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CASE REPORT

Recurrent Pancreatitis Secondary to Diffuse Large B Cell Lymphoma

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Introduction

Pancreatic lymphoma is an extremely rare pancreatic tumor representing less than 0.5% of pancreatic tumors, with diffuse large B cell lymphoma (DLBCL) being the predominant type. Pancreatic involvement by B cell lymphoma has been reported in the literature; however, acute pancreatitis is a very uncommon presentation. Here, we report a case of secondary pancreatic involvement of DLBCL presenting as pancreatitis, which underscores the importance of defining the cause of unexplained recurrent pancreatitis.

Case Presentation

A 57-year-old female with a history of thyrotoxicosis and recent admissions for pancreatitis presented with a 5-day history of severe, sudden-onset, upper abdominal pain radiating to the back. Upon admission, the patient was hemodynamically stable and afebrile, with a blood pressure of 139/70 mmHg, heart rate of 89 beats per minute, and respiratory rate of 12 per minute. Physical exam was remarkable for abdominal distension, epigastric, and left upper quadrant tenderness along with point tenderness at the level of the lower thoracic vertebra. Complete blood count and comprehensive metabolic panel were within normal range; however, lipase was elevated at 149 units/liter (normal range: 9–65 U/L). Serum calcium levels were normal at 9.5 mg/dL and triglycerides were slightly elevated at 174 mg/dL. The patient reported no history of alcohol abuse, smoking, recent abdominal procedures, or trauma. Her only home medication was levothyroxine. She had two similar episodes of abdominal pain recently, warranting admission. The first episode having occurred approximately 2 weeks prior to presentation, followed by another a few days later. She reportedly had a lipase level > 6000 units/liter on the initial episode. The patient had computed tomography (CT) scans done on both admissions showing slight stranding suggesting pancreatic inflammation, but unrevealing of any pathology explaining the recurrent episodes. Both times she was discharged after symptomatic management, with oral pain medications. This admission, CT abdomen at our facility, again showed stranding surrounding the pancreas consistent with acute pancreatitis. Given the persistent back pain, magnetic resonance imaging (MRI) of the spine was performed (Fig. 1). This revealed a large mass at the level of the T9 vertebral body, surrounding the aorta and causing left neuroforaminal narrowing. Subsequently, positron emission tomography (PET) scan showed a 2.5-cm hypermetabolic focus in the head of the pancreas. Endoscopic ultrasound (EUS) guided

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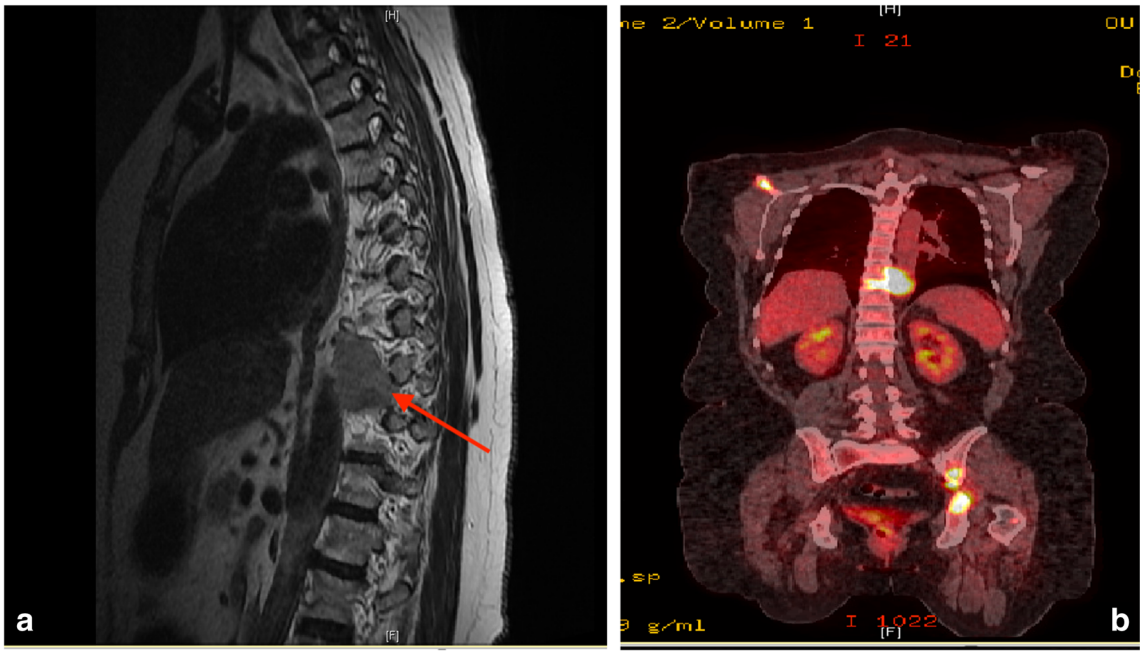

Fig. 1 Para-spinal mass at T9 vertebra: **a** MRI spine, **b** PET scan

biopsies of the para-spinal mass and pancreatic mass confirmed high-grade diffuse large B cell lymphoma on fine needle aspiration and flow cytometry results (Figs. 2, 3, 4, 5, and 6). Bone marrow biopsy showed no evidence of involvement by B cell lymphoma. The patient underwent 5 cycles of R+DA-EPOCH[1] regimen, 1 cycle of R-HCVAD[2] mini B cycle, and 6 cycles of intrathecal methotrexate, alternating with cytarabine. She has had ongoing follow-up care in the hematology/oncology department and reports significant improvement in her symptoms.

Discussion

Extra-nodal non-Hodgkin lymphomas (NHL) represent up to 30 to 40% of all cases of non-Hodgkin lymphoma, with the gastrointestinal tract being the most common extra-nodal site. Only about 0.2–2% of patients with NHL have predominant pancreatic involvement at presentation [1]. Clinical symptoms of secondary pancreatic involvement by lymphoma are

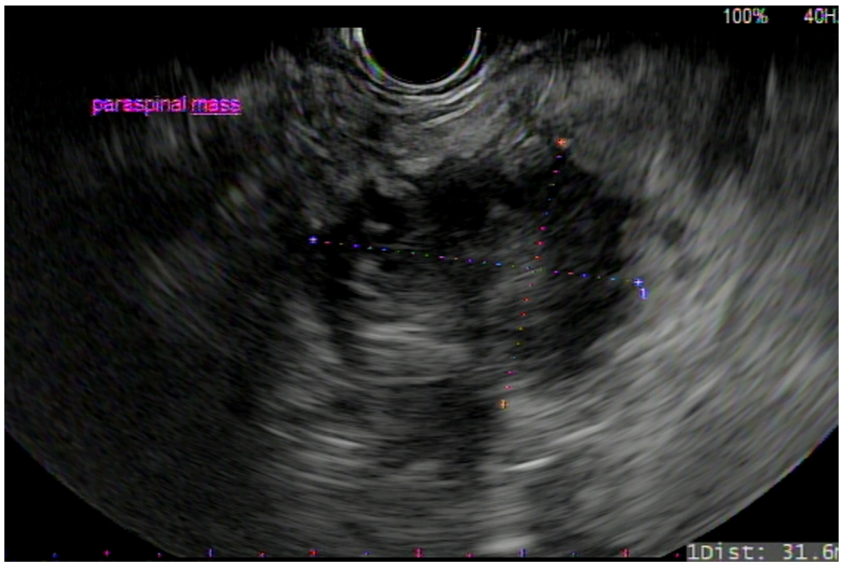

Fig. 2 EUS showing para-spinal mass at T9 Vertebra

[1] DA-EPOCH-R (Etoposide + Prednisone + Vincristine + Cyclophosphamide + Doxorubicin + Rituximab)

[2] Hyper CVAD [Cyclophosphamide, Vincristine, Doxorubicin (which is also called Adriamycin), Dexamethasone (steroid) + Methotrexate and Cytarabine

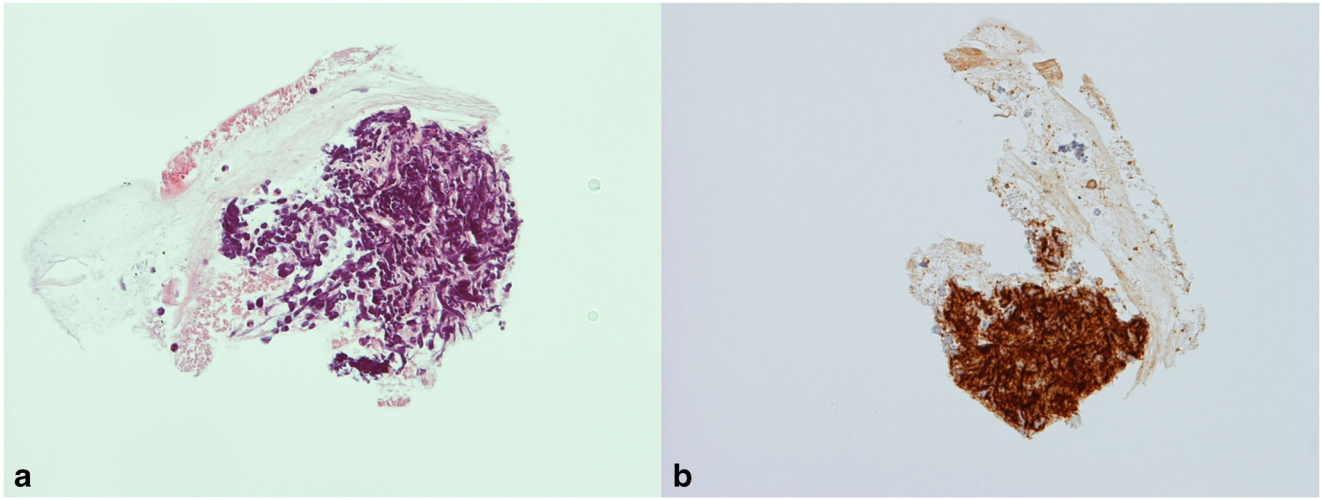

Fig. 3 Pancreatic head mass—FNA: **a** Cell block-H&E, × 200 magnification. A cellular population of tumor cells with pleomorphism, high nuclear to cytoplasmic ratios, prominent nucleoli, and crush artifact. **b** Cell block-CD20, × 200 magnification (diffuse and strong positivity in tumor cells)

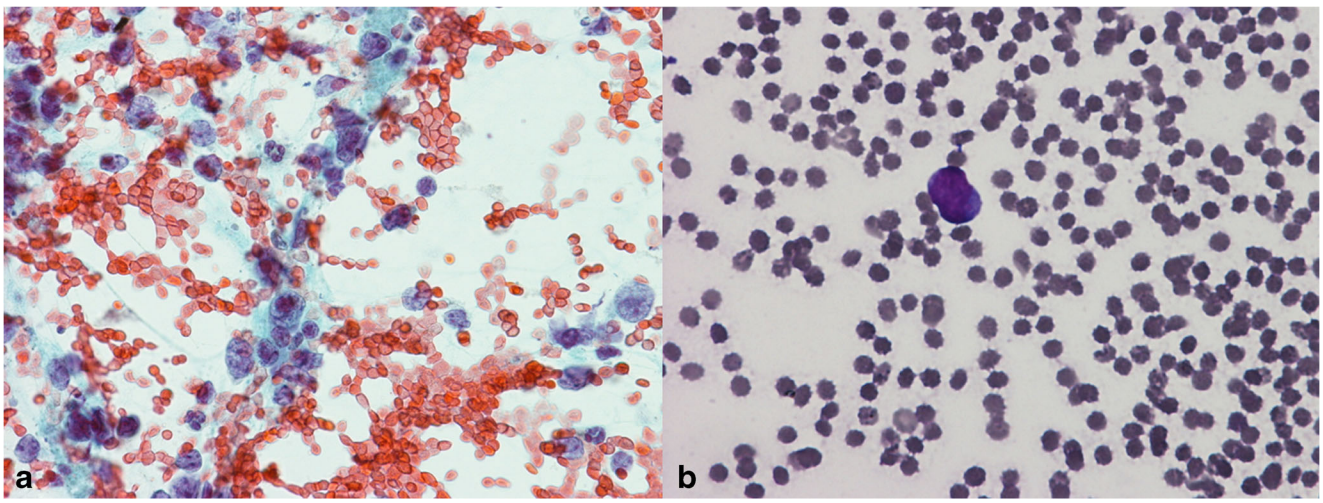

Fig. 4 Pancreatic head mass (FNA): **a** PAP stain-× 400 magnification, **b** Atypical, large cells with irregular nuclear contours, high nuclear to cytoplasmic ratios, and prominent nucleoli (Diff-Quik × 600 magnification)

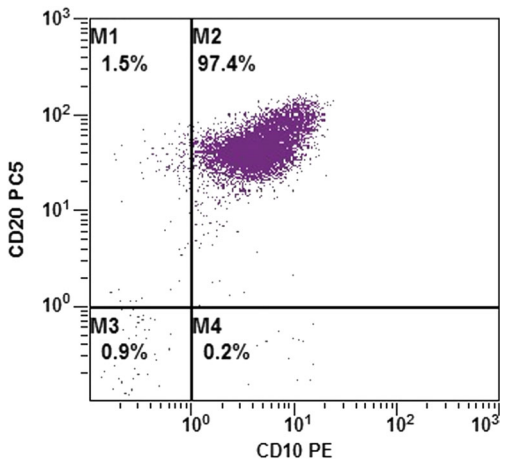

Fig. 5 Flow cytometry shows a monoclonal population of B lymphocytes, which is positive for CD20 and CD10. 141 × 134 mm (72 × 72 DPI)

usually non-specific such as abdominal pain and weight loss, in addition to fever, chills, and night sweats [2]. Secondary involvement of the pancreas by DLBCL presenting as acute pancreatitis, as reported in our case, is extremely rare, with only three reported cases so far [3–5].

On imaging, secondary pancreatic involvement by B cell lymphoma may present as a well-defined mass or as diffuse inflammation of the gland [6]. There are certain radiologic features, such as a bulky, homogenous, poorly enhancing mass, without definite boundaries, instead of occluding major pancreatic vessels, that may help the physicians lean more towards the diagnosis of a pancreatic lymphoma [7]. There are subtleties that distinguish pancreatic lymphoma from adenocarcinoma, for example, the lack of upstream pancreatic duct dilation despite ductal involvement and the presence of surrounding lymphadenopathy [6, 8]. Given the overlap in clinical presentation, the discovery of a pancreatic mass

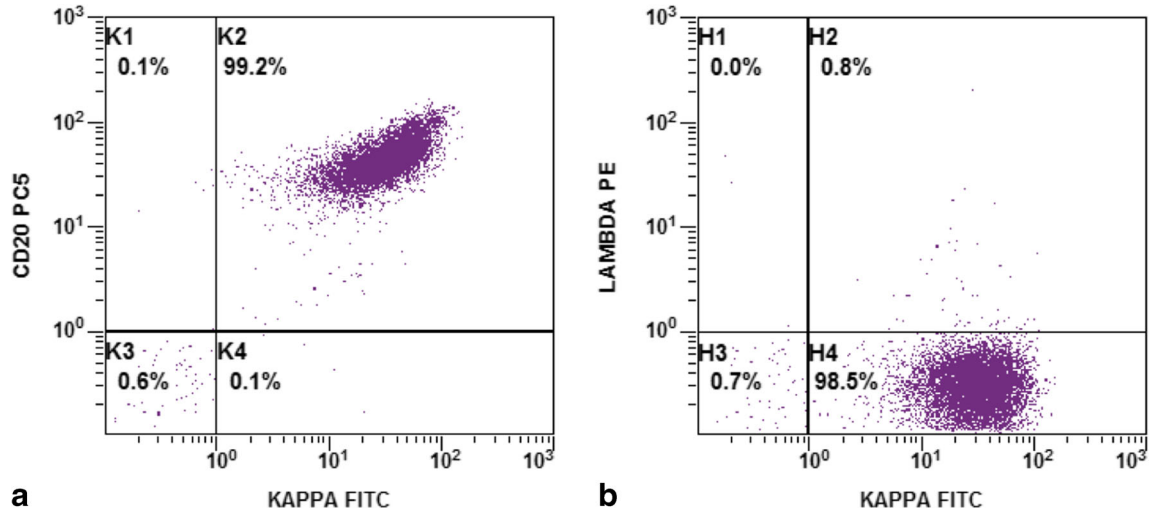

Fig. 6 Flow cytometry shows a monoclonal population of B lymphocytes, which is positive for CD20 and CD10. **a** Positive for Kappa, **b** Negative for lambda

warrants histologic assessment to distinguish secondary pancreatic lymphoma from adenocarcinoma as the treatment regimens largely differ.

Although the role of FDG-PET/CT in the diagnosis of pancreatic lymphoma has not been fully studied, it is considered to be helpful as these lesions tend to be more FDG-avid relative to a pancreatic adenocarcinoma. The course of uptake can be solitary, multi-focal, or even diffuse, but it is particularly helpful in assessing the metastatic pattern of both lesions [9].

Definitive diagnosis can be achieved by EUS-FNA approach in these patients. Some ultra-sonographic features such as the absence of vascular invasion despite the lesion's large size, lack of pancreatic duct dilatation, and evidence of peripancreatic lymphadenopathy are indicative of pancreatic lymphoma rather than adenocarcinoma [10]. EUS-FNA has shown a specificity of 96.6% and sensitivity of 99% along with a diagnostic accuracy of 97.6%, with virtually no false positives, in patients with a pancreatic mass without obstructive jaundice [11]. Despite its outstanding diagnostic yield for adenocarcinoma, one study found that cytology only revealed the diagnosis of a lymphoma in only 28% of the cases; however, with augmentation with flow cytometry and immunophenotyping, the diagnostic accuracy increased to a 100% [10].

Standard treatment for NHL is anthracycline-based chemotherapy. Evaluation of disease burden, extent, and molecular genetics is crucial in these patients for prognosis. Therefore, Ann Arbor classification and International Prognostic Index help largely in deciding treatment approach based on the severity of disease [12].

In conclusion while extremely rare, extra-nodal B cell lymphoma may involve the pancreas and present as recurrent pancreatitis. Histopathologic diagnosis is the key and most cases of pancreatic B cell lymphoma are responsive to chemotherapy.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Informed Consent Informed patient consent was obtained for case publication.

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