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Lymphatic Mapping Helps Define Resection Margins for Midgut Carcinoids

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Introduction: The extensive mesenteric lymphadenopathy associated with midgut carcinoids often causes lymphatic obstruction and leads to the development of alternative lymphatic drainage pathways. We hypothesized that altered lymphatic drainage makes traditional determination of resection margins inadequate.

Methods: 170 patients underwent cytoreductive surgery for neuroendocrine tumors from November 2006 to August 2008. Forty nine (49) patients underwent intraoperative lymphatic mapping with lymphazurin dye as a single agent. Twenty seven (27) patients had midgut primaries. We reviewed operative findings and pathology to evaluate the safety and efficacy of lymphatic mapping for midgut carcinoids. Lymphatic mapping defined resection margins were compared to traditional surgical margins.

Results: There were no adverse events associated with the 49 lymphatic mapping procedures. Twenty five (25/27, 92%) patients had ileal and two had jejunal primaries. Lymphatic mapping changed traditional resection margins in 88% of patients. We preserved the ileo-cecal valve in 6/15 (40%) of patients with terminal ileal primaries.

Conclusion: Lymphatic mapping appears to be safe, time-efficient and effective way to determine adequate resection margins for midgut carcinoids. We advocate using lymphatic mapping for patients with midgut carcinoids to identify adequate resection margins and assist in preservation of the ileo-cecal valve in patients with terminal ileal primary carcinoids.