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CASE REPORT | PANCREAS

Acute Pancreatitis Revealing a Diagnosis of Diffuse Large B-Cell Lymphoma

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ABSTRACT

Acute pancreatitis is a common gastroenterological condition that can occur due to several causes. While not required for diagnosis, imaging is often performed and may reveal unexpected findings such as pancreatic masses. Malignancies such as lymphoma are uncommon causes of acute pancreatitis, especially as the initial presentation of malignancy. We present a case of a young patient with acute pancreatitis caused by diffuse large B-cell lymphoma with extranodal disease secondarily involving the pancreas. Our case highlights the importance of keeping a broad differential for acute pancreatitis and considering rare etiologies such as pancreatic lymphoma in patients without another obvious culprit.

KEYWORDS: acute pancreatitis; pancreatic lymphoma; diffuse large B-cell lymphoma

INTRODUCTION

Acute pancreatitis is a common cause of acute abdominal pain and can be due to a variety of causes. While abdominal imaging is not always necessary to make a diagnosis of acute pancreatitis, it is often performed and occasionally may reveal unexpected findings such as a pancreatic mass. Malignancies such as lymphoma are uncommon causes of acute pancreatitis, especially as the initial presentation of malignancy.[1–7] We present a case of acute pancreatitis caused by diffuse large B-cell lymphoma (DLBCL) with extranodal disease secondarily involving the pancreas.

CASE REPORT

A previously healthy 27-year-old man presented with acute epigastric pain and nausea for 5 days. On physical examination, he had epigastric tenderness but no rebound tenderness or guarding. His serum lipase was 2,689 U/L, consistent with a diagnosis of acute pancreatitis. The remainder of the laboratory data was unremarkable, including normal liver chemistries, white blood cell count, and triglyceride levels. The Bedside Index for Severity in Acute Pancreatitis score was zero. He denied significant tobacco or alcohol use history. Given the lack of an obvious etiology for pancreatitis, an abdominal ultrasound was pursued on hospital day (HD)#1, which revealed a 4.1 cm hypoechoic lesion in the pancreatic head as well as cholelithiasis and gallbladder sludge, but no signs of acute cholecystitis or biliary dilation. Follow-up magnetic resonance imaging (MRI) was recommended by Radiology, which confirmed a 3.5 × 3.4 cm solid mass in the pancreatic tail (Figure 1) and a 3.9 × 3.1 cm solid mass in the pancreatic head (Figure 1). There were mild main pancreatic duct dilation (4 mm) and trace bilateral pleural effusions, but otherwise there were no other abnormalities including lymphadenopathy or hepatic lesions seen on MRI. On HD#5, endoscopic ultrasound (EUS) redemonstrated a 4.0 × 3.7 cm hypoechoic mass in the pancreatic head and a 3.6 × 2.9 cm hypoechoic mass in the pancreatic tail. The distal common bile duct and pancreatic duct were not well visualized, but there was concern for mass involvement. Fine needle aspiration was performed for both masses using a 22-gauge needle (Acquire; Boston Scientific, Natick, MA). Histology pathological analysis showed a diffuse infiltrate of atypical cells with large pleomorphic nuclei in a background of fibrosis which stained positive for CD20, consistent with a diagnosis of DLBCL (Figure 2). Oncology recommended a bone marrow biopsy for further staging, which did not show any

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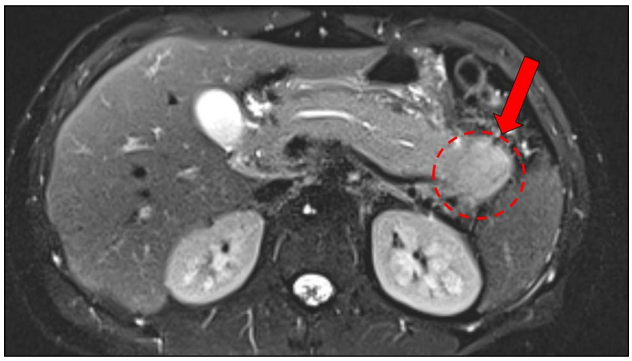

Figure 1. Magnetic resonance images reveal a 3.5 × 3.4 cm solid mass in the pancreatic tail (A) and a 3.9 × 3.1 cm solid mass in the pancreatic head (B).

evidence of malignant involvement. On further history, the patient had declined B-symptoms. The patient subsequently developed elevated liver chemistries with imaging showing common bile duct stenosis secondary to the pancreatic head mass. Endoscopic retrograde cholangiopancreatography was attempted on HD#7, but the duodenoscope was unable to pass the upper esophagus due to an esophageal narrowing thought potentially to be related to extrinsic compression vs stenosis. This area was sequentially dilated from 10 to 15 mm, but a longitudinal mucosal tear was encountered in the esophagus on passage of the duodenoscope, and therefore, the procedure was aborted. The follow-up computed tomography (CT) scan of the chest revealed a large anterior mediastinal mass with extrinsic compression (Figure 3), later confirmed to be DLBCL on CT-guided needle core biopsy performed by Interventional Radiology on HD#8. The extensive mediastinal lymphadenopathy subsequently led to superior vena cava syndrome requiring steroid treatment and radiation therapy. He was treated with bendamustine, rituximab, and a percutaneous biliary drain for palliation of jaundice starting on HD#12. On HD#35, he started his first cycle of rituximab, etoposide, prednisone, cyclophosphamide, and doxorubicin therapy, a modified regimen given his persistent hyperbilirubinemia. He was ultimately discharged from the hospital on HD#48 with plans for close follow-up with Oncology and Gastroenterology.

DISCUSSION

Pancreatic malignancy is an uncommon cause of pancreatitis, and lymphoma is an exceedingly rare etiology of pancreatic malignancy, with DLBCL being the predominant lymphoma subtype.[1,8] While DLBCL frequently involves extranodal sites, including the gastrointestinal tract in 10%–30% of cases, it more commonly affects the stomach or small intestine rather than the pancreas.[9] Pancreatic lymphoma may be largely limited to the pancreas and surrounding peripancreatic lymph nodes (primary pancreatic lymphoma) or secondarily involved with other affected areas of lymphoma. In either case, imaging findings may show discrete masses (as in our patient) or diffusely invade the pancreas without an obvious mass.[10] Initially, it seemed that our patient's case represented a primary pancreatic lymphoma only to discover mediastinal involvement by chest CT, confirming secondary pancreatic involvement.

To date, only a handful of cases have reported acute pancreatitis as the presentation of DLBCL with secondary pancreatic involvement, as seen in our case.[1–7] More often, DLBCL affecting the pancreas usually presents with abdominal pain and weight loss, with the classic B-symptoms of lymphoma being relatively uncommon.[1,3,7] Our patient's presentation of DLBCL was even more unique given his young age. In prior reports of patients with DLBCL affecting the pancreas, the average age of presentation was typically in their 50s or 60s, rather than in their 20s as seen in our patient.[10–12]

Our case affirms the recommendation to pursue further testing in acute pancreatitis patients without a clear etiology. In our patient, ultrasound suggested gallstones pancreatitis as a cause (gallstones and sludge in the gallbladder) with a hypoechoic lesion, and if subsequent MRI was not performed, this could potentially have led to delay in diagnosis. Per guidelines, the patient did not need cross-sectional imaging for the diagnosis of pancreatitis as he fulfilled two-thirds of criteria for pancreatitis with acute onset epigastric abdominal pain and a serum lipase greater than 3 times the upper limit of normal.

Previously, it was more common to diagnose pancreatic lymphoma through surgery, although this has been found to be associated with increased morbidity and mortality and is not curative for DLBCL.[12–14] The gold standard for diagnosis of pancreatic lymphoma is by nonsurgical measures such as EUS-guided fine needle aspiration (FNA) or fine needle biopsy. This is key to differentiate it from other pancreatic masses, chiefly pancreatic adenocarcinoma. Data from a meta-analysis and systematic review of 41 studies found that EUS-FNA had a high sensitivity of 86.8% (95% confidence interval, 85.5–87.9) and specificity of 95.8% (95% confidence interval, 94.6–96.7) of correctly diagnosing solid pancreatic masses.[15] In addition, the high-performance characteristics of EUS-guided sampling are greatly enhanced by adding flow cytometry, rather than cytology alone.[16,17] Despite this fact, our

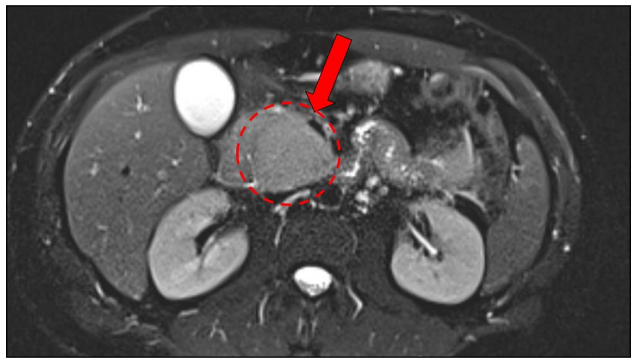

Figure 2. Histopathologic analysis of the pancreatic masses was consistent with diffuse large B-cell lymphoma with immunohistochemical (hematoxylin and eosin [H&E]) staining positive for CD45 and CD20. 40× magnification.

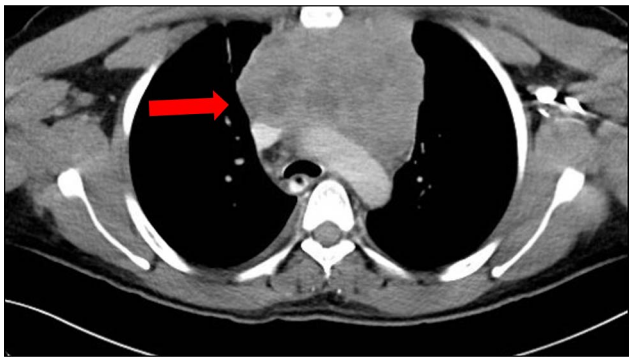

Figure 3. Computed tompgraphy chest with contrast reveals a large anterior mediastinal mass that encases the origin of the great vessels and compresses the trachea (>50% narrowing just above the carina).

case is the only patient of the other case reports to be diagnosed through EUS-FNA without use of flow cytometry of the pancreatic lesion and only 1 other of the cases was diagnosed with EUS-FNA of the pancreatic lesion itself, rather than biopsies or cytology from other sites.[4] However, EUS-fine needle biopsy has now become the gold standard for sampling solid pancreatic lesions.[18–22] Of note, while EUS-guided biopsy is useful in diagnosing DLBCL, it is not as successful as diagnosing other types of lymphoma such as Hodgkin lymphoma, given that more tissue is often required to confirm the diagnosis.[17]

In addition to the unusual presentation of our patient, his clinical course of developing obstructive jaundice with an inability to successfully perform an endoscopic retrograde cholangiopancreatography to relieve his biliary obstruction due to his mediastinal disease provided further challenges when it came to the treatment of his disease. Typically, the standard chemotherapy regimen for DLBCL includes rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone therapy, but it requires liver metabolism and biliary excretion, precluding its use in our patient. Thus, he was treated with an alternative therapy of modified dose-adjusted rituximab, etoposide, prednisone, vincristine, cyclophosphamide, and doxorubicin therapy, which is an acceptable alternative regimen for stage IV DLBCL and may be preferred in some clinical instances.[23,24] However, the regimen needed to be modified in our patient by omitting the vincristine and reducing the dose of doxorubicin given his abnormal liver chemistries.

Our patient's case of acute pancreatitis leading to his diagnosis of DLBCL had multiple unusual aspects from the presentation to the diagnosis and management of his malignancy. This case was a reminder to keep a broad differential when considering etiologies of acute pancreatitis without an obvious cause by history, including pancreatic lymphoma.

DISCLOSURES

Author contributions: All authors made substantial contributions to the conception or design of the work, drafting the work or reviewing it critically for important intellectual content, approving the final version of this draft, and are in agreement to be accountable for all aspects of the work in ensuring accuracy and integrity. H. Nemat is the article guarantor

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Informed consent was obtained for this case report.

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