

**Patterns of Hepatic Metastases in Midgut Carcinoid: Diffuse Micrometastases and Disease Recurrence**

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**Objective:** The purpose of this study was to determine the patterns of hepatic metastases at presentation and recurrence of midgut carcinoid, as well as perform a fine pathological examination for micrometastatic disease within hepatic surgical specimens.

**Background:** Hepatic metastases of midgut carcinoid are a common finding at presentation and progression. Debulking surgery is effective at controlling symptoms and improving survival, but recurrence is common for advanced disease.

**Methods:** We studied patients with midgut carcinoid at a speciality neuroendocrine clinic and determined the rates and pattern of hepatic metastases. Some patients underwent 68Ga-DOTATATE PET/CT imaging for restaging. A fine pathological analysis of hepatic surgical specimens was performed to determine the presence of micrometastases < 1mm away from the site of gross disease.

**Results:** Of 92 patients with midgut carcinoid in our neuroendocrine clinic, 51% presented with hepatic metastases, 86% with bilobar involvement. On 68Ga-DOTATATE PET/CT imaging, five of nine patients that did not have evidence of disease on conventional imaging were found to have new disease away from the surgical site. A pathological examination of hepatic surgical specimens showed that 16 of 31 (52%) specimens had micrometastases <1 mm.

**Conclusions:** The high rate of recurrence of metastatic midgut carcinoid in the liver is likely secondary to micrometastatic disease and a more focused tumor resection strategy may be more effective than a traditional anatomic approach.