

Lung adenocarcinoma metastasis to pancreas after the absence of primary tumour for almost two years

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Lesson

This case report can argue in favour of optimal surgical management for isolated metastases to the pancreas, especially in patients with low surgical risk.

Keywords

Lung cancer (oncology), pancreas and biliary tract, general surgery

Introduction

The pancreas is a relatively infrequent site of metastasis, representing only 2% of all pancreatic neoplasm.¹ Pulmonary adenocarcinoma metastasis to pancreas is extremely rare and there is very limited experience with the surgical resection of isolated pancreatic metastasis. The role of surgery in the management of these patients has not been clearly defined. For many years, metastatic disease to the pancreas was associated with terminal-stage condition. Recently, a significant reduction in the operative risk following pancreatic surgery has been demonstrated, thus extending the indication for these operations to patients with metastatic disease.² We report a case with clinically asymptomatic pancreatic metastasis from lung adenocarcinomas.

Case report

A 69-year-old male, with a history of 30 years of smoking, presented on 9 April 2015 suffering from an intense chest pain for half a day. After several tests, his positron emission tomography/computed tomography on 16 April 2015 showed right lung lesion without pancreas lesion (Figure 1(a)) and left lung lesion (Figure 1(b)). During that period his carcino-embryonic antigen level was 26.80 ng/mL (normal range <4.70 ng/mL) and his carbohydrate antigen 199 was 17.46 U/mL (normal range <39.00 U/mL). He underwent right upper lobectomy and left upper lobectomy, on 23 April 2015 via thorascopy. Histologically, the right and left lesions

were 4.0 × 3.0 × 3.0 cm and 1.3 × 1.0 × 0.6 cm, respectively; both were adenocarcinomas. The right adenocarcinoma had directly invaded the right bronchus. Lymph node metastasis was found near the bronchus (1/7). Stage IIIa (pT3N1M0) is for the right lung adenocarcinoma of alveolar type and stage I (pT1N0M0) is for the left lung adenocarcinoma of alveolar type. Post-operative course was uncomplicated. The patient underwent four cycles of chemotherapy based on ‘Pemetrexed 950 mg d1 + Cisplatin 40 mg d1–3’. No evidence of any recurrence was apparent during subsequent follow-up until March 2017. Positron emission tomography/computed tomography scan showed abnormal fluorodeoxyglucose metabolism only from the pancreatic body to the tail and a lesion at the body of the pancreas (Figure 1(c)). Computed tomography scan showed a normal sized pancreas with normal form and a hypodense area on the body of the pancreas, which was slightly enhanced compared with normal pancreatic tissue, of diameter 1.1 cm, and slight dilatation of distal pancreatic duct (Figure 1(d)). On second admission, carcino-embryonic antigen and carbohydrate antigen 199 levels were 36.13 ng/mL (normal range <4.70 ng/mL) and 46.93 U/mL (normal range <39.00 U/mL), respectively. On laparotomy, the mass was found to be at the body and tail of the pancreas. Distal pancreatectomy with en-bloc splenectomy was carried out on 16 March 2017. Immunohistochemical demonstrated metastatic lung adenocarcinoma of intermediate differentiation measuring 1.5 × 1.2 × 1 cm, thyroid transcription factor-1(+) (Figure 2(a)), Napsin A (+) (Figure 2(b)), cytokeratin 7 (+), cytokeratin 20 (–), Villin (–), Ki-67 (>30%+). The margins were negative. The final diagnosis was metastatic pancreatic carcinoma from lung adenocarcinoma (Figure 2(c)). The patient was discharged on the 18th post-operative day. On 29 April 2017 (25th postoperative day), he began chemotherapy, based on ‘Anzatax 270 mg d1 + Paraplatin 560 mg d1’ for four cycles. After the four

Figure 1. (a) Positron emission tomography/computed tomography scan showing right lung lesion without the presence of any pancreatic lesions. (b) Positron emission tomography/computed tomography scan showing left lung lesion. (c) Positron emission tomography/computed tomography scan showing a lesion at the body of the pancreas. (d) Computed tomography scan with hypodense lesion on the body of pancreas, which has a diameter of 1.1 cm.

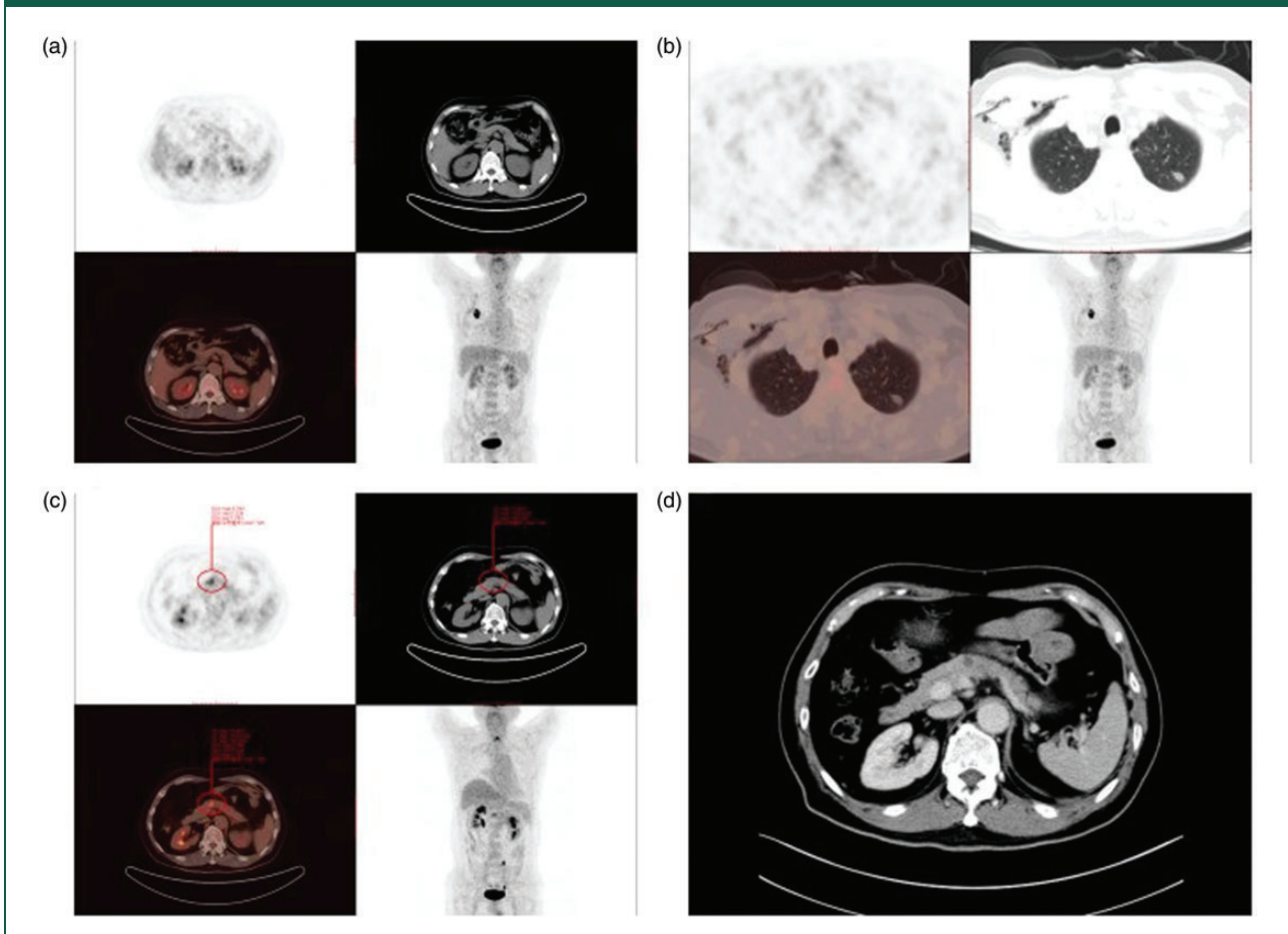
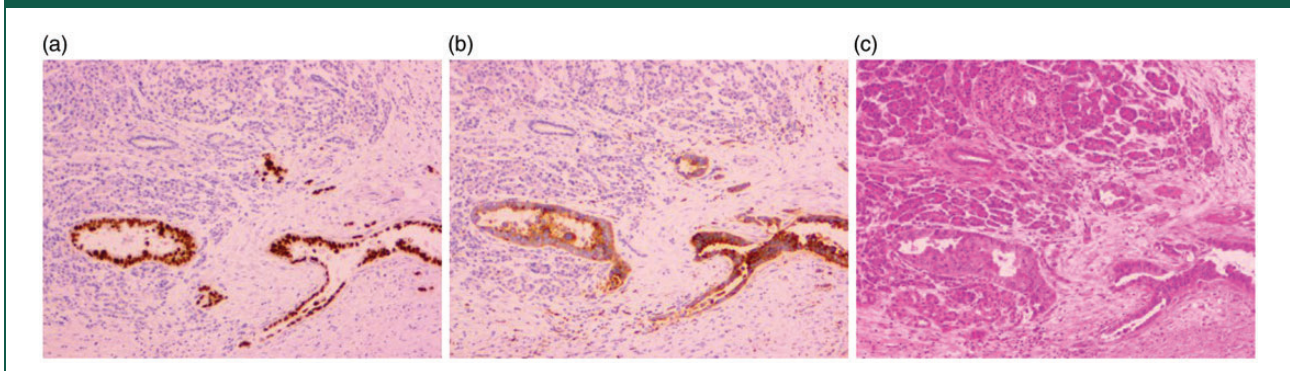


Figure 2. (a) Thyroid transcription factor-1 positive stain for the lung adenocarcinoma metastasis to the pancreas (magnifying power $\times 100$). (b) Napsin A positive stain for the lung adenocarcinoma metastasis to the pancreas (magnifying power $\times 100$). (c) Haematoxylin and eosin stain for the pancreatic lesion from the surgical specimen (magnifying power $\times 100$).



cycles, the agent Anzatax was changed to gefitinib as maintenance therapy. On 11 May 2017 (56th post-operative day), the patient was readmitted because of abdominal effusion at the surgical region. Computed tomography-guided abdominal drainage for abdominal effusion was applied on 12 May 2017. So far, no other abnormalities have been found in the patient during follow-up for a period of nearly two years.

Discussion

Lung cancer metastasises to many frequent sites which are bone, liver and adrenal gland.³ Lung cancer metastasis to pancreas is infrequent and there are very few reports about its management in the literature. Figures are reported in the range of 0–12%, the majority of which are of the small cell lung carcinoma histological subtype.⁴ The time interval between the diagnosis of the primary tumour and metastasis to the pancreas varies widely.⁵ For our case, thoracoscopic resection was preferred as literature search has shown that it is associated with less operation time,⁶ less intraoperative blood loss,⁶ shorter hospitalisation time and lower incidence of complications⁷ compared to open thoracotomy.

Moreover, distal pancreatectomy with en-bloc splenectomy was done as based on standard treatment guidelines; spleen preservation is not recommended to achieve R0 resection in case of suspected pancreatic carcinoma.^{8,9} Several authors have reported successful resection of pancreatic metastasis from lung cancer; Wilson et al.¹⁰ reported a patient who remained disease-free for 22 months after surgical resection for pancreatic metastasis from pulmonary adenocarcinoma, although the primary lung lesion was not resected because of disease progression. Mori et al.¹¹ reported a patient who had no disease recurrence for 24 months after surgical resection of pancreatic metastasis. As these were both simply case reports, they were unable to strongly support the validity of surgical resection for pancreatic metastasis from lung cancer. In asymptomatic and elective cases, the unproven benefit of pancreatic resection for metastatic disease together with the significant morbidity of the operation mandates careful patient selection as well as discussion with the patient regarding the risk-benefit of the treatment. Ideally, this treatment should be offered to patients presenting with resectable isolated metastases after a thorough whole-body imaging work-up who are fit enough to undergo major abdominal surgery. Fewer than 10 surgically treated pancreatic metastases from lung cancer, the worst of all histological subtypes, associated with a median survival of six months, have been reported in the literature.¹²

Furthermore, the use of pemetrexed plus cisplatin showed significant benefits with regard to survival in patients with lung adenocarcinoma.¹³ It has been shown that carboplatin together with paclitaxel, also an ingredient of Anzatax, is optimal as first-line systemic therapy for metastatic lung adenocarcinoma.¹⁴ Anzatax was changed to gefitinib as maintenance therapy because, based on NCCN guidelines, there must be initiation of a different agent not included in the first-line regimen if there is absence of disease progression beyond four to six cycles of initial therapy.¹⁵

Conclusion

Surgical management is the best therapeutic option for patients with isolated metastases to the pancreas to prevent or reduce progression. Long-term survival can be achieved. It is necessary to carefully discuss the perioperative risks and outcomes with the patient. In this setting, such an approach may offer good palliation and may prolong survival. However, this is a single case study and this conclusion is drawn based on our experience.

Declarations

Competing Interests: KS, CX, JW and YM declare that they have no competing interests.

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Ethics approval: Written informed consent for publication was obtained from the patient.

Guarantor: YM.

Contributorship: KS wrote the article. CX and KS performed the literature review. JW, CX and KS edited the article. YM was the primary surgeon who spearheaded the submission of the article, with KS as his assistant surgeon.

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