**Characterization and Anatomy of Omental Flap and Gastroepiploic Vascularized Lymph Nodes**

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**INTRODUCTION:** Lymphedema is a chronic and potentially incapacitating condition that can be caused by oncologic axillary and groin lymph node dissection. Vascularized lymph node transfer based on the omental flap has been proposed as a potential solution to lymphedema. However, literature characterizing the gastroepiploic-based omental flap and corresponding lymph nodes does not currently exist. The purpose of this study is to describe lymph node anatomy along the gastroepiploic vasculature using computed tomographic angiography (CTA).

**METHODS AND MATERIALS**: A retrospective review of 110 consecutive CTA studies was performed. Measurements of gastroepiploic pedicle length, gastroepiploic vessel caliber, three dimensional lymph node distance from gastroepiploic origin, and lymph node size were analyzed. T-test analyses were used to compare means; significance was set at $p < 0.05$. A Gaussian mixture model was used to determine lymph node spatial relationships; normalized entropy criterion (NEC) < 1 confirmed clusters.

**RESULTS**: Gastroepiploic artery and vein caliber at the origin was significantly larger in males than females ($p < 0.001$).Both males and females had an average of three lymph nodes along the gastroepiploic vasculature. Average nodal dimensions were 3.08 x 4.48 mm for females which significantly differed from male dimensions of 3.64 x 5.05 mm ($p = 0.02$ and 0.04, respectively). The gastroepiploic artery and vein were found to have six course variations from the pedicle origin. Each course variation contained 2-3 clusters of lymph nodes at distinct locations along the gastroepiploic vasculature.

**CONCLUSION**: Understanding the anatomy and caliber of the omental flap can help preoperative planning of vascularized lymph node transfer. Vascularized lymph nodes along the gastroepiploic vasculature are located at distinct divisions for each of the six vessel courses.