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

Dorovinis P1*, Roumpou A2 and Dimitroulis D1

1Second Department of Propaedeutic Surgery, “Laiko” General Hospital, National and Kapodistrian University of Athens, Greece
2Private 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.

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-
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 CA 19-9 = 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 (-), MUC1 (+), MUC5AC (-), TTF-1 (+) and napsin (+). Following our surgical intervention, Ca 19-9 blood levels were greatly decreased to a value of 638 U/ml.

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

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 biopsy. 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.
References

1. Koprowski H, Herlyn M, Steplewski Z, Sears HF (1981) Specific antigen in serum of patients with colon carcinoma. Science 212: 53-55.

2. Hagiwara K, Sato K, Takahashi K, Shishido M, Awano N, et al. (1995) Two cases of CA 19-9 producing pulmonary papillary adenocarcinoma. Kyobu Geka 48: 925-928.

3. Steinberg W (1990) The clinical utility of the CA 19-9 tumor-associated antigen. Am J Gastroenterol 85: 350-355.

4. Ince AT, Yildiz K, Baysal B, Danaliloglu A, Kocaman O, et al. (2014) Roles of serum and biliary CEA, CA19-9, VEGFR3, and TAC in differentiating between malignant and benign biliary obstructions. Turk J Gastroenterol 25: 162-169.

5. Sugiyama M, Atomi Y, Kuroda A (1997) Two types of mucin-producing cystic tumors of the pancreas: Diagnosis and treatment. Surgery 122: 617-625.

6. Rong Y, Wang D, Xu C, Ji Y, Jin D, et al. (2017) Prognostic value of histological subtype in intraductal papillary mucinous neoplasm of the pancreas: A retrospective analysis of outcome from one single center. Medicine (Baltimore) 96: e6599.

7. Hruban RH, Takaori K, Klimstra DS, Adsay NV, Albores-Saavedra J, et al. (2004) An illustrated consensus on the classification of pancreatic intraepithelial neoplasia and intraductal papillary mucinous neoplasms. Am J Surg Pathol 28: 977-987.

8. Fritz S, Hackert T, Hinz U, Hartwig W, Büchler MW, et al. (2011) Role of serum carbohydrate antigen 19-9 and carcinoembryonic antigen in distinguishing between benign and invasive intraductal papillary mucinous neoplasm of the pancreas. Br J Surg 98: 104-110.

9. Sato Y, Fujimoto D, Uehara K, Shimizu R, Ito J, et al. (2016) The prognostic value of serum CA 19-9 for patients with advanced lung adenocarcinoma. BMC Cancer 16: 890.

10. Isaksson S, Jönsson P, Monsef N, Brunnström H, Bendahl PO, et al. (2017) CA 19-9 and CA 125 as potential predictors of disease recurrence in resectable lung adenocarcinoma. Plos One 12: e0186284.

11. Sheng-Jie Wong, Chun-Ming Hong, Hsiu-Po Wang, Tsu-Yao Cheng (2016) High serum level of CA 19-9 not always related to the pancreas: An asymptomatic case of highly elevated CA 19-9 related to lung adenocarcinoma. JOP. Journal of the Pancreas.