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Case Study

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Successful Surgical Management of Intestinal Foreign Body Obstruction in a Dog – A Case Report

R. Anoop*

Veterinary surgeon, Multispecialty Veterinary Hospital, Kudappanakunnu, Kerala, India

**Corresponding author*

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A B S T R A C T

A dog was presented with a history of intermittent vomiting, reduction in defecation, and complete cessation of food intake for past three days. On clinical examination, the animal was found to be active and alert. The physiological parameters were found to be within the normal range. Radiographic examination of the abdomen revealed semi-radio opaque mass and gas-filled intestinal loops suggestive of foreign body obstruction. Exploratory laparotomy was performed to confirm the diagnosis and further management. A cloth piece intertwined with fecolith obstructing the intestinal tract was identified and removed by enterectomy. Then end to end anastomosis using polyglactin 910 in a simple continuous suture pattern was done. Post-operatively the dog was treated with antibiotics and anti-inflammatory drugs, along with a restricted diet and standard supportive care. The animal had an uneventful recovery.

Introduction

Intestinal foreign bodies are ingested objects that may cause complete or partial intraluminal obstruction. The oropharyngeal opening is larger than any other orifice in the gastrointestinal tract. Foreign bodies that traverse the esophagus and stomach may lodge in the smaller-diameter intestine.

Common intestinal foreign bodies include bones, balls, toys, rocks, corncobs, cloth, metal objects (e.g., fishhooks, needles), peach pits, acorns, pecans, hairballs, tampons, and linear objects (i.e., string, thread, fabric, pantyhose, plastic, cassette tape or ribbon) (Theresa Fossum *et al.*, 2012). Intestinal foreign bodies are one of the prominent and distinguished causes of intestinal obstruction in dogs and cats. Obstruction can be partial or complete depending upon the size of the foreign body (Papazoglou *et al.*, 2003).

In small animal practice, intestinal foreign bodies are encountered frequently with various clinical signs, which depend on the location, degree, and duration of obstruction (Aronson *et al.*, 2000; Papazoglou *et al.*, 2003). The consequence of

gastrointestinal obstruction includes disturbances in the fluid balance, acid-base status, and serum electrolyte concentrations resulting from hypersecretion and sequestration within the gastrointestinal tract, which further gets aggravated by vomiting and impaired oral intake of fluid and nutrients (Boag *et al.*, 2005).

Ingestion is considered as the most important mode of foreign body entry in small animals (Hunt *et al.*, 2004). Diagnosis of intestinal obstruction can be made based on clinical signs, radiography, and ultrasonography.

The present report describes a case of intestinal obstruction secondary to the lodging of a foreign body constituting a piece of cloth entangled with fecolith at the colon and its successful surgical management.

Materials and Methods

Case history and observation

A two-year-old male Golden Retriever Dog was presented to Multi Specialty Veterinary Hospital, Kudappanakkunnu with complaints of anorexia, vomiting and scanty defecation for past three days. Animal was active and alert. All physiological parameters were within normal range.

Clinical palpation revealed hard mass in the abdomen. Radiographic examination of the abdomen revealed semi-radio opaque mass and gas-filled intestinal loops suggestive of foreign body obstruction. Ultrasonographic examination was done and it revealed dilated intestine with gas and fluid, with a mass in the colon, thus tentatively diagnosed as intestinal foreign body obstruction.

Treatment

On the basis of clinical examination and diagnostic findings, the condition was tentatively diagnosed to be intestinal foreign body obstruction. For a period of two days, medical management with phosphate enema and fluid therapy was given but there was no improvement for the dog. Hence it was planned to retrieve the foreign body via surgical intervention. The dog was pre-medicated with inj. Atropine sulphate @0.045mg/kg bwt subcutaneously, inj. Dexamethasone @0.5mg/kg bwt intramuscularly.

The anaesthesia was induced with inj. Xylazine @ 1mg/kg bwt and inj. Ketamine @ 5mg/kg bwt intravenously. Maintenance of anaesthesia was done using Ketamine : Diazepam mixture at the ratio of 1:1 (v/v) given intravenously as intermittent boluses to effect. The surgical site was prepared aseptically, and pre-operative fluid therapy with normal saline was initiated. The dog was positioned in dorsal recumbency. Mid-ventral laparotomy was performed, and the intestinal loops were explored for the foreign body. Necrotised part of colon was found with foreign body lodged in it. Carefully isolated the necrotised bowel with sterile towels.

Then carefully assessed the intestinal viability and determined the resection site. Double ligated all the vasa recta vessels to the obstructed intestinal segment. Non crushing intestinal forceps (Doyen) were used to occlude the intestinal lumen positioned 4cm from the necrotised part. Placed another pair of forceps (crushing) on the end of necrotised bowel segment. Transected the healthy colon using Metzenbaum scissor along the outside of the crushing forceps. A two-layer anastomosis was performed. Mucosa was first sutured separately, then other layers. Suturing was done with polyglactin 910 (Vicryl 2-0) in a simple continues suture pattern. Closed the mesenteric defect.

Lavaged the isolated intestine (with normal saline) thoroughly without allowing the fluid to seep in to the abdominal cavity. Removed the sterile towel pads, and changed gloves and instruments. Lavaged the abdomen with sterile, warm saline, then use suction to remove the fluid. Wrapped the anastomotic site with omentum. The linea alba was sutured using polyglactin 910 (Vicryl 2-0) in a simple continuous pattern followed by an apposition of subcutaneous tissue. The skin was apposed using

nylon (1-0) in a simple interrupted suture pattern. Post-operatively, food was withheld for 3 days and the animal was treated using intravenous fluids (DNS 150ml, RL 150ml, Dextrose 5% 150ml) BID for three days and the owner was advised to give liquid diets after that.

Antibiotic therapy was initiated using Ceftriaxone tazobactam @ 20 mg/kg body weight intravenously for seven days. Tramadol was also given at a dose rate of 2.5 mg/kg body weight intravenously for post operative pain management. The suture site was dressed using povidone iodine ointment on a daily basis.

Results and Discussion

Gastrointestinal tract obstructions are the emergencies which should be approached in early stages to prevent complications and mortality. The present case is the successful surgical management of gastrointestinal obstruction in a golden retriever dog. Timely diagnosis and prompt surgical treatment helped to prevent the mortality associated with foreign body obstruction. Post operative management also plays a significant role in deciding the surgical outcome. The dog recovered uneventfully after two weeks of post-operative care.

Intestinal obstruction is a condition in which the intestinal content cannot be directed or forced further in the aboral direction. Gastrointestinal foreign-body obstruction can be either complete or partial in nature. Acute onset of clinical signs is observed in complete obstruction, which may deteriorate rapidly if not intervened (Sériot *et al.*, 2021). In this case, severe clinical signs were observed as the obstruction was complete. Foreign bodies lodged in the gastrointestinal tract can cause ulceration, haemorrhage, anorexia, dehydration, perforation, peritonitis and can result in death if not treated in time (Anoop *et al.*, 2010). Hence, intestinal obstruction should be considered a surgical emergency. Partial or incomplete obstruction allows limited passage of fluid or gas, whereas complete obstruction does not allow fluid or gas to advance past the obstruction. Cause of death associated with complete distal obstruction are fluid loss and toxaemia related to bacterial proliferation. (Theresa Fossum *et al*., 2012)

Diagnosis can be made through physical examination and confirmed by either diagnostic imaging or ultrasonography or endoscopy. In this case physical examination reveal a hard mass at the colonic region and animal elicited pain. Survey radiography often reveals intestinal ileus resulting from a complete or near complete obstruction and may allow identification of the cause, especially if radiopaque foreign bodies are present.

Radiolucent foreign objects are sometimes seen if surrounded by gas. Ultrasonography may identify foreign objects that cannot be seen radiographically, especially those with a hyperechoic margin with or without fluid accumulation. Endoscopy rarely diagnoses intestinal foreign bodies that were not detected radiographically or with ultrasound. This is because the scope seldom can be advanced beyond the descending duodenum. The differential diagnosis includes all other causes of intestinal obstruction (i.e., foreign bodies, intussusception, intestinal volvulus or torsion, adhesions, strictures, abscesses, granulomas, hematomas, or congenital malformation). Another cause might be physiologic ileus that occurs secondary to severe inflammation (e.g., parvovirus or peritonitis).

Some foreign bodies pass through the intestine without requiring therapy. Medical management with laxative and fluid therapy can revive foreign body obstruction. In cases of partial obstruction, failure to radiographically demonstrate foreign body movement within the intestine over an 8-hour period or failure to pass the object within approximately 36 hours indicates the need for surgery. Surgery should not be delayed to observe for passage of the object through the intestinal tract if abdominal pain, fever, vomiting, or lethargy is apparent. Most foreign bodies can be removed by enterotomy rather than resection and anastomosis unless intestinal necrosis or perforation is present.

Fig.1 Radiographic examination of the lateral abdomen revealed the presence of a semi-opaque foreign body along with gas-filled intestinal loops.

Fig.2 Ultrasonography of foreign body

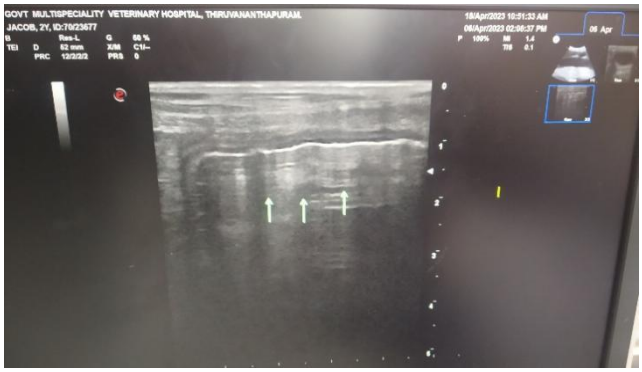

Fig.3 Intraoperative photograph of the colon with foreign body.

Fig.4 Photograph showing loop with retrieved foreign body through enterectomy

Fig.5 Necrotised intestinal part with foreign body

Fig.6 The retrieved foreign body was found to be a cloth

Fig.7 Enteroanaesthamosis post enterectomy

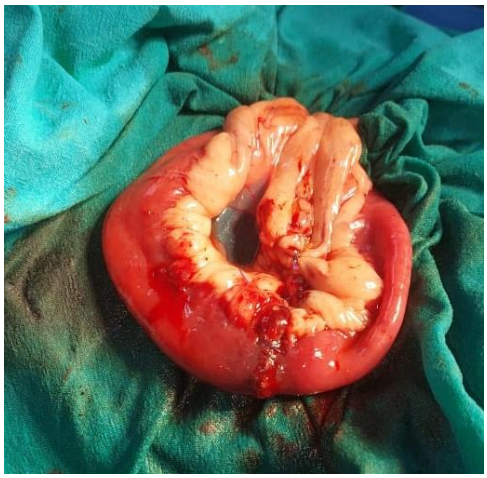

Fig.8 Recovered dog

If a linear object has been present for a long time, it may become embedded in the mucosa, requiring intestinal resection. Multiple enterotomies (two to four) often are necessary to remove linear foreign bodies. Iatrogenic laceration of the mesenteric border may occur if excessive tension causes the object to saw through the wall before or during extraction.

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