Incision Length & Suture Number for Prophylactic Gastropexy

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In the Literature

Webb RJ, Monnet E. Influence of length of incision and number of suture lines on the biomechanical properties of incisional gastropexy. *Vet Surg.* 2019;48(6):933-937.

FROM THE PAGE ...

Gastric dilatation-volvulus (GDV) is a rapidly progressing, life-threatening condition that affects large-breed, deep-chested dogs. Even with surgical treatment and aggressive care, mortality in GDV cases ranges from 16% to 24%.[1] Elective prophylactic gastropexy can be performed in susceptible dogs to prevent volvulus of the stomach. Gastropexy can be performed laparoscopically, via laparoscopically assisted methods, or via traditional laparotomy. The risk for GDV after prophylactic gastropexy performed using appropriate surgical technique is low, and there are no long-term risks.[2] Among the many different methods for gastropexy, incisional gastropexy is commonly used and involves making an incision in the pyloric antrum and a right-sided incision in the transverse abdominis muscle caudal to the last rib. The typical length of the incision is 3 to 5 cm, but the optimum length and number of suture strands has not been determined.

In this study, the stomach and abdominal wall of 36 crossbreed hound dogs euthanized for reasons unrelated to the study were harvested, and gastropexy was performed by a single surgeon. The samples were divided into 4 groups: 2-cm incision using 2 sutures, 2-cm incision using 1 suture, 4-cm incision using 2 sutures, and 4-cm incision using 1 suture. All incisions were closed using 2-0 polyglyconate suture on a tapered-point needle. Mechanical testing was performed to assess the load to failure of each gastropexy construct.

Results showed that the load to failure was affected by the length of the incision but not the number of sutures used. Although the 4-cm incision was stronger than the 2-cm incision, the difference was negligible. Clinically, the strength required for safe gastropexy is unknown, so all constructs may be strong enough in a live animal.

... TO YOUR PATIENTS

Key pearls to put into practice:

1. Owners should be educated about the need for prophylactic gastropexy in large-breed, deep-chested dogs, as the risk for GDV after gastropexy is low. Prophylactic gastropexy should particularly be considered when spaying dogs or performing abdominal surgery in any at-risk dog.
2. Using either a 1- or 2-suture line when closing the incision in the pyloric antrum and a right-sided incision in the transverse abdominis muscle should be sufficient for prophylactic gastropexy.
3. Mechanically, 1- and 2-suture lines were found to be of similar strength; however, if only 1 suture is used and it fails, the entire gastropexy could unravel. Thus, a second suture line can act as potential reinforcement.

References

1. Rawlings CA. Incisional gastropexy to prevent and treat canine gastric dilatation-volvulus. *Comp Cont Educ Pract.* 2013;35(4):E1-E5.
2. Benitez ME, Schmiedt CW, Radlinsky MG, Cornell KK. Efficacy of incisional gastropexy for prevention of GDV in dogs. *J Am Anim Hosp Assoc.* 2013;49(3):185-189.