CASE STUDY

REFEREED

Surgical Management of Cecal Impaction/Dysfunction by Ileocolostomy in a Horse

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ABSTRACT

A four-year-old Appaloosa brood mare was referred for evaluation of a colic episode of 24 hours' duration. Physical examination revealed a distended cecum filled predominantly with fluid. A tentative diagnosis of cecal dysfunction was determined, and surgical intervention was performed by means of typhlotomy and ileocolostomy techniques through a complete bypass of the cecum. Postanaesthetic myopathy and incisional infection developed as postoperative complications. The mare was discharged 13 days after surgery. Follow-up information obtained from the owner and referring veterinarian 4 months after discharge revealed full recovery of the mare.

Keywords: Cecum; Impaction; Dysfunction; Ileocolostomy; Colic

INTRODUCTION

Cecal impaction/dysfunction has been clinically presented as a primary condition or as a complication in horses hospitalized for unrelated musculoskeletal or gastrointestinal diseases.[1] In a hospital setting, horses undergoing general anesthesia and receiving phenylbutazone administration seem to be at greater risk.[1]

The major and deadly complication of cecal impaction/dysfunction is perforation or rupture.[2,3] Therefore, expedited recognition and management of the condition is crucial to prevent cecal perforation.

Medical and surgical treatments have been proposed to manage cecal impaction. However, not only the treatment modality (ie, medical or surgical) but also the surgical technique employed to manage an impacted cecum is still a matter of debate.[4,5] Moreover, preoperative distinction between cases of cecal impaction and cecal dysfunction may sometimes be challenging[5,6]; therefore, a definitive diagnosis may not be established until surgery is performed.

This article describes a case of cecal dysfunction successfully managed by a handsewn ileocolostomy and its associated postoperative complications.

CASE REPORT

A 4-year-old, 470-kg Appaloosa brood mare with a 24-hour colic history was referred to the State University of Londrina—Veterinary Teaching Hospital (Londrina, Paraná, Brazil) for treatment. The mare had been treated intravenously with nonsteroidal antiinflammatory drugs such as flunixin meglumine (Banamine; Schering Plough, Rio de Janeiro, Rio de Janeiro, Brazil), phenylbutazone (Equipalazone; Marcolab, Duque de Caxias, Rio de Janeiro, Brazil) and dipyrone (Vetalgin; Intervet, São Paulo, São Paulo, Brazil) at different intervals and 8 liters of lactated Ringer's solution by the referring veterinarian. History of previous illness, surgery, or other stressful episodes was denied by the caregiver. On arrival, the mare showed signs of mild to moderate and intermittent abdominal pain. Physical examination revealed a heart rate of 48 beats/minute, respiratory rate of 20 breaths/minute, and rectal temperature of 38.3°C. Mucous membranes were slightly congested, capillary refill time was 3 seconds, and peripheral pulse was normal. Auscultation of the abdomen, which was not distended, revealed decreased gut sounds in all quadrants. No net reflux was recovered on nasogastric intubation. Rectal examination revealed marked distention of the cecum, with taut ventral and medial bands, filled predominantly with fluid and gas. Solid material with a doughy consistency was palpated at the base. Preliminary blood work showed no abnormalities. Based on the history and clinical findings, a tentative diagnosis of cecal impaction/dysfunction was determined.

An intravenous (IV) catheter was placed, and infusion of lactated Ringer's solution was started. Eight liters of water was administered via nasogastric tube. Overnight, the mare exhibited two distinct pain episodes, which were controlled with flunixin meglumine (Banamine; Schering Plough, Rio de Janeiro, Rio de Janeiro, Brazil) and xylazine (Sedazine 10%; Fort Dodge Saúde Animal Ltda, Campinas, São Paulo, Brazil). A second rectal examination performed

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10 hours after arrival showed no improvement in cecal size and consistency. Physical examination revealed slight deterioration of the clinical parameters, and the mare started to show continuous signs of abdominal pain.

Given the poor response to the medical treatment, a decision was made to surgically explore the abdomen. Preoperative antibiotics including potassium penicillin, 22,000 IU/kg (Benzilpen 5000000UI; Cellofarm Ltda, Serra, Espírito Santo, Brazil), and gentamicin, 6.6 mg/kg (Gentocin; Shering Plough, Rio de Janeiro, Rio de Janeiro, Brazil), were administered intravenously. The mare was anesthetized with xylazine, 0.5 mg/kg intravenously (Sedazine 10%; Fort Dodge Saúde Animal Ltda, Campinas, São Paulo, Brazil) followed by ketamine, 2 mg/kg intravenously (Ketamin-S(+); Cristália Produtos Químicos Farmacêuticos Ltda., Itapira, São Paulo, Brazil), and diazepam, 0.04 mg/kg intravenously (Compaz; Cristália Produtos Químicos Farmacêuticos Ltda., Itapira, São Paulo, Brazil). The mare was positioned in dorsal recumbency and general anesthesia was maintained with halothane (Tanohalo; Cristália Produtos Químicos Farmacêuticos Ltda., Itapira, São Paulo, Brazil) in a semiclosed circuit.

Surgical exploration of the abdomen confirmed a distended cecum filled with fluid and gas. Solid material could be palpated just at the base. The large colon was empty and a moderate amount of intraluminal fluid had accumulated in the small intestine. The cecum was deflated with an 18-gauge needle attached to a suction pump and the fluid content of the small intestine was milked toward the cecum. The cecum was carefully exteriorized from the abdomen and a 5-cm longitudinal typhlotomy was performed at its apex between the lateral and ventral cecal bands. To improve surgical exposure and therefore prevent further contamination, the surgical table was tilted slightly to the right of the horse before the typhlotomy procedure. To facilitate removal, feed material at the base was hydrated with tap water delivered by a hose introduced through the incision and removed through gentle massage of the viscus. The typhlotomy was closed using Vicryl 2–0 in a simple continuous pattern oversewn by a Cushing's pattern. The serosa of the cecum appeared normal in color; however, neither spontaneous nor induced motility (pinching) was observed.

Based on the intraoperative findings, a decision was made to bypass the cecum. The ileum was exteriorized and the position for transection was determined. Mesenteric vessels were double ligated with Vicryl 2–0 and the ileum was transected as far aborally as possible without entering the abdominal cavity. Both ileal stumps were closed with Vicryl 2–0 in a double Cushing's pattern. The oral ileal stump was positioned adjacent to and between the medial and lateral free bands of the right ventral colon (RVC) at its most proximal exteriorized portion. The ileum stump was positioned pointing orally on the RVC. Moistened towels were placed to isolate the two segments of bowel and a side-to-side handsewn anastomosis with Vicryl 2–0 was performed as described by Robertson[7] (Fig. 1). An approximately 8-cm stoma was created between the ileum and the RVC. Contents of the distal small intestine were milked through the anastomosis to check for patency and any leakage. The ileal mesentery was closed to avoid formation of an internal hernia and the abdomen was profusely lavaged with warm sterile saline. The abdomen was closed with #2 polyglycolic acid (Polycryl; Polysuture Ind. Com. Ltda., São Sebastião do Paraíso, Minas Gerais, Brazil) in a simple continuous pattern followed by subcutaneous closure with #0 polyglycolic acid (Polycryl; Polysuture Ind. Com. Ltda., São Sebastião do Paraíso, Minas Gerais, Brazil), also in a simple continuous pattern. The skin was closed with #0 nylon in a simple interrupted pattern. The abdominal incision was protected with a stent bandage and the mare was removed to the recovery area. Total recorded anesthesia and surgical time were 6 and 5 hours, respectively.

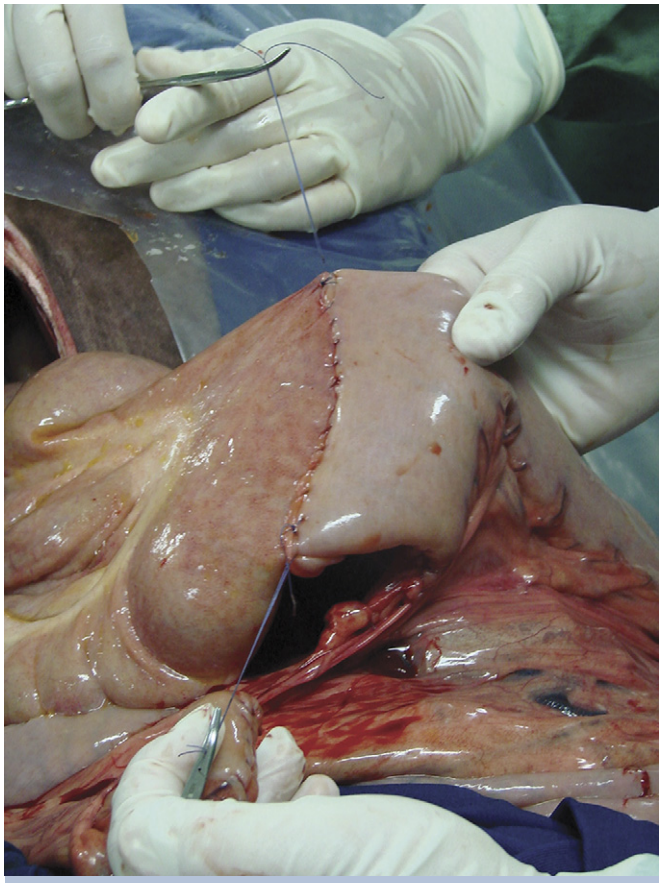

Figure 1. Handsewn side-to-side anastomosis between the ileum and the right ventral colon.

The mare had a stormy recovery characterized by episodes of anxiety, restlessness, and early attempts to stand