Obstructive Jaundice due to Pancreatic Metastasis from Non-small Cell Lung Cancer

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ABSTRACT

We report a 67-year-old female patient, recently diagnosed to have non-small cell lung cancer (NSCLC). On first PET (positron emission tomography) examination in October 2009, no distant metastasis was found. Four months later, second PET examination was done, detecting pancreatic foci in the uncinate process and in the tail of the pancreas measuring 22 mm which were more likely to be metastatic rather than primary origin. The patient underwent chemotherapy and radiotherapy. After 1 month of follow up, jaundice was noticed. Laboratory exams and MRCP showed obstructive jaundice. ERCP was performed with biliary stenting for palliative treatment.

Symptomatic metastatic lesions of the pancreas from carcinoma of the lung are extremely rare. Typically, the patients remain asymptomatic until their disease reaches a fairly advanced stage, and therapeutic options are then limited to palliative measures.

Key words: NSCLC, pancreas, metastasis, obstructive, jaundice, ERCP.

INTRODUCTION

Primary lung cancer frequently metastasizes to distant organs; however, the pancreas is a relatively infrequent site of metastasis. A variety of malignant tumors have been documented to metastasize to the pancreas. The pancreas can be the site of metastases from renal cell cancer along with lung, breast, and colon or skin tumors. Metastatic carcinoma to the pancreas from another site is uncommon and accounts for approximately 2% of pancreatic malignancies.1 Most patients presenting in this manner are at
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an advanced stage with widespread disease, and are usually managed symptomatically. This generally involves palliative chemotherapy and/or radiotherapy coupled with other measures to relieve the biliary obstruction such as biliary stent insertion.2

In this report, we present a case of 67-year-old female patient with non-small-cell lung carcinoma who presented with metachronous pancreatic metastases that became clinically evident with obstructive jaundice.

CASE ILLUSTRATION

A 67-year-old female patient was recently diagnosed with T4N0M0 adenocarcinoma in left upper lobe and lower lobe obliterating the left upper lobe bronchus, left upper pulmonary vein and artery. She had PET scan done in October 2009 which showed left pulmonary mass in hilum region about 3 cm (SUVm 10) and stomach ulcer. No distant metastasis was noted. She also had a bronchoscopy done which reported tumour in LMB to LC1. Left upper lobe (completely occluded) and left lower lobe 75% occluded. Histopathology examination showed adenocarcinoma with TTF1 and CK7 positive and CK20 negative. Cardiothoracic surgeon had recommended neoadjuvant chemotherapy to downstage the disease. But the patient refused and explored for other option.

She had not received any treatments until February 2010 then underwent second PET scan examination which showed previous lung mass. Another foci were detected in the uncinate process and in the tail of the pancreas measuring 22 mm. These pancreatic foci were presumably new and were more likely to be metastatic rather than primary origin. No metastatic foci were noted elsewhere. (Figure 1)

She had chemotherapy (February 2010-April 2010) and radiotherapy (March 2010). The third PET scan was done in June 2010 and showed less activity of previous lung mass. The pancreatic foci were still noted and larger in size (Figure 2).

After 1 month of follow up, she complained jaundice. On physical examination severe jaundice was found. Laboratory exams showed elevated alkali phosphatase, Gamma GT, hyperbilirubinemia. Serum amylase was normal but serum lipase was elevated. MRCP was done prior to ERCP, and revealed markedly dilated CBD and both intrahepatic biliary ducts (Figure 3). ERCP was performed with plastic stent insertion. She died 6 month after this palliative treatment.

DISCUSSION

Lung cancer metastasizes to many sites, but most frequently to the bone, the liver and the adrenal glands. Approximately one third of patients will present with symptoms relating to extra thoracic spread. The pancreas is
considered to be an infrequent target to which lung cancer will metastasize to. During one autopsy, carcinoma of the lung metastasized to the pancreas in 14% of patients. As regards lung cancer, metastatic involvement of the pancreas is reported in up to 18% of patients. The small cell is the most common histologic type in pancreatic metastasis among histologic types of lung cancer. In Japan, Maeno et al. reported 26 patients with pancreatic metastasis out of 850 lung cancer patients (3%). In their series, the usual pattern of pancreatic metastasis involved a solitary nodule in 73%, multiple nodules in 11.5%, and diffuse swelling in 15.4% of the patients.

The most frequent sources of pancreatic malignant metastases originate from the lung, breast, kidney, gastrointestinal tract, thyroid, melanoma, and liver. Melanomas and osteosarcomas are also among the tumors that metastasize to the pancreas. The route of metastases is lymphatic (28%), vascular (27%), lymphatic - vascular (19%) and by direct invasion (18%). Such lesions usually appear in patients between 60-70 years of age. The metastases may be single or multiple, synchronous or metachronous (some time occurring very late). The most common manifestation is that of a solitary mass, located in the head of the pancreas.

Pancreatic metastases are asymptomatic in more than 50% of cases they are often detected during follow-up investigations after surgery for a primary lesion or as an incidental finding on imaging studies performed for an unrelated indication. Symptoms caused by metastatic pancreatic lesions are variable and most patients are free of organ-specific complaints. Metastasis to the pancreas is manifested clinically with various symptoms, the most common of which are jaundice and abdominal pain accounting for approximately one-fourth of all cases.

Metastatic disease is usually incidentally detected on abdominal CT scan during the follow-up period. Those patients that do have clinical manifestations may present with abdominal or back pain, nausea, weight loss, jaundice, gastrointestinal haemorrhage or intestinal obstruction. Moreover, whenever the pancreatic metastatic lesion directly invades the pancreatic duct epithelium it may clinically mimic primary pancreatic adenocarcinoma or, less commonly, induce acute pancreatitis. Tanaka et al. reported a case of metastasis-induced acute pancreatitis as an initial manifestation of small cell lung carcinoma, and reported dramatic improvement of the patient’s condition after using chemotherapy to treat the metastases.

The diagnosis is usually confirmed by percutaneous fine needle aspiration of the pancreatic lesion under CT guidance or endoscopic ultrasound (EUS) or by cytological examination of brushing specimens obtained during endoscopic retrograde cholangiopancreatography (ERCP).

Treatment options for metastatic lung cancer lesions to the pancreas are mainly palliative. They can be either non-invasive or invasive-surgical. Non-invasive treatment options can be chemotherapy and/or common bile duct stenting, in order to relieve the patient from jaundice and its symptoms. When surgical treatment is planned this is usually limited to by-pass procedures in patients with obstructive jaundice. There have been a few reports of patients who underwent pancreatic resections for metastatic lung cancer lesions, but this was either in ignorance or overseeing the fact that the aetiology of the obstruction was of metastatic origin. There have been several papers suggesting that pancreatectomy for metastatic lesions may result in improved survival rates and disease free intervals. However, these results involve patients with metastatic pancreatic lesions of different histologic origin, such as renal cell cancer, lung, breast and colonic cancer. Further studies are required in order to determine whether aggressive surgical treatment has better prognosis in patients with secondary pancreatic metastasis from lung cancer.

Non-small cell lung cancer (NSCLC) with distant metastases (stage IV) has a poor prognosis. Platinum-based chemotherapy regimens have been shown to improve survival and enhance quality of life, and they are also cost effective. This treatment is most appropriate for patients with a good performance status. Studies of other novel agents and non-platinum-based regimens are ongoing. Median survival has been reported to improve from 3.6 to approximately
6.5 months after chemotherapy. However, there is very little information about the survival benefit resulting from resection of solitary metastasis to the pancreas. In a small series by Hiotis et al., of 3 patients with metachronous non-small cell cancer pancreatic metastasis who underwent pancreatectomy, all patients were reported to have eventually developed recurrence. Whether all patients who are at acceptable risk for surgery should be offered pancreatic resection for isolated metastatic disease from lung cancer should be the subject of future investigations.

In our case, the patient was admitted with obstructive jaundice due to pancreatic metastasis in patient with stage IV NSCLC. In management of pancreatobiliary malignancy, biliary SEMS (Self-Expandable Metallic Stent) are significantly more expensive than plastic stents, their use should be reserved for patients whose estimated survival is greater than 3 to 4 months, and/or those patients without liver metastases. Since the patient had stage IV NSCLC, we performed biliary stenting using plastic stent as palliative treatment.

**CONCLUSION**

Metastatic lesions of the pancreas from carcinoma of the lung are infrequent. Since it become symptomatic, the disease reaches a fairly advanced stage, and therapeutic options are then limited to palliative measures.

**REFERENCES**