



E-ISSN: 2320-7078

P-ISSN: 2349-6800

www.entomoljournal.com

JEZS 2020; 8(4): 2317-2320

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Received: 02-04-2020

Accepted: 06-05-2020

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Surgical management of intestinal foreign body obstruction in a dog

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Abstract

Dogs may ingest a variety of foreign bodies while playing because of avidity. Once a foreign body has passed through the pylorus of the stomach; jejunum and ileum appear to be the most common sites of the small intestine obstruction. Five years old mix bred male dog weighing 28 kg body weight was presented with the history of inappetence, vomition, and hematochezia initially, followed by diarrhoea and straining while defecation since one month with no improvement after treated with ceftriaxone, dextrose normal saline, ringers lactate, ondansetron, ranitidine and metronidazole. Physical examination of the animal revealed a hard intra-abdominal lump in the right lateral abdominal region. Lateral and ventrodorsal abdominal radiographs revealed dilated gas-filled intestinal loops with a cluster of fine radiopaque intestinal mass. Emergency exploratory laparotomy was performed and chewed plastic material along with cotton ball (sanitary pad) was retrieved from the intestine. The animal recovered uneventfully and started taking normal food without any post-operative complications.

Keywords: Dog, enterotomy, intestinal foreign body, management, sanitary pad

Introduction

Foreign bodies constitute the most common cause of intestinal obstruction in small animal practice and foreign-body-induced intestinal obstruction is a common indication for emergency laparotomy in small animals. Due to indiscriminate eating habits, dogs eat toys, balls, stones, rubber, bones, plastics, etc. and ingested foreign bodies pass uneventfully through the gastrointestinal tract results into variable symptoms [1]. The size of the foreign body determines the nature of obstruction (partial or complete). A complete obstruction is associated with more dramatic clinical signs and a rapid deterioration of the animal, whereas, the partial obstruction may be associated with more chronic signs of maldigestion and malabsorption [2]. Symptoms of GIT obstruction include vomiting, abdominal pain and depression due to dehydration. Diagnosis of foreign body obstruction can be made from history, clinical presentation, radiographic, ultrasonographic and endoscopic examination [3]. Foreign bodies lodged in the intestine and stomach are removed surgically by antimesenteric enterotomy and gastrotomy procedures [4]. The present paper described the surgical management of intestinal obstruction due to plastic and cotton ball foreign body (sanitary pad) in a mongrel dog.

Case history

A 5-year-old mix bred male dog weighing 28kg bodyweight was presented to the Teaching Veterinary Clinical Complex, College of Veterinary Sciences and Animal Husbandry, Central Agricultural University, Selesih, Aizawl, Mizoram, with the history of inappetence, vomition, and hematochezia, followed by diarrhoea and straining while defecation since one month with a history of consumption of used sanitary pad two months earlier. The animal was previously treated by a private practitioner with Ceftriaxone, DNS, RL, Ondansetron, Ranitidine and Metronidazole without any improvement.

Clinical observations

On physical examination, the animal was found depressed with severe dehydration, sunken eyes, pale mucus membrane and loss of body condition (Fig.1). In clinical examinations, the body temperature (101.3⁰F), heart rate (82/bpm.) and respiratory rate (24 breath/min) were

within the normal range. A detailed anamnesis was taken and physical examinations were performed in the dog (Table 1). Physical examination of the slightly distended abdomen revealed a palpable intra-abdominal lump in the left lateral abdominal region. A blood sample was collected from the cephalic vein in EDTA vial for haematological examination

with the help of an automated blood cell counter (MS4e, French). Haematological examination revealed marked leucocytosis (Table 2). Lateral and ventrodorsal radiographs of the abdomen revealed dilated gas-filled intestinal loops with a cluster of fine radiopaque images in the abdominal region (Fig.2).

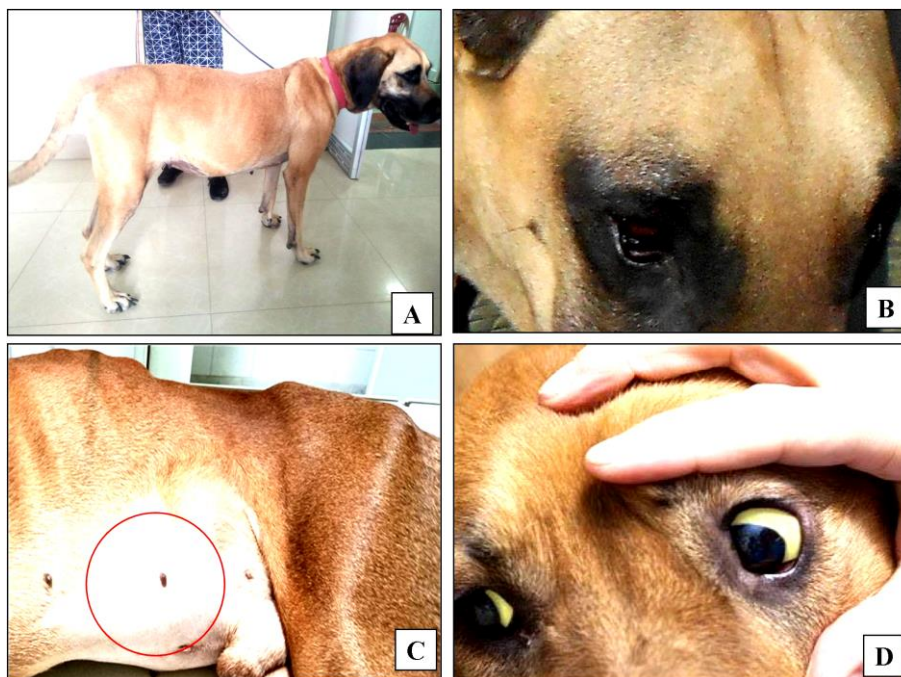


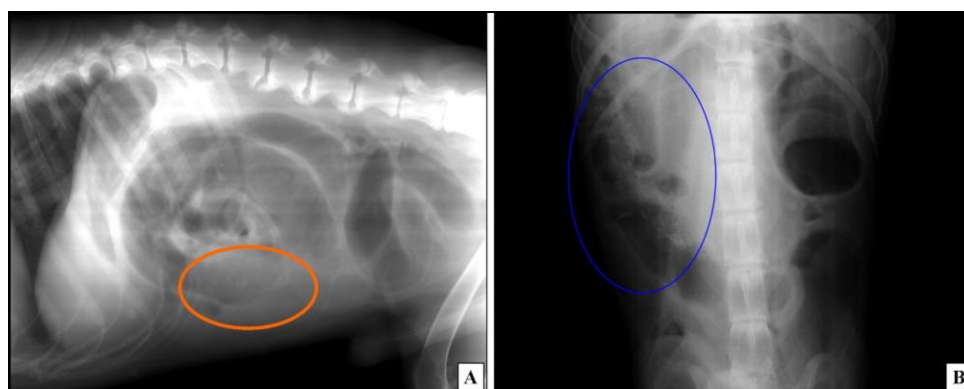
Fig 1: The affected dog showed depressed and loss of body condition (A) sunken eyes (B), distended abdomen with a palpable lump (C) and pale mucus membrane (D)

Table 1: Anamnesis and physical examination findings in the dog with partial intestinal obstruction

Clinical observation	Patient
General Condition	Poor
Appetite	Inappetence
Defecation	Straining, soft stool
Abdominal palpation	Distended movable and reducible intra-abdominal mass
Abdominal strain	Enlargement
Vomition	Chronic
Mucous membrane	Pale and congested
Skin turgor test	>2 secs
Capillary refill time	2 secs

Table 2: Haematological analysis result of the dog with partial intestinal obstruction

Haematology parameters	Result	Reference value
Haemoglobin (g/dl)	13	12-18
Packed cell volume (%)	46.4	37-55
White blood cell count (m/mm ³)	19	6-17
Neutrophil (%)	75	51-84
Lymphocyte (%)	20	8-38
Monocyte (%)	3	1-9
Eosinophil (%)	3	1-9



A. Lateral radiograph of the abdominal region showing dilated and gas-filled intestinal loops

B. Ventrodorsal radiograph of the abdominal region showing the presence of a cluster of fine radiopaque masses with gas-filled intestinal loops

Fig 2: Radiographic examination of the abdominal cavity

Based on the history, clinical and radiographic examination the case was tentatively diagnosed as partial intestinal

obstruction due to radiopaque fine cluster of foreign bodies and prepared for the emergency exploratory laparotomy.

Treatment and Discussion

The dog was initially stabilized with DNS @ 40ml/kg IV and RL @ 40 ml/kg IV, for rehydration, followed by pantoprazole @ 1mg/kg IV, ondansetron IV and metronidazole IV. One hour after stabilizing, the animal was prepared for routine aseptic surgical procedure. The dog was premedicated with glycopyrrolate @ 0.01 mg/kg IM, Meloxicam @ 0.3mg/kg IM and balanced anaesthesia was induced with diazepam @1 mg/kg body weight IV and ketamine hydrochloride @ 10mg/kg body weight IV and the anaesthesia was maintained by diazepam ketamine combination (1:1 ratio). Exploratory laparotomy was performed through the caudal mid-ventral abdominal incision and the exteriorization of the intestine revealed obstruction at the caudal part of the small intestine. Following packing the abdominal incision with sterile drapes to prevent spillage of intestinal contents into the peritoneal cavity, antimesenteric enterotomy was performed distal to the obstruction part and recovered the plastics along with cotton ball (sanitary pad). Enterotomy incision was sutured with chromic catgut (2-0) by Lambert suture and checked for intestinal lumen patency. The intestinal loops were thoroughly lavaged with normal saline and povidone-iodine and repositioned into the abdomen. The laparotomy incision was sutured with simple continuous suture by using vicryl (1-0) and the skin incision was closed with horizontal mattress suture using nylon (Fig.3).

Postoperatively the dog was administered with ceftriaxone @ 50mg/kg b wt IV daily for 7 days, meloxicam @ 0.3 mg/kg b wt IM daily for 3 days and pantoprazole @ 1 mg/kg b wt IV twice daily for 5 days, DNS @ 25ml/kg and RL @ 25ml/kg IV twice daily for 3 days. The patient was kept on an oral liquid diet from 3rd day for 3 days and a semi-solid diet was

started from the 7th postoperative days. The dry dressing was performed from 3rd day onwards daily and the suture was removed on the 12th postoperative days. The common postoperative complications after enterotomy include intestinal suture dehiscence leading to peritonitis and ileus. In the present case, none of these complications were observed and recovered uneventfully.

Alimentary tract obstruction is one of the most common ailments noticed in dogs. The higher incidence of GIT obstruction reported in young male dogs was due to voracious, indiscriminate feeding habits and playful nature [5]. Older dogs could start ingesting foreign bodies as a part of pica behaviour induced by an intestinal tumour, inflammatory bowel disease, chronic kidney disease, or Cushing's disease [6]. Symptoms of intestinal obstruction are usually nonspecific which includes vomiting which does not respond to antiemetic, anorexia, dehydration and loss of condition as observed in the present case [7]. Along with the clinical signs abdominal palpation helps in making a presumptive diagnosis in gastrointestinal obstruction [8]. Gastrointestinal obstruction results in disturbances of fluid balance, acid-base status and serum electrolyte concentrations due to hyper-secretion and sequestration within the gastrointestinal tract which is exacerbated by vomiting and impaired oral intake of fluid and nutrients [9].

Animals suffering from complete obstruction of GIT are medicinal and surgical emergencies. Early diagnosis and surgical intervention are important as the chance of intestinal perforation and peritonitis increase with delay in surgery. Antimesenteric enterotomy and gastrotomy are the standard techniques for the removal of foreign bodies lodged in the intestine and stomach.

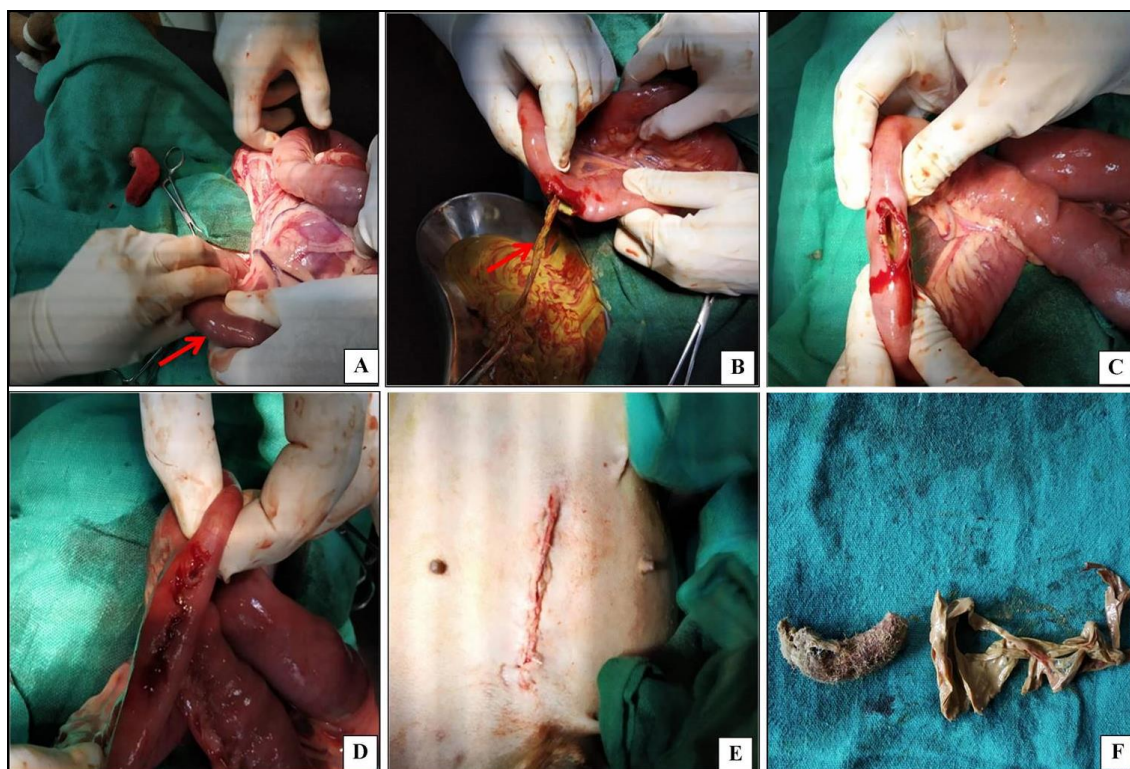


Fig 3: Surgical procedure for antimesenteric enterotomy (A-E). B. Plastic F. Foreign bodies (plastic and sanitary pad)

Conclusion

In the present study, radiography was found useful for the diagnosis of GIT foreign bodies. Early presentation, diagnosis and surgical intervention improved the outcome of

gastrointestinal affections. The good surgical technique followed by adequate postoperative care and fluid therapy is useful in saving lives of many canine patients

Acknowledgment

Authors are grateful to the honourable Vice-Chancellor, CAU, Imphal and Dean, C.V.Sc. & AH, Selesih, Aizawl for providing necessary facilities to carry out this case study.

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