

# Metastatic squamous cell carcinoma to the pancreas: Report of an extremely rare case

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**Abstract.** Secondary pancreatic lesions are very uncommon. Resection of these metastatic lesions with a curative intent has been reported in selected patients; however, the survival benefit from these procedures has yet to be clearly determined. A 78-year-old male patient presented to our department with obstructive jaundice. Three years prior to presentation the patient had undergone right pneumonectomy, due to stage IIA, low-grade squamous cell lung carcinoma. After resection, the patient received adjuvant chemotherapy, with no evidence of local or systemic recurrence over the following 3 years. Abdominal computer tomography on admission revealed a 3-cm lesion located at the head of the pancreas, causing biliary obstruction. Endoscopic ultrasound biopsy revealed malignant cells, suspicious for squamous cell carcinoma. Due to the limited extent of the metastatic disease and in view of the patient's good condition, surgical resection was proposed and the patient successfully underwent pancreaticoduodenectomy. Histological examination of the resected specimen confirmed a squamous cell carcinoma, with an immunochemical profile similar to that of the primary lung tumor. Therefore, pancreatic resection with curative intent may be feasible in selected patients with secondary metastatic tumors. However, further studies are required in order to determine the benefit of these major procedures in terms of survival outcomes.

## Introduction

Metastatic lesions to the pancreas secondary to non-pancreatic primary tumors are scarcely reported and are estimated to account for up to 3-5% of all pancreatic lesions (1,2). A plethora of primary tumors may give rise to secondary lesions in the pancreas, with the most frequent being the lung, renal, breast, gastric and colon cancer, as well as melanoma (2-4). However, symptomatic metastatic lesions of the pancreas arising from squamous cell carcinoma of the lung are extremely rare (5-7). Indeed, the incidence of pancreatic metastases from pulmonary squamous cell carcinoma is ~1% of all secondary pancreatic lesions (8). Although the impact of surgical resection of the limited metastatic disease from primary tumors to other organs, such as the liver and lung, has been clearly defined, that is not the case for patients with metastases to the pancreas (9). Limited evidence exists in regards to the survival benefit in these patients, possibly due to the heterogeneity of the primary tumors, as well as the timing of metastasis presentation.

We herein present the case of an elderly patient with a metachronous metastatic lesion to the head of the pancreas secondary to non-small cell lung carcinoma treated 3 years prior to presentation.

## Case report

A 78-year-old male patient presented in February 2013 to the department of surgery at Attikon University Hospital (Athens, Greece) with a 2-day onset of obstructive jaundice. The patient's medical history included surgically treated lung cancer, coronary heart disease, chronic obstructive pulmonary disease and hyperthyroidism under medical treatment. Three years prior to presentation, the patient had undergone right pneumonectomy for stage IIA, low-grade squamous cell lung carcinoma. After resection, the patient received adjuvant platinum-based chemotherapy and remained in good condition over the following 3 years, with no evidence of local or systemic recurrence. Computed tomography (CT) on admission revealed a 2.5-cm mass located in the head of the pancreas, causing biliary obstruction, without evidence of disease in the chest or elsewhere (Fig. 1A and B). The cancer antigen 19-9 level was 63.2 U/ml (normal range, 0-37 U/ml).

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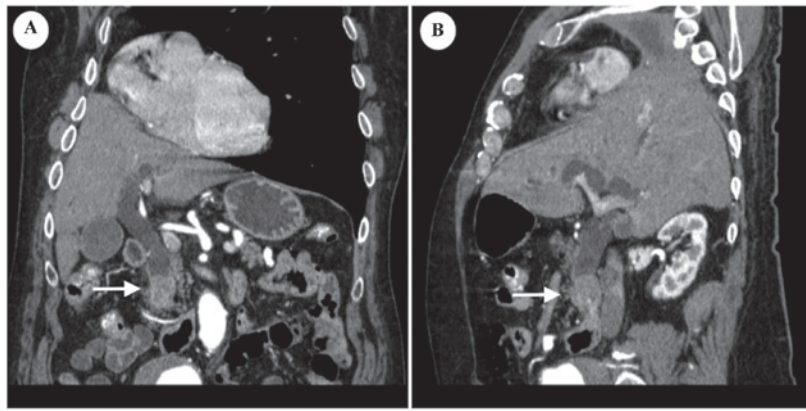


Figure 1. (A and B) Abdominal computed tomography scan on admission showing a pancreatic head lesion (arrows) causing obstruction of the bile duct.

Endoscopic ultrasound (EUS)-guided fine-needle aspiration biopsy revealed malignant cells, suspicious for squamous cell carcinoma. Due to the limited metastatic disease and in view of the patient's good overall condition, surgical resection was proposed; the patient was fully informed on the risks of surgical resection and provided his full consent, after which time he successfully underwent pancreaticoduodenectomy (Whipple procedure). During laparotomy, no sign of intra-abdominal spread was observed. Final histological examination of the complete (R0) resection specimen revealed a 2.8x2.2x2.5-cm moderately differentiated squamous cell carcinoma arising from the pancreas and invading the common bile duct wall, with an immunohistochemical profile similar to that of the resected primary pulmonary tumor (thyroid transcription factor 1- and chromogranin A-positive). Additionally, none of the resected peripancreatic lymph nodes showed any evidence of disease. The patient's postoperative course was uneventful and he was discharged 10 days postoperatively. The patient was readmitted 61 days later due to pneumonia and succumbed to pneumonia-induced respiratory insufficiency 1 month later.

## Discussion

The most frequent sites of lung cancer metastases include the bones, liver and adrenal glands, whereas the pancreas is a rather uncommon location of metastatic lung cancer. More specifically, the majority of these cases arise from small-cell lung carcinoma, with an incidence of 10%, followed by adenocarcinoma (2.4%), large-cell carcinoma (1.9%) and, finally, squamous cell carcinoma, with an incidence of only 1.1% (8). The clinical presentation of patients with metastatic pancreatic tumors varies widely. Patients may remain asymptomatic and the lesion is incidentally discovered on follow-up imaging, or they may present with non-specific findings, including abdominal and/or back pain, nausea or weight loss, as in the case of primary pancreatic tumors (7,10).

The diagnosis of these secondary lesions is challenging, given the fact that they may be easily misdiagnosed as primary pancreatic tumors. Several diagnostic imaging modalities, including abdominal CT and positron emission tomography, have been reported in the literature to date (10). Secondary pancreatic lesions present with a wide spectrum of CT patterns, and tumor-specific features are heterogeneously

manifested (11). As a result, imaging studies can only precisely evaluate the stage of disease, whereas histopathological examination can more accurately distinguish primary from metastatic pancreatic lesions (12). Percutaneous fine-needle biopsy of the pancreatic tumor, guided by either CT or EUS, can help establish a solid diagnosis (13,14). Following meticulous evaluation of preoperative imaging studies and assessment of the patient's clinical condition, surgical teams can determine whether the patient is eligible to undergo resection with curative intent (10).

As metastatic pancreatic lesions from the lung are a rare entity, the effect of surgical resection on the long-term survival of such patients is poorly evaluated in the literature. Encouraging results have been reported for certain types of tumors, including metastatic renal cell carcinoma (4). Similar improved survival results have also been reported in cases of pancreatic resection for metastases from ovarian cancer (15,16). Dewamwala *et al* reported their institutional experience from 13 patients with secondary pancreatic tumors from various non-pancreatic primaries, which included renal cell, lung, ovarian, gastric and breast cancer, as well as melanoma (10). According to their results, the mean postoperative survival following pancreatic resection (8 patients; 61.5%) was 28.9 months (range, 1-91 months) compared with 2 months (range, 5-30 months) for patients who were administered palliative chemotherapy and/or radiation (5 patients; 38.5%) (10). However, in the case of metastatic lesions from primary squamous cell lung carcinoma, the evidence is poor and surgical treatment is rarely attempted due to extensive or unresectable pancreatic disease (6,7,10,14).

Metachronous pancreatic metastasis from pulmonary squamous cell carcinoma is extremely rare, but can be successfully treated with resection. However, further studies are required in order to evaluate the survival benefit of surgical resection in selected patients with secondary pancreatic tumors. Of note, patients evaluated by multimodal tumor boards as eligible for resection should be fully informed on the morbidity and mortality risk associated with such procedures, particularly due to the absence of concrete data on the potential survival benefit of aggressive interventions.

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## Authors' contributions

NM and DS had the original idea. AP and VN performed the systematic review. NM, DM and DIT analyzed and interpreted the data. NM, AP, DM and DT wrote the manuscript. EPM and AM critically revised the manuscript. All the authors have read and approved the final version of this manuscript.

## Competing interests

The authors declare that they have no competing interests to disclose.

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