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Vomiting & Postsurgical Pain in a Dog

A 2-year-old, 2.5-kg neutered male Yorkshire terrier presented to Ohio State University for vomiting, abdominal discomfort, anorexia, lethargy, and abnormal behavior.

History. The dog had previously undergone gastrotomies and a duodenojejunal resection to remove numerous foreign bodies. During the second surgery, an extrahepatic portocaval shunt was also identified and an ameroid constrictor was placed. Two days later, intestinal dehiscence occurred, causing peritonitis. The intestinal site was resected and reanastomosed with a modified simple continuous pattern using 4-0 polypropylene (Prolene, www.ethicon.com). The dog recovered uneventfully and was released 3 days later.

Physical Exam & Diagnostics. The dog's clinical signs developed 6 months after the second surgery and had been present for 2 days prior to presentation. Physical examination revealed pain in the cranioventral abdomen with palpation of a firm object. The complete blood count and serum biochemical profile were unremarkable. Bile acids were close to normal limits.

continues



ASK YOURSELF ...

- What are your initial thoughts on the cause of the abdominal pain?
- What diagnostics should be performed?
- What are other methods of closure for intestinal resection and anastomosis?
- Which techniques cause the least morbidity?
- What type of suture should be used for intestinal surgery?

Differential Diagnoses: Foreign body, adhesions surrounding the previous anastomosis site, viral enteritis, dietary indiscre- tion, and hepatic encephalopathy

Diagnostics. Initial abdominal radiographs were normal. The next day, the dog began to eat and less pain was observed. Radiographs were repeated and revealed 3 circular granular opacities, 1 to 2 cm in diameter (**Figure 1**), which were believed to be fecal matter in the ascending colon. The dog continued to improve and was released.



Ventrodorsal radiograph of the abdomen. Note 3 circular granular opacities (arrows) identified to the right of midline in the cranial quadrant.

Three days later, the dog returned for vomiting, anorexia, and depression. Cranial abdominal pain was elicited and radiographs revealed granular opacities. A gastrointestinal barium contrast study revealed a partial obstruction in the region of the opacities (**Figure 2**). The cause of the obstruction was suspected to be a foreign body, a stricture from the previous anastomosis, or an intussusception.

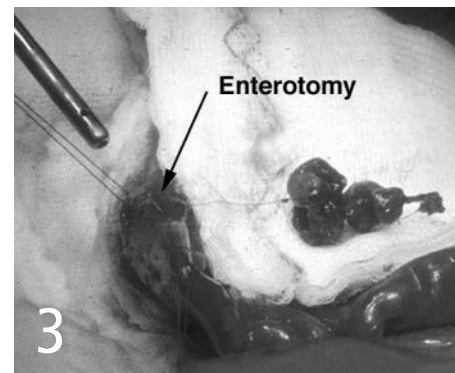
Treatment. Exploratory celiotomy was performed and 2-cm round foreign bodies with slight plication were palpated just distal to the previous anastomosis site. Enterotomy revealed firm, solid fecal balls in the lumen surrounding a blue monofilament suture (**Figure 3**). The polypropylene suture from the previous resection and anastomosis was anchored in the



Ventrodorsal radiograph of the abdomen during a barium contrast study revealed a partial obstruction in the descending duodenum/proximal jejunum in the region of these opacities (arrows).

mesenteric side of the anastomosis,¹ and the remainder of the continuous line was free in the lumen of the small intestines. Fecaliths had formed around the suture, causing a functional partial linear obstruction. The suture and fecaliths were removed, and the enterotomy closed with 4-0 polypropylene in a modified simple continuous pattern.

The dog was released the following day and returned for suture removal 2 weeks later, when



Intraoperative image obtained during surgery showing the fecaliths surrounding the suture line tethered at the mesenteric side of the original continuous suture line.

he was doing very well. He was lost to further follow-up. ■

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See Aids & Resources, back page, for references, contacts, and appendices.

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DID YOU ANSWER ...

- Intussusception, foreign body, adhesions surrounding the previous anastomosis site, viral enteritis, dietary indiscretion, and hepatic encephalopathy are differentials.
- Survey abdominal radiographs and initial fasting are appropriate. If there are no clinical signs, a food trial should be performed. If clinical signs return, consider repeated radiographs, abdominal ultrasonography, or a barium series. Caution: A barium study in a vomiting animal carries risk for aspiration pneumonia. There is also concern in an animal with a potential intestinal perforation; if a perforation is noted, the abdomen is lavaged with copious fluids to dilute the barium.
- Simple appositional interrupted suture is most common. Others include use of skin staples or simple appositional, everting, inverting, or crushing techniques.
- The single-layer, approximating technique produces less luminal narrowing than double-layer closure.¹⁻³ Modified simple continuous pattern minimizes mucosal eversion, provides better serosal apposition and primary intestinal healing, and also induces less adhesion formation than the simple interrupted approximating techniques.^{1,2} The modified simple continuous and simple interrupted technique are both currently considered acceptable.^{4,5}
- I recommend using monofilament absorbable suture for the modified simple continuous pattern. Monofilament suture travels through tissue with less chatter or resistance than multifilament, and the absorbable nature is recommended because it dissolves before creating such problems as occurred in our patient. Multifilament suture can also lead to wicking of intestinal contents. Gut should be avoided at all times.