



Short Communication

Management and Outcome of a Non-iatrogenic, Nearly Circumferential, Full-thickness Retroperitoneal Rectal Tear in a Horse

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ABSTRACT

An 8-year-old Quarter Horse stallion presented to the Veterinary Teaching Hospital for evaluation of acute colic and a suspected rectal tear. Clinical examination revealed a nearly circumferential retroperitoneal full-thickness rectal tear. Exploratory laparotomy was performed, and medical management of the tear continued for 6 weeks. Multiple attempts at direct suturing of the tear were unsuccessful. Despite intensive medical management, the horse was not able to defecate, and the tear did not heal adequately, so the horse was humanely euthanized. Necropsy revealed complete obliteration of the muscular layers of the rectum with only a small area of rectal mucosa intact dorsally. There is limited information available on the management of circumferential rectal tears. Based upon this experience and other historical reports, a poor prognosis may be expected for circumferential full-thickness retroperitoneal rectal tears involving the ventral aspect of the rectum.

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1. Introduction

Rectal tears are most commonly associated with rectal palpation, dystocia, and parturition complications [1]. Additional documented causes include ischemic necrosis secondary to thromboembolism or thrombosis [2,3], natural breeding from a stallion [4], sand impaction [2], hyperadrenocorticism [5], or spontaneous tears [2]. Reported risk factors for rectal tears include increasing age (>9 years), mares, Arabian and American Miniature breeds, decreased elasticity of rectal tissues, degenerative changes, denervation, and previous injury to the rectal wall [6]. Multiple review articles discuss the grading system of rectal tears and recommended management [4,6-8]. Circumferential tears are mentioned only occasionally in

the review literature [8,9], and these authors were not able to find specific information on the diagnosis, prognosis or management of these cases. There is one report of successful resolution of a 180° circumferential tear of the dorsal aspect of the rectum [10]; however, there is no information available specifically on circumferential tears involving the ventral rectum. This case report discusses management and outcome of one case of a non-iatrogenic, retroperitoneal 350° full thickness rectal tear. The intent is to provide evidence for the presumption of a poor prognosis in these cases.

2. Case Description

2.1. History

An 8-year-old Quarter Horse stallion was presented to the Veterinary Teaching Hospital for evaluation of acute colic and a suspected rectal tear. The horse's trainer initially noticed frank blood on the stallion's manure followed by colic signs several hours later. There was no recent history

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of rectal palpation and the stallion was stalled alone. The referring veterinarian palpated a rectal impaction and suspected rectal tear within the rectal ampulla and referred the stallion immediately for further evaluation and treatment.

2.2. Clinical Findings

On initial physical examination, the stallion was bright and alert. He weighed 596 kilograms and was in good body condition (5 out of 9). Temperature was 100.7°F, heart rate was 60 beats per minute, and respiratory rate was 36 breaths per minute. Mucous membranes were pink and moist with a capillary refill time of 2 seconds. Blood work findings included mild azotemia (blood-urea-nitrogen [BUN], 16 mg/dL; creatinine, 2.0 mg/dL). Rectal palpation revealed a significant amount of feces packed in the rectum. Careful evacuation of the feces revealed a 10- to 12-cm tissue flap being undermined by the impacted feces. The rectal tear was approximately 350° involving the mucosa, submucosa, and muscularis. It was difficult to determine whether the tear had occurred first and the ventral tissue flap had then created a dam effect creating the impaction or if the rectal impaction had resulted in tissue compromise and subsequently tore the tissue. The rectal tear was approximately 5 cm inside the external anal sphincter, extending 15cm orally and was presumed to be retroperitoneal.

Because of his history of colic, exploratory celiotomy was performed to evaluate the remainder of his gastrointestinal tract for the inciting cause of the rectal tear, to evaluate the rectal tear more carefully, and to evacuate the bulk of the gastrointestinal contents to aid in management of the rectal tear. Preoperative medications included potassium penicillin (22,000 IU/kg body weight [bwt] intravenous every 6 hours), gentamicin (4.4mg/kg intravenous every 24 hours) and flunixin meglumine (1.1mg/kg bwt intravenous every 12 hours). No gastrointestinal abnormalities were found during exploration, and the rectal tear was determined to be retroperitoneal based on exploration of the tear rectally and abdominally. A routine pelvic flexure enterotomy was performed to remove ingesta from the colon. A colostomy was considered, but the owner declined the procedure and elected to proceed with aggressive medical management and wound support. The owner was given a guarded prognosis for recovery.

2.3. Postoperative Management

Following surgery, the rectal tear was initially managed medically by withholding feed and performing periodic rectal evacuations [1]. Postoperative management included potassium penicillin, gentamicin, and metronidazole (15 mg/kg bwt orally every 8 hours), a lidocaine continuous rate infusion (0.05mg/kg/min), flunixin meglumine (0.5 mg/kg bwt intravenously every 12 hours), intravenous crystalloid fluids, and polymyxin B (3,000 IU/kg bwt every 8 hours). Medications were discontinued or tapered as indicated and his blood work was routinely monitored.

Postoperative complications included periodic elevation of creatinine, waxing and waning scrotal edema, colitis, and an incisional infection that cultured positive for *Klebsiella*

and *Enterobacter* spp. Intravenous fluids were required periodically to address his elevated creatinine and to manage his diarrhea. Additional colitis management included metronidazole (15 mg/kg bwt orally every 8 hours), flunixin meglumine (0.5 mg/kg bwt intravenously every 12 hours), and di-tri-octahedral smectite (1 lb, orally, every 12 hours) (Biosponge),¹ and the diarrhea resolved in three days. He was switched to trimethoprim sulfamethoxazole (20 mg/kg bwt, orally, every 12 hours) for the next 30 days. The scrotal edema and incisional drainage resolved with conservative management.

2.4. Medical Management of the Rectal Tear

Repair of the tear at the time of exploratory celiotomy was not performed due to the degree of contamination in the wound. It was assessed and lavaged twice daily with dilute betadine solution. Debridement and repair were attempted manually with direct suturing with no. 3 polyglactin 910 (Vicryl)² one day post exploratory celiotomy and again 10 days later. The ventral edges of the tear could not be apposed due to tension, and a moistened laparotomy sponge with an adhesive incise drape (Ioban)³ adhered to the surface exposed to the lumen was placed in the defect to prevent packing of manure in the defect. He was frequently evacuated (2–4 times per day) per rectum. His diet was modified in an attempt to decrease fecal bulk and keep his manure soft. Diet modification consisted of alfalfa leaves, complete pelleted ration (Equine Senior)⁴, alfalfa pellets and a commercial enteral diet (Enteral Immunonutrition Formula)⁵. For a period of time, he required his oral fluid needs be met by a small indwelling nasogastric tube. Despite aggressive supportive management, the repair attempts failed as the suture pulled through the tissue.

The stallion appeared unable to move feces beyond the location of the tear without continued manual evacuation. Further surgical intervention with an indwelling rectal liner or colostomy was declined by the owner and medical management was continued. In an attempt to determine if the caudal tissue flap was acting as a dam, the tissue flap was transected sagittally approximately 2 weeks after admission along with performing a dorsal anal sphincterotomy. Sphincterotomy has been described to allow easier access in repairing rectal tears [11]; however, we postulated that this might decrease the manure packing in his rectal ampulla. Manual evacuations were continued, and the stallion was noted to periodically pass small amount of liquid to cow-pie consistency manure on his own. This was likely the result of passive overflow of the feces through the rectal ampulla. Progressive healing of the tear was monitored with periodic endoscopic evaluation. The tissue proliferation appeared to be originating at the intact area of mucosa dorsally. The rate of healing of the tear over weeks was subjectively felt to be slower than would be expected.

1. Platinum Performance, Buellton, CA.

2. Ethicon, Inc., San Angelo, TX.

3. 3M, St. Paul, MN.

4. Purina, St. Louis, MO.

5. Platinum Performance, Buellton, CA.

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