

## SUCCESSFUL SURGICAL MANAGEMENT OF COLIC DUE TO CONGLOMERATE PLASTIC BEZOAR IN JEJUNUM IN A MARE

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### SUMMARY

A three year old Marwari mare, weighing approximately 250 kg, was presented to the Large Animal Surgery Unit, Madras Veterinary College Teaching Hospital, Vepery, with a clinical history of anorexia, signs of abdominal discomfort characterized by restlessness and repeated kicking at the ventral abdomen, progressive abdominal distension and frequent but unsuccessful attempts at defecation. Clinical examination revealed tachycardia, sweating on abdomen region. Per-rectal examination revealed scanty hard, dry fecal contents, distended small intestinal loops. On trans-rectal USG examination, absence of intestinal motility and fecal stasis was noticed. A mid-ventral laparotomy was performed under Xylazine-Ketamine-Butorphanol (induction) maintenance with Triple drip. The exploration of the abdomen revealed a jejunal impaction and multiple perforations noticed in the jejunum of about 1×1 cm<sup>2</sup>. The impaction was resolved through jejunal enterectomy and end-to-end anastomosis after ligation of mesenteric vessels. Mid ventral laparotomy incision was closed as per the standard surgical technique. The horse recovered uneventfully.

**Keywords:** Colic, Enterectomy, Impaction, Triple drip

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Colic is a primary cause of death for horses globally and one of the most common equine health issues. Some types of colic require surgical intervention for a favorable outcome. However, the majority of colic episodes are minor and resolve with medical care alone. Horses can develop acute abdominal obstruction of the small intestine, with the ileum being the most often implicated part (Fleming and Mueller, 2011).

Foreign body obstruction within the jejunal segment of the small intestine may occasionally manifest as intestinal distension detectable on transrectal palpation, accompanied by gastric reflux. In the majority of jejunal impaction cases, exploratory laparotomy is indicated to relieve the obstruction. In the present case, a three-year-old Marwari mare with an approximate body weight of 250 kg was admitted to the Large Animal Surgery Unit, Madras Veterinary College Teaching Hospital, Vepery. The clinical history included anorexia, restlessness, repeated abdominal kicking, progressive abdominal distension, and frequent but unproductive attempts to defecate. Localized sweating over the flank region was also reported. On clinical examination, the mare exhibited tachycardia, tachypnea and congested mucous membranes, with a capillary refill time exceeding two seconds. Auscultation and percussion of the abdomen revealed absence of borborygmi, suggestive of reduced gastrointestinal motility. Per-rectal palpation revealed distended intestinal loops containing gas along with the presence of scant, desiccated fecal material. Transabdominal ultrasonography

demonstrated a complete absence of small intestinal peristaltic activity, which is strongly indicative of intestinal obstruction or strangulating lesions. Ultrasonography of the abdomen is considered a valuable diagnostic modality in differentiating small and large intestinal pathologies, including obstructive and strangulating disorders. Initial medical management included intravenous fluid therapy with Ringer's lactate (10 ml/kg b.wt.), 25% dextrose (10 ml/kg b.wt.), and flunixin meglumine (1.1 mg/kg b.wt., I/V) for analgesia and anti-inflammatory support. Following stabilization, nasogastric intubation was performed and 2 liters of liquid paraffin were administered, followed by 400 g of magnesium sulfate as a laxative. However, due to the lack of clinical improvement after 24 hours of intensive medical therapy, an exploratory laparotomy was indicated. For anesthesia, the mare was premedicated with xylazine (1.1 mg/kg, I/M), ketamine (2.2 mg/kg, I/M), and butorphanol (0.02 mg/kg, I/M). General anesthesia was maintained using a triple-drip infusion consisting of xylazine (1.1 mg/kg), ketamine (2.2 mg/kg), and glyceryl guaiacolate ether (25 g/500 ml) at 1 ml/kg/hr. The animal was positioned in dorsal recumbency and the surgical field was prepared aseptically. A caudal mid-ventral laparotomy was performed through the skin, subcutaneous tissue and linea alba, extending from the umbilicus to the pubis.

During exploratory laparotomy, the affected jejunum was identified. Several perforations were observed during the exteriorization of the impacted jejunum. The jejunum was isolated using moistened laparotomy sponges and

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impermeable drapes. An incision was made on the antimesenteric border of the jejunum, and multiple sharp nails and phytobezoars were extracted. The jejunal vessels within the mesentery were ligated using PGA no. 2. An end-to-end anastomosis was performed using PGA no. 2 in a Cushing's pattern. A leak test was subsequently conducted.

Abdominal lavage was performed using 5 litres of normal saline and 2 litres of Inj. Metronidazole. The linea alba was sutured with PGA no. 2 using a simple continuous pattern, and reinforced sutures were applied. The subcutaneous layer was closed with PGA no. 2, and the skin incision was approximated with non-absorbable polyamide no. 1-0 suture material. The animal's recovery from anaesthesia was uneventful.

Following surgery, the patient was maintained on nil per os (NPO) for 72 hours to allow adequate gastrointestinal recovery. Supportive therapy consisted of intravenous administration of Ringer's lactate (4 L/day) for fluid and electrolyte balance. Broad-spectrum antimicrobial coverage was instituted using metronidazole (15 mg/kg, I/V), ceftriaxone (10 mg/kg, I/V), and gentamicin (4 mg/kg, I/V). Flunixin meglumine (1.1 mg/kg, I/V) was administered for analgesia and anti-inflammatory support, while pantoprazole (1 mg/kg, I/V) was used to prevent stress-induced gastric ulceration. Tribivet (10 ml, I/V) was incorporated as a multivitamin supplement. This regimen was continued for one week postoperatively. The patient was subjected to continuous monitoring of vital parameters and gastrointestinal motility. Spontaneous defecation was observed within 24 hours following surgery, indicating the resumption of intestinal function. Oral intake of feed and water was gradually reintroduced after 72 hours, with no recurrence of colic symptoms. The surgical wound was managed with aseptic dressing and topical application of Drez ointment at regular intervals, which promoted satisfactory healing. The postoperative recovery was uneventful, and the mare returned to normal feeding behavior and activity within a week.

Pus accumulation noticed in the wound site after one week of treatment. ABST revealed the sensitivity to amikacin. For the drainage of accumulated pus alternate sutures were removed and lavaged with metronidazole and normal saline. The abdominal incision healed within a week, and no colic episodes have occurred since the surgery. The animal recovered smoothly.

Digestive disorders, including colic, diarrhoea, and enterotoxaemia, account for 50% of the medical conditions that lead to mortality in adult horses (Baker and Ellis, 1981). Colic continues to be a major cause of

morbidity and mortality in equines, often requiring immediate clinical intervention. In the present case, the three-year-old Marwari mare exhibited classical clinical signs of abdominal pain, including restlessness, repeated kicking at the abdomen, flank sweating, abdominal distension, and frequent but unproductive attempts to defecate. These observations are consistent with earlier reports describing flank watching, pawing, rolling, and attempts to urinate or defecate as hallmark indicators of equine colic (Cohen *et al.*, 1999).

Physiological derangements such as tachycardia, tachypnea, congestion of mucous membranes, delayed capillary refill time, and absence of intestinal borborygmi in the present case further emphasized the severity of intestinal compromise. The absence of gastrointestinal sounds on auscultation and percussion, coupled with the ultrasonographic finding of absent small intestinal motility, strongly suggested jejunal obstruction. This aligns with previous studies that highlight the importance of ultrasonography in differentiating obstructive and strangulating lesions of the equine gastrointestinal tract. The exact etiology of intestinal impactions remains multifactorial and not fully understood. However, several risk factors have been documented, including sudden changes in diet, type of forage, climatic variations, irregular deworming, and prior episodes of colic or abdominal surgery (Cohen *et al.*, 1999). In the present case, although no prior history of colic or abdominal surgery was reported, the animal had undergone recent dietary changes and weather fluctuations, which could have contributed to the onset of jejunal impaction. Prompt surgical intervention remains the treatment of choice in non-responsive impaction cases, as medical management alone is often insufficient in resolving complete jejunal obstruction. The timely exploratory laparotomy performed in this case ensured decompression and correction of the obstruction, thereby preventing progression to ischemic necrosis and systemic endotoxemia. The post-operative management, which included aggressive fluid therapy, multimodal analgesia, broad-spectrum antimicrobial coverage and gradual reintroduction of oral feeding, contributed to a favorable outcome. This case underscores the importance of early recognition, accurate diagnosis and prompt surgical management of jejunal obstruction in horses. Furthermore, it highlights the role of risk factor assessment and preventive strategies, such as gradual dietary transitions, routine deworming, and careful monitoring during environmental changes, in minimizing the incidence of colic in equines. On rare occasions, horses may ingest indigestible materials, resulting in blockages within the digestive tract. If such foreign materials obstruct



Fig. 1. Dissection of muscular layer after skin incision (ventral abdomen)

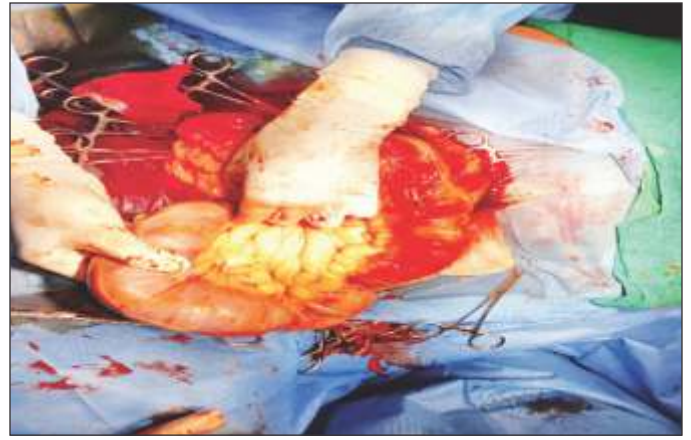


Fig. 2. Exteriorised jejunum containing impacted mass



Fig. 3. Perforations in the jejunal wall



Fig. 4. Enterectomy



Fig. 5. Phytobezoars, sharp nails and enterolith removed



Fig. 6. End-to-end anastomosis was performed



Fig. 7. After three months

narrow segments of the gastrointestinal tract, colic may ensue (Boles and Kohn, 1977). The occurrence of impaction in the jejunum is atypical. Jejunal impaction is rare and typically occurs due to underlying disease or trauma (White and Dabareiner, 1997). The management of gastrointestinal impactions in equines depends largely on the location of the obstruction and the degree of intestinal compromise resulting from distension. In many cases, impactions can be successfully managed with analgesics, cathartics, and oral or intravenous fluid therapy, which aid in softening and rehydrating the impacted ingesta

(Nathaniel *et al.*, 1997). Medical treatment typically carries a more favorable prognosis compared to cases that require surgical intervention. Supportive care may also involve withholding feed until the impaction resolves and providing analgesics as necessary. However, in severe or refractory cases, exploratory laparotomy is warranted to relieve the obstruction (Van der Linden *et al.*, 2003). Persistent, unrelenting abdominal pain that fails to respond to medical therapy necessitates immediate surgical management to prevent further intestinal compromise and systemic deterioration (David, 2011). The present case demonstrates the use of elective exploratory laparotomy as both a diagnostic and therapeutic tool in a horse with non-resolving colic. Despite its effectiveness, it should be noted that a significant proportion of colic-related fatalities occur postoperatively, primarily due to complications such as endotoxemia, peritonitis, or adhesion formation (Ihler, 2004). Prevention plays a crucial role in minimizing the incidence of colic. Dietary management strategies, such as restricting feeds rich in simple carbohydrates (e.g., molasses-based concentrates), providing clean and good-quality forage and water, avoiding ingestion of dirt or sand by using elevated feeding troughs and maintaining a consistent feeding schedule, are essential. Additionally, routine deworming, regular dental care and gradual dietary

transitions are recommended preventive measures to reduce the risk of gastrointestinal impactions.

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**Editors**