

Utilization of a Next Generation Decellularized Dermal Allograft for Soft Tissue Reinforcement of the Anastomosis in a Complex Esophagojejunostomy

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Surgical Summary

Clinical Presentation:

- Referral of a 42-year-old female with a history of failure to thrive, gastric sleeve revision to gastric bypass, gastric outlet obstruction, marginal ulcer of gastrojejunostomy anastomosis, and dysphagia.
- Upper gastrointestinal series (UGI) with gastrografin revealed:
 - Gastric remnant with slightly unusual shape; tubular, slightly wider appearing proximally and distally; 5 cm in length, on average 1.5 cm in diameter
 - Relatively narrow appearance of gastrojejunal anastomosis, measuring approximately 5 mm
- Decision made to proceed with an exploratory laparotomy.

Intraoperative Findings:

- Extensive adhesions in the abdominal cavity, left lateral segment of the liver and surrounding retroperitoneum; J-tube going into the afferent limb only, with excoriation to the skin around the J-tube site; short segment of the proximal stomach, measuring less than 5 cm; a near complete Roux-en-Y gastrojejunostomy anastomosis, with a very tight stricture with marginal ulceration and an esophagogastric duodenojejunostomy anastomosis.

Surgical Procedure:

- A midline incision was created using a #10 scalpel blade. Bovie® electrocautery was used to dissect subcutaneous tissue including the linea alba until the peritoneal cavity was entered. Exploration of the abdomen was undertaken.
- Adhesiolysis of extensive adhesions in the abdominal cavity. Identified prior open J-tube placement going into the afferent limb, creating excoriation to the skin around the J-tube site. Removed the J-tube and inserted a new one in the efferent limb. Debrided the excoriated skin around the previous J-tube site.
- Identified Roux-en-Y limbs of a prior gastrojejunostomy anastomosis. Adhesions on the left lateral segment of the liver and surrounding the retroperitoneum. Adhesiolysis was performed. The gastrojejunostomy anastomosis was isolated. Identified a short segment of the proximal stomach, measuring less than 5 cm.
- Proceeded to mobilize the distal esophagus and took down the omentum surrounding the proximal jejunum and proximal stomach. A SPY-PHI vascular assessment was performed to ensure good vascularity of the esophagus to

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Figure 1. Placement of DermaPure® for soft tissue.



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be transected. The Echelon Flex® 60 mm blue load stapler was utilized to transect part of the esophagus, followed by transection of the Roux-en-Y limb distal to the gastrojejunostomy anastomosis. Took down the mesentery with an Echelon Flex® Vascular Stapler.

- The field was irrigated and suctioned dry. An esophagogastroduodenoscopy (EGD) was performed with no other pathology noted in the esophagus. Proceeded to place an EEA® OrVil® 25 mm stapler orally, brought out through a stab incision for the esophageal stump. Opened the Roux-en-Y limb and inserted the EEA® OrVil® 25mm stapler to perform an end-to-side esophagojejunal anastomosis. Two complete anastomotic donuts were identified and sent to pathology. Closed the open jejunal stump with an Echelon Flex® 60 mm blue load stapler, irrigated, and suctioned the area dry.
- A repeat esophagogastroduodenoscopy (EGD) was undertaken, revealing a circular open anastomosis. An air leak test was performed which was normal.
- Proceeded to reinforce the esophagojejunal anastomosis circumferentially with 2-0 silk in a seromuscular fashion. Placed a 7 cm x 10 cm DermaPure® Meshed allograft (decellularized dermal allograft) over the esophagojejunal anastomosis for soft tissue reinforcement (Figure 1). Sprayed the area with VistaSeal® fibrin sealant. A 19 Fr Blake® drain was brought out from the right flank and secured to the skin with 2-0 nylon. Seprafilm® was placed in the abdominal wall and closed the fascia with looped 1-0 PDS®. Approximated the deep dermal tissue with 3-0 Vicryl®. Skin was approximated with staples. Prevena® Therapy applied to the incision.

Post-Operative Notes:

- Post op upper gastrointestinal series (UGI) with gastrografen revealed no evidence of leak or obstruction.
- Post op supine abdominal radiograph with 30 mL gastrografen injected into the jejunostomy tube revealed:
 - Jejunal tube present without evidence of contrast extravasation
 - Multiple air-filled loops of small bowel and colon

Surgeon Perspective:

"Esophageal cancers are ranked as one of the most devastating forms of cancers, partly due to the increased morbidity associated with its surgical treatment¹. Esophageal cancer patients are typically immunocompromised, immunosuppressed, and malnourished. This trifecta of conditions can exaggerate the already increased complication rates seen in esophagectomy patients. My utilization of DermaPure® biologic matrix as a soft tissue reinforcement for the esophagogastric anastomosis was to ameliorate some of the increased leak rates observed with this specific type of anastomosis."

1.Xu QL, Li H, Zhu YJ, Xu G. The treatments and postoperative complications of esophageal cancer: a review. J Cardiothorac Surg. 2020 Jul 6;15(1):163. doi: 10.1186/s13019-020-01202-2. PMID: 32631428; PMCID: PMC7336460.

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