



## Clinical Report

### Double Intestinal Intussusception due to Acute Enteritis in a Young Tibetan Spaniel Dog

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#### Abstract

**Case Description-** A six-month-old female Tibetan spaniel dog with repeated rectal prolapse and unsuccessful treatments was referred to the clinic of Faculty of Veterinary Medicine of Razi University (Kermanshah, Iran). Regarding the patient's history colopexy was done through celiotomy incision, but 3 days later the patient was referred again with recurrence of prolapse.

**Clinical Findings-** On abdominal palpation, a sausage like mass was palpated in the abdomen. The clinical parameters were in the normal range, but stool samples proved the presence of giardia. The hemagglutination test for parvovirus was positive as well.

**Treatment and Outcome-** Exploratory celiotomy revealed presence of double intussusception. The intussuscepted segments were edematous and congested with adhesions and signs of devitalization. Resection and re-anastomosis were performed. The patient died 24 hours after surgery. The owner did not allow post-mortem examination, though the actual cause of death was remained unknown. The animal death could be related to weakness due to parvovirus and giardia enteritis, delay in treatment of underlying disease, electrolyte imbalance, surgical stress and inadequate postoperative management.

**Clinical Relevance-** Puppies and kittens show higher incidence of intussusception than adult animals. Any portion of the alimentary tract may be involved, but previous studies have indicated that the majority of intussusceptions in small animal are enterocolic. Prompt and precise diagnosis and accurate treatment with considering underlying diseases such as infectious enteritis and endoparasitism is very important to save the patient life.

**Key words:** double intussusception, dog, celiotomy

**Received:** 06 March 2016; **Accepted:** 11 September 2017; **Online:** 15 September 2017

#### Case Description

A six-month-old female Tibetan spaniel dog with the complaint of mass protruding through the anus (Fig. 1) and the history of previous several unsuccessful treatments such as manual replacement of prolapsed

mass and suturing, was presented to the clinic of Faculty of Veterinary Medicine of Razi University (Kermanshah, Iran). It was diagnosed as rectal prolapse, though the prolapsed mass was cleaned and reduced, and colopexy was performed via a midline celiotomy<sup>1,2,3</sup>. Any other abnormal abdominal findings were not observed in celiotomy. Three days later the patient was again referred to the clinic with recurrence of the prolapse.

#### Clinical Findings

On abdominal palpation, a sausage like mass was palpated in the caudal region of the abdomen. The clinical parameters were in the normal range, but stool samples proved to presence of *giardia*. The

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DOI: 10.22034/ivsa.2017.50242

hemagglutination test for parvovirus was positive. With these findings and because of the recurrence of the prolapse, it was tentatively diagnosed as a case of rectal prolapse associated with intussusception. Unfortunately, diagnostic imaging (ultrasonography/radiology) was not available for definitive diagnosis, though it was decided to perform exploratory celiotomy.

### Treatment and Outcome

Premedication was made by xylazine (1 mg/kg; IM) and anesthesia was induced and maintained with the combination of ketamine (5 mg/kg; IV) and diazepam (0.2 mg/kg; IV). Ceftriaxone (25 mg/kg; IV) was administered at the time of induction via fluid therapy. A midline celiotomy incision was made, the abdominal cavity was explored and the intussuscepted part was exteriorised involving two separate parts (jejunum and ileum) prolapsed into the colon (double intussusception) (Figs. 2 and 3). Some parts of telescoped segments were released by meticulous manipulation, but it was found to be devitalized. Enterectomy was performed to remove the devitalized part of intestine (Fig. 4), followed by end to end anastomosis (Fig. 5). The intestine was returned back into the abdominal cavity and the celiotomy incision was closed routinely. Despite concurrent postoperative antiparasitic, antibiotic and fluid therapy, the patient died 24 hours later. The owner did not allow any post-mortem examination; though the actual cause of death was remained unknown. Prolonged duration of disease with loss of fluids and electrolytes and delayed inadequate treatment of underlying diseases, or/and inadvertent consideration of the owner in addition to stress from 2 consecutive surgeries, might be the causes of death in this patient. Therefore, the present article reported a case of double intestinal intussusception due to acute enteritis in a young Tibetan spaniel dog and described pathobiology and main causes of this disorder.



Figure 2. A double intussusception in colon



Figure 3. A double intussusception in expanded colon



Figure 4. Resection of the affected part of Intestine and preparing it for reanastomosis



Figure 1. Dog with protruded intestine



**Figure 5.** After performing Jejunocolic anastomosis, the suture site was examined for leakage by injection of physiologic saline into the intestinal lumen

### Clinical Relevance

The term intussusception is a medical condition in which a part of the intestine prolapses or invaginates into the lumen of another part of bowel<sup>4,6</sup>. Intussusceptum is the invaginated segment of the alimentary tract, whereas, the intussuscepiens is the enveloping segment.<sup>7</sup> The pattern follows the normal direction of peristalsis<sup>8</sup> or occasionally in a retrograde direction<sup>9</sup>. Any portion of the alimentary tract may be involved<sup>4,10</sup>, but previous studies have indicated that the majority of intussusceptions in small animal are enterocolic<sup>5</sup>. Other reported forms of intussusceptions in young dogs, include gastroduodenal, duodenojejunal, ileoileal and colocolic.<sup>8,9</sup> Although specific etiological agents have not been implicated in the induction of intussusception<sup>11</sup>, however, it is more likely to develop especially after handling of the small intestine during surgery, hypertrophied lymphoid nodules, and granulomatous secondary to inflammatory and parasitic disease such as ascaridosis, linear foreign bodies such as bones, plastic toys and etc.<sup>7</sup> Clinical signs may vary with the amount of obstruction. Affected bowel may be palpable as a sausage-shaped intra-abdominal mass.<sup>12</sup> Intussusceptions can progress to a point at which the small intestine protrudes from the anus.<sup>13</sup> In the present case surgical management of double intussusception in a Tibetan spaniel dog was described. Most authors indicated that puppies and kittens have a much higher incidence of intussusception than adult animals.<sup>8</sup> Intestinal intussusception in young dogs is usually suspected on the basis of abdominal palpation which appears

like a defined, firm, tubular structure that should be differentiated from feces and foreign bodies.<sup>9,14</sup> The condition is frequently associated with enteric infection or intestinal parasitism.<sup>5,12</sup> In present case, the dog had enteritis may be due to both parvovirus and giardia. The most important clinical signs with ileocolic intussusception are intermittent vomiting, progressive loss of appetite, mucoid bloody diarrhea and a palpable cylinder-shaped mass in the cranial abdomen, depression and anorexia.<sup>15,16</sup> Diarrhea is the common sign in dogs and cats,<sup>8</sup> but abdominal pain is not a consistent finding in affected animals.<sup>4</sup> The differential diagnoses include all other causes of intestinal obstruction; foreign bodies, intestinal volvulus or torsion, intestinal laceration, adhesions, strictures, abscesses, granulomas, hematomas, tumors, or congenital malformations.<sup>17</sup> Ultrasonography and radiographic evaluation of affected site are very helpful in establishing a definitive diagnosis.<sup>18</sup> Accumulation of gas proximal to the intussusception may be observed on plain radiography.<sup>19,20</sup> The surgical management of intestinal intussusception involves either manual reduction, or resection and re-anastomosis, or both.<sup>13,21,22</sup> The decision is based on the surgeons gross evaluation of the viability of the intestinal components of the intussusception.<sup>8</sup> Surgical resection and anastomosis of the intussusception are reported to lessen the incidence of recurrence when compared with manual reduction.<sup>12</sup> Commonly, the displacement of a segment of bowl is defined, whereas, very rarely, two separate parts can prolapsed into the same distal segment, giving rise to double intussusceptions. Double intussusception in dogs is a very rare.<sup>9</sup> Animals suffering from intussusceptions will have episodes of anorexia, depression, vomiting and diarrhea. These patients should be immediately undergoing surgery.<sup>10</sup> Any delay in treatment, make poorer prognosis as we observed in the present case. Although the actual cause of death was remained unknown, it might be due to prolonged duration of disease, delay in treatment of underlying causes, weakness and electrolyte imbalance because of parasitic and viral disease, repeated surgery and inadequate postoperative management.

### Acknowledgments

We appreciate the staff of the clinic of Faculty of Veterinary Medicine of Razi University for their help.

### Conflicts of interest

None.

### References

1. Fossom TW, Dewey CW, Radlinsky MAG, et al. *Textbook of Small Animal Surgery*. 4<sup>th</sup> ed, Elsevier St, Louis Mo USA, 2013;536-537.

2. Kumar V, Ahmad RA and Amarpal. Colopexy as a Treatment for Recurrent Rectal Prolapse in a Dog. *Indian Journal of Canine Practice*, 2012;4(2):138-140. Ghashghaii A. Correction of Recurrent Anorectal Prolapse in a 4 Months Dog by Colopexy Operation, in Proceedings. 6<sup>th</sup> *Iranian Symposium of Veterinary Surgery, Anesthesia and Radiology*, 2006; 43 (In Persian)
3. Hall EJ, German AJ. Disease of the small Intestine. In: Ettinger SJ, eds. *Textbok of Veterinary Internal Medicine*. 7<sup>th</sup> ed. Los Angeles, California: California Animal Hospital Veterinary Specialty Group, 2010;1571-1592.
4. Joy CL and Patterson JM. Short bowel syndrome following surgical correction of a double intussusception in a dog. *Canadian Veterinary Journal*, 1978;19:254-259.
5. Cina M, Rahim F and Davudi M. The Accuracy of Ultrasonography Technique in Detection of the Intussusception. *Journal of Applied Sciences*, 2009;9:3922-3926.
6. Gelberg HB. Alimentary System and the Peritoneum, Omentum, Mesentery, and Peritoneal Cavity. In: McGavin MD and Zachary JF, eds. *Pathologic Basis of Veterinary Disease*. 5<sup>th</sup> ed, Elsevier St, Louis Mo USA, 2012;363-364.
7. Levitt L and Bauer MS. Intussusception in dogs and cats: A review of 36 cases. *Canadian Veterinary Journal*, 1992;33:660-664.
8. Han TS, Kim JH, Cho K, et al. Double intussusceptions in a Shih-tzu puppy. *Journal of Biomedical Research*, 2008;9:55-58.
9. Valiei K and Beheshti R. Double Intussusception in Dog. *Asian Journal of Animal and Veterinary Advances*, 2011;6(9):971-976.
10. Wilson GP and Burt JK. Intussusception in the dog and cat: A review of 45 cases. *Journal of the American Veterinary Medical Association*, 1974;164:515-518.
11. Larsen LH and Bellenger CR. Stomach and Small Intestine. In: Archibald J, eds. *Canine Surgery*. 2nd ed. California: American Veterinary Publications, Santa Barbara, 1974;583-585.
12. Rosin E. Small intestinal surgical disorders. In: Slatter DJ, eds. *Textbook of Small Animal Surgery*. Vol 1. Toronto: W.B. Saunders, 1985;748-749.
13. Patsikas MN, Jakovljevic S, Moustardas N, et al. Ultrasonographic signs of intestinal intussusception associated with acute enteritis or gastroenteritis in 19 young dogs. *Journal of the American Animal Hospital Association*, 2003;39:57-66.
14. Butler HC. Surgery of the small intestine. *Veterinary Clinics of North America: Small Animal Practice*, 1972;2:160-161 .
15. Lewis DD and Ellison GW. Intussusception in dogs and cats. *Compendium on Continuing Education for the Practicing Veterinarian*, 1987;9:523-534.
16. Hayden GE and Sprouse KL. Bowel obstruction and hernia. *Emergency Medicine Clinics of North America*, 2011;29:319-345.
17. Oakes MG, Lewis DD, Hosgood G, et al. Enteroplication for the prevention of intussusception recurrence in dogs: 31 cases (1978- 1992). *Journal of the American Veterinary Medical Association*, 1994;205:72-75 .
18. Kumar V, Aijaz Ahmad R and Pathak R. Ileocolic Intussusception and its Surgical management in a Labrador Pup. *Intas Polivet*, 2012;13(1):108-110.
19. Sivasankar M. Recurrent intussusception in a 14-month old, spayed female German shepherd cross. *Canadian Veterinary Journal*, 2000;41:407-08 .
20. Ellison GW. Nontraumatic Surgical Emergencies of the Abdomen. In: Red B, eds. *Contemporary Issues in Small Animal Practice*. Vol 2. New York: Livingstone, 1986;127-173 .
21. Ellison GW. Intestinal Resection and anastomosis. In: Bojrab MJ, ed. *Current Techniques in Small Animals Surgery*. 5th eds. Philadelphia: Lea and Febiger, 2014;280-303.

تلسکوپي شدن دوگانه روده به سبب آنتریت حاد در یک قلاده سگ اسپانیل تبتی

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**توصیف مورد-** یک سگ ماده ۶ ماهه نژاد اسپانیل تبتی با تاریخچه پرولاپس مکرر راست روده و عدم پاسخ به جازدن و بخیه گذاری به کلینیک دانشکده دامپزشکی دانشگاه رازی (کرمانشاه، ایران) ارجاع داده شد. با توجه به تاریخچه بیمار اقدام به کولوپکسی شد، اما ۳ روز بعد بیمار با پرولاپس مجدد روده به درمانگاه ارجاع شد. یافته‌های بالینی - در ملامسه شکمی، یک توده سوسپسی شکل احساس می‌شد. پارامترهای بالینی در محدوده نرمال قرار داشتند، اما نمونه مدفوع حاکی از حضور ژیا ردیا بود. همچنین تست هماگلوتیناسیون برای پاروویروس مثبت بود.

**درمان و نتیجه-** در سلپوتومی، تلسکوپي شدن دوگانه روده‌ها مشهود بود و قسمت تلسکوپي شده ادماتوز، پر خون و فاقد علائم حیاتی و نیز چسبندگی داده بود. لذا اقدام به برداشت قسمت درگیر و آناستوموز مجدد روده شد. حیوان ۲۴ ساعت بعد تلف شد و صاحب آن اجازه کالبدگشایی را نداد. در نتیجه علت واقعی مرگ نامعلوم باقی ماند. با توجه به آلودگی به پاروویروس و ژیا ردیا و ضعف عمومی حیوان، می‌توان علت مرگ را به اختلالات الکترولیتی، تاخیر در درمان آنتریت، استرس جراحی و عدم مراقبتهای لازم پس از عمل نسبت داد.

**ارتباط بالینی-** احتمال وقوع تلسکوپي شدن روده‌ها در توله سگ‌ها و بچه گربه‌ها بیشتر است. امکان درگیری هر قسمت از دستگاه گوارش وجود دارد، اما مطالعات اخیر بیان می‌کند که اکثر موارد تلسکوپي شدن در دام‌های کوچک از نوع انتروکولیک می‌باشد. در درمان این بیماران بایستی توجه خاص به آنتریت‌های ناشی از عوامل عفونی و انگلی و سایر عوامل زمینه‌ساز این عارضه مبذول داشت.

**کلمات کلیدی:** تلسکوپي شدن دوگانه، سگ، سلپوتومی