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Latest concepts in the management and treatment of colic

David Freeman
University of Florida, College of Veterinary Medicine, Gainesville, Florida, USA.

Long-term survival rates after colic surgery have improved, which might reflect earlier referral and improvements in surgical techniques and post operative care. Although primary disease and type of anastomosis could affect survival in the long term, short-term survival rate does not appear to be affected by the horse’s age. Most deaths occur during the first 10 post operative days, with 69% during the first 100 days after surgery and then a slower decline in death rate.

Epiploic foramen entrapment
The apparent predisposition to EFE in older horses has been refuted. Some studies found Thoroughbreds and Thoroughbred crosses and males to be at a high risk, mainly between October and March, suggesting that stabling played a role in its cause. Also there is strong evidence that cribbing is associated with this disease. The long-term survival after completed surgery for EFE is lower than for other small intestinal diseases.

Diagnosis
In one study, peritoneal fluid lactate was a useful predictor of early intestinal ischaemia from a strangulating obstruction. Another study demonstrated that peritoneal fluid lactate is a more useful and sensitive prognostic indicator than plasma lactate in horses with colic. However, plasma lactate concentration can be highly accurate in predicting survival after large colon volvulus.

Ultrasonography is useful for diagnosis of intestinal strangulation, perforation, intussusceptions, displacements, reno splenic entrapment, diaphragmatic hernia, cholelithiasis, ruptured bladder, ascitis impactions, inguinal hernias and abdominal neoplasia. Large colon torsions can also be diagnosed with a high degree of accuracy.

Nephrosplenic ligament entrapment of the colon
Almost all horses with large colon trapped over the nephrosplenic or reno splenic ligament can be successfully treated by nonsurgical methods, such as rolling the horse while anaesthetised with short acting intravenous anaesthetic. Alternatively, the spleen can be reduced in size by phenylephrine at 3 μg/kg bw/min for 15 min and the colon dislodged by lunging the horse for 10–15 min. Phenylephrine carries a risk of fatal haemorrhage in old horses. Open, laparoscopic, or hand-assisted laparoscopic closure of the reno splenic space can be used selectively to prevent recurrence of this disease.

Large colon resection
Large colon volvulus has a high rate of recurrence, especially in broodmares. This and other diseases of the colon can be treated effectively by resection. Colopexy of the ventral colon to the body wall is an alternative to prevent recurrence of colonic displacements, but is not recommended for a compromised colon. A technique for large colon resection with complete bypass of the right dorsal colon was designed for those horses with extensive bowel displacements, but is not recommended for a compromised colon.

Incisional hernia prevention and treatment
An incisional hernia can occur in 7–10% of cases after colic surgery and is typically preceded by surgical site infection in the first week after surgery. Short surgery times, attention to proper technique and asepsis, short incisions, application of a protective adhesive barrier over gauze sponges before placement in the recovery stall, and routine use of an abdominal bandage after surgery can prevent infection. Skin staples can increase the risk of incisional infection and horses that develop incisional infections usually culture multi-resistant bacteria from the incision within 12 h of surgery. Once a hernia has developed, an abdominal Hernia Belt can be used effectively as a conservative treatment method to reduce the hernia, especially during the early stages of healing and fibrosis. Large hernias that do not respond to bandaging and exercise can be closed with sutures alone or be repaired with synthetic mesh.

Adhesion prevention
Intestinal adhesions develop in 6–13% of horses after small intestinal surgery. They can involve any region of the intestine without predilection for anastomosis or enterotomy sites, so pan-abdominal methods for adhesion prevention are indicated. Although the primary method of prevention is careful surgical technique, studies have found some benefit from i.v. dimethyl sulfoxide (20 mg/kg bw), potassium penicillin (22,000 i.u/kg bw), and flunixin meglumine (Banamine, 1.1 mg/kg bw), and for intraperoperative treatments, such as intraperitoneal unfractionated heparin (20,000 i.u), omentectomy and sodium carboxymethylcellulose (SCMC 7 ml/kg bw). Post operative peritoneal lavage can decrease adhesion formation in horses, but can be labour-intensive and complicated by catheter occlusion.

Pharmacological management of gastrointestinal tract diseases and complications
Recent interest in lidocaine has focused on its ability to prevent post operative ileus (POI). For this purpose, 2% lidocaine is given as a bolus of 1.3 mg/kg i.v. slowly over 5 min followed by 0.05 mg/kg bw/min in Normosol®-R as a CRI for 24 h. Lidocaine can provide somatic analgesia, but had no effect on visceral pain in one study. Although initially assumed that lidocaine was a prokinetic agent, it might inhibit normal motility, which could be an argument against its use after colic surgery. The perceived clinical benefit of lidocaine CRI in horses after gastrointestinal tract surgery is currently attributed to novel anti-inflammatory effects on neutrophils, which require a concentration that is less than the concentration necessary to block sodium channels. Intestinal inflammation appears to be an important cause of POI in laboratory animals after surgical manipulation. However, lidocaine does not reduce inflammation in some nongastrointestinal inflammatory models in the horse.

Further reading