1980

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Byron B. Reid
University of Pennsylvania

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Fibrous Foreign Body Obstruction of the Small Colon in Young Horses

by Steven J. Anderson, D.V.M.*
Byron V. Reid, D.V.M.†

SUMMARY
During a 2 year period, 2 horses from the same farm were admitted to the Iowa State University Large Animal Hospital exhibiting signs of mild to moderate abdominal pain. Upon surgical exploration both horses were found to have a fibrous foreign body obstruction of the small colon. Intestinal resection and anastomosis successfully relieved the obstruction in both cases. It was determined that both obstructions were composed of synthetic fencing material.

INTRODUCTION
In recent years, the use of rubberized fencing materials as a means of confinement has increased. Usually the fencing material is made from strips of conveyor belting that are trimmed to the proper width. If these strips are not sealed properly there is a tendency for the fabric core to unravel or fray along the cut edges. Weathering and horses chewing on the fencing contribute to the unraveling. Figure 1. Ingestion of this fibrous fencing material may lead to gastrointestinal problems in the form of obstructive colic. These signs of colic are not always exhibited immediately after ingestion of the fibrous material. Obstructive colic may occur when, during attempted passage, the fibrous material becomes lodged in a narrower portion of the intestine such as the transverse or small colon. Fibrous foreign material may also provide the nidus for the formation of an enterolith.1 Colic resulting from ingestion of fibrous material has been reported as much as 5 years after exposure to the synthetic fibrous material.4

Figure 1: Rubberized fencing material has frayed on the edges.

Over a 36 month period prior to June 1976, 10 horses admitted to the Large Animal Hospital of the University of Pennsylvania were determined to have obstructive colic caused by ingestion of synthetic fencing material.2 In 1975, at Michigan State University, a 5 month old Arabian filly died during an attack of colic. Necropsy revealed rubberized fencing as the foreign body.3 In 1971, 28 cases of obstructive colic of the large and small colon were reported from a farm in California when there was access to nylon material.4

CLINICAL SIGNS
Clinical signs associated with obstruction of the small colon vary with the duration of the condition. If the animal is examined in the first 24 hours and complete obstruction has
not occurred, the body temperature, pulse rate, respiratory rate, and mucous membranes usually appear normal. Depressed or nearly normal intestinal sounds are revealed on auscultation of the abdomen. Signs of a small colon obstruction are intermittent and there is mild abdominal pain which may be manifested by pawing, looking at the flank, or lying on the back. As the condition continues, there is a steady increase in pulse and respiratory rates. Accumulation of gas in the intestines leads to abdominal distention. If a portion of the small colon becomes necrotic and ruptures, systemic signs appear. These signs include elevated pulse and respiratory rates, congested and “muddy” mucous membranes, and sweating.3,6

TREATMENT

Unless a specific history of ingestion of fibrous foreign material is available, initial therapy usually consists of stool softeners, lubricants, and/or enemas under the assumption that one is dealing with a fecal impaction. Lack of response to conservative therapy or the deterioration of the animal's general condition are indications that the problem may be more complex. Fibrous foreign body obstructions rarely respond to conservative, symptomatic therapy and usually require surgical intervention in the form of enterotomy or resection and anastomosis.

CASE REPORTS

On the evening of September 30, 1979 a six month old Appaloosa filly was admitted to the Iowa State University Large Animal Hospital with signs of mild abdominal pain that had begun about 16 hours earlier. Previous treatment consisted of enemas, mineral oil via nasogastric tube, muscle relaxants, and walking. Presenting signs included mild abdominal pain as evidenced by pawing and lying on the back. The abdomen was distended with gas, a ping was elicited over the cecum, and the intestine was hypomotile. Rectal temperature was 101.7°F, heart rate 80/minute, and respiratory rate 36/minute. A rectal exam was not possible due to the filly's stature.

Laboratory evaluations at the time of admission included a packed cell volume of 44%, plasma protein of 7.3 g/dl, and a total WBC count of 14,000 cells/mm³.

In view of the history, clinical signs, and findings upon physical examination an exploratory laparotomy was performed on the evening of September 30.

Anesthesia was induced with glyceryl guaiacolate and sodium thiopental given intravenously, and was maintained with halothane and oxygen administered via endotracheal tube. A balanced electrolyte solution was administered intravenously during surgery.

The ventral abdomen was clipped and prepared for aseptic surgery. A ventral midline incision was used to enter the abdominal cavity.

Upon entering the abdominal cavity the gas-filled cecum was encountered. It was decompressed using a 14-gauge needle. The gas filled ventral colon was decompressed. The obstructing mass was readily palpable in the proximal small colon. The affected segment of small colon was packed off from the rest of the abdominal cavity. An enterotomy incision was made and a fibrous foreign body mass surrounded by ingesta was removed. Figure 2. Further examination of the small colon revealed linear areas of discoloration along the mesenteric border. An intestinal resection and anastomosis of an area 45 cm. long was performed. The anastomosis was performed using 18-20 gambee sutures. Following placement of the gambee sutures any everted mucosa was inverted with simple interrupted sutures. The mesentery was closed using 00 chromic gut in a simple continuous pattern. The intestines were rinsed with warm sterile isotonic saline containing a small amount of Betadine solution.

Figure 2: Fibrous foreign body removed from the small colon.

*Betadine soln. — The Purdue Frederick Co., Norwalk, CN.
The ventral midline was closed with doubled #4 chromic gut in a simple interrupted pattern. The subcutaneous layer was closed using 0 chromic gut in a simple continuous pattern. Simple interrupted sutures of 0.40 mm vetafil were used to close the skin.

Post operative treatment consisted of 1250 mg IV chloramphenicol qid for 4 days. On the second, 5cc of d-Panthenol were given to stimulate peristalsis. Recovery was uneventful and the filly was released 9 days after admission.

Case #2 involved a seven month old Appaloosa colt from the same farm as the filly with fibrous foreign body obstruction. The colt was admitted December 10, 1977 with a history of exhibiting mild, intermittent signs of abdominal pain since the previous evening. Upon admission the temperature was 98° F and the abdomen was distended and tense.

Symptomatic therapy had not alleviated the condition and surgery was performed on the morning of December 12. Surgery revealed an impaction in the proximal small colon caused by a fibrous foreign body. A one meter long segment of small colon was resected and an intestinal anastamosis was performed. This segment contained multiple ulcerations along the mesenteric attachment. Histopath revealed an acute purulent colitis and peritonitis caused by penetration of foreign material.

Post-op treatment consisted of intramuscular procaine penicillin (10,000 U/# bid) for 8 days. The colt recovered uneventfully from the localized peritonitis present at the time of surgery.

**DISCUSSION**

Although rubberized fencing materials have advantages, owners should be aware of the possibility of impaction resulting from ingestion of the fencing material. Two horses from the same farm which had been confined by synthetic fencing developed impaction colic.

Both impactions were located in the proximal small colon and upon surgical removal of the impacting mass, a fibrous core surrounded by ingesta was found. In each case, there was necrotic tissue along the mesenteric border. This necessitated an intestinal resection and anastomosis removing the piece of devitalized tissue. The anastomoses were performed using the gambee suture technique and as a result there were few post-operative complications.

When history and clinical signs suggest an impaction and the horse has not responded to symptomatic therapy, fibrous foreign body impaction should be considered. These cases both indicate this type of impaction can be successfully treated surgically. Best results are obtained if the diagnosis is made early so that surgery can be performed while the horse is a good surgical and anesthetic risk.

**REFERENCES**


b-d-Panthenol.—Professional Veterinary Laboratories Minneapolis, MN.