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Acute Cholangitis Revealing Pancreatic Metastasis From Renal Clear Cell Carcinoma: a Case Report

Affiliation: Rachida Chehrastane, Sanae Jellal, Salma Marrakchi,Youssef Omor, Rachida Latib, Sanae Amalik.

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Abstract

Renal cell carcinoma is well known for its frequency of metastasis, most commonly to the lung, than bone, lymph nodes, liver, adrenal gland and brain. Pancreatic metastases are much less common and rarely become clinically apparent.

We present the case of a 41-year-old man recently diagnosed with renal cell carcinoma, which has metastasized to the lungs, adrenal glands, and lymph nodes. He developed cholangitis due to pancreatic metastasis.

Introduction:

Renal cell carcinoma (RCC) is the most common malignant tumor of the kidney, accounting for 80 to 90% of kidney cancers, with peak incidence between 60 and 70 years of age, predominantly affecting men.

RCC is well known for its propensity to metastasize, with the most frequent site being the lungs, followed by bones in 20 to 35% of cases, as well as metastases to lymph nodes, liver, adrenal glands, and brain. Pancreatic metastases are much less common, occurring in approximately 3% of cases, and rarely become clinically evident.

Keyword: Renal cell carcinoma, acute cholangitis, pancreatic metastatis, CT and pancreatic MRI.

Case Report:

We present the case of a 41-year-old man recently diagnosed with clear cell renal carcinoma. The CT scan showed a mass in the right kidney measuring 173x134x115 mm with a density similar to normal renal parenchyma and containing areas of necrosis and amorphous calcifications. The mass exhibited heterogeneous contrast enhancement. The scan did not show any signs of pancreatic involvement.

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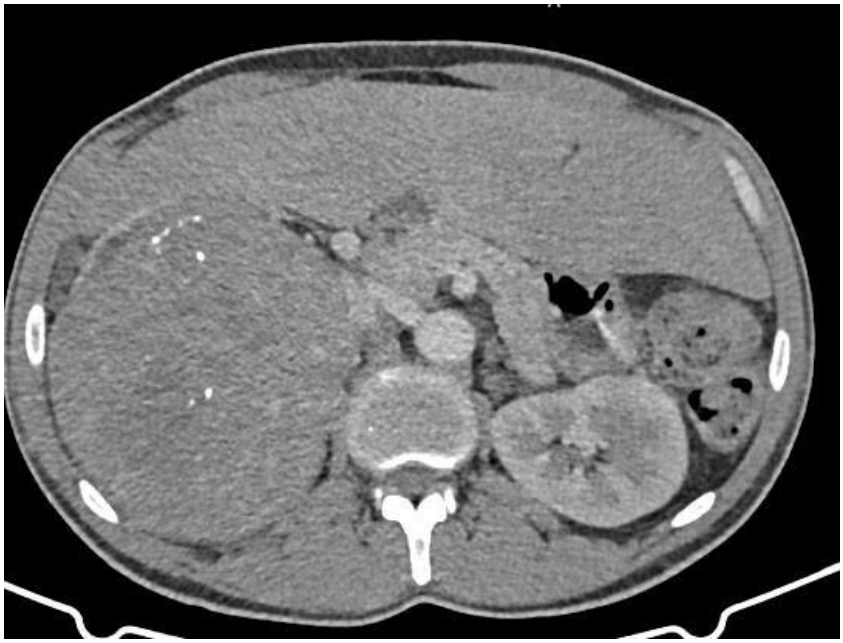

Figure 1: Axial CT scan with contrast injection showing a solid mass in the right kidney, with slight enhancement and central necrosis and amorphous calcifications, without any lesions in the pancreas.

Two months later, he presented to the emergency department complaining of right hypochondrial pain, fever, and jaundice. He was eventually diagnosed with acute cholangitis. MRI revealed multifocal solid pancreatic lesions, appearing hypointense on T1 and T2-weighted images, hyperintense on diffusion-weighted images (DWI) with low ADC, and showing slight enhancement after contrast injection. The tumor located in the pancreatic head exerted a mass effect on the distal bile duct, leading to dilatation of the intrahepatic and extrahepatic bile ducts.

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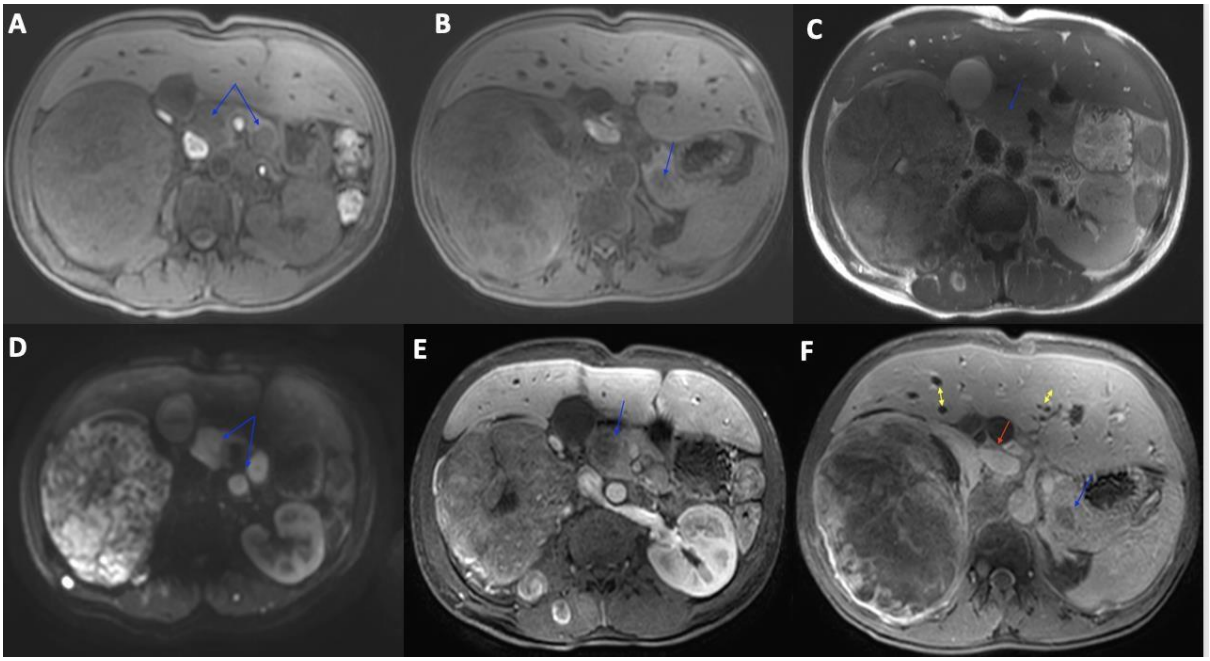

Figure 2: Axial MRI images depict several pancreatic lesions(blue arrows), appearing hypo intense on T1-weighted sequences (A, B) and isointense on T2-weighted sequences (C), hyperintense on diffusion-weighted imaging (DWI) (D) and show no enhancement after gadolinium injection (E, F). Notably, the lesion in the cephalic region causes compression of the lower choledochus, leading to dilation of the common bile duct (red arrows) and the intrahepatic bile duct (yellow arrows) (F).

Discussion:

Renal cell carcinoma (RCC) constitutes 3% of malignancies in adults (**1**), with clear cell carcinoma being the predominant subtype, comprising 75-85% of cases (**2**). Initial metastases occur in 20-30% of RCC patients, while post-nephrectomy, up to 40-50% develop extensive metastases(**3**,**4**). The most frequent sites for RCC metastases include the lungs (45.2%), bones (29.5%), lymph nodes (21.8%), liver (20.3%), and adrenal glands (8.9%), lungs (45.2%), bones (29.5%)(**5**). Although pancreatic involvement is rare, autopsy studies reveal an incidence ranging from 1.6% to 11%. The spread pattern of RCC to the pancreas sparks debate, lacking clear correlation and favoring hematogenous dissemination over local lymphatic spread. (**6**,**7**,**8**) Pancreatic metastasis can either manifest concurrently with primary RCC diagnosis or emerge post-nephrectomy, with a mean interval ranging from 6.9 to 14.6 years. Rare instances even report intervals as long as 32.7 years. This underscores the imperative for extended follow-up of renal cancer patient post- radical treatment (**9,10,11**).

Clinically, pancreatic metastases are often asymptomatic, with 55% being asymptomatic and detectable on surveillance imaging. When symptoms occur, patients may experience nausea, abdominal pain, weight loss, acute pancreatitis, gastrointestinal bleeding, jaundice, or

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cholangitis, wich is the case of our patient. (**12**,**13**) Pancreatic metastases do not appear to show a preference for any particular part of the pancreas (**14**,**15**). Literature delineates three distinct patterns of pancreatic involvement by metastases. The most common type of all metastases, particularly renal cell carcinoma metastases, reported in 50-73% of cases, is a single, localized, well-circumscribed mass. The second pattern is multiple pancreatic lesions, occurring in 5-10% of cases; the third pattern is diffuse metastatic infiltration, resulting in generalized enlargement in 15-44% of case (**13**,**16**,**17**).

The imaging features of metastatic renal cell carcinoma lesions largely mirror those of primary renal cell carcinoma.On computed tomography (CT), the lesions appear isodense or hypodense, with early enhancement in the arterial phase, reflecting the hypervascular nature of these tumors. This feature helps differentiate pancreatic metastases from primary adenocarcinomas of the pancreas, which are generally hypovascular.

On MRI, pancreatic lesions typically appear hypo intense compared with normal gland tissue on unenhanced T1-weighted images, with or without fat saturation. After contrast injection, homogeneous enhancement is generally seen in small lesions and peripheral enhancement in larger lesions. On T2-weighted images, lesions are slightly heterogeneous and moderately hyper-intense. Hypo-intense nodules are sometimes seen on T2-weighted images, particularly in the case of diffuse hypertrophy. On the diffusion sequence, metastatic lesions typically show a hyper-intense signal on high b-value sequences (700-1000). (**18,19**,**20**,**21**) Pancreatic metastases are usually treated by surgical resection. Although some recommend total pancreatectomy, others strongly reject surgery because they believe that multiple pancreatic metastases indicate early lethal disseminated metastases. However, this resection is not always performed safely, especially in older patients or those with diabetes.

Pancreatic metastases from renal cell carcinoma can be successfully treated with radiation therapy.

The role of targeted therapy remains uncertain, as there are currently no data on its benefit in patients with uncomplicated. The good results of surgery in terms of overall survival lead us to consider its use only after surgical treatment (**19-22- 23**).

Conclusion:

To summarize, our case highlights a rare but significant occurrence of acute cholangitis caused by pancreatic metastases from clear cell renal cell carcinoma. This underscores the importance of considering pancreatic metastases in the differential diagnosis of patients with acute cholangitis, especially those with renal cancer.

A multidisciplinary approach and long-term surveillance are essential for the effective management of these complex cases.

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