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Case Report

Pancreatic cancer seeding of percutaneous needle tract

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ABSTRACT

A 65-year old African-American female presents with biliary ductal dilatation due to an obstructive pancreatic head mass. Percutaneous transhepatic cholangiogram performed and biliary drainage catheter placement for decompression of the biliary system. The patient had a Whipple procedure performed several months later. On follow up CT imaging, there was interval development and enlargement of a subcutaneous lesion by the right oblique muscles. Biopsy of this lesion revealed pancreatic adenocarcinoma from percutaneous seeding of the transhepatic needle tract.

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Case report

A 65-year-old African-American female with a past history of hypertension and remote cerebrovascular accident presented to her primary care physician with complaints of steatorrhea, dark urine, and was found to have painless jaundice. Patient's initial laboratories demonstrated elevated liver enzymes and an abdominal ultrasound showed a mass in the pancreatic head that was concerning for malignancy. She then underwent a computed tomography (CT) chest/abdomen/pelvis that once again revealed a hypoenhancing pancreatic head mass (Fig. 1).

Approximately 1 week after her initial primary care physician visit, she presented to the emergency department with fever, chills, increasing right upper quadrant pain, and jaundice. Her symptoms were consistent with acute

cholangitis, and interventional radiology was consulted for biliary drainage along with transluminal forceps biopsy of the pancreatic mass during the procedure (Figs. 2 and 3).

Based on the lack of mesenteric vessel involvement by the primary tumor, surgical oncology deemed it resectable after neoadjuvant chemotherapy.

After neoadjuvant chemotherapy, she returned to the hospital 3 months later to undergo a pancreaticoduodenectomy which the patient tolerated well and discharged home on postoperative day 7. She continued to have intermittent abdominal pain for the next 2 months; therefore, a repeat abdominal CT was performed. CT demonstrated an enhancing lesion in the right flank which was present but smaller on previous studies (Figs. 4 and 5). CT-guided biopsy of the subcutaneous nodule revealed adenocarcinoma with morphology similar to the patients prior pancreatic carcinoma (Fig. 6).

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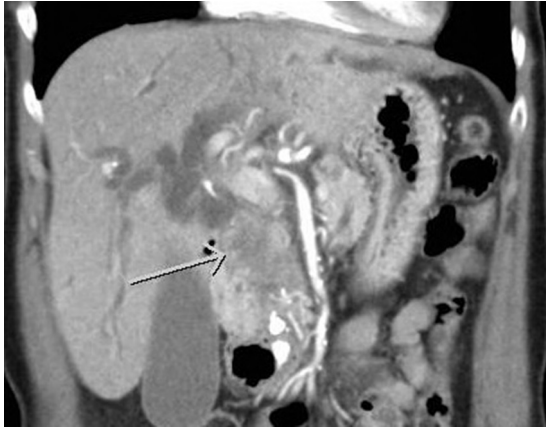


Fig. 1 – Contrast-enhanced coronal CT reformat shows an amorphous hypoenhancing mass at the pancreatic head (arrow) and intrahepatic and extrahepatic biliary dilatation.

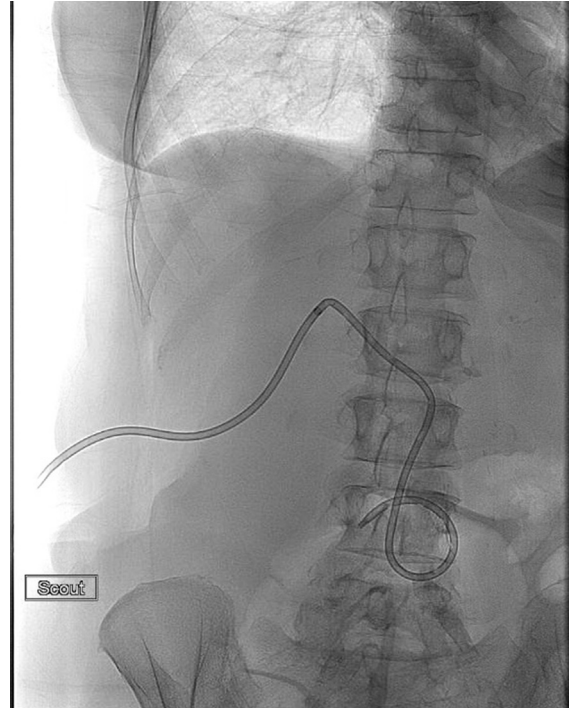


Fig. 3 – Placement of an internal-external biliary drain.

Discussion

Percutaneous transhepatic cholangiography and percutaneous transhepatic biliary drainage are frequently utilized techniques for diagnostic and treatment of neoplastic biliary obstruction. Although extraordinarily rare, cutaneous metastases have been spontaneously observed with stomach and pancreas and liver, including cholangiocarcinomas [1,2]. Specifically, needle tract implantation has an incidence rate of 1.4% for patients with pancreatic cancer independent on the

pathologic differentiation of the primary tumor [3]. A more common occurrence is seeding of the subcutaneous tissues where surgical procedures were performed [4].

The act of passage a guidewire and a large bore catheter through an obstructive tumor disrupts the compact architecture of the cancer allowing for dissemination of exfoliated cancer cells. Furthermore microscopic neoplastic invasion of the biliary system can be a source for neoplastic tract seeding



Fig. 2 – Percutaneous transhepatic cholangiogram demonstrates opacification of dilated intrahepatic (arrow) and extrahepatic biliary ducts.



Fig. 4 – Contrast-enhanced coronal CT reformat 3 months post-Whipple procedure demonstrates no recurrent of pancreatic head mass or extraparenchymal metastases.



Fig. 5 – Contrast-enhanced coronal CT reformat 7 months post-Whipple shows an irregularly enhancing subcutaneous lesion situated in the right oblique muscles (arrow) correlating with the presumed access site for the percutaneous transhepatic biliary drain 1 year ago.

when the actual, external lesion was not traversed by the catheter [5]. The extent of seeding could potentially encompass the segment of hepatic parenchyma traversed [6].

Pancreatic cancer has been shown to seed the needle tract in endoscopic ultrasound guided–fine needle aspiration into the posterior gastric wall with interval development of a submucosal positron emission tomography–positive mass in this region [7]. Other instances of postsurgical tract seeding of pancreatic cancer cells have been documented with abdominal surgical drainage tube placement and percutaneous transhepatic biliary drainage [8,9]. Trocar site seeding with pancreatic cancer cells is also a rare possibility during exploratory laparotomies; however, it does not greatly impact overall survivability [10]. Additionally, pancreatic cancer cells have seeded the biopsy tract after fine needle aspiration biopsy of pancreatic liver metastases [11]. A more worrisome outcome is the development of diffuse peritoneal seeding which was speculated to be due to transperitoneal catheter. The number of biopsy attempts and number of needle passes do have an impact on the likelihood of tract seeding [12].

Dissemination can be resected, and systemic chemotherapy can be initiated. Surgical resection is a definitive means of approaching needle tract seeding with no recurrence at the focal site [3]. Although this phenomenon very infrequently occurs, this is one of the risks encountered when placing drains in the setting of pancreatic cancer [13,14]. Positron emission tomography/CT becomes a valuable modality which can be used as an adjunct for detecting recurrence.

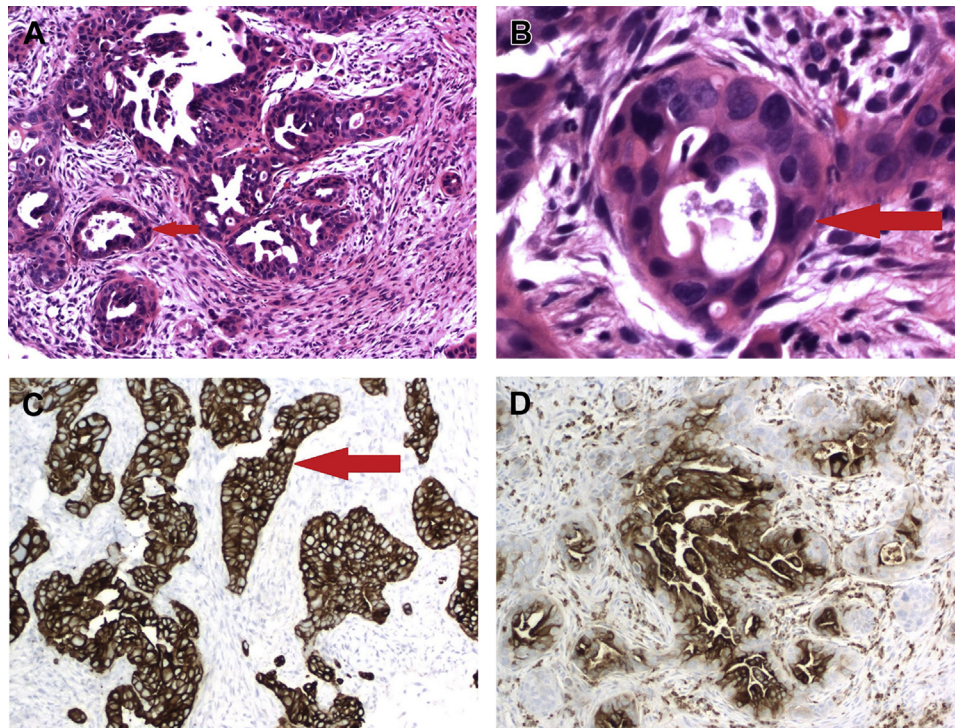


Fig. 6 – (A) 4× magnification with hematoxylin and eosin stain of the biopsied subcutaneous right oblique lesion demonstrates ductal cells with atypical nuclei (arrow). (B) 40× magnification with hematoxylin and eosin stain shows multiple ductal cells with atypical nuclei. (C) 10× and (D) 40× magnification with cytokeratin 19 stain reveals positive staining of pancreatic ductal cells (arrow).

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