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Intestinal foreign bodies and their surgical management in dogs: A report of four cases

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Abstract

Four cases of intestinal foreign bodies identified as rubber ball, mango seed kernel, cashew apple nut and stone were presented. All the dogs were having a history of vomiting, anorexia and depression varying from past 48 hours to 72 hours. One dog was aged five months, one six months and other two were one year old. On abdominal palpation in three dogs a palpable mass could be detected in intestine and other one no abnormalities detected. Plain abdominal radiography revealed presence of multiple loops of gas dilated small intestine of varying diameters in all cases and in one case radio opaque foreign body could be observed, which later diagnosed as stone. Confirmatory diagnosis made based on contrast radiography with barium contrast medium. Under general anaesthesia, enterotomy performed to remove the foreign bodies. Routine postoperative care was provided for all the four dogs and had an uneventful recovery.

Keywords: Dog, foreign body, intestinal obstruction, enterotomy

Introduction

Intestinal foreign bodies are the most common causes of intestinal obstruction in dogs and cats (Papazoglou *et al.*, 2003) [8]. Large oesophageal size allows dog to swallow objects much bigger than can be passed safely through the intestines. In dogs mostly ingested foreign bodies include stones, plastic and rubber objects (Hoffmann, 2003) [6]. Gastrointestinal foreign bodies may cause complete or partial obstruction. In general, complete obstruction is associated with more dramatic clinical signs and a rapid deterioration whereas partial obstruction may be associated with more chronic signs of maldigestion and malabsorption (Papazoglou *et al.*, 2003) [8]. Clinical signs commonly associated with gastrointestinal disease such as anorexia, vomiting, diarrhoea, abdominal discomfort and lethargy are non-specific and are variably present in dogs with gastrointestinal foreign bodies (Hayes, 2009) [4]. The majority of obstructive non-linear intestinal foreign bodies compromise the blood supply to the intestinal segment by luminal distention leading to intestinal wall oedema and progressive necrosis. These factors contribute to ileus and to an increase in the number of pathogenic intraluminal bacteria leading to the breakdown of the mucosal barrier and systemic endotoxaemia (Ellison, 1993) [3].

Materials and Methods

One Doberman Pincher, one Basset hound and two Labrador Retrievers were presented to Veterinary Dispensary Nitte, with the history of vomiting, anorexia and depression varying from past 48 hours to 72 hours. One dog was aged five months, one six months and other two were one year old. Physical examination revealed all the animals were lethargic and dehydrated. On abdominal palpation in three dogs a palpable mass could be detected in intestine and other one no abnormalities detected. Plain abdominal radiography revealed presence of multiple loops of gas dilated small intestine of varying diameters and susceptible of intestinal foreign body obstruction. Confirmatory diagnosis made based on barium swallowed contrast radiography. Hence, immediate surgical repair was resorted to.

All the four dogs received fluid therapy before anaesthesia and surgery. Surgical site shaved and prepared aseptically. Multimodal pre-emptive analgesia was provided with meloxicam and tramadol at the rate of 0.2 mg/kg body weight subcutaneously and 3 mg/kg body weight intramuscularly, respectively. Ceftriaxone antibiotic was given at the rate of 25 mg/kg body weight intravenously as a prophylactic antibiotic before half an hour to surgery. The animals were pre-medicated with atropine at the rate of 0.04 mg/kg body weight intramuscularly and xylazine at the rate of 1 mg/kg intramuscularly. General anaesthesia was induced with combination of diazepam and ketamine at the rate of 0.2 mg/kg and 4 mg/kg body weight

intravenously. General anaesthesia was maintained with diazepam and ketamine combination (1:1 ratio) to “the effect”. The anaesthetised animals were placed on dorsal recumbence with legs tied to surgical table and surgical site draped.

A caudal ventral midline coeliotomy was performed and the entire intestinal tract was examined for obstruction. The obstructed segment was exteriorised and packed off with drapes. Enterotomy incisions were made on the antimesenteric border distal to foreign bodies and foreign bodies were removed (rubber ball, mango seed kernel, cashew apple nut and stone). The incision sites were thoroughly flushed with saline solution and sutured with simple continuous pattern using No. 2-0 polyglactin 910. The intestinal segments were checked for leakage. The peritoneum and abdominal muscles sutured together with polyglactin 910 in simple interrupted pattern. Simple continuous subcuticular suturing was done with polyglactin 910 and the skin was sutured with polypropylene. Routine postoperative care was provided for five days with ranitidine at the rate of 1 mg/kg intramuscularly once a day, ceftriaxone at the rate of 20 mg/kg body weight intravenously twice a day and meloxicam at a rate of 0.2 mg/kg body weight subcutaneously once a day. Postoperatively, fluid therapy was given for 3 days and then advised to start liquid diet for one week followed by semi-solid diet. The skin sutures were removed on 10th postoperative day.

Results and Discussion

Incidence of foreign body in the gastrointestinal tract of canine is due to insatiable and indiscriminate habit of feeding. Clark (1968) [1] reported that the most common foreign bodies were stones, rubber objects and others. A rubber ball, cashew apple nut, mango seed kernel and stone were observed in our study. Clinical signs associated with intestinal foreign body obstruction depending on the location, the degree and the duration of the obstruction. A high intestinal obstruction involves the duodenum or upper jejunum; a middle intestinal obstruction, the middle jejunal region; and a low intestinal obstruction, the distal small intestine (Papazoglou *et al.*, 2003) [8]. In this study, all the four intestinal foreign bodies were observed in jejunum part of small intestine.

Survey radiographs were adequate to confirm diagnosis of gastrointestinal foreign body in the majority of cases. While radiographs may fail to demonstrate radiolucent foreign bodies, they can reveal segmental dilation of intestines with fluid and or gas or disparate bowel populations; however, this is not pathognomonic for foreign body obstruction. When survey radiographs alone were not diagnostic, either repeated radiographs or other diagnostic modalities, such as barium contrast studies or abdominal ultrasonography were used to confirm the diagnosis (Hobday *et al.*, 2014) [5]. Plain abdominal radiography in all the four dogs revealed gas filled multiple loops of small intestines with varying diameter in all cases and in one case radio opaque foreign body could be observed, which suggestive of intestinal obstruction. Confirmatory diagnosis was made based on barium contrast radiography. Hence, concluded that both survey and contrast radiographs were good diagnostic modalities for intestinal obstruction.

The goal of treatment is to remove the intestinal obstruction and promptly restore enteric nutrition. Small intestinal obstruction the secretion of fluid into intestinal lumen is

increased and absorption of intraluminal fluid and electrolytes are decreased. This leads to reduction in the intravascular fluid volume, which results in dehydration. If dehydration left untreated, it can result in hypovolemic shock. Animals with mechanical obstruction are at risk for hypokalemia, hyponatremia, hypochloremia, metabolic acidosis and metabolic alkalosis (Mishra *et al.*, 1974) [7]. Treatment should consist of intravenous infusion of balanced electrolyte solutions and correction of severe acid-base and electrolyte abnormalities (Ellison, 1990) [2]. In the present study all the animals had an uneventful recovery after surgical correction of intestinal foreign bodies. Early diagnosis and prompt treatment with enterotomy promote faster recovery. However, when the cases are presented with longer duration obstruction have compromised intestinal viability may need intestinal resection and anastomosis.



Fig 1: Rubber ball



Fig 2: Mango seed kernel



Fig 3: Cashew apple nut



Fig 4: Stone

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