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CASE REPORT

A Rare Case Report: Pancreatic IPMN and Lung Adenocarcinoma with Elevation of CA 19-9 in an Asymptomatic Individual

Dorovinis P[1*], Roumpou A[2] and Dimitroulis D[1]

[1]*Second Department of Propaedeutic Surgery, "Laiko" General Hospital, National and Kapodistrian University of Athens, Greece*

[2]*Private Practice, Athens, Greece*

***Corresponding author:** *Panagiotis Dorovinis, Second Department of Propaedeutic Surgery, "Laiko" General Hospital, National and Kapodistrian University of Athens, Greece*

Abstract

An 85-year-old man presented to our hospital because of an elevated value of CA 19-9 of 2000 U/ml, free of any symptoms. CT scan of the thorax and abdomen revealed a lesion in the upper lobe of the right lung and a cystic lesion located in the tail of the pancreas, comprised with dilation of the pancreatic duct, being indicative of peripheral pancreatic Intraductal Papillary Mucinous Neoplasm (IPMN). The pulmonary lesion was examined histologically through EBUS and had no specific signs of atypia or malignancy. Therefore, the patient underwent only peripheral pancreatectomy and splenectomy. Although the specimen confirmed the diagnosis of pancreatic IPMN, we were surprised to find out that one of the excised lymph nodes was infiltrated by lung adenocarcinoma cells.

Introduction

Cancer Antigen 19-9 (Ca 19-9) is a tumor-associated biomarker originally isolated in the serum of patients with colorectal and pancreatic cancer [1]. Nowadays it is widely known that its role is not limited only in cancerous conditions and moreover not limited in those two types of cancer alone. Cases of lung adenocarcinoma accompanied with high blood levels of Ca 19-9 have been reported in literature [2].

We hereby present a case of co-occurrence of two different originated neoplasias: A lung adenocarcinoma with distant lymph node metastasis and a peripheral pancreatic IPMN, revealed after an investigation following abnormally elevated serum levels of Ca 19-9 in a healthy individual.

Case Presentation

An asymptomatic 85-year-old male, with a medical history of excised papillary thyroid neoplasm, had a screening test of serum CA 19-9 and found to have a high value of 2000 U/ml. Accordingly, he underwent a thoracic and abdominal CT scan, which revealed multiple pancreatic cystic lesions, with a maximum diameter of 10 mm, and dilatation of the pancreatic duct at the level of the pancreatic tail up to 3 mm, suspicious of peripheral IPMN. At the level of the esophagogastric junction, borderline in size lymph nodes were examined, with the largest being 10 mm in diameter, a bit bigger than in the previous CT scan a year ago, that was performed randomly.

The MRI of the upper abdomen showed an atrophic pancreatic tail, with multiple cystic lesions at the level of the body and tail. Dilatation of the pancreatic duct was revealed, with bumpy morphology at the tail of the pancreas. At the upper lobe of the right lung, a compact nodule, 3.3 × 2.1 cm in diameter, was examined on the ground of fibrinous lesions, having grown in size since the last check with CT one year ago, in the setting of presymptomatic screening.

MRCP confirmed the aforementioned pancreatic cystic lesions, showed no dilatation of the pancreatic duct, but showed two lymph nodes of 1.5 cm located in the hepatogastric area.

In addition, an FDG PET/CT SCAN was performed, in which the former lung lesion was found to have hyper-

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metabolic activity, with an SUV max of 8.6, being highly suspicious of malignancy. No other abnormal finding was detected.

Besides the scans mentioned above, the patient went on to be examined through EBUS, while an FNA sample from the lung lesion and washing and brushing specimens were taken, revealing no signs of malignancy, but only bronchial epithelia with reactive lesions.

Blood tests revealed CA19-9 = 2000 U/ML, CEA = 137.35 mg/ml, NSE = 9.23 μg/L and erythrocyte sedimentation rate (ERS) = 5 mm/h.

The gastrointestinal investigation with colonoscopy and gastroscopy revealed no abnormal findings.

Our patient underwent peripheral pancreatectomy and splenectomy. The histologic examination revealed low-grade gastric type IPMN with clear margins and the spleen had normal architecture. The specimen also contained 8 lymph nodes, one of which was infiltrated with lung adenocarcinoma cells, though the cytologic examination from the EBUS-guided FNA biopsy of the lung lesion showed no signs of neoplasia. Immunoassay studies showed Cancer cells CK7 (+), CK20 (-), MUCI (+), MUC5AC (-), TTF-1 (+) and napsin (+). Following our surgical intervention, Ca 19-9 blood levels were greatly decreased to a value of 638 U/ml.

Discussion

Cancer Antigen 19-9 (Ca 19-9) is a tumor-associated mucin glycoprotein antigen. It may be found elevated in certain malignant conditions, such as gastric, pancreatic, lung or colon cancer, but also in some non-malignant conditions, such as bile duct disease, cirrhosis, pancreatitis or even inflammatory bowel disease [3]. The upper reference range is < 37 U/ml in healthy individuals. Due to its relatively low sensitivity and specificity as a tumor marker, it is not proposed to be used as a screening tool in the asymptomatic population. Its role is primarily limited as a prognostic factor, to detect recurrence and monitor response to treatment. Nevertheless, greatly elevated serum levels of Ca 19-9 (> 1000 U/ml) are strongly correlated with advanced tumors arising from the pancreas [4].

Intraductal papillary mucinous neoplasms (IPMNs) are potentially malignant epithelial neoplasms composed of mucin-producing cells, and can progress from lower to higher grades of dysplasia and finally even pancreatic ductal adenocarcinoma, as they are the main precursor of pancreatic ductal adenocarcinoma [5,6]. Therefore, early detection and treatment of a non invasive lesion type, may prevent a more aggressive pancreatic cancer [6,7].

The first step to investigate Ca 19-9 elevation, was the performance of imaging tests of the abdomen and then the thorax, in order to exclude a pancreatic neoplasia. CT and MRI scan both showed findings indicative of IPMN, accompanied with a lung lobular lesion. As a diameter > 3 mm of the pancreatic cystic lesions is highly suggestive of malignancy [5], the next step was to confirm histologically the diagnosis by EUS-guided FNA. Since the IPMN was located in the pancreatic tail, it was impossible to perform FNA for cytology and cyst fluid analysis. MRCP confirmed the CT scan findings and as for the PET/CT scan, it detected only a hypermetabolic lesion of the right upper lung. Despite that finding, EBUS-guided FNA of the pulmonary lesion was negative for malignancy.

Taking into account the high Ca 19-9 levels, we proceeded to surgery, and more specifically to distal pancreatectomy, splenectomy and local lymph node resection. Serum levels of Ca 19-9 biomarker can be used as a non-invasive preoperative tool to differentiate an invasive from a more benign IPMN [8].

The histologic examination confirmed the diagnosis of a branch-duct, gastric subtype, low-grade malignancy with negative margins IPMN. IPMNs are distinguished by their microscopic subtype into intestinal, pancreatobiliary, oncocytic and gastric subtypes and by their site of origin into main duct and branch duct types. Gastric mainly derives from the branch duct, whereas the rest of three subtypes from the main pancreatic duct [6].

Despite the negative FNA of the pulmonary lesion, histological testing of one of the resected lymph nodes showed infiltration by lung adenocarcinoma cells. It is of great significance to note the unusual site of this metastatic lymph node, since the most common site for lymph node involvement in lung adenocarcinoma is the peribronchial, hilar intrapulmonary, mediastinal, subcarinal, scalene and supraclavicular area (8th TNM staging system). In our case, the infiltrated lymph node was found in the peripancreatic tissue.

Very few reports have been made in literature about the exclusive association of Ca 19-9 with lung adenocarcinoma [9-11], most of which prove its utility as a prognostic factor [9,10].

Conclusion

It is quite uncommon that our patient had two synchronous neoplastic lesions both of which may have been responsible for the great elevation of Ca 19-9. After obtaining a negative result for malignancy from the EBUS-guided FNA biopsy, we were surprised to witness that our peripheral pancreatectomy and splenectomy specimen for the pancreatic IPMN contained a lymph node infiltrated by lung adenocarcinoma cells.

It remains to be seen whether the blood levels of Ca 19-9 will return to normal, following consecutive chemotherapy for lung adenocarcinoma treatment, confirming the hypothesis that Ca 19-9 is also associated with lung adenocarcinoma.

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