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Successful surgical management of Ileo-colic intussusception in a mongrel dog

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Abstract

A four-month-old Mongrel dog was presented to Veterinary Clinical Complex, Rajendranagar with the history of stomach discomfort, intermittent vomiting, inappetence, tenesmus, melena and rectal prolapse. A coiled sausage-shaped mass was felt on deep palpation and pain was experienced by the dog. Abdominal ultrasonography revealed bull's eye appearance in the intestine which confirmed the case as intussusception. The animal was hydrated and stabilised with intravenous fluids prior to surgery. Preoperative surgical procedures were performed in a standard manner. Under general anaesthesia, an emergency laparotomy was performed to reconstruct by using standard surgical technique of reduction, resection and end to end anastomosis. The laparotomy wound incision was closed in regular manner. Postoperatively, the dog was treated with intravenous fluids (inj. DNS, RL for 15 days and inj. Haemaccel for 3 days), antibiotic (inj. Ceftriaxone @ 20 mg/kg I/M for 5 days), analgesic (inj. Meloxicam @ 0.2 mg/kg I/M for 3 days) were given. Regular antiseptic dressing was performed. Initially the dog was fed on liquid diet from 5th post-operative day followed by gradual transition to semi solid food from 10th day and subsequently to conventional meals. The skin sutures were removed on the fifteenth post-operative day, and the dog recovered uneventfully without any further complications.

Keywords: Intussusception, Ultrasonography, bull's eye appearance of intestines, anastomosis

Introduction

Intestinal intussusception occurs when one segment of the intestine (intussusceptum) invaginates into the lumen of an adjacent segment of the intestine (intussusciptiens). Intussusceptions can occur at several locations and can be sometimes doubled. In dogs and cats, the condition is typical, particularly in young animals (Patsikas *et al.*, 2003) [5]. Invagination of the intestine occurs most commonly in the direction of peristaltic action and less occasionally in the opposite direction (Lewis and Ellison, 1987; Brown DC, 2012) [4, 1]. Intussusception is categorised based on location as entero-colic (Ileo-colic), caeco-colic, entero-enteric, duodeno-gastric, and gastro-oesophageal. In case of animals, intussusceptions are prevalent in entero-enteric site of patient (Wilson and Burt, 1974; Levitt and Bauer, 1992 Fossum *et al.*, 2002) [10, 3, 2]. The following case report details the surgical treatment of intestinal intussusception and its management.

Case History and Observations

A four-month-old Mongrel weighing 4 kg was presented to the outpatient unit of the Surgery department of the Veterinary Clinical Complex, C.V.Sc, Rajendranagar, and PVNRTVU with the history of stomach discomfort, intermittent vomiting, inappetence, tenesmus, melena, and rectal prolapse. No history of deworming and vaccination were reported as it was a rescued dog. On examination of the dog, dehydration and pale mucous membrane were observed. Abdominal probing indicated a cylindrical sausage-shaped lump mass. Abdominal ultrasonography revealed bull's eye (Figure-1) appearance in the intestines. Based on the history, clinical findings and abdominal ultrasonographic examination the case was diagnosed as intestinal intussusception.

Treatment

The dog was hydrated and stabilised with intravenous fluids prior to surgery. Prophylactic antibiotic (Inj. Ceftriaxone @ 20 mg/kg bwt), analgesic (inj. meloxicam @ 0.2 mg/kg bwt) were administered intravenously. The animal was sedated with inj. xylazine @ 1mg/Kg, IM and was prepared for aseptic surgery in a standard manner.

Induction and maintenance were accomplished with inj. Ketamine @ 10 mg/Kg, IM and inj. propofol @ 0.7 mg/kg/every 4mins bolus IV respectively. An exploratory laparotomy was performed through a mid-midline incision over ventral abdomen. Careful exteriorization of the intestines revealed intussusceptions at the level of Ileo-colic junction (Figure-2 (a)), with less adhesions between the intussusceptum (ileum) and intussusciens (colon). Gentle traction was applied on the neck of the intussusceptum while milking its apex out of the intussusciens (Figure.3). A portion of the ileo-colic junction was removed and end-to-end anastomoses (Figure-4) was done in a single layer using 3-0 Vicryl in simple interrupted suture pattern. To avoid adhesions and fast healing of the sutured area omentalization (Figure-5) was performed. The abdominal muscles were closed in a single layer by simple interrupted suture pattern using Vicryl No: 1-0 and the skin incision was closed by cross mattress suture pattern (Figure-6) with 2-0 polyamide. Post operatively, the dog was treated with intravenous fluids in a 24-hour period, 150 mL of dextrose normal saline, 150

mL of Ringer's lactate solution and 15 ml of 3.5% colloidal infusion solution (Haemaccel) were administered for 15 days. Antibiotic (inj. Ceftriaxone @ 20 mg/kg bdwt, IV for 5 days), analgesic (inj. Meloxicam @ 0.2 mg/kg IV for 3 days), H2 receptor blocker (inj. ranitidine @ 0.2 mg/kg for 10 days) were administered. Iron sucrose diluted with normal saline was administered once in 7 days for three weeks (inj. Orofer S0.1 ml with 50 ml Normal Saline solution) and haematinic syrup was advised after 5th post-operative day. Initially the dog was fed on liquid diets from 5th post-operative day followed by gradual transition to semi solid food from 10th day and subsequently to conventional meals. The skin sutures were removed on the fifteenth post-operative day (Figure-4). Haematology parameters were measured on the 18th day following surgery, and post-operative values for haemoglobin (8.6 mmol/L) and PCV (26%) indicated progress towards the normal range. Dog recovered uneventfully without any further complications and gained 2kgs of body weight within one and half month (Figure-7).

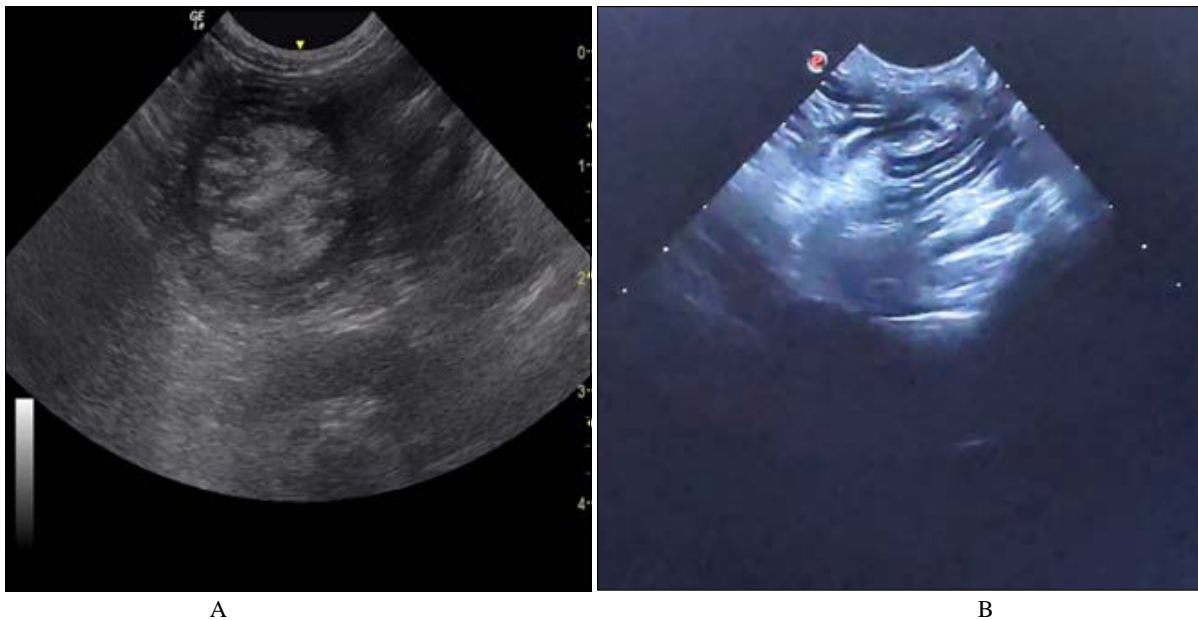


Fig 1: Ultrasonogram (a) and (b) showing Target sign/Bull eye i.e., presence of concentric hyperechoic and hypoechoic rings



Fig 2: Photograph showing intussusception



Fig 3: Milking of intussusceptum from intussusciens



Fig 4: Suturing of the proximal and distal end of the intestine (end to end anastomosis)



Fig 5: Omentalization



Fig 6: Skin closure



Fig 7: Recovery-one and half month after surgery.

Discussion

Dogs under 6 months of age are highly susceptible to intussusceptions (Weaver, 1977; Lewis and Ellison, 1987; Rahman *et al.*, 2020) [9, 4, 6]. Anorexia, vomiting, melena and abdominal pain are the common clinical manifestations of intussusception in canines. Lack of deworming and vaccination results in severe gastro-enteritis and results in severe clinical conditions. Among parasites in young dogs, *Toxocara canis* is more prevalent in dogs under 6 months old among stray dogs (62.79%) than in owned dogs (41.74%) (Shukla *et al.*, 2006; Swai *et al.*, 2010; Rahman *et al.*, 2020) [7, 8, 6]. Intestinal parasites cause aberrant peristaltic movement resulting in telescoping of intestinal segment into the next segment of the gut. Among viral infections, rota, corona and parvo viral infections commonly affects the stomach and intestine and may predispose to intussusception. Improper feeding habits and habitat may also results in bacterial infections. In this case report, there was no known history of deworming and vaccination as it was a rescued stray dog. Individualised postoperative care should be provided based on the patient's condition. Postoperatively, hydration, electrolyte and acid base imbalance should be treated until the animal recovers appropriate oral intake (Fossum *et al.*, 2002) [2]. As there was timely surgical intervention and proper postoperative care the dog recovered uneventfully to normal

oral intake and digestion. Surgery has a fair prognosis provided with early diagnosis, surgical intervention and supportive care.

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