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Case Report

Pancreatic metastasis from non-small cell lung carcinoma diagnosed on EUS biopsy: report of a rare case and potential pitfall

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Abstract: Lung non-small cell carcinoma is one of the most common cancers in the world. Pancreas metastasis from lung cancer is very rare. Endoscopic ultrasound-guided fine needle aspiration biopsy (EUS-FNAB) is a useful method to improve the diagnosis of pancreatic tumors and to guide the treatment plan. However, the limited amount of specimen obtained from EUS-FNAB may be a pitfall. Here we present a case of pancreatic metastasis from lung non-small cell carcinoma initially mimicking primary pancreatic adenocarcinoma.

Keywords: Pancreas, non-small cell carcinoma of lung, metastasis, EUS-FNA

Introduction

Non-small cell carcinoma of lung is one of the most common types of cancer in the world. Common sites for lung cancer metastasis include bone, central nervous system, liver, and adrenal glands. Pancreatic metastasis from the lung is very rare and accounts for 0.6% of lung metastatic lesions [1]. Endoscopic ultrasound-guided fine needle aspiration biopsy (EUS-FNAB) is a useful method to improve the diagnosis of pancreatic tumors and to guide the treatment plan [2]. However, the limited amount of specimen obtained from EUS-FNAB may be a pitfall. Here we present a case of pancreatic metastasis from lung non-small cell carcinoma initially mimicking primary pancreatic adenocarcinoma.

Case report

A 79-year-old woman (who received right lower lobe of lung lobectomy 13 years ago with the diagnosis of adenocarcinoma (pT1N0Mx), and regular follow-up showed no tumor recurrence or metastasis) presented with abdominal pain and poor appetite. The abdominal computed tomography (CT) imaging examination revealed a 13×8 mm solid mass in pancreatic body (**Figure 1A**, arrow) which caused stricture of middle pancreatic duct and dilatation of the upstream pancreatic duct. The associated serum tumor marker CEA was within normal range while the CA19-9 was elevated (45.07 U/mL). To determine the nature of the lesion, EUS-FNAB was performed and histopathologic examination revealed adenocarcinoma (**Figure 1B**). Under the impression of primary pancreatic ductal adenocarcinoma, distal partial pancreatectomy with splenectomy was performed.

Histopathologic examination of the pancreatic body tumor revealed a relatively well-circumscribed tumor with prominent papillary and micropapillary growth patterns (**Figure 2A**, **2B**). Intriguingly, when we compared the morphology of pancreatic tumor to that of the patient's previous lung tumor sample from our pathology archive, they showed striking similarity (**Figure 2C**, **2D**). The highly similar morphology of pancreas and lung tumor prompted us to consider the possibility of pancreas metastasis from the previous lung adenocarcinoma. To confirm our speculation, we used immunohistochemical stain of thyroid transcription factor (TTF-1) which is specific for primary lung adenocarci-

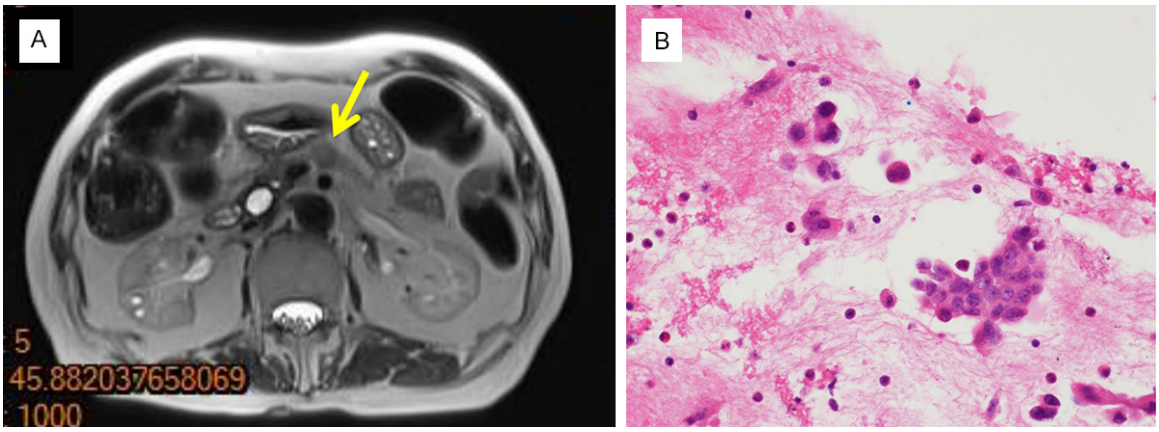

Figure 1. A. Whole abdominal CT showed a 1.3 cm solid mass in the pancreatic body (yellow arrow). B. Hemotoxylin and eosin stain of EUS-FNAB sample from the pancreas mass revealed clusters of malignant glandular cells with enlarged nuclei and prominent nucleoli, consistent with adenocarcinoma (400×).

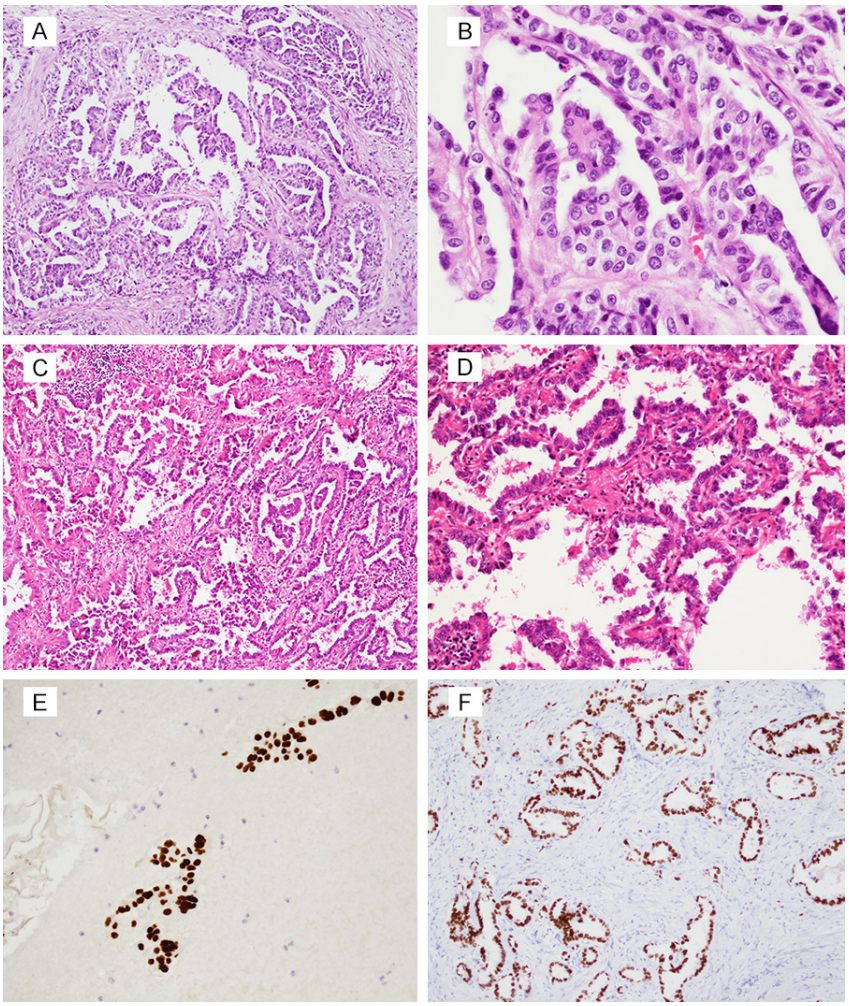

Figure 2. (A) Hematoxylin and eosin stain of distal pancreatectomy specimen showed a well-circumscribed tumor in papillary and micropapillary growth patterns (100×) and (B) tumor cells with round to polygonal nuclei and conspicuous nucleoli (200×). (C, D) Hemotoxylin and eosin stain of the specimen of lung adenocarcinoma 7 years prior from the same patient. The morphology is similar to that of pancreatic adenocarcinoma in (A) and (B), 100× in (C) and 200× in (D). (E, F) Immunostain of TTF-1 shows diffuse strong nuclear positive staining in the EUS-FNAB sample and also in adenocarcinoma of pancreas (F), confirming the pulmonary origin of the tumor (400× in (E) and 100× in (F)).

noma [3] while not present in primary pancreatic ductal adenocarcinoma. The immunostain results from both EUS-FNAB and surgical resection samples showed strongly positive nuclear staining of TTF-1 in tumor cells (**Figure 2E**, **2F**), confirming the diagnosis of pancreatic metastasis from previous lung adenocarcinoma.

Discussion

EUS-FNAB is a powerful tool for pancreatic tumor diagnosis and treatment plan evaluation. However, the limited amount of tissue sample obtained from

EUS-FNAB can occasionally be a pitfall unless other ancillary studies such as immunohistochemical stains are used to distinguish a primary or metastatic lesion. Pancreatic metastasis from lung is very rare, and in our case, the patient's previous clinical history provided important information leading to definite diagnosis. In addition, an immunohistochemical stain can be applied in difficult cases to distinguish the tumor origin when the clinical history is not available [4]. Albeit rare, pathologists and clinicians should be aware of the possible metastatic lesion in pancreas and a thorough clinical and pathological history review can avoid misdiagnosis.

Disclosure of conflict of interest

None.

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