

Enterotomy for Management of Intestinal Obstruction in a Dog

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Abstract

A young Labrador dog was presented with complaint of persistent vomiting for past one week. On palpation, a hard foreign body could be palpated in abdomen and was confirmed as radio opaque in radiograph. Patient was stabilized and enterotomy was performed for surgical removal of foreign body. A hard stone was removed and animal recovered successfully.

Keywords: Enterotomy; foreign body; intestinal obstruction; laparotomy

Introduction

Objects that cannot be digested or are slowly digested or are too large to pass through gastrointestinal tract obstruct the passage of food and are referred as foreign bodies (Gibson, 2020). The condition is common in dogs due to their indiscriminate feeding behavior (Mahesh *et al.*, 2019). The foreign body obstruction can be classified on the basis of obstruction degree (partial or complete), anatomical site of obstruction (proximal or distal) and pathophysiologic alterations (simple or mechanical, versus strangulating) (Papazoglou and Rallis, 2003). According to Boag *et al.* (2005), the most common site of foreign body obstruction in dogs is the stomach (50%), followed by jejunum (27.5%). Clinical signs depend on degree, duration, location of obstruction and type or nature of foreign body. The most common clinical signs include anorexia, vomiting, increased abdominal wall tension or abdominal pain, malabsorption and maldigestion leading to dehydration and lethargy (Capak *et al.*, 2001) (Hobday *et al.*, 2014). Profuse vomiting may be seen in complete proximal obstructions within 24-72 hours whereas vomiting is usually intermittent in partial distal obstructions and may be seen 2-3 days after obstruction (Papazoglou and Rallis, 2003).

A proximal (*i.e.* gastric or upper duodenal) gastrointestinal obstruction cause vomiting of gastric juices and is likely to cause hypochloremic, hypokalemic, moderately hyponatremic metabolic alkalosis due to loss of chloride, potassium, sodium

and hydrogen ions whereas distal obstructions lead to metabolic acidosis due to loss of bicarbonate rich pancreatic secretion (Papazoglou and Rallis, 2003) (Boag *et al.*, 2005) (Gibson, 2020). The present paper describes surgical correction of foreign body obstruction in gastrointestinal tract of a Labrador Retriever.

Materials and Methods

A one year old female Labrador Retriever dog was presented with vomiting for last one week and was not defaecating. Detailed physical examination revealed abdominal tenderness and presence of palpable hard object within the abdominal cavity. Physiological hematological and biochemical parameters were mostly within normal range except an increased packed cell volume (PCV) indicating dehydration. Alkaline phosphatase (ALP) was moderately increased. Abdominal radiography revealed gas filled loops of intestines and presence of radio-opaque foreign body (Fig.1).

Initially the patient was stabilized with fluids (Normal saline and Ringers lactate), antibiotic (Cefotaxime) Pantoprazole and Ondansetron intravenously along with Vitamin B Complex intramuscularly. As the foreign body failed to pass through the gastrointestinal tract upto 36 hours, the patient was subjected to surgical correction. Preparation for aseptic surgery by clipping the ventral abdomen was undertaken.

The area was cleaned using soap and water followed by Chlorhexidine. The patient was sedated with 1 mg/ kg Xylazine and 3 mg/ kg Tramadol intramuscularly and kept in a dark and calm room for sedation to set in. General anesthesia was

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Fig. 1: Roentgenogram with radiopaque foreign body in intestine



Fig. 2: Isolated intestinal segment after removal of foreign body and prior to closure



Fig. 3: After closure of enterotomy wound site

induced with a mixture of Ketamine and Diazepam @ ratio of 1:1 given at a dose rate of 1ml/ 10 kg b. wt. Meloxicam (Melonex^a) @ 0.2 mg/ kg and Cefotaxime @ 30 mg/ kg were administered intravenously. Maintenance of anesthesia was undertaken with a mixture of Ketamine and Diazepam @ the ratio of 2:1, given at the dose rate of 1 ml/ 10 kg b. wt. intravenously. Normal saline was infused throughout the procedure @ 10 ml/ kg/hr. Mid ventral laparotomy was performed and a 10-centimeter incision was made to gain access into the abdominal cavity. The affected intestinal segment was exteriorized and obstructing segment was isolated and packed with moist sterile laparotomy towels. The isolated segment was kept away from the site of incision. Gently milked the intestinal content away from identified segment.

a - Brand of Intas Animal Health, Ahmedabad
b - Brand of GSK Pharma Ltd., Mumbai

Two Doyen's intestinal clamps were applied on either side of the obstruction. An incision was made on the antimesenteric border, with part of the incision being made over the foreign body and continued into the unaffected segment using a new 10 BP blade. The foreign body, a stone was grasped with forceps and removed. A very small amount of ingesta within the lumen of isolated segment was removed taking care not to soil the surgical site (Fig. 2).

The wound edges were gently mopped and enterotomy wound was closed with 3-0 Vicryl in a simple continuous apposition suture pattern, starting around 5 mm away from the incision and finishing at a point 5 mm beyond the incision with reverse cutting needle. The closure site was visually examined to identify any potential leakage point and simple interrupted sutures were placed to appose such areas (Fig. 3).

The repaired segment was flushed with normal saline (NS) mixed with Metronidazole to flush away any potential contamination. The doyen's clamps were released and suture site was omentalised for fast healing. A lavage was performed with warm Normal saline mixed with Metronidazole and solution was later suctioned off. The laparotomy wound was closed with polyglactin 910, size 1-0 in a simple continuous apposition suture pattern. The fascia and subcutis were also closed in the same manner using polyglactin 910 No.1-0 taking care to avoid dead space formation. The skin was apposed with black braided silk size 1 in a horizontal mattress suture pattern.

Post-Operative Care

The patient was given liquids orally after recovery from anesthesia. Porridge prepared with cooked rice and potato, mashed together was fed for next two days and thereafter normal food was advised with instructions to avoid hard to digest food materials. Post-operatively, antibacterials were administered Inj. Cefotaxime @ dose rate of 30 mg/kg and Inj. Metronidazole @ 20 mg/kg intravenous for five days. Daily wound dressing was done by cleaning with Povidone iodine and dusting with Neosporin[®] (Bacitracin, Neomycin and Polymyxin B) powder. The sutures were skin removed on the seventh post-operative day and patient made an uneventful recovery.

Discussion

When there is a failure of foreign body to pass from digestive tract within thirty six hours or the symptoms persist, surgery is indicated. Electrolyte imbalances are corrected prior to surgery and fluids are administered to patient, if they are off feed after surgery. Enterotomy and entero-anastomosis are performed based on viability of affected segment.

Foreign body induced ileus is more frequently seen in animals under two years of age (Capak *et al.*, 2001). So post-operatively, early feeding is advised to prevent ileus. In a study of dogs that underwent enterotomy for foreign body removal, the post-operative mortality rate in the dehiscence group was

73.7 percent (Allen *et al.*, 1992; Papazoglou and Rallis, 2003).

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