

DCVR Case Study:



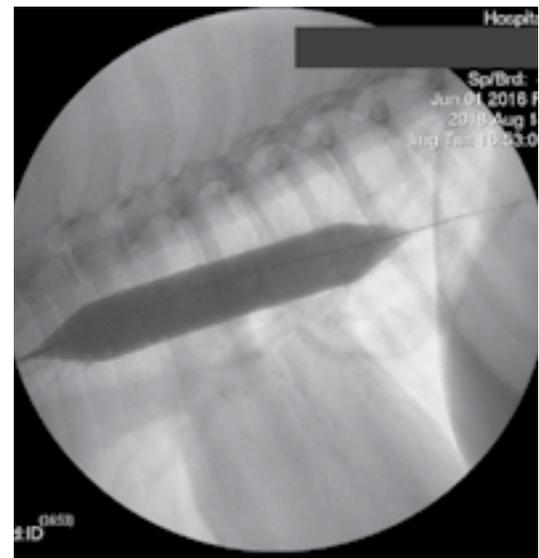
One of the First Cases of Placing an Indwelling B-Tube in the DC- MD-VA Area.

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A 2-year-old female spayed mixed breed dog was referred to the Dogs and Cats Veterinary Referral Internal Medicine service for evaluation of regurgitation and hyporexia due to an esophageal stricture. The patient was referred by the DCVR Oncology service, who was treating her for a transmissible venereal tumor concurrently. The dog had undergone surgery for the vulvar TVT removal, uterine stump removal, and ovarian remnant removal approximately 2 months prior to presentation. At the time of surgery, she had regurgitation upon extubation, and was managed with esophageal suction, bicarbonate lavage, anti-emetics, and prokinetics. Despite the hospital's best efforts, the patient developed regurgitation and vomiting within 10 days of surgery, and was ultimately diagnosed with an esophageal stricture. She underwent two balloon dilations over 4 weeks. Her symptoms of regurgitation, hypersalivation, and hyporexia returned within 7 days of each procedure.



Upon presentation to the DCVR Internal Medicine service, she was on sucralfate, ranitidine, cisapride, prednisone, cerenia, ondansetron, omeprazole, metronidazole, gabapentin, folic acid, and mirtazapine. Her owners were following a strict feeding protocol that included spoon feeding her an ID slurry and holding her upright for 10-15 minutes after her feedings. She was being fed every 3 to 4 hours, approximately 7 times per day. Her physical exam was unremarkable. After discussing repeated balloon dilation versus placement of indwelling balloon esophagostomy tube (B-tube), the owners elected to have a B-tube placed. This would allow for frequent balloon dilation of the esophagus, without the need for hospitalization and repeated anesthetic events.



The patient was placed under general anesthesia and her stricture was measured and then dilated with endoscopic and fluoroscopic guidance. The B-tube was then placed through a skin and esophageal incision at the left side of the neck and then passed down the esophagus, similar to a traditional esophagostomy tube. Post-procedure radiographs were taken to confirm placement.

The patient was hospitalized overnight to evaluate how she tolerated balloon inflation and meals. Repeat radiographs were taken again the next morning to evaluate for tube migration, and to make adjustments to placement as needed. The patient was discharged with instructions to inflate the balloon twice per day for the next 6 weeks.



Initially, the patient experienced some swallowing, gagging, and hypersalivation associated with balloon inflation. However, these symptoms gradually improved and resolved within the first 2 weeks. At the 6 week recheck, she had another endoscopy performed, which confirmed the stricture had resolved. The B-tube was removed. The patient has not had any regurgitation and is tolerating increased size and decreased frequency of meals, although she is still being held upright for feedings.

At the time of writing this report, her medications had been de-escalated to include only prednisone, omeprazole, metoclopramide, sucralfate, and folic acid, with plans to continue de-escalation on a bi-weekly basis.

Benign esophageal strictures occur secondary to esophageal trauma, and are a rare complication associated with anesthesia. The B-tube is a novel approach to esophageal stricture, having only been introduced as a treatment option in the past year. While esophageal strictures are not common, they are a significant cause of morbidity and mortality. Esophageal strictures are notoriously frustrating to treat due to the risk of recurrence, and there is currently no way to predict which patients will have repeat strictures. Both balloon dilation and bougienage have been used to treat esophageal strictures historically, with similar success and complication rates. On average, patients require 2 to 3 treatments to resolve strictures. An indwelling B-tube allows repeated balloon dilation without necessitating repeated anesthetic events or the associated cost. The frequency of dilation permitted by having a B-tube prevents fibrosis and reformation of stricture. The B-tube must be placed under general anesthesia with endoscopic and fluoroscopic guidance. Ideally patients should undergo endoscopy to evaluate stricture site prior to removal, although the second anesthesia is not strictly necessary. Complications associated with the B-tube include migration of the tube, damage to the tube, regurgitation, or vomiting, but it is reportedly generally well tolerated. As with balloon dilation or bougienage, there is a risk of esophageal tear during the initial placement and dilation procedure.

This patient is one of the first cases of placing an indwelling B-tube in the DC-MD-VA area. Thanks to the collaborative approach and the work of the DCVR internal medicine, surgery, and oncology service, this patient underwent a newly proposed protocol, with a successful outcome.