



## Pancreatic metastasis in a case of small cell lung carcinoma diagnosed by EUS

Tarkan Karakan<sup>1</sup>, Mustafa Cengiz<sup>1</sup>, Mehmet İbiş<sup>1</sup>, Nalan Akyürek<sup>2</sup>, Selahattin Ünal<sup>1</sup>

<sup>1</sup>Department of Gastroenterology, Gazi University Faculty of Medicine, Ankara, Turkey

<sup>2</sup>Department of Pathology, Gazi University Faculty of Medicine, Ankara, Turkey

### ABSTRACT

Small-cell lung carcinoma represents a group of highly malignant tumors characterized by early and widespread metastasis even at the time of diagnosis. However, the pancreas is a relatively infrequent site of metastasis by this neoplasm. A 57-year-old patient was admitted with an intense cough and complaints of abdominal discomfort. A chest X-Ray showed no evidence of lung mass but did show signs of lymphadenopathy. In addition, there was little evidence for malignancy based on a transbronchial needle aspiration. In contrast, there was a mass in the head portion of the pancreas. We diagnosed a case of small-cell lung carcinoma metastasis in the pancreas by using an endoscopic ultrasound-guided fine-needle aspiration biopsy. This case demonstrates that endoscopic ultrasound-guided fine-needle aspiration biopsy is an important tool in the diagnosis of metastatic pancreatic neoplasms.

**Keywords:** EUS guided FNA, pancreatic metastasis, SCLC

### INTRODUCTION

Small-cell lung carcinoma (SCLC) represents one quarter of all bronchogenic carcinomas (1) and has the worst survival. In addition, it is characterized by widespread metastasis even at the time of diagnosis. It can metastasize lymph nodes, brain, bones, and also the adrenal glands (2). However, the pancreas is a relatively infrequent site for metastasis. There are few reports which have been diagnosed based on endoscopic ultrasound (EUS) - guided fine - needle aspiration (FNA) cytology. The majority of pancreatic masses are due to primary neoplasms of the pancreas of which most are ductal adenocarcinoma. Intra-pancreatic metastases can occur, but the reported frequencies differ considerably in the literature ranging from 11% in autopsy series (3) to 4.5% in clinical series (3,4). In addition, a quarter of the metastatic lesions in the pancreas have originated from the lung. Occasionally, pancreatic metastases may occur following treatment of the primary neoplasm, which is why it is not considered on initial evaluation (5). Currently, there are few radiographic features able to separate pancreatic metastases from pancreatic primary carcinomas although dynamic computed to-

mography (CT) has got some value in separating the primary from the secondary neoplasm (6). In addition, Magnetic Resonance Imaging (MRI) should also be considered as a diagnostic tool. Despite radiographic information, the definitive separation of primary and secondary pancreatic neoplasms depends mostly on pathologic examination and most commonly, cytologic evaluation of EUS-guided FNA.

### CASE PRESENTATION

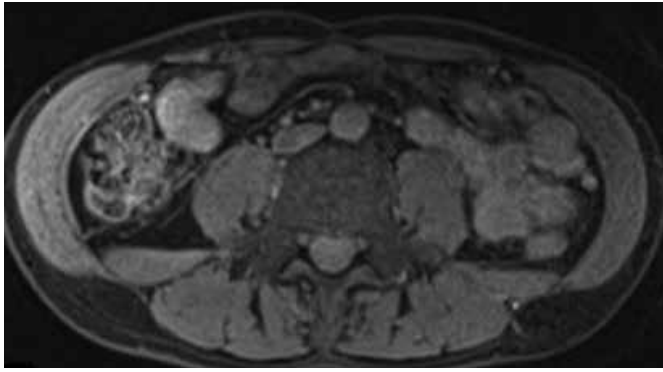
A 57-year-old man was admitted to Gazi University Hospital complaining of an intense cough. He had an extensive, 30-year history of smoking and an evaluation of the chest X-ray showed mediastinal lymphadenopathy. A CT of the thorax was then performed, which showed involvement of the mediastinal lymph nodes. A transbronchial needle aspiration was performed, however cytological examination was suspicious for malignancy. Because the patient also complained of abdominal pain, an abdominal ultrasonography was performed which indicated a suspicious mass on the head of the pancreas. Then, CT of abdomen also was suspicious for this mass. An MRI subsequently confirmed the mass

**Address for Correspondence:** Mustafa Cengiz, Department of Gastroenterology, Gazi University Faculty of Medicine, Ankara, Turkey  
E-mail: drmustafacen@gmail.com

**Received:** May 30, 2012

**Accepted:** April 16, 2013

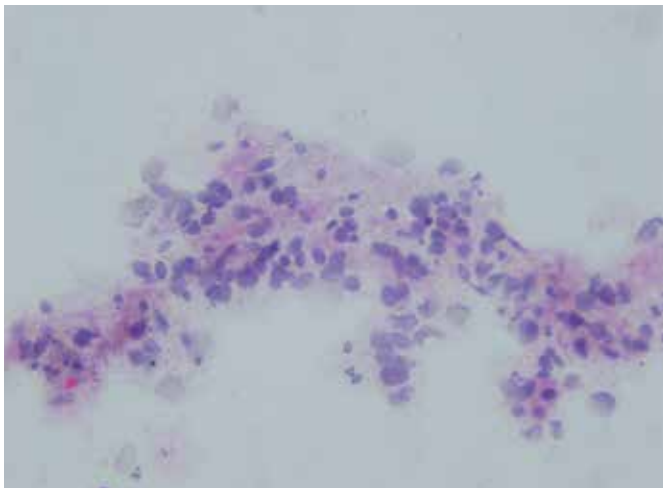
© Copyright 2015 by The Turkish Society of Gastroenterology • Available online at [www.turkjgastroenterol.org](http://www.turkjgastroenterol.org) • DOI: 10.5152/tjg.2015.3687



**Figure 1.** MRI confirmed the mass on the head portion of pancreas.



**Figure 2.** An aspirate for cytologic examination was obtained by technique of EUS guided FNA.



**Figure 3.** The heamatoxylin-eosin and Pap stained smears were hypocellular and contained loosely cohesive groups of small rounded to spindle-shaped cells with scant cytoplasm, "salt and pepper" nuclear chromatin, and inconspicuous nucleoli. Scattered apoptotic bodies and evidence of nuclear molding were also seen (x400).

on the head portion of the pancreas (Figure 1). An irregular-shaped, solid mass of approximately 2x2.5 cm was detected by EUS on the head of the pancreas. An aspirate for cytologic examination was obtained using an EUS-guided FNA (Figure 2). The heamatoxylin-eosin- and pap-stained smears were hypo-

cellular and contained loosely cohesive groups of small, rounded cells and spindle-shaped cells with little cytoplasm, "salt and pepper" nuclear chromatin, and inconspicuous nucleoli. Scattered apoptotic bodies and evidence of nuclear molding were also seen at 400x magnification (Figure 3). The transbronchial needle aspiration was suggestive [2.1 [EN] Verify English word choice] of a SCLC. The treatment procedure began after the diagnosis of SCLC was confirmed with EUS-guided FNA cytology.

Written and signed informed consent was obtained from patient who participated in this case.

## DISCUSSION

Pancreatic metastases are a very rare entity especially for SCLC. Maeno et al. (7) identified 3% of patients with pancreatic metastasis. Yoon et al. (8) also reported 53 pathologically proven metastatic tumors of the pancreas. The primary malignancies were renal cell carcinoma (n=14), gastric cancer (n=11), colorectal cancer (n=5), lymphoma (n=4), non-SCLC (n=14), gastrointestinal stromal tumor (n=2), melanoma (n=2), SCLC (n=2), gallbladder cancer (n=2), and one case of hepatocellular carcinoma, thymic carcinoid, liposarcoma, cholangiocarcinoma, osteosarcoma, breast carcinoma, duodonal cancer, and ovarian cancer. Volmar et al. (9) also evaluated 20 non-hematologic metastases in the pancreas diagnosed by EUS-guided FNA: two of which were pulmonary small-cell carcinomas. Layfield et al. (10) reported on 17 metastatic pancreatic malignancies: two of which were squamous cell carcinomas (one from the lung and the other from the esophagus).

In our case, the patient was suspected to have clinical lung cancer. Histologic and immunohistochemical studies also favored the primary tumor as small-cell carcinoma. The pancreatic FNA cytology was diagnosed as metastatic SCLC. Specific cytopathological staining was also positive for pan-ck, neurone-specific enolase, chromogranin A, and synaptophysin; thus, confirming the diagnosis.

In this case, because the transbronchial biopsy was not exactly diagnostic, the value of EUS-guided FNA cytology was therefore important. In recent years, EUS-FNA has been established as a technique for mediastinal nodal staging and noted for its accuracy and safety in cytology and biopsy (11). Pancreatic metastasis has rarely been validated by cytology or biopsy before surgery or autopsy. EUS-FNA from the pancreas is safer than percutaneous FNA from the viewpoint of accessibility and visibility.

Small-cell lung carcinoma is an aggressive cancer characterized by rapid growth and early metastatic behavior. This case also demonstrated that, in patients with SCLC, other unusual metastatic sites of the abdomen beside the most common metastatic sites (e.g., adrenal glands and lymph nodes) should be carefully examined. Consequently, EUS-FNA is a safe and important method for the differential diagnosis of pancreatic cystic or solid mass lesions; thus, determining the establishment of a therapeutic strategy as in the case described herein.

**Ethics Committee Approval:** N/A.

**Informed Consent:** Written informed consent was obtained from patient who participated in this case.

**Peer-review:** Externally peer-reviewed.

**Author contributions:** Concept - M.C., T.K.; Design - M.C., T.K., M.İ.; Supervision - M.C., S.Ü.; Resource - M.C., T.K., M.İ., N.A.; Materials - M.C., T.K., M.İ., N.A.; Data Collection&/or Processing - M.C., N.A.; Analysis&/or Interpretation - M.C., T.K., S.Ü., M.İ.; Literature Search - M.C., T.K., M.İ., S.Ü.; Writing - M.C., M.İ.; Critical Reviews - M.C., T.K., M.İ., S.Ü.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

## REFERENCES

1. Cook RM, Miller YE, Bunn PA, Jr. Small cell lung cancer: etiology, biology, clinical features, staging, and treatment. *Curr Probl Cancer* 1993; 17: 69-141. [\[CrossRef\]](#)
2. Schwendel A, Langreck H, Reichel M, et al. Primary small-cell lung carcinomas and their metastases are characterized by a recurrent pattern of genetic alterations. *Int J Cancer* 1997; 74: 86-93. [\[CrossRef\]](#)
3. Abrams HL, Spiro R, Goldstein N. Metastases in carcinoma; analysis of 1000 autopsied cases. *Cancer*. 1950; 3: 74-85. [\[CrossRef\]](#)
4. Adsay NV, Andea A, Basturk O, Kilinc N, Nassar H, Cheng JD. Secondary tumors of the pancreas: an analysis of a surgical and autopsy database and review of the literature. *Virchows Arch* 2004; 444: 527-35. [\[CrossRef\]](#)
5. Boudghene FP, Deslandes PM, LeBlanche AF, Bigot JM. US and CT imaging features of intrapancreatic metastases. *J Comput Assist Tomogr* 1994; 18: 905-10. [\[CrossRef\]](#)
6. Hruban RH, Pitman MB, Klimstra DS. Tumors of the Pancreas; AFIP Atlas of Tumor Pathology. Series 4. Washington DC: ARP Press; 2007.p. 325-33.
7. Maeno T, Satoh H, Ishikawa H, et al. Patterns of pancreatic metastasis from lung cancer. *Anticancer Res* 1998; 18: 2881-4.
8. Yoon WJ, Ryu JK, Kim YT, Yoon YB, Kim SW, Kim WH. Clinical features of metastatic tumors of the pancreas in Korea: a single-center study. *Gut Liver* 2011; 5: 61-4. [\[CrossRef\]](#)
9. Volmar KE, Jones CK, Xie HB. Metastases in the pancreas from nonhematologic neoplasms: report of 20 cases evaluated by fine-needle aspiration. *Diagn Cytopathol* 2004; 31: 216-20. [\[CrossRef\]](#)
10. Layfield LJ, Hirschowitz SL, Adler DG. Metastatic disease to the pancreas documented by endoscopic ultrasound guided fine-needle aspiration: a seven-year experience. *Diagn Cytopathol* 2012; 40: 228-33. [\[CrossRef\]](#)
11. De LP, Lardinois D, Van Schil PE, et al. ESTS guidelines for preoperative lymph node staging for non-small cell lung cancer. *Eur J Cardiothorac Surg* 2007; 32: 1-8. [\[CrossRef\]](#)