CAN THE SURGICAL CORRECTION OF GASTRIC DILATATION VOLVULUS (GDV) IN THE DOG BECOME A MINIMALLY INVASIVE PROCEDURE?

A definite YES!!

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In 1973 a young Australian veterinarian working with his mentor at the University of Pennsylvania wrote a paper in the Journal of Small Animal Practice describing the early treatment of Gastric Dilatation Torsion (GDT) by gastric decompression with a right flank gastrostomy performed under local analgesia. At the time GDV was called GDT. In the introduction of the paper Michael A. Pass DVM and Dudley E. Johnson DVM DACVS stated that complete decompression of the stomach was not possible by the standard gastric decompression techniques (passing an orogastric stomach tube or needle flank trocarization) commonly used at the time and subsequently becoming the initial decompression standard of care. They pointed out that complete decompression and evacuation of the stomach through a gastrostomy incision performed with local analgesia and without general anesthesia permitted needed time for cardiovascular stabilization of the patient prior to re–positional major surgical correction.

The paper was a monumental contribution to the treatment of this disease but for various reasons did not become a well accepted approach by our professional community. I would suggest that a misunderstanding at the time of the antral movement of the stomach and a fear of vessel compromise leading to additional gastric ischemia during the period of temporary gastrostomy decompression was a major reason for this lack of acceptance. Additionally the approaches to anesthesia and subsequent critical care that developed for these compromised patients showed great advancements. These improvements lead to improved surgical survival rates with immediate surgery for animal with GDV. Unknowingly these two

veterinarians set the stage for bringing this disease to the brink of a minimally invasive correction.

At the time I was involved in my surgical training program and I adopted this described surgical technique as my primary method of gastric decompression for GDV (no patient stress with attempted orogastric decompression or possible abdominal contamination with flank needle trocarization was attempted). Since permanent antral gastropexy procedures (tube gastrostomy) were performed on the right side of the abdominal cavity, I began performing the decompressing temporary gastrostomy (with modification) on the left side. I modified the procedure described (grid muscle separation) since I wanted to be able to get my hand into the stomach through the gastrostomy incision so all gastric contents could be removed. This larger gastrostomy would also allow visualization of the gastric mucosa as reperfusion occurred. It was noticed early that the reperfusion that occurred caused significant gastric mucosal edema and noticeable submucosal hemorrhage from the gastrostomy incision. A seromuscular to mucosal–submucosal simple continuous stitch brought this gastric submucosal hemorrhage problem under control. Since the gastrostomy incision was open, the ventral abdominal skin was irritated by the gastric acid draining from the stomach during the resuscitative period. Petroleum jelly was employed to minimize this problem.

All attention now was directed at cardiovascular stability and patient stabilization. The open temporary gastrostomy did not allow re–dilatation. Anesthesia and major surgery was not contemplated until patient cardiovascular stabilization was complete. This took 12–24 hours in most cases. Occasionally the open temporary gastrostomy was maintained for 48 hours before surgical closure of the gastrostomy and abdominal exploratory were performed. The important point was that the patient had to be in a stable cardiovascular state so the stress of 2–3 hours of anesthesia and surgery would not be significantly detrimental as surgical exploration and correction was performed.

Anesthesia was induced and the temporary gastrotomy was closed. The portion of the stomach that had been exposed during the period of cardiovascular stabilization was amputated and the stomach was closed in a standard fashion. The abdominal flank incision was closed appropriately. The patient was positioned into dorsal recumbancy and surgically explored. The most interesting observation that was made during these early exploratory surgeries was that the antrum, pylorus and the duodenum were

back in the upper right quadrant and in a relatively normal position. The closed gastrostomy incision was most often located on the dorsal surface of the greater curvature and obviously had no effect on the stomach's ability following complete content decompression to "de–rotate". Surgery at this point evaluated the stomach for areas of pressure ischemic necrosis and the spleen for splenic vein thrombosis (or torsion–rare).

Surgical conclusions were immediately evident. The temporary gastrostomy surgical stabilization to the left flank had no effect on preventing gastric repositioning and reperfusion. The delay in definitive operation allowed gastric reperfusion to better demarcate areas that might need resection from the pressure ischemia that had occurred during the dilatation. The decision for resection, if needed, was much easier (questionable areas reperfused and were normal or areas needing removal were very evident). The period of stabilization left our patient in a much better position to handle major surgery if required. The spleen evaluation was easy as torsion was evident or more importantly splenic vein evaluation (thrombosis) was complete and decisive.

This approach was successful in all types of patients and gave a much better chance with those that were very severely compromised. Some animals were presented with terminal disease and nothing was going to reverse the issue. Others were severely compromised and the correct resuscitative approach allowed a much better chance of survival. Still others were not severely compromised and immediate exploratory could be successful as would delayed surgery. Temporary gastrostomy decompression with cardiovascular stabilization prior to definite surgical correction provided the absolute best approach for maximum patient survival and success in all clinical presentations.

With the development of laproscopy, endoscopy and the great interest in minimally invasive surgery in this profession that has mirrored the human approach to surgical disease, I believe we have the opportunity to bring one of the most devastating surgical conditions most of us have experienced in our small animal surgical carriers to a minimally invasive correction. This is now possible in many, if not the majority of our GDV surgical patients. Great strides have been made in surgical survival. We can thank our anesthesia and critical care associates for much of this improvement. I now believe the surgeons can make the final great contribution in pushing this disease to a minimally invasive repair with maximal survival rates.

Following anesthesia and temporary gastrostomy release, we can approach these patients with laproscopy (evaluate that stomach and spleen). If compromised tissues are observed, exploratory is needed. If the abdominal cavity appears minimally affected and the stomach and spleen are normal, you can laproscopically or endoscopically perform a gastropexy. The patient can now be recovered without experiencing the major anesthesia and surgical procedure now utilized in our surgical patient.

This approach is now possible. We need to explore the opportunities available to define the guidelines needed for a minimally invasive correction. I challenge the endoscopists and laparoscopists to push the surgeons in this direction. We can make this disease a minimally invasive correction. I am convinced that this is the right approach and will provide the last great push to maximum survival with minimal morbidity.