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Case Report

Case Report: Recurrence of a Gastrosplenic Ligament Entrapment

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ABSTRACT

A 12-year-old American Quarter Horse gelding presented for evaluation of colic signs. The patient was diagnosed with a gastrosplenic entrapment at surgery. The entrapment was reduced, a jejunoileostomy was performed removing approximately 1m of jejunum and distal ileum, and the patient recovered uneventfully from anesthesia. The patient was discharged 12 days postoperatively. The same horse represented 17 months after the initial surgery for evaluation of signs of colic. A small intestinal strangulation was diagnosed based on the clinical and laboratory examination findings. It was elected to euthanize the horse. Necropsy examination diagnosed a gastrosplenic ligament entrapment of the mid-to-distal jejunum.

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1. Introduction

The gastrosplenic ligament (GSL) is a broad, thin band of omentum that extends from the hilus of the spleen to the left side of the greater curvature of the stomach [1–5]. A rent or tear in this ligament has been postulated to have one of two etiologies, either due to a congenital defect or caused by a traumatic event [1,3]. One report identified a history of a traumatic inguinal injury four days before presentation in a horse diagnosed with a GSL entrapment [3]. Small intestine can become entrapped through the gastrosplenic defect, lying lateral to the stomach and craniolateral to the spleen [2]. Small intestinal incarceration through a rent in the GSL is a rare cause of small intestinal strangulation, reportedly accounting for 0.3% to 2% of cases presenting for surgical colic, according to one study accounting for 4.6% of all primary small intestinal lesions [1,2,6–8]. The section of small intestine most often entrapped through a gastrosplenic rent is midjejunum to the proximal ileum [1,2,9]. It is speculated that the proximal jejunum does not have sufficient mesentery to migrate and become entrapped in a potential GSL rent [2].

The proximal GSL cannot be visualized during an exploratory celiotomy with the horse in dorsal recumbency [1,2,9]. Therefore, once entrapped, intestine is removed from a rent in the GSL, standard practice is to leave the rent or to enlarge it, allowing free movement of small intestine both in and out of the gastrosplenic space [9]. This article describes a case of gastrosplenic entrapment, which was corrected surgically, leaving an open rent in the GSL. One year following the initial surgery, the patient represented for a second small intestinal colic, in which a definitive diagnosis of gastrosplenic entrapment was made at necropsy. This report describes a unique case of recurrence of a strangulating GSL entrapment.

2. Case Description

A 12-year-old, 544 kg, American Quarter Horse gelding presented to the XXX Large Animal Teaching Hospital (XXLATH) on February 27, 2013, for signs of acute colic. The

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horse had been noted to show signs of colic, including pawing and rolling, approximately 4 hours before presentation. Initially, the referring veterinarian had obtained 2 L of reflux at the farm and treated the horse with flunixin meglumine, detomidine, and butorphanol. Despite medical treatment, signs of colic persisted, and the patient was referred for further evaluation.

On presentation, the horse was bright and alert, with a heart rate of 44 beats per minute (bpm), respiratory rate of 16 breaths per minute (brpm), and a temperature of 100.1°F. The patient had a capillary refill time of approximately 3 seconds, and gastrointestinal borborygmi were decreased in all quadrants. Numerous loops of distended small intestine were palpated on transrectal examination, and abdominal ultrasound confirmed this finding, identifying multiple loops of distended, amotile small intestine. No net reflux was obtained by nasogastric intubation. Abdominocentesis yielded serosanguinous abdominal fluid that was cloudy and had a total protein of 2.8 g/dL. Blood was collected for peripheral packed cell volume and total serum protein, measured at 33% and 7.5 g/dL, respectively.

As the patient was not showing active signs of colic at presentation, medical treatment was attempted with IV fluid therapy and supportive care for a possible ileal impaction. A 14-gauge, 13-cm IV catheter (Milacath; MILA International, Erlanger, KY) was placed in the right jugular vein. IV fluid therapy consisted of crystalloid fluids (PlasmaLyte; Baxter Healthcare Corporation, Deerfield, IL) administered at 20 mL/kg/hr. Despite medical therapy, the patient began showing signs of colic shortly after presentation, began producing positive net gastric reflux, and had an increased total protein on repeat abdominocentesis. At that time, an exploratory laparotomy was elected.

Before surgery, the horse was treated with potassium penicillin (WG Critical Care LLC, Paramus, NJ), 22,000 IU/kg body weight (BW) IV, gentamicin (Vet One, Boise, ID), 6.6 mg/kg BW, IV, and a tetanus toxoid prophylaxis (Tetanus Toxoid; Pfizer Animal Health, New York, NY) intramuscular. The horse was sedated with xylazine hydrochloride (Anased; Akorn, Inc, Decatur, IL), 1.1 mg/kg BW, IV, and butorphanol tartrate (Torbugesic; Fort Dodge Animal Health, Fort Dodge, IA) 0.01 mg/kg BW, IV, and induced under general anesthesia with ketamine hydrochloride (Ketacine; Vet One, MWI, Boise, ID), 2 mg/kg BW, IV, and diazepam (Hospira Inc, Lake Forrest, IL), 50 mg/kg BW, IV. General anesthesia was maintained with isoflurane inhalant (Piramal Healthcare Limited, Andhra Pradesh, India) and oxygen. The patient was placed in dorsal recumbency, and the ventral abdomen was clipped, aseptically prepared, and draped routinely. An approximately 20-cm ventral midline skin incision was made extending cranially from the umbilicus using a #10 scalpel blade. The incision was continued through the subcutaneous tissue and linea alba.

Abdominal exploration revealed a right dorsal displacement of the large colon, and a portion of the distal jejunum entrapped in a rent in the GSL. The right dorsal displacement was considered secondary to the primary lesion and was corrected after exteriorization of the colon. The jejunum was removed from the rent in the GSL using gentle traction, enlargement of the rent was not performed. After removal, an approximately 7 cm portion of distal jejunum was noted to be compromised. A jejunoileostomy was performed, removing approximately 1m of distal jejunum and proximal ileum. The mesenteric vessels were triple ligated with 2-0 USP polyglactin 910 (Vicryl; Ethicon, Inc, Somerville, NJ) and transected. An end-to-end anastomosis was performed using 2-0 USP polyglactin 910 (Vicryl; Ethicon, Inc, Somerville, NJ) in a continuous Lembert pattern. Single Interrupted Lembert sutures using 2-0 USP polyglactin 910 (Vicryl; Ethicon, Inc, Somerville, NJ) were placed at the mesenteric and antimesenteric junctions. The mesentery was opposed using 2-0 USP polyglactin 910 (Vicryl; Ethicon, Inc, Somerville, NJ) in a simple continuous pattern. No other significant abnormalities were identified on abdominal exploration. The abdomen was thoroughly lavaged with 5 L of sterile crystalloid fluids (Plasmalyte) (WG Critical Care LLC, Paramus, NJ) before routine abdominal closure. The horse recovered uneventfully from general anesthesia.

After surgery, the patient was maintained on IV fluid therapy at an initial rate of 90 mL/kg/d. In addition, the horse received constant rate infusions of lidocaine 2% (MWI/VetOne, Boise, ID) at 81.6 mL/hr after a bolus of 36 mLs and metoclopramide (Hospira Inc, Lake Forrest, IL) at 0.04 mg/kg/hr IV. Treatment with flunixin meglumine (Banamine; Schering-Plough Animal Health Corp., Union, NJ), 1.1 mg/kg BW IV, q12, potassium penicillin (WG Critical Care LLC, Paramus, NJ), 22,000 IU/kg BW IV, q6, and gentamicin (Vet One, Boise, ID), 6.6 mg/kg BW IV, q24 was continued. The horse was also administered low-molecular-weight heparin (Lovenox; Sandoz Inc, Princeton, NJ), 0.35 mg/kg BW SQ, q24 for 2 days.

The horse was gradually reintroduced to feed over the next 2 to 3 days. As his condition improved, prokinetic medications as well as fluid therapy were reduced and then discontinued. Transabdominal ultrasound was performed daily to assess small intestinal function. By the fourth day postoperatively, no abnormalities were identified on ultrasound examination.

One week postoperatively, an approximately 5 cm portion of the most ventral aspect of the abdominal incision appeared moderately swollen. Ultrasound examination of the incision confirmed an intact abdominal wall. A hernia belt was placed at this time.

The horse was discharged 12 days postoperatively on full feed with instructions for stall rest while wearing a hernia belt. The patient was reevaluated twice over a 3-month period after discharge to ensure that the ventral midline incision was healing well. The ventral midline incision healed with no complications. After 90 days of stall and paddock rest, the horse gradually returned to exercise over a four to 6-week period.

Approximately 17 months after the initial surgery, the horse began showing severe signs of colic and was evaluated by the referring veterinarian. A nasogastric tube was placed and no reflux obtained, and the horse was administered PO fluids and mineral oil through the tube. The horse was given flunixin meglumine 1.1 mg/kg BW, IV as well as detomidine 0.01 mg/kg BW IV and butorphanol 0.01 mg/kg BW IV. Approximately 2 hours after treatment, the horse became uncomfortable once more and was referred to XXLATH for further assessment.