

SUCCESSFUL SURGICAL CORRECTION OF INTESTINAL FOREIGN BODY OBSTRUCTION IN CANINE: A CASE REPORT

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SUMMARY

The present communication reports the successful surgical correction of intestinal foreign body obstruction in 3.5-years-old crossbred male dog, presented to Veterinary Clinical Complex, with symptoms of anorexia, vomiting, dehydration and lethargy for last two days. Plain abdominal radiography revealed intestinal obstruction due to circular radiopaque foreign body. The foreign body was successfully removed through enterotomy. This communication also represents the first report of a unique pattern of enterotomy wound closure suture technique. The animal recovered uneventfully and started taking normal food without any post operative complications within one month.

Keywords: Canine, Enterotomy, Foreign body, Ileus, Intestine, Suture technique

Ileus that refers to intestinal obstruction, may be a result of foreign bodies, neoplasia, polyps, gastric dilatation, volvulus, gastric hypertrophy, intussusceptions and incarcerations (Venugopalan, 2005; Raghunath *et al.*, 2016); out of different etiologies foreign body (like stones, plastics or rubber objects, coins, food wrappings, bottle caps, marbles, hair balls, tampons etc.) induced obstruction is most common (Koiike *et al.*, 1981; Raghunath *et al.*, 2016; Mahesh *et al.*, 2019). Playful or childish young dogs may ingest a variety of foreign bodies (Papazoglou *et al.*, 2003; Capak *et al.*, 2001; Raghunath *et al.*, 2016) or even pica may also be a predisposing factor. If a foreign body traverses via esophagus and stomach, it usually lodges in the small intestine resulting serious life-threatening complication, which may be fatal due to severe fluid, acid-base and electrolyte imbalances, hypovolemia, and toxemia (Papazoglou *et al.*, 2003; Fossum, 2012; Mahesh *et al.*, 2019). The only curative measure to it is surgical intervention along with careful routine post operative therapeutic measures (Venugopalan, 2005; Chakrabarty, 2006). The present communication represents successful surgical correction of foreign body induced mechanical ileus or intestinal foreign body obstruction in a domestic male dog.

A domesticated 3.5-years-old male crossbred dog weighing 14 kg was presented to the Veterinary Clinical Complex with the history of anorexia, frequent vomiting and unwillingness to move for last two days. According to owner, the animal was also on regular non-vegetarian homemade diet for last 2-3 months. Clinical evaluation revealed arch back, belligerence on abdominal palpation, mild congestion of mucous membrane, moderate

dehydration based on skin fold test (around 3 to 4 seconds), mild increase in vital parameters than normal *viz.*, body temperature: 102.9 °F, heart rate: 105 beats /minute, pulse rate: 103 pulse/minute and respiration rate: 29 breaths /minute. Since all the above findings were suggestive of gastritis, medicinal therapy against the same was attempted first. Once the animal became irresponsive to medicinal therapy even after 2 days, on 3rd day it was referred to radiographic diagnosis. During medicinal therapy there was also constipation followed by scanty pasty mucoid defecation. Owner also reported that, the animal vomits within few minutes whatever it eats and the same happens on every feeding. Plain abdominal radiography revealed an almost circular radio-opaque object in the small intestine with intestinal dilatation from gas (Fig. 1a & 1b). Finally, radiographic findings confirmed the case to be intestinal obstruction.

To overcome electrolyte imbalance, 400 ml Ringer's Lactate was infused intravenously (IV) twice daily, Ceftriaxone @ 25 mg/kg body weight and Pantoprazole @ 1 mg/kg body weight was administered intramuscularly (IM). Preoperative fasting was advised for 12 hours prior to surgical intervention. Elective surgery was planned on the next day. For anaesthetic management, TIVA (Total intra venous anaesthesia) protocol was used. Atropine sulphate @ 0.04 mg/kg b.wt. IM and Diazepam @ 0.5 mg/kg b.wt. IV were administered as pre-anaesthetic. General anaesthesia was induced by Propofol @ 5 mg/kg b.wt. IV and maintained by IV administration of ketamine and diazepam mixture at the ratio of 1:1. The animal was secured in supine position and entire ventral abdominal area was prepared for aseptic surgery. Following caudal mid ventral incision over skin, subcutaneous tissue and

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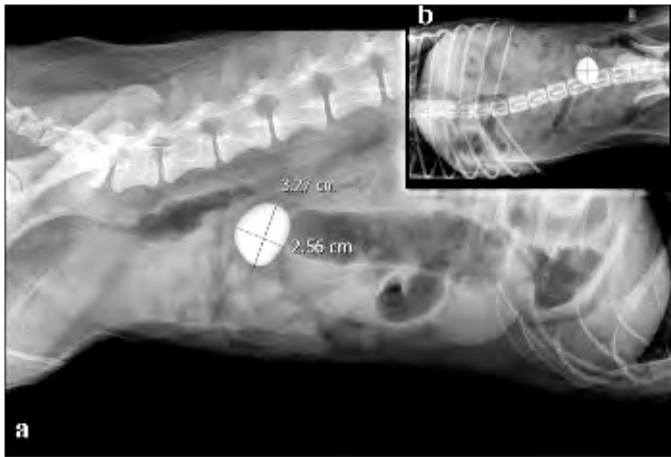


Fig. 1. Radiograph before surgery; a) stone on right lateral view; b) stone on ventro-dorsal view



Fig. 2. Exteriorized loop of intestine holding the stone inside



Fig. 3. a) Cushing suture placed over serosal layer; b) closure of laparotomy wound & the recovered stone



Fig. 4. a) The dog on 10th day post surgery; b) operated site after suture removal showing complete healing

linea-alba, obstructed part of intestinal loops was exteriorized (Fig. 2). On the ante mesenteric end and distal segment of the obstruction, a linear incision was given to remove the foreign body which was found to be a stone (Fig. 3b). The enterotomy wound was closed by a unique pattern of suture technique. At first following normal saline irrigation mucosa, sub-mucosa and muscularis layer

were sutured together with simple continuous suture using 4-0 catgut and thereafter a layer of Cushing suture was given on serosal layer using 3-0 catgut (Fig. 3a). Using 1-0 catgut and no. 1 polyamide suture material, surgical wound was closed (Fig. 3b). Along with daily antiseptic dressing, the animal was kept on fluids and medicinal therapy for another 5 days. For fluid therapy, 250 ml of Ringer's Lactate in the morning & 250 ml of Dextrose Normal Saline (DNS) in the evening were infused IV for 5 days along with other medicinal support as follows, Ceftriaxone @ 25 mg/kg b.wt. IV, Pheniramine maleate @ 0.5 mg/kg b.wt. IM, Pantoprazole @ 1 mg/kg b.wt. IV, Tramadol @ 2 mg/kg b.wt. IV and Vitamin B-Complex @ 2.5 ml/day IV. Skin sutures were removed on 10th day post surgery (Fig. 4a, b).

Appetite was restored within a week and animal was kept on liquid diet i.e. gruel prepared in water with vegetable soup for next 2-3 days. Solid diet was started from 10th post operative day. The animal recovered uneventfully without any post operative complications within one month.

Obstructive condition of gastrointestinal tract is one of the most common complaints noticed in young pets, with a mean age of 3.5 to 3.7 years, due to their voracious, indiscriminate feeding habits and playful nature as reported by Papazoglou *et al.* (2003) and Raghunath *et al.* (2016). In the present case also, the dog was 3.5 years old. As reported by Koike *et al.* (1981); Raghunath *et al.* (2016); Mahesh *et al.* (2019) variety of foreign materials may produce obstruction, out of which stone is the most frequently encountered one, similar to the present case. Clinical findings of intestinal obstruction must carefully be differentiated from gastritis, intussusception, acute pancreatitis, peritonitis and parvoviral enteritis, otherwise it may lead to misinterpretation in absence of diagnostic imaging facilities (Papazoglou *et al.*, 2003). Radiography plays a vital role in diagnosis of intestinal obstruction in

the present case which is also reported by Papazoglou *et al.* (2003). Fossum (2012) and Mahesh *et al.* (2019) had reported that, due to smaller luminal diameter the usual site of obstruction is small intestine compelling surgical intervention, which was also corroborated in this case. In the current communication, authors have stated unique suture pattern for closing the enterotomy wound, so that excess narrowing of inner luminal diameter does not happen as compared to double layer of Cushing's or Lembert's suture pattern and at the same time leakage could also be prevented. This communication represents the first report of this suture pattern due to paucity of literature on Google search. Post operative fluid therapy is usually aimed to maintain or correct dehydration, electrolyte imbalance and improving tissue perfusion. Similar approach was also recommended by other authors (Papazoglou *et al.*, 2003; Raghunath *et al.*, 2016; Nandini *et al.*, 2017). Finally, Animal was recovered uneventfully without any post operative complications.

On the basis of above findings, it is concluded that early presentation, accurate confirmatory diagnosis and aseptic surgical interventions are helpful for successful recovery of patient.

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