Because the horses had signs of only mild abdominal pain and had a stable cardiovascular status, and because the owners decided not to pursue exploratory celiotomy, all horses were managed by use of medical treatment alone. Horses were not allowed access to feed or water. All horses repeatedly were intubated with a nasogastric tube, and siphonage was performed. A balanced electrolyte solution was administered, IV, at the rate of 3 L/h with the intent being to overhydrate the horses. Flunixin meglumine was administered (0.66 mg/kg of body weight, IV, q 8 h). Signs of mild abdominal pain persisted during the initial phase of treatment but abated with resolution of the impaction. Mineral oil was administered via nasogastric tube after gastric reflux had ceased. During the 12-hour period after resolution of the impaction, the rate of intravenous administration of fluid was reduced, but water was made available ad libitum. Horses were fed a bran mash diet, and medications were discontinued 12 hours after resolution of the impaction. At that time, all horses had defecated feces that contained mineral oil. Number of hours from initiation of treatment until resolution of the ileal impaction was 8 to 16 hours (mean ± SD, 11.7 ± 2.5 hours). A 50/50 mixture of alfalfa and coastal Bermuda hay was fed beginning 48 hours after resolution of the impaction. Additional complications were not encountered, and the horses were discharged with instructions to the owners to minimize the amount of mature coastal Bermudagrass hay fed to the horses.

Discussion

Ileal impaction develops most commonly in horses in the southeastern United States.[1,3,4] The cause of ileal impaction is unknown, although feeding horses hay that has a high fiber content has been associated with ileal impaction.[1,3,7,8] Coastal Bermudagrass hay is often dry, slender, and stemmy, and is commonly fed to horses in the southeastern United States. As coastal Bermuda grass matures, the lignin and crude fiber content increases markedly.[8,9] When the mature grass is cut and fed as hay, the increase in fiber can predispose horses to impaction colic, especially when dietary changes are associated with weather changes that limit water consumption.[7] This predisposition for impaction is further aggravated by a combination of heat, stressful conditions, limited consumption of digestible roughage, ingestion of pelleted feeds, and twice-daily feeding patterns.[10] Ileal impactions are not frequently reported in other parts of the United States in which legume or other hay combinations are the primary sources of roughage.

In the horses reported here, small intestine impaction was diagnosed by per rectal palpation and was assumed to be in the ileum. It may be difficult to distinguish an impaction of the ileum from intraluminal impactions of other portions of the small intestine. In these horses, however, it was believed that the impaction was in the ileum as determined by the midabdominal location of the impaction, the proximity of the impaction to the cecum, and the limited mobility of the impacted intestine in the abdominal cavity. In other reported case studies in which diagnosis of ileal impaction was made on the basis of per rectal examination, the condition was confirmed during exploratory celiotomy.[1,3] Because of complete intraluminal obstruction of the ileum, distention of the small intestine develops early in the course of the condition. An impaction of the ileum can be most readily identified when examination is performed prior to onset of distention of the small intestine.[1-3] Possibly as a result of excessive distention of the small intestine, ileal impactions were identified by per rectal examination in none of 12 or 18 of 75 horses, respectively, in 2 other retrospective studies.[1,3]

Because of intestinal distention and spasmodic contraction of the ileum around the impaction, horses with ileal impaction often have signs of severe abdominal pain and may respond poorly to analgesic therapy. Gastric reflux through a nasogastric tube and detection of distention of the small intestine on per rectal examination are consistent with simple obstruction, strangulating obstruction of the small intestine, or enteritis of the proximal portion of the small intestine.[3,11-14] When the impacted ileum cannot be palpated, differentiating ileal impactions from simple mechanical obstruction or strangulating obstruction may be difficult.[3] Simple obstruction of the small intestine can usually be differentiated from strangulating obstruction by means of physical examination and by use of analysis of serial samples of peritoneal fluid, although analysis of a single sample of peritoneal fluid can be clinically useful.[15-17] Abnormal findings are detected in peritoneal fluid sooner after onset of strangulating obstruction than after onset of a simple obstruction.[16-18]

Medical treatment of horses with ileal impaction includes the use of analgesics and intravenously administered fluids.[2-4] When gastric reflux is not detected, orally administered laxatives such as mineral oil may hasten resolution of the impaction, but when the impaction persists and signs of complete small intestinal obstruction develop, surgery is mandated. Indicators that are useful to clinicians in separating horses with ileal impaction that can be treated surgically from those that are nonsurgical are the persistence of signs of abdominal pain after nasogastric decompression and detection of increases in gaseous distention of the small intestine during repeated per rectal examinations.[3]

Horses suspected of having ileal impactions should be considered as surgical candidates because surgical correction of the condition is associated with a good prognosis.[1,3,19] Delaying surgery in horses with ileal impactions increases the risk of complications, because prolonged ileal impaction can produce necrosis of the ileal mucosa, which can lead to perforation as well as to secondary gastric rupture.[1,5] Researchers

have reported that a positive correlation exists between an increase in the duration of clinical signs prior to surgical intervention and the mortality rate for horses that undergo surgery between 0 and 24 hours after the onset of clinical signs.[3]

When cardiovascular status is good and gastric siphonage sufficiently relieves signs of pain, aggressive medical treatment of horses with ileal impaction should be considered. However, when surgical intervention is not an option, medical management alone can be successful. An improved cardiovascular status, reduced signs of abdominal pain, decreased distention of loops of small intestine during repeated per rectal examinations, softened ileal impaction, and decreased amounts of gastric reflux are indicative of a positive response to medical treatment.

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