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Iatrogenic Cushing's from Celiac Plexus Blocks for Chronic Pancreatitis: A Case Report and Literary Review

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Learning Objectives

- The strategy of CPB and CPN is direct intervention at the level of the celiac plexus, inhibiting any downstream transmission of pain signaling in the upper abdomen.
- Celiac interventions are performed based on anatomical landmarks, but now modern practices include percutaneous, endoscopic, surgical or CT guided interventions.
- Through the use of a multi-modal approach incorporating CPB, opiate dependence decreases and overall mortality and baseline functioning improves.
- EUS-guided CPB is an effective, minimally invasive modality in treating pain from abdominal malignancy and/or pancreatitis, however future studies are warranted to evaluate the agents used for chemical destruction, to avoid complications such as Iatrogenic Cushing's disease.

ABSTRACT

Celiac plexus blocks (CPB) and celiac plexus neurolysis (CPN) have been implemented to decrease opiate dependency and treat chronic pancreatitis and/or pain resulting from pancreatic malignancy. There are various approaches to facilitate CBP/CPN including percutaneous, surgical and endoscopic, guided as computerized tomography (CT), fluoroscopy, ultrasound (US), or endoscopic ultrasound (EUS) techniques. EUS is the latest development in CPB/CPN and the least commonly utilized method, however recent studies have shown high efficacy and minimal complications or risks. Despite various complications associated with different techniques, no case report or current literature has documented the development of Iatrogenic Cushing's disease from use of steroids during CPB via any approach. Herein we report the first case of Iatrogenic Cushing's disease from CPB in the treatment of chronic pancreatitis.
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INTRODUCTION

CPB was first described in 1914 by a surgical anesthesiologist who wanted to chemically destroy the nerve fibers transmitting somatic and visceral pain in the abdomen. By 1957, CPB was used as an adjunctive measure to treat pain in cancer patients. CPN is the chemical destruction of neural ganglion, which is better indicated for those with cancer pain. 50-70% of patients with pancreatic cancer have chronic pain unresponsive to opiates, and thus CPN is an effective method with a small side effect profile and confers little risk to the patient. In comparison to CPN, CPB chemically inhibits the ganglion temporarily impairing neuronal transmission. This method is more appropriate for those with chronic pain from pancreatitis who have failed other pain management approaches. Many studies have shown adequate pain control with CPB in chronic pancreatitis, however more randomized controlled trials are warranted to compare techniques and overall outcomes.

CASE PRESENTATION

A 27 YO F presented to the ED with severe epigastric pain associated with nausea. She was diagnosed with chronic pancreatitis a year and a half prior. At that time, she underwent an EUS showing severe chronic pancreatitis with biopsies positive for benign pancreatic tissue, fibrotic stromal tissue and scattered eosinophilic infiltrates. Due to recurring pain a subsequent nerve block was repeated. She was prescribed hydromorphone 4 mg q3h as needed, methadone 30 mg BID and Pancrealipase, however a celiac plexus block was repeated due to refractory pain. Upon follow up, she endorsed a 10 lb weight gain, fatigue, acne, facial hair and fullness, dark abdominal striae and insomnia. She was suspected to have iatrogenic cushingoid features due to multiple celiac nerve blocks. A morning cortisol level was 0.3 ug/dL but a salivary cortisol level with within normal limits (<0.010 ug/dL). She was referred to Endocrinology, who recommended withholding steroids for 3 to 6 months. Repeat testing with ACTH and DEXA suppression confirmed adrenal insufficiency. Five months later, the patient's pain returned and her methadone was increased. Repeat EGD/EUS showed pancreatic parenchymal abnormalities consisting of hyperechoic strands, hyperechoic foci and lobularity throughout the entire pancreas. Due to refractory pain, she was referred for a pancreatic transplant program.

Figure 1. Initial EUS of pancreas demonstrating moderate to severe chronic pancreatitis

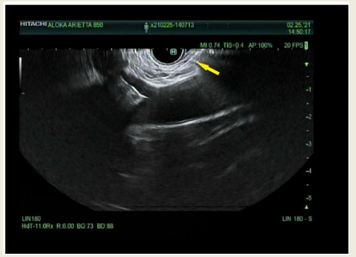

Figure 2. Arrow indicates 22 gauge needle inserted into the celiac ganglia.

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DISCUSSION

One of the first studies on EUS-guided CPB in pancreatitis was in 1996 however remains underutilized. Today, CT-guided CPB is the preferred method due to its cross-sectional nature, although there is not a gold standard technique or modality worldwide. CPB can be performed intraoperatively during abdominal surgeries as well. Recent studies have demonstrated that EUS-guided CPB carries lower complication rates than percutaneous approaches due to the use of doppler and anterior approach, although no studies have shown significant differences in terms of pain relief or overall outcomes compared to percutaneous approaches. Typically, anesthetics such as bupivacaine and epinephrine mixtures are used in CPB. Often steroids are added to this mixture when treating chronic pancreatitis. Ethanol or phenol is used for CPN, at concentrations greater than 50%. Contraindications to CPB or CPN include coagulopathies, bowel obstruction, abdominal infections and history of abdominal aneurysms. Serious complications occur in les than 2% of patients. Although many patients may experience transient back pain following procedure, other common adverse effects can include diarrhea or orthostatic hypotension in up to 40% of patients. Paresthesia's are the most severe but very rare adverse effect, accounting for less than 1% of all complications. To date, no case reports have documented adverse effects from steroid injections during CPB.

CONCLUSIONS

Our patient with chronic pancreatitis was treated with EUS-guided CPB with the use of steroid-containing solutions. Although her pain was relieved with CPB, she developed Iatrogenic Cushing's disease. To our knowledge this has not been previously reported in current literature. Due to this complication, the patient warrants referral to a pancreatic transplant center. EUS-guided CPB is an effective, minimally invasive modality in treating pain from abdominal malignancy and/or pancreatitis, however future studies are warranted to evaluate the agents used for chemical destruction, to avoid complications such as Iatrogenic Cushing's disease.