

Perioperative Management of Gastric Dilatation-Volvulus Patients

Christopher G. Byers, DVM, DACVECC, DACVIM (SAIM), DVM
VCA Midwest Veterinary Referral & Emergency Center
Omaha, Nebraska, USA

The most common clinical sign for patients with gastric dilatation-volvulus (GDV) is retching and/or unproductive vomiting. Abdominal distension, restlessness, ptyalism, and dyschezia may also be reported. The history of the patient may be completely unremarkable but may sometimes contain a disruptive event to the patient, such as recent boarding or other recently performed surgery performed. The main priority of the attending veterinary medical team is to stabilize a patient's cardiovascular system.

At least one large bore peripheral intravenous catheter should be placed upon presentation to allow delivery of an isotonic crystalloid. The cephalic veins are preferred due to reduced preload secondary increased intra-abdominal pressure. Blood samples should be collected at the time of IVC placement. A minimum database should include PCV/TS, PT/PTT, lactate, electrolytes, USG, lactate, blood glucose, creatinine and a peripheral blood film evaluation. Ideally a CBC/CHEM/UA and three-view chest radiographs should be evaluated prior to surgery.

Supplemental oxygen should be provided via the least stressful modality. Serial indirect blood pressure monitoring and telemetry is strongly recommended. The total crystalloid "shock" dose for dogs is 90 mL/kg (a dog's total blood volume). An isotonic crystalloid should be initially infused as a 20-30 mL/kg IV bolus over 10-15 minutes ("quarter shock bolus"). Endpoints of resuscitation (EORs) should be evaluated after the infusion, and the bolus may be repeated if EORs have not been reached. If a patient is hypoproteinemic, infusion of a synthetic colloid such as a hydroxyethyl starch (5-10 mL/kg IV over 15-20 minutes) should be considered.

A right lateral abdominal radiograph should be obtained to confirm GDV. Classically the pylorus is craniodorsally displaced relative to the fundus. Any compartmentalization of the stomach should raise the suspicion for a torsion and indicates a need for exploratory surgery. Gastric intramural gas opacity suggests wall necrosis, and pneumoperitoneum should raise immediate concerns for gastric wall rupture. Serosal detail may be decreased if peritoneal effusion is present. Analgesia should be provided once resuscitative fluid therapy has been initiated. A lidocaine CRI is a helpful analgesic adjunct, and will treat impending reperfusion injury. The stomach may be decompressed via trocarization or placement of an orogastric tube under sedation and endotracheal intubation, and compression should be performed once fluid stabilization interventions are well underway.

Cardiac dysrhythmias occur pre-operatively, intra-operatively and post-operatively. Pre-operative dysrhythmias are associated with increased mortality. Idioventricular rhythms do not often require intervention, while sustained monofocal ventricular tachycardia (HR >160 bpm) for >2 minutes or multifocal ventricular tachycardia should be treated with lidocaine (2 mg/kg IV followed by 50-100 mcg/kg/min IV CRI). Serial evaluations of vital signs, urine output (UOP), blood pressure, PCV/TS, heart rhythm, acid-base status, electrolytes and pain level are of paramount importance. Appropriate fluid therapy should be continued post-operatively to maintain tissue perfusion, and multimodal analgesia should be employed. Paralytic ileus is common, and anti-emetic and pro-motility therapy are helpful. Early enteral support is recommended.