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CASE REPORT | PANCREAS

Endoscopic Ultrasound–Guided Chemoablation of an Acinar Cell Carcinoma as a Suppressive Strategy for Unresectable Disease

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ABSTRACT

Acinar cell carcinoma is a relatively rare pancreatic neoplasm, typically treated with surgical resection and adjuvant chemotherapy; however, definitive treatment protocols are not well established. We describe endoscopic ultrasound–guided chemoablation with fine needle injection of paclitaxel/gemcitabine in conjunction with chemotherapy in a 78-year-old man with a 3.0 × 2.7-cm acinar cell carcinoma who was not a surgical candidate. At 12 months, the mass had reduced in size to 0.9 × 0.9 cm, followed by steady growth to 6 × 4.5 cm at 24 months when the patient died secondary to unrelated causes.

KEYWORDS: endoscopic ultrasound; chemoablation; acinar cell carcinoma; pancreatic cancer

INTRODUCTION

Pancreatic acinar cell carcinoma comprises approximately 1%–2% of all pancreatic cancers and is associated with a more favorable prognosis when compared with patients with pancreatic adenocarcinoma.[1] Surgical resection is the preferred treatment for non-metastatic lesions in surgical candidates and has been associated with improved survival but with high rates of recurrence often >50%.[2,3] For those who are not candidates for surgical resection, there are no current treatment protocols, although treatment typically involves a combination of systemic chemotherapy and radiation.[4,5]

Pancreatic cancer is most common in the elderly, and <30% of patients are surgical candidates. Surgical resection is associated with morbidity and mortality rates of 20%–40% and 1%–5% even in those who are optimal candidates; thus, endoscopic approaches have developed in an attempt to provide a minimally invasive therapeutic option for pancreatic cancer and its precursor lesions.[6–8] Endoscopic ultrasound (EUS)-guided alcohol-free pancreatic chemoablation has been shown to be effective and safe in appropriately selected mucinous (precancerous) pancreatic cysts in randomized clinical trials.[9,10] Based on that success, we present a case of EUS-guided chemoablation used for unresectable pancreatic acinar cell carcinoma as a suppressive strategy in concert with a limited course of systemic chemotherapy in a patient who was not a surgical candidate.

CASE REPORT

A 78-year-old man with aortic stenosis, severe multivessel coronary artery disease, and a remote history of esophageal adenocarcinoma treated with esophagectomy and chemotherapy was found to have a new 3.0 × 2.7-cm pancreatic acinar cell carcinoma while undergoing surveillance for a pancreatic tail intraductal papillary neoplasm (Figure 1). Symptoms referable to the cancer were believed to possibly be dull abdominal pain and fatigue. Surgical and radiation oncologic therapies were not felt to be possible as he was deemed a high-risk surgical candidate because of medical comorbidities. After multidisciplinary discussion, a combination of palliative intravenous chemotherapy combined with concurrent EUS-guided chemoablation was begun with the goal of slowing tumor progression, reducing symptoms, and prolonging survival. He underwent 4 months of initial intravenous chemotherapy (FOLFIRINOX), which was discontinued per patient's request because of associated weakness and malaise. EUS-guided chemoablation was performed at approximately 3- to 5-month intervals infusing an admixture of between 5 and 25 cc of 38-mg gemcitabine + 6-mg/mL paclitaxel using a 20-g EUS

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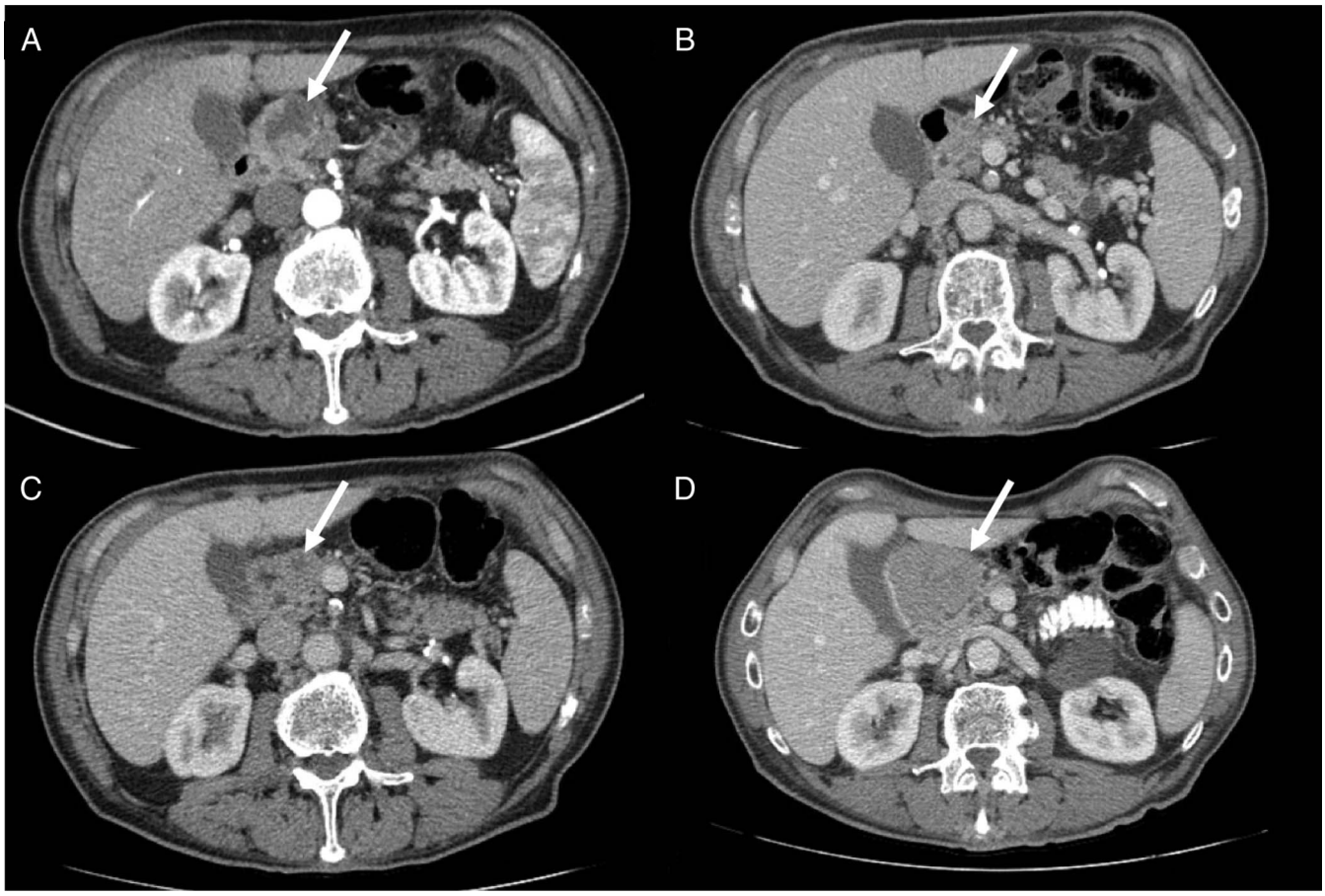

Figure 1. (A) 3.0 × 2.7-cm pancreatic head acinar cell carcinoma identified incidentally on computed tomography. (B) Significant interval reduction of mass to 0.8 × 0.6 cm after 6 months after 4 EUS chemoablations and 4 months of systemic chemotherapy. (C) Stability in treatment response (0.9 × 0.9 cm) at 12 months after 6 EUS chemoablations and 8 months since last systemic chemotherapy. (D) Increase in size to 6 × 4.5 cm at 24 months after initial EUS chemoablation. EUS, endoscopic ultrasound.

infusion needle, carefully infusing chemotherapy equally throughout the tumor (Video 1). After approximately 6 months including 4 EUS chemoablation procedures and 4 months of systemic chemotherapy, surveillance computed tomography (CT) showed a significant interval decrease in the size of the mass (0.8 × 0.6 cm) and the patient continued to be asymptomatic (Figure 1). The patient continued to receive EUS chemoablation at scheduled intervals, and after 1 year of chemoablations without concurrent systemic chemotherapy for the previous 8 months, repeat CT demonstrated stability with the mass measuring 0.9 × 0.9 cm (Figure 1). After 18 months of treatment, for a total of 7 EUS-guided chemoablations, surveillance CT showed increasing size of the mass to 3 × 2.5 cm, which remained stable with additional ablations over 6 months. At approximately 2 years after initial chemoablation, the mass had again increased in size to 6 × 4.5 cm (Figure 1). More aggressive ablations were planned in conjunction with resumption of medical chemotherapy using an immune checkpoint inhibitor. Unfortunately, the patient ultimately suffered from dehiscence of his esophageal-gastric anastomosis, possibly incited by previous gastrointestinal bleeding treated by an outside hospital with coil embolization leading to ischemia and expired after choosing to pursue palliative and hospice care.

DISCUSSION

EUS-guided ablation of solid abdominal tumors has been reported using a variety of techniques and agents including alcohol or chemotherapy infusion, radiofrequency ablation, and the use of brachytherapy with promising but limited results to this point. EUS fine needle injection (FNI) of gemcitabine has been shown to be a feasible and safe potential strategy to downstage patients with pancreatic cancer before systemic chemotherapy.[11] The CHemotherapy for Ablation and Resolution of Mucinous Pancreatic Cysts trial showed the safety, efficacy, and long-term durability of EUS-guided alcohol-free chemoablation of appropriately selected mucinous cysts using a multiagent infusion admixture that is specifically designed for pancreatic neoplasia.[9,12] This case demonstrates a novel use of EUS-guided chemoablation in conjunction with concurrent systemic chemotherapy as a multifaceted approach in a non-surgical candidate with acinar cell carcinoma. The presented combination of chemotherapy FNI and systemic chemotherapy in this patient showed a significant reduction in tumor size after approximately 12 months of treatment (4 months of initial systemic therapy), followed by steady growth up to 24 months. This case suggests the potential use of EUS-guided chemoablation as

part of a multimodal treatment approach for acinar cell or other pancreatic solid malignancies in those with unresectable disease to suppress or palliate the malignant lesion or possibly as a component of a neoadjuvant strategy. Although this case suggests that a curative outcome is unlikely to be achieved through this technique, it also demonstrates that the patient was able to achieve an initial 12-month period of lesion downsizing, and perhaps more importantly when considering a palliative therapy, the patient had improvement in symptoms and largely avoided side effects from medical chemotherapy throughout his past 20 months of survival. It is important to note the uncertainties and lack of standardized procedural techniques regarding EUS-FNI of solid pancreatic lesions. In this case, the technique, volumes, and dosages of FNI chemotherapy were extrapolated from the previously reported clinical trials on cystic pancreatic lesions.[9]

Although broad conclusions cannot be drawn from a single case report, previous randomized controlled trials have demonstrated EUS-guided chemoablation as likely to be low risk. However, unlike the high rates of efficacy seen in primarily cystic mucinous lesions, when used for solid malignant type tumors, it is unlikely to offer curative results. Nonetheless, it may have significant possible potential as a temporizing or suppressive treatment or when applied as part of a neoadjuvant or palliative strategy in appropriately selected patients. Well-designed and prospective studies with standardized definitions of safety and efficacy would be of great value to further evaluate the role of EUS-guided chemoablation in this setting.

DISCLOSURES

Author contributions: All authors contributed to the writing, editing, and preparation of the final manuscript. Brandon Rodgers, MD is the article guarantor.

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Informed consent was obtained for this case report.

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