Etiology
Ileal impaction is the most common cause of non-strangulating obstruction of the small intestine in the adult horse. In the southeastern United States these impactions are associated with consumption of coastal Bermudagrass hay, which is often dry, fine, and has a high lignin content and thus poor digestibility. Poor digestibility is especially the case in hay cut either late in summer or stored in round bales. The disease has been associated with *Strongylus vulgaris* infection and, more commonly, *Anoplocephala perfoliata* infection. Ileal impaction occurs in other parts of the United States and in Europe where coastal Bermudagrass hay is not fed. The disease appears to be more common in the United States from June to November, especially in the fall, although a seasonal effect is not consistent. The risk for impaction is not generally reduced by combining costal Bermudagrass hay with other hay, however, appears to be increased by the recent introduction of feeding poor quality hay, limited water usage associated with cooler weather, and appears to be lowered by feeding a pelleted-concentrate feed in addition to hay. The disease has been reported in a wide range of horses, including newborn and older foals. In a large series of cases, mares and Arabian horses were significantly over represented. A study of 78 horses reported that feeding coastal Bermudagrass hay and failure to administer an anthelmintic effective against tapeworms placed horses at risk for ileal impaction. Orbatid mites are the intermediate hosts for *Anoplocephala perfoliata* and their preference for humid regions such as the southeastern United States could contribute to the geographic distribution of ileal impaction in the United States.

Clinical findings and clinical pathology
Abdominal pain, which is a result of small intestinal distension and spasm at the site of the impaction, is moderate to severe and intermittent. Distended small intestinal loops are usually palpable on trans-rectal examination. Sometimes the impaction of the ileum can be palpated in the right dorsal abdominal quadrant, at approximately the 1 o’clock position, as a sausage-shaped, firm structure which can be tracked to the medial aspect of the cecum. Gastric reflux can be absent in the very early phase of the disease, but upon initial evaluation, most horses have a moderate volume of yellow-green reflux that has a gastric odor. Pain is not alleviated by gastric decompression. By comparison horses with proximal enteritis or with strangulating lesions, horses with ileal impactions will maintain better cardiovascular function and not deteriorate systemically as rapidly. Signs of mild to moderate dehydration, i.e., CRT 2-3 seconds, prolonged skin tenting and tacky, dry mucous membranes; are common and become more obvious if the impaction persists. Hematology and serum chemistry abnormalities, if any, are secondary to the level of dehydration. These can include high PCV and total protein, high BUN or creatinine values, mild metabolic acidosis, mildly elevated lactate, or increased anion gap.

Diagnostic testing
Abdominocentesis yields straw-colored to clear fluid with normal (<2.0 g/dL) to mildly increased protein and normal nucleated cell count and distribution (< 5,000 cells/µL). Compared to horses with strangulating lesions, the changes in peritoneal fluid occur later in the course of the disease, when the ileum becomes compromised.

Treatment
Medical treatment is the preferred course of therapy in horses diagnosed with ileal impaction. Treatment consists of intravenous fluid therapy, anti-inflammatory and analgesic drugs (flunixin meglumine 1.1 mg/kg IV), and spasmylytics (Buscopan™, 0.3 mg/kg IV). Horses should be closely monitored and no food or water allowed while gastric reflux is present. In this instance, a degree of hyperhydration is beneficial because fluids will cross into the intestinal lumen which will help soften the impaction and allow its transit. Balanced polyionic fluids should be administered intravenously at twice to three times maintenance rate (120-180 mL/kg/day). Repeated doses of sedatives such as xylazine (0.2 to 1 mg/kg IV) or detomidine (0.01-0.02 mg/kg IV), with or without butorphanol (0.01-0.02 mg/kg IV), are usually needed during the early spasmodic portion of the intestinal obstruction.

Most ileal impactions resolve medically, and surgery is performed only in horses with signs of progressive abdominal disease and unrelenting pain, in which instance a strangulating lesion of the small intestine rather than ileal impaction becomes of concern. If surgery is required, the impaction is broken down by manual massage, added by mixing it with fluid from the proximal bowel and intraluminal injection of carboxymethylcellulose while manipulations are being conducted. Several techniques have been used to relieve the impaction if manual reduction is not successful such as enterotomy, ileocolostomy and jejunocostomy with or without ileal resection. The surgical latter techniques reduce the successful long term prognosis.
Prognosis
Aggressive medical treatment is typically uncomplicated and successful if started early. Medical treatment reduces hospital stay, cost of treatment, and expense of lost time for recuperation and hastens return to athletic activity as compared to surgical intervention. Resolution of small intestinal distension and gastric reflux are good indicators of successful response to medical treatment.

After resolution of the impaction, horses should be started gradually on low bulk, easily digestible feed such as grass or mashes. Poor quality coastal Bermudagrass hay should be avoided. Because tapeworms are thought to play a role in this disease, anthelmintics are recommended, such as a pyrantel pamoate (double dose 13.2 mg base/kg) combined with praziquantel to provide a more complete treatment in the fall and again in late spring. Three combination deworming products: Equimax, Quest Plus, and Zimectrin Gold all three contain praziquantel, a dewormer effective against tapeworms as well.

References