CASE REPORT

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ILEOCOLIC INTUSSUSCEPTION IN A COCKER SPANIEL DOG: A CASE REPORT

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ABSTRACT

A four-years-old female cocker spaniel dog was presented with a history of vomiting and tenesmus for the last six days. There was no defecation, only fresh blood was coming from rectum and the animal was taking only a few sips of water for last two days. Physical examination revealed that the animal was dehydrated. Tenderness was appreciable on abdominal palpation while a firm, painful mass was felt in the mid-caudal abdomen. The clinical history and physical examination was suggestive of intestinal intussusception. Later on an ultrasound examination revealed a sausage-shaped mass with folded layers of intestinal wall. The intussusception was found to be ileocolic on laparotomy. Resection and end-to-end anastomosis was performed. Intussusception is commonly observed in puppies < 1 year of age, less commonly in cocker spaniels.

Key words: canine, ultrasonography, intestinal telescoping, resection, end-to-end anastomosis, Pakistan

CASE HISTORY

A four-years-old female cocker spaniel dog was brought to the Pet Centre, University of Veterinary and Animal Sciences, Lahore, Pakistan, with a history of vomiting and tenesmus for last six days. There was no defecation, only fresh blood was coming from rectum and the animal was taking only a few sips of water from the last two days. Previous treatment included cephradine (Vericef, Indus Pharma, Lahore, Pakistan) at a dose rate of 50 mg/kg and Dextrose 5% since the clinical manifestation started. The intussusception is an invagination of a portion of the gastrointestinal tract (intussusceptum) into the lumen of an adjoining segment (intussuscepiens) (Lewis and Ellison, 1987). Intestinal telescoping and intestinal invagination are synonymous with intussusception (Fossum *et al*., 2002). Intussusception is classified according to the location like enterocolic (ileocolic), caecocolic, enteroenteric, duodenogastric and gastroesophageal. It is also classified as high (proximal to the jejunum) and low (distal to the duodenum) intussusception (Dixon, 2004). The most common type of intussusception in dogs was found to be the jejunojejnal and ileocolic (Fossum *et al*., 2002).

CLINICAL EXAMINATION

The animal was dehydrated and exhibited mild discomfort on abdominal palpation at the time of clinical examination. Physical examination revealed a firm, painful mass in the mid-caudal abdomen. A series of concentric hyperechoic and hypoechoic rings appeared on ultrasound examination with very weak intestinal motility in the transverse plane (Lewis and Ellison, 1987; Oakes *et al*., 1994). A sausage-shaped mass with folded layers of intestinal wall appeared on longitudinal scan. The ultrasound examination confirmed an intestinal intussusception of about 8 inches in length and 4 inches in diameter. The history, clinical and ultrasonographic findings were suggestive of intestinal intussusception. The blood picture showed leucocytosis, lymphopenia, mild anaemia and increased levels of serum proteins (Table 1).

SURGICAL RECTIFICATION

Surgical procedure was adopted to correct the condition. Xylazine hydrochloride (0.5mg/kg; Xylaz, Farvet Pharamaceuticals, Paris, France) and atropine sulphate (0.3mg/kg; Atrosin, P.D.H. Laboratories Lahore Pakistan), were injected intramuscularly as a pre-anesthetic. Atropine sulphate is administered whenever and wherever Xylazine hydrochloride is used as a preanesthetic. Atropine helps to stabilize the bradycadia caused by Xylazine. Moreover, Xylazine causes hypersalivation which is controlled by atropine. The animal was positioned in dorsal recumbancy for ventral midline celiotomy and was prepared for aseptic surgery by scrubbing with povidone-iodine (0.75% w/v) surgical scrub. Thiopental sodium (10mg/kg as 5% solution; Pentothal sodium, Abbott Laboratories, Lahore, Pakistan) was injected intravenously for general anesthesia. Intravenous line of dextrose 5% was maintained during the whole operation. The peritoneal cavity was opened by giving an incision on skin, subcutaneous tissue, at linea alba and the peritoneum. The intussusception was found to be ileocolic, on exploration (Figure 1). A gentle traction was applied to reduce the intussusception since

the tissues were devitalized they got lacerated. The affected parts were resected and end-to-end anastomosis of remaining intestinal components was carried out. Atraumatic clamps were applied on the proximal and distal ends of the affected parts, before resection. The resected part of intestine was about 6 inches long. The atraumatic clamps were brought closer to each other with both ends of intestinal parts. The end to end anastomosis was performed by applying crushing suturing pattern using a polyglactin 910 (Vicryl-Johnson & Johnson, New Brunswick, N.J., U.S.A.) (Erkert *et al*., 2003). The intestine was reduced back into the abdomen. The abdomen was closed in three layers i.e., linea alba, subcutaneous tissue and the skin. The linea alba was closed with Vicryl (Johnson & Johnson, New Brunswick, N.J., U.S.) using simple interrupted suturing pattern, (Bazan and Hontanilla, 1999), while subcutaneous layer was closed by simple continuous suturing pattern with the help of chromic catgut No. 1 (Tan *et al*., 2008). On the skin simple interrupted sutures were applied by using a non-absorbable suture material, Braided Silk No. 2/0 (Mersilk, Johnson & Johnson, New Brunswick, N.J., U.S.A.).

Gastrointestinal intussusception cases have rarely been reported in spaniels. It is more prevalent in German shepherd dogs (Oakes *et al*., 1994; Lewis and Ellison, 1987; Dixon, 2004). Furthermore the age of dog reported in the present case was four years, while 80% cases of intestinal intussusception have been reported in pups under one year of age (Dixon, 2004). The case under discussion showed a complaint of less frequent vomiting and chronic bloody diarrhoea that are typical signs of ileocolic intussusception (Lewis and Ellison, 1987).

Intestinal intussusception has varied etiologies such as intestinal parasitism, viruses, linear foreign bodies, and prior abdominal surgery (Wilson and Burt, 1974). Majority of intussusceptions seen in dogs and cats, however, are idiopathic. Intestinal intussusception is mostly found to be associated with enteritis (Wilson and Burt, 1974; Ellison, 1986); as was the case with the dog under report, besides that no other clinical findings were identified. In older animals it is found to be associated with neoplasia of intestines (Oakes *et al*., 1994).

Ultrasonography and radiographic evaluation of affected site are very helpful in establishing a definitive diagnosis (Lewis and Ellison, 1987; Oakes *et al*., 1994). Accumulation of gas proximal to the intussusception may be observed on plain radiography. The intussusception, on ultrasonography, may appear as hyperechoic and hypoechoic concentric rings in transverse plane and as multiple hyperechoic and hypoechoic parallel lines in longitudinal plane (Lewis and Ellison, 1987; Oakes *et al*., 1994). In the case in question, ultrasonography of ileocolic intussusception showed concentric hyperechoic and hypoechoic rings in the transverse plane. The longitudinal plane, however, revealed a sausage-shaped mass with folded layers of intestinal wall. The hematological values suggested stress and chronic enteric disease. Values of red blood cells, hemoglobin and haematocrit have fallen below the normal range possibly due to the passing of fresh blood in faeces while elevated level of total plasma protein was indicative of dehydration (Jain, 1986). Also the lymphopenia in this case was indicative of acute infection (Table 1). Furthermore, leucocytosis and lymphopenia were suggestive of stress; this is in agreement with the findings of Fossum *et al*. (2002) who reported lymphopenia in stress conditions of animals. Devitalized intestinal tissues may be one of the causes of leucocytosis in the case under report (Dixon, 2004). Extravasation of lymphocytes in chronic enteric diseases may lead to lymphopenia as was evident in this case (Benjamin, 1985). Laboratory findings may reveal anaemia in case of intestinal intussusception (Fossum *et al*., 2002). Low hematocrit value (Table 1) may be the result of minor intestinal hemorrhages (Dixon, 2004). The pathophysiology of intussception is complex and includes a large number of events such as vascular damage, ischemia, devitalized and necrotic tissues, endotoxins and inflammatory mediators, peritonitis, bacterial translocation and septic shock.

Intussusception was first tried to be reduced manually but this technique failed due to the devitalized tissue, so resection and end-to-end anastomosis was performed which is considered as a viable treatment of intestinal intussusception (Ellison, 1986). The present case presents a rare picture of intussusception in a four year female cocker spaniel. The authors failed to find a documented evidence of such a case in Pakistan before this.

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Table 1. Complete Blood Count of Dog before surgery

Parameter	Unit	Reference Range*	Value	Remarks
White Blood Cells	x 10^3/µl	6.00-17.00	38.90	**High**
Lymphocytes	x 10^3/µl	1.00-4.80	0.81	**Low**
Granulocytes	x 10^3/µl	3.00-12.00	36.34	**High**
Lymphocytes	%	12.0-30.0	2.1	**Low**
Granulocytes	%	62.0-87.0	93.4	**High**
Red Blood Cells	x 10^6/µl	5.50-8.50	5.06	**Low**
Hemoglobin	g/dl	12.0-18.0	10.5	**Low**
Hematocrite	%	37.00-55.00	31.98	**Low**
Mean Corpuscular Volume	fl	60-77	63	Normal
Mean Corpuscular Hg	pg	19.5-24.5	20.7	Normal
Mean Corpuscular Hg Conc.	g/dl	32.0-36.0	32.8	Normal
Platelets	x 10^3/µl	200-900	320	Normal

** The Merck's Veterinary Manual, 9th Edition.*

Figure 1: showing a picture of ileocolic intussusception in this case.