

A 65-year-old man was admitted to hospital with obstructive jaundice. Three years previously he had been diagnosed with pulmonary tuberculosis. During his antituberculous treatment he was found to have a 10-cm cystic mass in the anterior mediastinum that was increasing in size. Computed tomography-guided biopsy showed this to be an epithelial neoplasm with neuroendocrine differentiation. This was surgically removed and pathological examination revealed a moderately differentiated neuroendocrine carcinoma of the thymus. There was focal involvement of the resection margin and lymphovascular spread. He was given postoperative adjuvant radiotherapy and remained well for 2 years.

After admission, ultrasound examination showed a 4-cm mass at the pancreatic head with common bile duct dilatation. Endoscopic retrograde cholangiopancreatography showed a distal common bile duct stricture. Subsequent computed tomography showed a heterogeneously enhanced, 4-cm mass at the head of pancreas, together with multiple necrotic hepatoduodenal nodes (Figure 1). The features were highly suggestive of pancreatic carcinoma. Endoscopic ultrasound-guided fine-needle aspiration was performed and bloody aspirate was obtained (Figure 2).

Cytology examination showed atypical cells with enlarged nuclei with a stippled chromatin pattern, and a small to moderate amount of cytoplasm (Figure 3a). Immunostaining demonstrated that these cells were positive for cytokeratins, including AE1/3 and CK7, and the neuroendocrine markers, chromogranin and synaptophysin (Figure 3b). The cytologic morphology was identical to that of the previously resected thymic cancer. A diagnosis of metastatic thymic neuroendocrine carcinoma was made, and he was referred for chemotherapy.

Thymic neuroendocrine carcinomas are rare and encompass a wide spectrum of

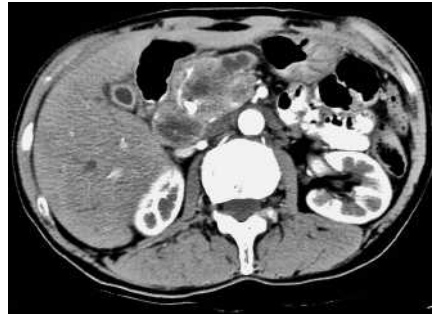


Figure 1 Computed tomographic scan showing an irregularly enhancing mass at the head of the pancreas.

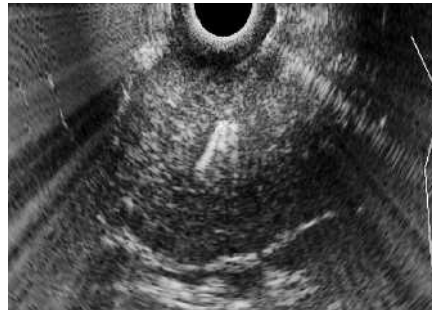


Figure 2 Endoscopic ultrasound-guided fine-needle aspiration of the tumor mass.

lesions, ranging from well- to moderately differentiated tumors (carcinoid or atypical carcinoid) to poorly differentiated carcinoma (small-cell carcinoma), different types sometimes being found within the same tumor [1]. Complete surgical excision is the most important determining factor for predicting long-term survival [2,3]. Metastatic spread of thymic cancer to bone, lung, pleura, spleen, brain, and mediastinal lymph nodes has been reported [4]. However, as far as we know, there has only been one case of pancreatic metastasis reported in the literature previously [5]. In the current case, endoscopic ultrasound-guided fine-needle aspiration was shown to be a valuable tool in reaching a diagnosis of this metastatic disease and major surgery was avoided.

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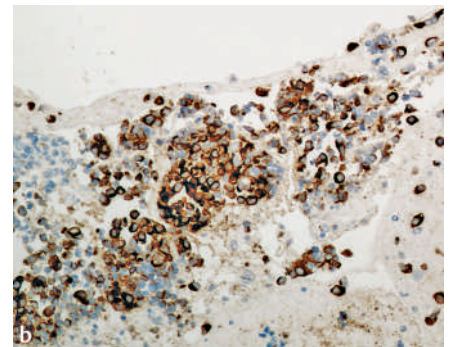
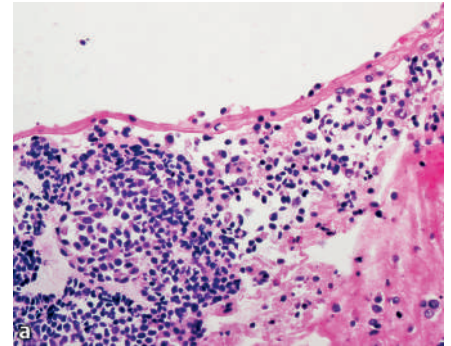


Figure 3 Histological views of the resected tumor. **a** Cell-block material showing clusters of tumor cells with small hyperchromatic nuclei and a moderate amount of cytoplasm (hematoxylin and eosin stain, magnification  $\times 200$ ). **b** The same clusters of tumor cells after immunohistochemical staining, expressing chromogranin with strong cytoplasmic positivity (chromogranin stain, magnification  $\times 200$ ).

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