

# Celiac Plexus Block in Pancreatic Neuroendocrine Tumors

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Pancreatic neuroendocrine tumors (pNETs), an uncommon finding, are distinct from pancreatic carcinomas. When pNETs are unresectable and progressive, visceral pain often presents and is challenging to treat. Opioids commonly used for pain control are difficult to implement in this setting because of adverse side effects such as constipation. Neurolytic celiac plexus blocks are indicated in the treatment of visceral pain related to upper abdominal malignancies when opioid analgesia does not provide adequate relief or is contraindicated because of side effects. As a result, this article presents a brief review of pNETs, celiac plexus blocks, associated side effects, and contraindications along with related literature in the context of a case study.

I.S., a 39-year-old African American woman with metastatic pancreatic neuroendocrine carcinoma, presented to the emergency department in January 2009 with abdominal pain, nausea, vomiting, and diarrhea. A computed tomography scan of the abdomen revealed a mass at the pancreatic tail and multiple hepatic lesions. In February 2009, a fine needle aspiration of the pancreatic mass revealed a neuroendocrine neoplasm. As per National Comprehensive Cancer Network ([NCCN], 2010) guidelines, an octreoscan was performed. The results showed an octreotide-avid tumor within the pancreatic tail, with multiple hepatic lesions and possible involvement in the right inguinal lymph node. Many neuroendocrine tumors have receptors with a high affinity for somatostatin. An octreoscan uses a radiolabeled somatostatin analog, octreotide, to detect tumors that are most likely to respond to somatostatin therapy (NCCN, 2010). A liver biopsy confirmed metastatic disease. Further testing showed an elevated chromogranin A, which aids in the diagnosis of a functioning neuroendocrine tumor. I.S.'s past medical history included bipolar disorder. Her family history is noncontributory.

In March 2009, I.S. began treatment including monthly octreotide injections of 30 mg. She had been taking 4 mg dilauid for pain as needed, with minimal

symptom relief. She was converted to 20 mg oxycodone extended release with 5 mg oxycodone immediate release for breakthrough pain. In April 2009, her pain was not relieved and the oxycodone extended release was titrated to 40 mg, contributing to a significant improvement in her pain control. In October 2009, I.S. was found to have progressive disease with worsening pain. The octreotide dose was increased to 40 mg, and she was placed on oxycodone extended release 80 mg twice daily with oxycodone immediate release 5 mg every four hours as needed for abdominal pain.

I.S. again presented with increased abdominal pain in January 2010. Repeat imaging was consistent with progressive disease, and her oxycodone extended-release dosage was increased to 160 mg twice daily. Because of her worsening abdominal pain secondary to a pancreatic neuroendocrine tumor (pNET), I.S. was evaluated for a neurolytic celiac plexus block (NCPB) for pain control.

## Pancreatic Tumors

Malignant pNETs are an uncommon finding that comprise only 1% of all malignancies diagnosed in the United States, with an incidence of 2–3 in 100,000 people per year (Grande & Haller, 2009). The tumors vary widely clinically and biologically. This heterogeneity is demonstrated in prognosis, treatment, histology (poor-to-well differentiated), and stage (I–IV) (Chadha et al., 2009). Although pNETs generally are sensitive to chemotherapy, some well-differentiated tumors produce only a 30% response rate with systemic therapy (Chadha et al., 2009). About 46%–93% of patients with pNETs develop hepatic metastasis, which often involves a large part of the liver before becoming symptomatic (Hung, Chang, Lee, & Tien, 2007).

When possible, surgical resection of the primary and metastatic lesions is preferred (Chadha et al., 2009). The first-line management of locoregional unresectable and metastatic disease is octreotide, a somatostatin analog (NCCN, 2010). Somatostatin

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