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Curative Chemoradiotherapy of Primary Pancreatic Lymphoma with Vertebral Metastasis: Palliation of Persistent Biliary Stricture by Roux-en-Y Hepaticojejunostomy

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Key Words
Primary pancreatic lymphoma · Chemotherapy · Radiotherapy · Biliary stricture

Abstract
Primary pancreatic lymphoma (PPL) is a rare tumor that usually presents with the clinical picture of advanced adenocarcinoma but has a much better prognosis. A 38-year-old man was referred after percutaneous transhepatic external biliary drainage for obstructive jaundice. Abdominal magnetic resonance imaging (MRI) and magnetic resonance cholangiopancreatography had revealed a 5-cm pancreatic head mass that caused biliary tract dilation. Computed tomography angiography showed that the mass encased the celiac trunk as well as the common hepatic and splenic arteries. MRI also revealed a metastatic lesion at the third lumbar vertebra. Serum carcinoembryonic antigen and carbohydrate antigen 19-9 levels were within normal range. The initial diagnosis was inoperable pancreatic adenocarcinoma; however, Tru-Cut pancreatic biopsy showed a large B cell lymphoma. After 6 sessions of chemotherapy and 21 sessions of radiotherapy, both the pancreatic mass and the vertebral metastasis had disappeared. However, he had persistent distal common bile duct stricture that could not be negotiated by either the endoscopic or percutaneous route. A Roux-en-Y hepaticojejunostomy was performed. The patient stayed alive without recurrence for 52 months after the initial diagnosis and 45 months after completion of oncologic treatment. In conclusion, a large pancreatic mass with grossly involved peripancreatic lymph nodes, without ascites, liver or splenic metastasis, should alert the clinician to the possibility of PPL. Cure is possible by chemoradiotherapy even in the presence of

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vertebral metastasis. Persistent stricture in the distal common bile duct may require a biliodigestive anastomosis.

Introduction

Primary pancreatic lymphoma (PPL) is a rare cause of obstructive jaundice. Baylor and Berg reported the incidence of PPL as <0.5% in their pathology series of 5,000 pancreatic tumors [1]. A review of the literature between 1951 and 1999 included 122 patients [2], a more recent review compiled 11 series published between 1985 and 2005 and included 103 patients; 4 other patients were reported from the reviewers' institution [3]. In comparison with most of the other pancreatic malignancies, PPL has much more favorable survival after aggressive treatment [4, 5]. Herein, we present a primary pancreatic non-Hodgkin lymphoma patient with vertebral column metastasis, cured by combined chemoradiotherapy. Persistent biliary stricture in the distal common bile duct required a Roux-en-Y hepaticojejunostomy.

Case Report

A 38-year-old man was referred with the presumptive diagnosis of inoperable pancreatic head carcinoma; he had undergone percutaneous transhepatic biliary drainage for obstructive jaundice. Physical examination showed no pathological findings except jaundice. Biochemical results were as follows: total bilirubin 8.7 mg/dl (0.2–1.0), direct bilirubin 7.4 mg/dl (0–0.3), alkaline phosphatase 585 U/l (30–130), aspartate aminotransferase 81 U/l (5–42), alanine aminotransferase 97 U/l (5–45), gamma-glutamyl transpeptidase 268 U/l (5–85). The serum carcinoembryonic antigen and carbohydrate antigen 19-9 levels were within normal limits – 2.4 ng/ml (0.0–4.0) and 13.8 U/ml (0–34.0), respectively.

Magnetic resonance imaging (MRI) and magnetic resonance cholangiopancreatography performed at the referring institution before biliary drainage had revealed a 5-cm diameter pancreatic head mass causing biliary tract dilation. MRI also showed a metastatic lesion at the corpus of the L3 vertebra. Computed tomography (CT) angiography showed that the pancreatic head mass encased the celiac trunk as well as the common hepatic and splenic arteries (**fig. 1**). Tru-Cut biopsy of the pancreatic mass revealed a non-Hodgkin lymphoma of the diffuse large B cell type; there was diffuse neoplastic infiltration on a sclerotic background. The results of immunohistochemistry were as follows: CD3 (–), CD20 (+), pancytokeratin (–), synaptophysin (–), chromogranin A (–), mum-1 (–), bcl-6 (+) and leukocyte common antigen (LCA) (+) (**fig. 2**). He was referred to the oncology clinic. Both lesions disappeared completely after 6 sessions of chemotherapy (CHOP, cyclophosphamide, adriamycin, vincristine, prednisone) and 21 sessions of external beam radiotherapy (**fig. 3**). However, the stricture in the distal common bile duct persisted. Since a guide wire could not be negotiated through the stricture either by the transhepatic or endoscopic route (3 attempts), internal drainage was not achieved. Acute cholecystitis developed and was treated by percutaneous drainage. A positron emission tomography-computed tomography (PET-CT) was performed for possible residual or recurrent disease; however, no evidence of malignancy was detected. The patient underwent surgery for persistent biliary stricture. The gallbladder wall was thickened and edematous. There were multiple enlarged lymph nodes at the hepatoduodenal ligament, but there was no mass at the head of the pancreas. Frozen section examination of the lymph nodes as well as subsequent paraffin section examination showed no sign of lymphoma. The presumptive diagnosis was a fibrotic stricture caused by chronic pressure or radiotherapy. Cholecystectomy and Roux-en-Y hepaticojejunostomy were performed.

The patient stayed alive without local or systemic recurrence of the disease for 52 months after the initial diagnosis and 45 months after completion of oncologic treatment.

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Discussion

The clinical and diagnostic criteria for PPL were initially proposed by Dawson et al. [4] and subsequently modified by Behrns et al. [6]: a mass predominantly within the pancreas with grossly involved lymph nodes confined to the peripancreatic area, no peripheral lymphadenopathy, no hepatic or splenic involvement, no mediastinal lymphadenopathy, and a normal white blood cell count. The patient presented above fulfilled these criteria.

The most common symptom is abdominal pain [6]. PPL is usually seen at the head of the pancreas; a mass at the tail or body or diffuse infiltration of the organ are rare presentations. Most of the reported tumors were >5 cm in diameter and involved the peripancreatic lymph nodes [7]. Approximately 35% of patients had obstructive jaundice like the patient presented here, but obstructive jaundice is less frequent in PPL than adenocarcinoma of the pancreas [5]. The classic symptoms of nodal non-Hodgkin lymphoma, such as fever, chills, and night sweats, are uncommon [5, 7]. Both CT and MRI demonstrate the tumor adequately, but the findings are not specific for lymphoma [5].

In short, there are no clinical or biochemical findings specific for pancreatic lymphoma, imaging studies are not pathognomonic and do not distinguish PPL from carcinoma. Consequently, most of the cases were diagnosed after surgery by histopathological determination of the resection or biopsy specimens [2, 6, 8]. A large pancreatic mass with grossly involved peripancreatic lymph nodes without ascites, liver or splenic metastasis should alert the clinician to the possibility of PPL [5].

Baylor and Berg reported the incidence of PPL as <0.5% in their pathology series [1], and Volmar et al. reported the incidence as 1.3% in their pancreatic fine-needle aspiration biopsy series [9]. The major disadvantage of fine-needle aspiration biopsy is that it may provide insufficient tissue for both histopathological diagnosis and immunohistochemical examination [9, 10]. In our institution, Tru-Cut biopsy was preferred.

Non-Hodgkin lymphomas are staged according to the modified Ann Arbor classification. In this scheme, IE is disease confined to the pancreas, and IIE disease involves the peripancreatic lymph nodes [10]. The Revised European American Lymphoma classification is used for histological classification [11]. We classified our patient as IIE because of the possible involvement of the peripancreatic lymph nodes and non-Hodgkin lymphoma of the diffuse large B cell type.

Approximately 10% of the metastatic vertebral tumors were found to be lymphomas [12]. The majority of cases of musculoskeletal lymphoma were caused by hematogenous dissemination of the nodal disease. Involvement of the skeleton is more likely in the axial bones than the appendages [12]. To the best of our knowledge, the patient in the present report is the first primary pancreas lymphoma case in the literature with vertebral metastasis.

Resection of 'small' tumors with the presumptive diagnosis of periampullary carcinoma yields excellent results [2]. In current practice, preoperative biopsy of resectable pancreatic masses is rarely performed. In other words, the diagnosis of pancreatic lymphoma in the resection specimen is probably a postoperative diagnosis rather than a preoperative one. However, since most pancreatic lymphomas are bulky tumors that are unresectable at presentation, oncologic treatment is the only option.

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Successful results including cure rates up to 30% have been achieved with combined modality treatment [5]. Survival as long as 191 months with chemotherapy alone has been reported [13]. Long-term follow-up is vital because recurrences as late as 18 years have been encountered [13].

Although chemoradiotherapy achieved complete remission of the pancreatic and vertebral masses in our patient, there was a persistent biliary stricture. The differential diagnosis included obstruction caused by residual-recurrent tumor or secondary fibrosis caused by radiotherapy or chronic compression of the primary tumor [14]. CT angiography showed a short stenotic segment in the portal vein, but no recurrent mass was detected. CT combined fluoro-deoxy-D-glucose PET scan and gallium-67 scintigraphy have been used to detect residual, metastatic or recurrent lymphoma and found to be superior to CT alone [15]. In the patient reported here, PET-CT and intraoperative observation showed no sign of residual or recurrent lymphoma. Benign strictures that persisted after complete remission with chemotherapy, and radiation-induced late biliary strictures [14] were successfully treated with Roux-en-Y hepaticojejunostomy. The same approach was effective in our patient as well.

In conclusion, a large pancreatic mass with grossly involved peripancreatic lymph nodes, but without ascites, liver or splenic metastasis, should alert the clinician to the possibility of PPL. Cure is possible by chemoradiotherapy even in the presence of vertebral metastasis. Persistent stricture in the distal common bile duct may require a biliodigestive anastomosis.

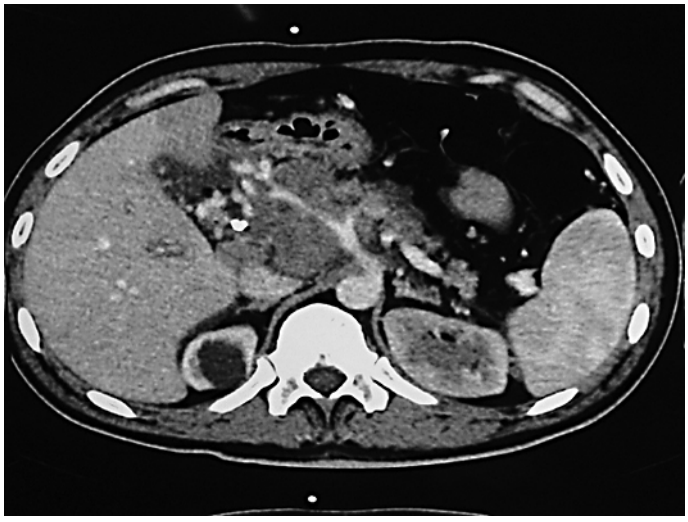

Fig. 1. The pancreatic head mass encased the celiac trunk as well as the common hepatic and splenic arteries.

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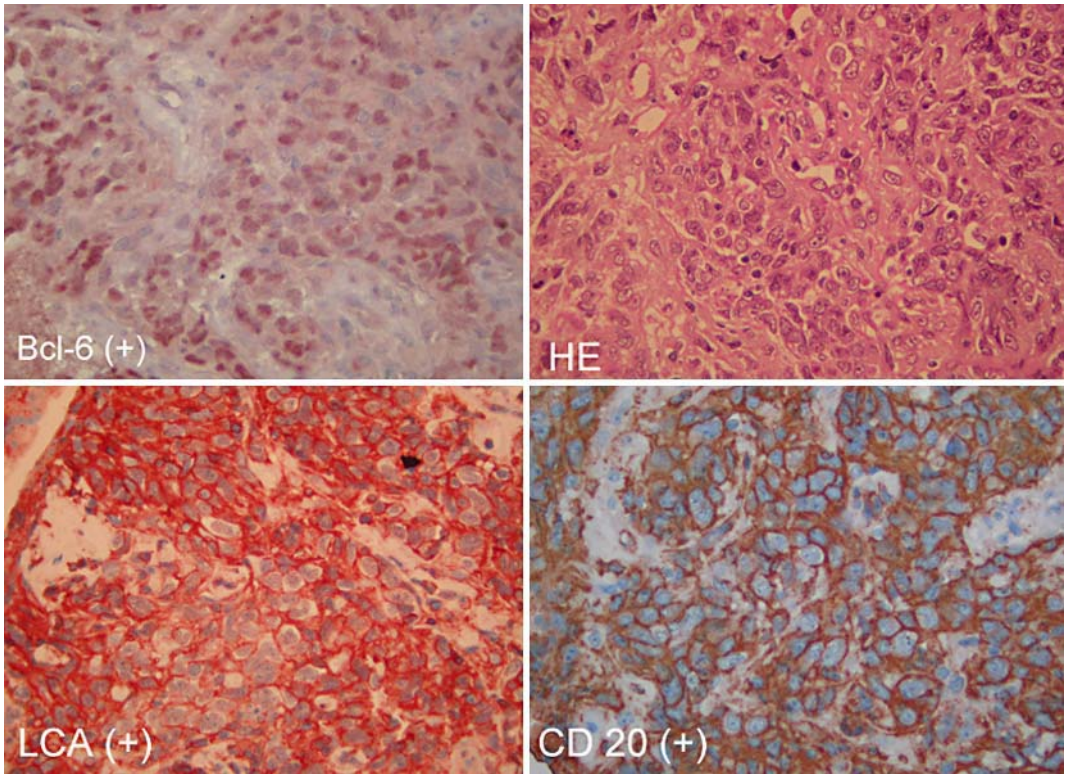

Fig. 2. Pathological examination of the Tru-Cut biopsy.

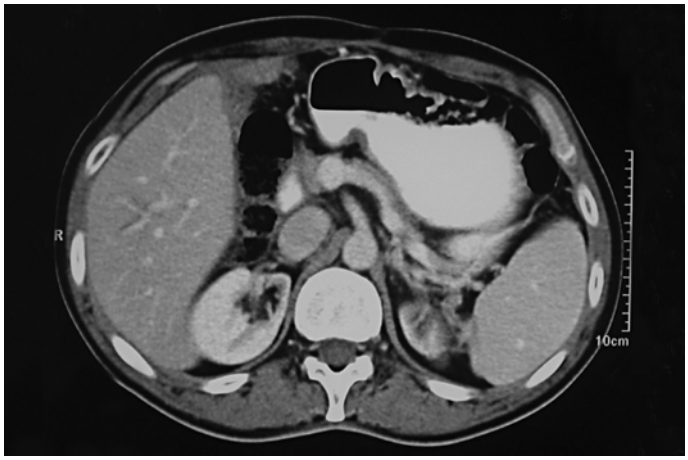

Fig. 3. CT angiography examination 45 months after completion of oncologic treatment.

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