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Review Article

First Report of a Persistent Mid-Gastric Intussusception in the Dog

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Abstract

Canine pylorogastric, gastroduodenal, and gastroesophageal intussusceptions have only rarely been reported in the veterinary literature, and were then associated with acute clinical signs that included vomiting, depression, dehydration, and abdominal pain. A mid-gastric intussusception was recently detected in a veterinary student dissection cadaver. Adhesions were well-formed within the intussusception suggesting persistence for some time before the dog was embalmed. The dog was not emaciated or otherwise noted as different before discovery of the intussusception. The present report describes a mid-gastric canine intussusception containing adhesions, something not yet reported in the veterinary literature.

Keywords: Intussusception; Mid-gastric; Gastrogastic; Persistent; Canine

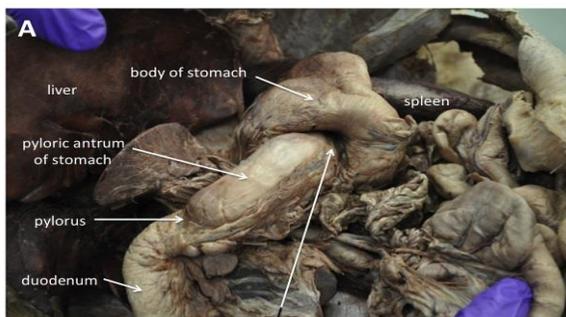
Introduction

Intussusception is generally described as the prolapse of part of the intestine into the lumen of the immediately-adjointing part [1]. Intestinal intussusception in dogs has been associated with excessive or severe vomiting, gut hypermotility, parasitism, masses, and surgical procedures. The diagnosis of canine intussusception is often by ultrasonography, and treatment may vary from manual reduction to intestinal resection and anastomosis [2]. Rarely spontaneous resolution may occur [3]. In both dogs and cats, intussusceptions occur most common-

ly along the jejunum or proximal ileum, or at the ileocecolic junction, and are then most often in the direction of normal peristalsis [4]. Prolapse against the direction of normal peristalsis has been reported including duodenogastric, pylorogastric and gastroesophageal intussusceptions [5-7]. Intussusception involving the stomach is rare [8], and only two examples of canine gastrogastic and fewer than ten examples of canine gastroesophageal intussusceptions have been reported [3,7,9]. This is the first report of a persistent canine mid-stomach gastrogastic intussusception.

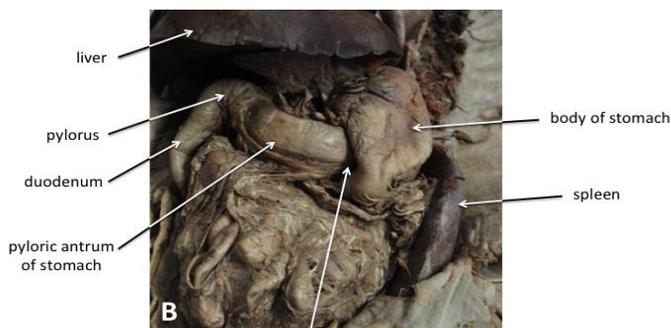
Detection of intussusception

Embalmed, latex-injected (both arteries and veins) canine cadavers are purchased each year (Sargeant's Wholesale Biologicals, Bakersfield, CA, USA) by the College of Veterinary Medicine at the University of Georgia, USA, for the canine anatomy course. A gastrogastic intussusception was detected by students during routine dissection of a cadaver that presented with no other noteworthy observations. The cadaver was a mixed-breed intact female of about 40 pounds live-weight, body condition score of about 3 or ideal weight, and having dentition consistent with an age of about 3 years. The intussusception was mid-gastric (**Fig. 1**), something reported one time previously in dogs (<https://www.atdove.org/articles/Gastrogastic-Intussusception>). The present gastrogastic intussusception differed, however, in that the prolapsed region of stomach was united to surrounding gastric wall by well-formed adhesions along the greater and lesser curvatures (**Fig. 2**), indicating presence of the intussusception for a period of time before embalming. Adhesions along the lesser curvature were at the level of the angular incisure of the stomach, such that the pyloric region of the stomach reached but was external to the intussusception. The diameter of the internal passage through the intussusception was 1.5 cm. Blood vessels coursing through the intussusception along the greater and lesser curvatures of the stomach appeared normal in size, as did the gastric rugae including involving the intussusception.



Mid-gastric intussusception

Figure 1A



Mid-gastric intussusception

Figure 1B

Figure 1. A. Mid-gastric intussusception in a canine dissection cadaver. Ventrolateral view. B. Caudoventral view.



Figure 2A



Figure 2B

Figure 2. A. Area of well-formed adhesion along the intussuscepted lesser curvature of the stomach. B. Well-formed adhesion along the intussuscepted greater curvature of the stomach.

Discussion

Student dissection of their assigned canine cadaver revealed a mid-gastric intussusception in the direction against normal peristalsis (oral), suggesting a possible etiology of severe vomiting. No history was available for the dog, making it impossible to determine if clinical signs associated with the intussusception had made it a candidate for embalming. Gastrogastic intussusceptions have been described as extremely uncommon in humans [8]. Three reports of gastrogastic intussusception in the dog are available, in two of which the pylorus and pyloric antrum were intussuscepted into the gastric fundus, therefore more precisely representing pylorogastric intussusceptions [7,9]. On ultrasound examination, one of these dogs [7] displayed a large echogenic mass that extended into the lumen of the gastric fundus and was not recognized as an intussusception. Exploratory laparotomy revealed that the pylorus and pyloric antrum of the dog were intussuscepted into the gastric fundus. Edematous gastric rugae were noted during surgical reduction and may have contributed to inability to identify gastric wall layers in the mass or stomach wall during ultrasound. Excessive vomiting due to acute renal failure was suggested by the authors as a possible etiology of the intussusception. The

dog was reported as having no abnormal clinical signs in the 20 months following surgery.

The mid-gastric location of the intussusception in the present cadaver was limited to the region of the body of the stomach and appears to be only the 2nd such observation in the canine literature. The one other reported canine gastrogastic intussusception was associated with severe vomiting and surgically resolved (<https://www.atdove.org/articles/Gastrogastic-Intussusception>). The major new observation in the present dog is adhesions along the gastrogastic intussusception, suggesting some persistence of the lesion. While rare, similar pylorogastric intussusception in dogs may be life threatening. The present observation verifies that mid-gastric intussusception occurs in dogs, may persist, and should be considered in ultrasound-based differential diagnoses of a gastric mass or abnormal gastric morphology.

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