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Surgical management of gastric dilatation and torsion in a Central Asian Shepherd dog

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Gastric dilatation–volvulus (GDV) is an acute, life-threatening condition in dogs, characterized by rapid accumulation of air or gas within the stomach, progressive gastric distension, malpositioning of the stomach, dyspnea, and the development of hypovolemic or cardiogenic shock (Burrows and Ignaszewski, 1990). According to O'Neill *et al*. (2017), GDV carries a high mortality rate, with approximately 33% of treated cases proving fatal. The condition occurs predominantly in large, deep-chested dog breeds (Song *et al*., 2020). Several dietary, non-dietary, and environmental risk factors have been linked to GDV, including male sex, advancing age, being underweight, consumption of a single large meal per day, rapid eating, stressful or fearful temperament, and feeding from raised food bowls, which may promote aerophagia (Pipan *et al*., 2012; Hammer and Grand, 2019). Emergency management focuses on rapid stabilization of the patient and gastric decompression, followed by surgical correction involving gastrotomy and gastropexy. This is complemented with antiarrhythmic drugs, antibiotics, analgesics, and balanced fluid therapy to address shock and acid–base disturbances (Fossum *et al*., 2019).

A 4-yr-old male Central Asian Shepherd dog was presented with a history of consuming a heavy meal followed by a period of marked hyperactivity. The dog exhibited pronounced abdominal distension and reluctance to move, along with frequent, unproductive retching producing scant frothy mucus. Additional clinical signs included an arched back posture, abduction of the thoracic limbs, gasping, open-mouth breathing, and drooling of thick, sticky saliva. On clinical examination, the dog showed elevated rectal temperature (103.3°F), tachycardia (164 beats/min) with arrhythmias, an increased respiratory rate (42 breaths/min), and pale mucous membranes. Serum biochemical evaluation revealed normal electrolyte levels (Table I). Right lateral and dorsoventral abdominal radiographs demonstrated a markedly distended, gas-filled stomach with the characteristic "double-bubble" appearance (Fig. 1). Based on these findings, the condition was diagnosed as gastric dilatation–volvulus (GDV), and immediate surgical intervention was undertaken.

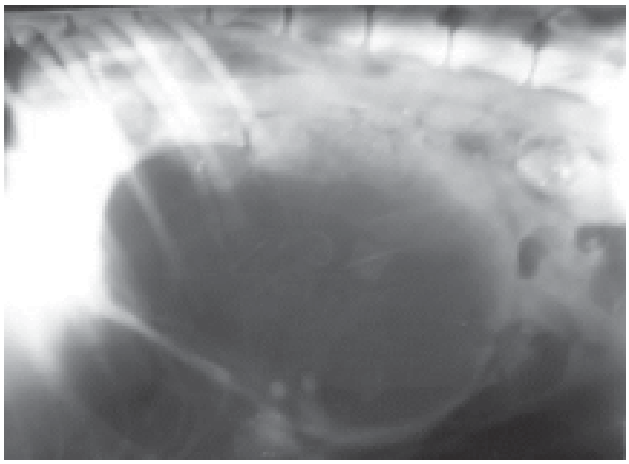

Fig. 1: Preoperative lateral radiographs showing distended stomach with typical "double-bubble" appearance indicative of gastric dilatation-torsion.

Prior to surgical intervention, percutaneous gastric decompression was performed aseptically using a 16-G needle. This was followed by intravenous administration of lignocaine HCl at 2 mg/kg, Ringer's lactate at 90 mL/kg, hetastarch at 6 mL/kg, dexamethasone at 0.25 mg/kg, antibiotics (ceftriaxone at 25 mg/kg and metronidazole at 15 mg/kg), meloxicam at 0.3 mg/kg, and triflupromazine at 1 mg/kg body weight. General anaesthesia was induced with ketamine (5 mg/kg, i.v.) and diazepam (0.2 mg/kg, i.v.), followed by endotracheal intubation.

With the animal positioned in dorsal recumbency, a cranial mid-ventral laparotomy was performed extending from the xiphoid to the pubis. The stomach was exteriorized, and its fluid contents were drained via tube paracentesis. A gastrotomy was then carried out to evacuate the remaining gastric contents. The gastrotomy incision was closed using No. 2-0 polyglactin 910 in a double Lembert suture pattern, and the gastric torsion was corrected. To prevent recurrence, an incisional gastropexy was performed as described by Manjusha *et al*. (2022) and Murugan *et al.* (2023) (Fig. 2). The abdominal muscle layers were

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apposed using No. 0 polyglactin 910 in simple interrupted sutures, and the skin was closed with No. 2-0 nylon in a simple interrupted pattern. The surgical site was dressed with 5% povidone–iodine solution and protected with a bandage. Postoperative management included dietary modification (liquid diet for 5 days, semi-solid diet for the following week, and gradual transition to a regular diet), along with a 5-day course of antibiotics, analgesics, and multivitamins.

Follow-up haemato-biochemical evaluation on the 3rd postoperative day (Table I) revealed values within the normal range. Skin sutures were removed on day 14. The dog made an uneventful recovery, and no recurrence was observed during a 1.5-year follow-up period.

Table I: Preoperative and 3rd day postoperative haemato-biochemical parameters

Haemato-biochemical parameters	Preoperative	3rd postoperative day
Total Leucocyte Count (Thousands/dL)	12.18	14.67
Neutrophils (%)	65	77
Lymphocytes (%)	28	17
Monocytes (%)	4	4
Eosinophils (%)	2	2
Basophils (%)	1	0
Total Erythrocyte Count (millions/dL)	12.09	6.1
Hemoglobin (g%)	13.72	12.91
Packed Cell Volume (%)	42.57	39.75
Platelets (lakhs/dL)	3.60	3.17
Serum Sodium (mEq/L)	133.59	122.73
Serum Potassium (mEq/L)	4.12	3.97
Serum Chloride (mEq/L)	95.93	107.51

GDV is a life-threatening emergency in dogs that demands prompt surgical and therapeutic intervention to address severe dyspnoea, respiratory acidosis, cardiac arrhythmias, and cardiogenic shock. In the present case, timely management, supported by meticulous pre- and postoperative care, resulted in a successful outcome. The use of a simple incisional gastropexy effectively prevented recurrence (Benitez *et al*., 2013; Manjusha *et al.,* 2022).

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