

CASE REPORT

Multiple metastatic renal cell carcinoma isolated to pancreas

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Abstract

Renal cell carcinoma (RCC) metastases to the pancreas are reported to be rare. Isolated multiple pancreatic metastases are even rarer. We report a 68-year-old asymptomatic male patient who presented with multiple metastatic nodular lesions in the pancreas demonstrated by computerized tomography 3.5 years after radical nephrectomy performed for clear cell RCC. Spleen-preserving total pancreatectomy was performed. Gross examination revealed five well-demarcated tumoral nodules in the head, body and tail of the pancreas. Histopathological examination revealed clusters of epithelial clear cells, immunohistochemically positive for CD10 and vimentin, and negative for CK19 and chromogranin, supporting a diagnosis of metastatic RCC. The patient has remained well at 29 months post-resection, in agreement with recent experience that radical resection for multiple isolated metastatic nodular lesions can achieve improved survival and better quality of life.

Keywords: pancreatic metastasis, renal cell carcinoma, pancreatic resection.

INTRODUCTION

The pancreas is a relatively uncommon site for metastasis from renal cell carcinoma (RCC). Pancreatic RCC metastases have been reported to account for only 1% of all pancreatic neoplasms. The metastases may present synchronously or metachronously. Most patients have widespread systemic disease at the time of diagnosis, while the clinical occurrence of isolated or exclusive metastasis to the pancreas is rare. Experience with pancreatic resections for the treatment of isolated metastatic lesions is increasing. For multiple isolated metastases, although still controversial, radical resections are being recommended with increasing survival rates.¹⁻³

CASE REPORT

A 68-year-old male patient underwent right radical nephrectomy for an 8x7x4 cm clear cell renal cell carcinoma in 2005. The tumour, with a Fuhrman nuclear grade of 2, was confined to the kidney. No vascular or lymph node involvement was revealed.

Three and a half years later, the patient was referred to our hospital after multiple nodular lesions in the pancreas were detected by computerized tomography (CT) during a

follow-up visit. Magnetic resonance imaging revealed defined nodules in the head, body and tail of the pancreas (Fig 1). CT of the thorax and fluorine-18 fluorodeoxyglucose (FDG)-PET scan, performed to rule out any other lesions, were negative. Gastroduodenoscopy was negative for ulcers. On the basis of multiple nodules distributed within the pancreas, the preoperative differential diagnoses were RCC metastases and gastroenteropancreatic neuroendocrine tumour (GEP-NET). A pylorus- and spleen-preserving total pancreatectomy was performed.

Pathology

On gross examination, five well-demarcated tumoral nodules ranging from 0.7cm to 2 cm diameter, were located at the head, body and tail of the pancreas. The tumours were firm in consistency and revealed grayish-white cut surfaces. Microscopical examination revealed solid tumoral nodules with well defined margins, consisting of large epithelial cells with clear cytoplasm and pleomorphic nuclei containing prominent nucleoli (Fig. 2). Mitotic figures were rare. Vascular invasion or perineural invasion were absent. The surgical margins and sixteen regional lymph nodes were free from tumour.

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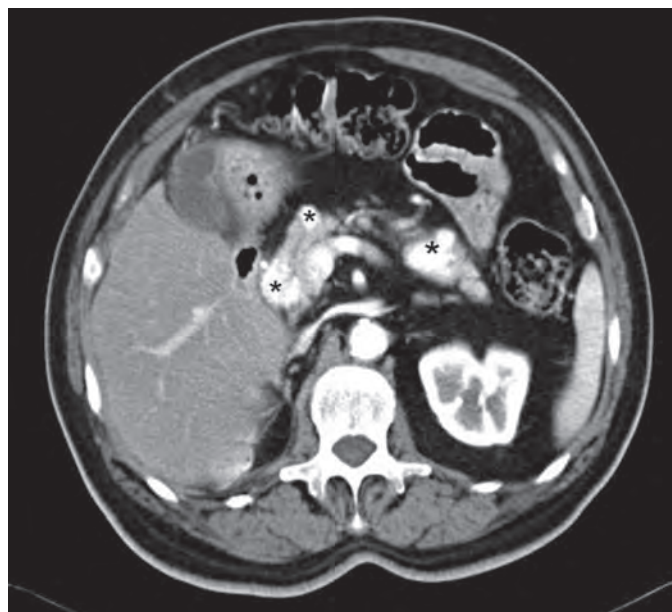


FIG. 1: Multiple contrast enhancing nodular lesions (asterisks) with clearly defined contours, located in the head, body and tail of the pancreas (MRI).

Immunohistochemically, the tumour was positive for CD10, focally positive for vimentin and negative for CK19 and chromogranin. These pathological findings were consistent with metastasis from RCC.

The postoperative course was uneventful and the patient is well without any metastases after 29 months.

DISCUSSION

Metastatic tumours to the pancreas are rare, and isolated metastases involving only the pancreas are even rarer. Eleven percent of RCC metastasize virtually to any organ even 10 or more years after radical nephrectomy, the longest reported interval being 27 years.⁴

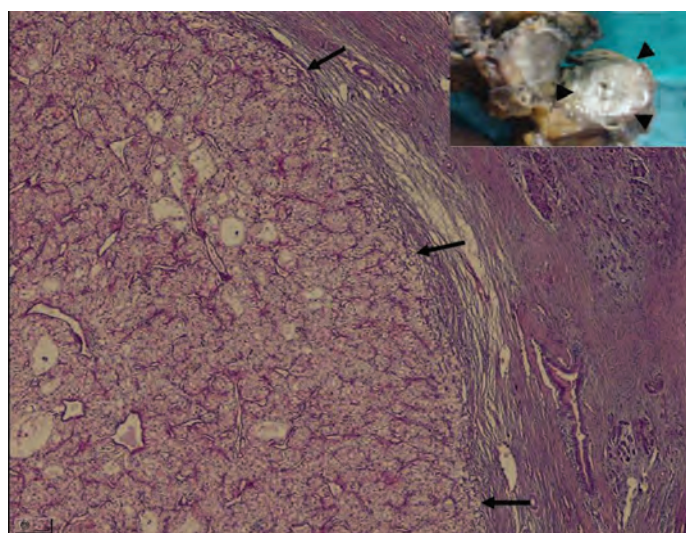


FIG. 2: Well-demarcated tumour nodule consisting of large epithelial cells with clear cytoplasm (arrows) (Haematoxylin and eosin; x40). Inset: Cut section of one of the grayish-white tumoral nodular lesions (arrowheads) (Macroscopic photograph).

RCC frequently metastasize to the lung parenchyma, bone and liver, and infrequently to the pancreas.⁵ However, among solitary metastatic tumours in the pancreas, RCC is reported to be the most common primary tumour.⁶ The route of spread of RCC to the pancreas is still controversial and can be either hematogenous or lymphatogenous. Direct spread to the pancreas is not generally accepted to occur. The patterns of metastatic involvement of the pancreas have been reported to be 50-73% solitary nodules, 15-44% diffuse pancreatic involvement and 5-10% multiple nodules.⁷

Most commonly, patients with pancreatic metastasis from RCC are asymptomatic (70-90%); however, abdominal pain, obstructive jaundice, and weight loss may occur.⁸ Tumours are usually detected by routine surveillance imaging as was the case in our patient.¹ Isolated pancreatic metastasis from RCC should be distinguished from primary neoplasms of the pancreas and other metastatic diseases. Metastatic disease usually indicates a poor prognosis; however, metastatic RCC, as an exception, has a better prognosis than primary pancreatic carcinoma and a variety of other metastatic tumours, with reported 5-year survival rates of up to 88% after resection.^{2,7,9-11} Approximately 35% of cases are reported to have isolated multiple pancreatic metastases. Previously, resection was deemed unnecessary as it was thought to be a fatal disseminated metastatic disease. More recently, 5-year survival rates of up to 78% have been achieved with radical resection, which are even better than the survival rates for solitary metastases (64%).^{1,12}

RCC metastases to pancreas have intense homogeneous enhancement in small lesions and rim enhancement in large lesions on CT. The radiological differential diagnosis of multiple hypervascular lesions in the pancreas includes neuroendocrine tumours.¹³ Preoperative accurate staging of the tumour is important. CT and PET scans are useful to rule out any other metastatic deposits in other organs. Fine needle aspiration cytology (FNAC), though often non-specific for RCC metastases, might be performed preoperatively. However, since the tumours were resectable and preoperative diagnosis would not alter the treatment in our case, we selected to perform the operation without FNAC.¹⁴

RCC cells classically have a clear cytoplasm surrounded by a distinct cell membrane. The nuclei are round and uniform with finely granular, evenly distributed chromatin. Histopathologically,

primary pancreatic neoplasms including serous cystadenoma, clear cell adenocarcinoma, islet cell tumour and sugar tumour should be included in the differential diagnoses. The rare islet cell tumours are reported to be composed of cuboidal cells with clear cytoplasm, forming trabecular and insular nests, cords, festoons and a gyriform pattern. Chromogranin, unlike in islet cell tumours, is not reactive in RCC.¹⁵

A rarely durable complete response rate of less than 15% is achieved with immunotherapy in the treatment of either primary or metastatic RCC. Chemotherapy, hormonal therapy, and radiotherapy are usually ineffective.^{7,12,16} Less than radical resections result in high rates of recurrences.⁸ Radical resection, where applicable, is recommended for these lesions for improved survival and better quality of life.^{8,12} The type of resection (distal pancreatectomy or pancreaticoduodenectomy) depends on the location of solitary tumours. Total pancreatectomy is the procedure of choice in multifocal lesions.¹²

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