American Journal of Case Reports

e-ISSN 1941-5923
© Am J Case Rep, 2021; 22: e927921
DOI: 10.12659/AJCR.927921

Received: 2020.08.09
Accepted: 2020.10.23
Available online: 2020.11.12
Published: 2021.01.05

Management of Very Late Pancreatic Metastasis of Renal Cell Carcinoma 8 Years After Radical Nephrectomy: A Report of a Rare Case

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

ABCDEF 1 Norah Alayyaf
AEF 2 Abdullah Abdulaziz AlQatari
ABCDEF 2 Amer Altalib
ABCDEF 1 Abdullah Saleh AlQattan
ABCDEF 1,2 Abdulwahab A. AlShahrani

1 Department of General Surgery, Hepatobiliary Surgery Section, King Fahad Specialist Hospital, Dammam, Saudi Arabia
2 Medical College, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

Corresponding Author: Abdulwahab Ali AlShahrani, e-mail: dr.wahab1@hotmail.com
Conflict of interest: None declared

Patient: Female, 63-year-old
Final Diagnosis: Pancreatic metastasis of renal cell carcinoma
Symptoms: Asymptomatic
Medication: —
Clinical Procedure: Distal pancreatectomy
Specialty: Oncology • Surgery

Objective: Unusual clinical course

Background: The most common primary malignant neoplasm of the kidneys in adults is renal cell carcinoma (RCC), which originates inside the renal cortex and accounts for 80–85% of all primary renal neoplasms. RCCs can spread to many organs, including the liver, lungs, bones, and brain. Disease is quiescent until the late stages of disease in the vast majority of patients.

Case Report: We report a case of 63-year-old woman who presented to her surveillance check-up after a right radical nephrectomy 8 years ago. Computed tomography of the chest, abdomen, and pelvis (CT-CAP) revealed a hypervascular mass in the body of the pancreas measuring 1 cm, consistent with metastatic appearance. Therefore, the tumor board decision was to proceed with spleen-preserving distal pancreatectomy. The final histopathology result showed metastatic clear cell renal cell carcinoma (CCRCC) with negative resection margins. The patient currently is under regular follow-up. The latest CT-CAP was done at 1 year postoperatively, which showed no evidence of recurrence or metastasis.

Conclusions: Patients with RCCs can develop asymptomatic metastatic lesions years after complete oncological resection of the primary tumor. Furthermore, metastatic RCCs can be misdiagnosed as other primary tumors. Hence, a meticulous long-term follow-up is essential to ensure that recurrence or a new distant metastasis is not missed. RCCs are known for their poor response to chemotherapy and radiation therapy. However, the new targeted therapies have shown a good response rate. Nevertheless, complete oncological resection of the pancreatic metastasis remains the best treatment modality and is associated with a 5-year survival rate of 75%.

MeSH Keywords: Kidney Neoplasms • Neoplasm Metastasis • Pancreatic Neoplasms • Renal Cell Carcinoma

Full-text PDF: https://www.amjcaserep.com/abstract/index/idArt/927921

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]

Background

Renal cell carcinoma (RCC) is the most common malignant neoplasm of the kidneys in adults. It originates within the renal cortex. Clear cell renal cell carcinoma (CCRCC) is among the most common subtypes of RCCs. Patients can present with a wide array of signs and symptoms, including hematuria, weight loss, pain, and abdominal mass [1]. Unfortunately, most patients are asymptomatic at presentation and are diagnosed incidentally by radiologic studies performed for other indications. Due to the lack of or vague signs and symptoms, most patients are found to have a metastatic lesion at the time of presentation [2]. Partly due to its dynamic lymphatic drainage, the metastatic pathway of RCCs is not predictable, with the head, lungs, gastrointestinal viscera, and adrenal glands being the most prominent sites of metastasis [3].

Case Report

We report the case of a 63-year-old woman who was diagnosed with right kidney CCRCC with no distant metastasis detected on the computed tomography of the chest, abdomen, and pelvis (CT-CAP) as a part of the metastatic workup. After a discussion of the patient's case in our multidisciplinary tumor board, the decision was made to perform a right radical nephrectomy, which was done in 2012 with no postoperative complications. During her follow-up in the urology clinic, CT-CAP was done as a part of her regular surveillance, which showed a hypervascular lesion at the body of the pancreas measuring 1 cm, highly suspicious of metastasis (**Figure 1**). The patient was asymptomatic and denied any history of weight loss, fever, night sweats, decrease of appetite, abdominal pain, nausea, vomiting, or diarrhea. Her abdomen was symmetrical, with a visible right-flank scar from the previous nephrectomy. The abdomen was soft and lax, with no tenderness. The patient underwent a spleen-preserving distal pancreatectomy (**Figure 2**). The final histopathology showed that the lesion was metastatic CCRCC with positive immunohistochemistry staining of PAX8 and CD19 (**Figure 3**). The WHO/ISP nuclear grade was II, without lymphovascular or perineural invasion, with negative resection margins. The patient had a smooth postoperative course and was discharged home in good condition. She currently is under regular follow-up and the latest CT-CAP was done at 1 year postoperatively, which showed no evidence of recurrence or metastasis.

Discussion

Renal cell carcinoma (RCC) is an aggressive tumor accounting for about 3% of all malignancies [4]. The most common sites of RCCs distant metastasis are the lungs, liver, lymph nodes, bone,

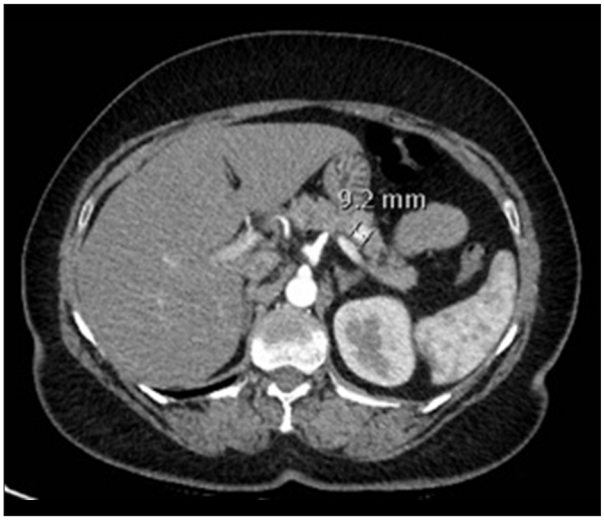

Figure 1. Abdominal CT scan showing the metastatic lesions within the pancreas.

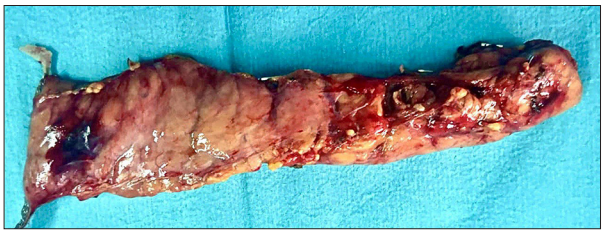

Figure 2. Gross imaging of the resected part of the pancreas including the metastatic lesion from renal cell carcinoma.

brain, and, rarely, to the pancreases [5]. Primary RCCs metastasis to the pancreas account for 2–5% of all metastases, with a slight female predominance [4,6]. Moreover, RCCs usually has a slow-growing pattern, with a mean time of metastasis to the pancreas that can reach up to a decade after radical nephrectomy [7]. The present patient had metastasis after 8 years.

The direct route of metastasis of RCCs to the pancreases is extremely rare, but the hematogenous spread is a well-known route of metastasis via the drainage of collateral veins from the original RCC lesion. Furthermore, the retrograde lymphatic spread can occur through the retroperitoneal nodes [8]. Metastatic lesions originated from RCCs can occur as a solitary or multifocal lesion [4]. Furthermore, the multifocality may not be detected via positron emission tomography (PET) scan during the period of surveillance [4]. Hence, a high index of suspicion should be maintained even if radiological findings are not suggestive of multifocality [4].

In the vast majority of patients with RCCs metastasis to the pancreas, the disease remains indolent until the late stages [5]. Large tumors tend to present with abdominal pain, weight loss, bleeding, and obstructive symptoms in case of duodenal

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]

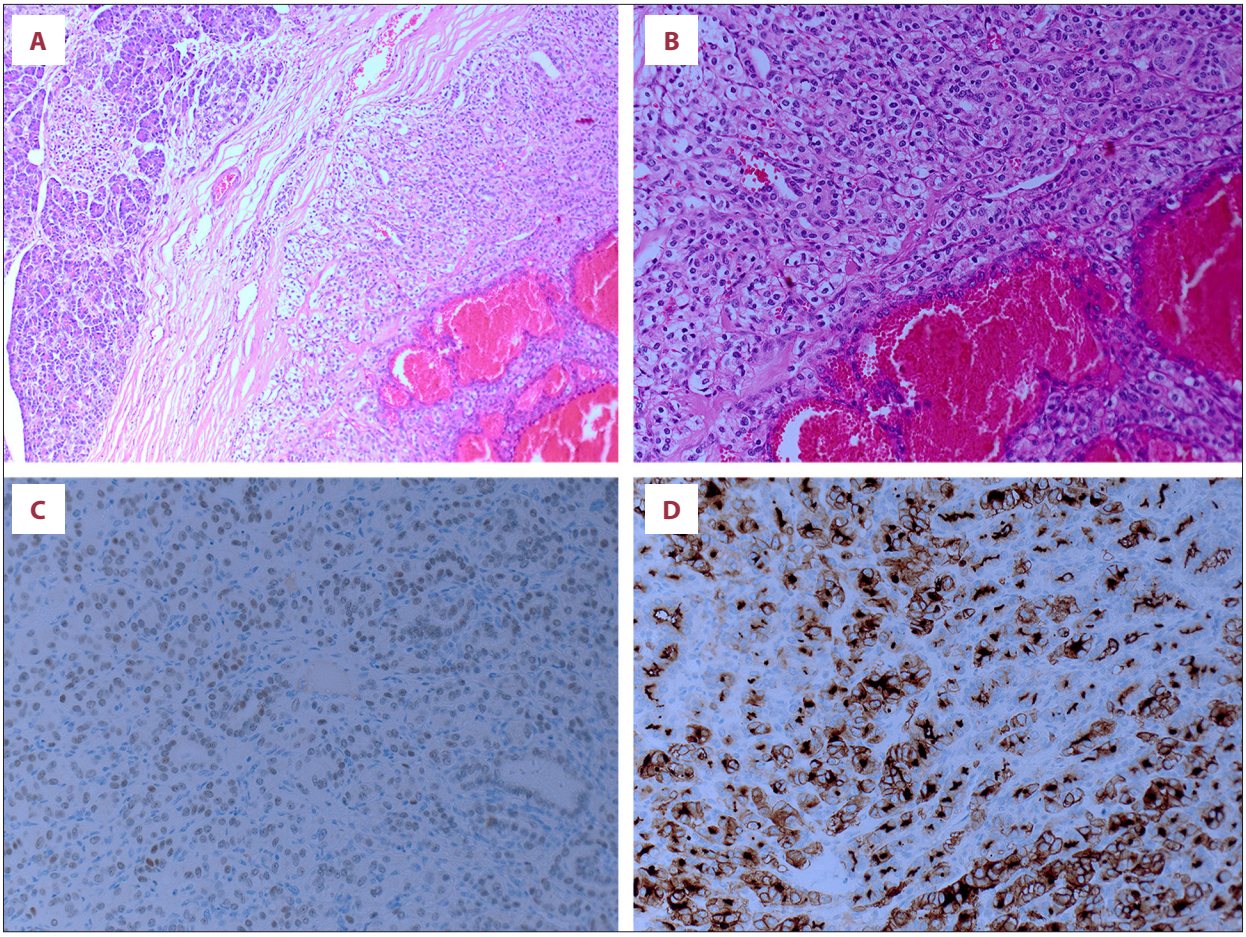

Figure 3. (**A, B**) Microscopic picture with H&E showing the renal cell carcinoma metastasis within the pancreatic tissue. (**C**) Immunohistochemistry staining of the resected lesion from the pancreas showing positive PAX 8. (**D**) Immunohistochemistry staining of the resected lesion from the pancreas showing positive CD-10.

invasion [5,9]. Additionally, paraneoplastic syndrome presents in 40% of symptomatic patients [4]. Results of physical examination are usually nonrevealing, but some patients have a palpable epigastric mass [9].

The diagnosis of RCCs metastasis to the pancreas is challenging and most of the tumors are found incidentally or during the radiological follow-up surveillance [9]. Notably, the absence of clinical presentation with positive radiological imaging sometimes leads to a wrong diagnosis [7]. Different radiological methods have been used to aid in the diagnosis of RCCs metastasis to the pancreas, such as endoscopic ultrasound (EUS), ultrasound (US), computed tomography (CT) scan, and magnetic resonant imaging (MRI). EUS is a very sensitive imaging method that can detect small isodense lesions that can be missed on CT scan and MRI. In the US, the lesions may appear as hypoechoic or cystic [9]. Moreover, CT scan and MRI have the advantage of differentiation between primary and secondary metastatic tumors [7]. CT scan is the most accurate diagnostic modality for assessing the extent of metastasis [8].

Pathological biopsies rarely aid in the diagnosis of RCCs metastasis to the pancreas, as the pancreas is hypervascular, and the specimen would be difficult to interpret [9]. However, a biopsy is sometimes required when surgical intervention is not possible [7].

RCCs metastasis to the pancreas tend to have a better outcome compared to primary pancreatic adenocarcinomas or metastasizes from other primaries [8]. Previous reports in the literature show that pancreatic resection is associated with high rates of significant postoperative complications, such as acute pancreatitis and pancreatic leak [10]. However, with the recent advances in pancreatic surgeries and postoperative care, adverse outcomes due to surgical complications have been markedly decreased [10]. Currently, the prognosis of such surgical interventions depends on the origin and isolation of the tumor, as surgical resection is advocated in case of isolated pancreatic lesions whenever technically possible [10,11].

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]

The type of surgery mainly depends on whether the metastasis is solitary or diffuse and on the location of the pancreatic lesion. Resection with Whipple's procedure is performed for proximal lesions that are limited to the head or the uncinate process of the pancreas, whereas distal pancreatectomy is performed for lesions in the pancreatic body or tail. Enucleation can be used for small isolated lesions to preserve the remaining pancreatic parenchyma [10]. Other parameters to take into consideration are the performance status of the patient, the comorbidities, and the patient's choice. In the series described by Fikatas et al., 19 of the patients who had RCC had metastasis to the pancreas [7]. The mean time of diagnosis of the metastatic lesions was 10.2±27.1 years after resection of the primary tumor. The types of surgical resections performed were Whipple's procedure in 55.6%, distal pancreatectomy in 27.8%, and total pancreatectomy in 22.2% of the patients. In 44.4% of the patients, the mean survival was 46.7±36 months, while 55.6% were alive at 52.2±26.3 months [7]. The overall survival at 1, 3, and 5 years was 88.9%, 80%, and 71.4%, respectively [7]. Surgical resection is associated with a 54–75% 5-year survival rate [5,7].

RCCs are known for their poor response to chemotherapy and radiation therapy. Previously, the standard care of treatment of the metastatic RCCs lesions was interleukin-2 (IL-2), interferon-alpha (IFN-α), and cytokine-based therapies, which contributed to a 10% positive response rate [11]. Nowadays, a new era of targeted therapies has replaced the old generation of therapies such as tyrosine kinase inhibitors (TKIs), mammalian target of rapamycin (mTOR) inhibitors, and vascular endothelial growth factor (VEGF) inhibitors, which has improved the response rate, although the development of resistance to these therapies is still high [11].

The Memorial Sloan Kettering Cancer Center (MSKCC) for risk stratification of cancer has suggested that selection of treatment options should be based on the type of malignancy, whether it is a CCRCC or non-CCRCC, and whether the patient received treatment or not [12]. The first-line treatment for naïve patients with favorable or intermediate prognosis is sunitinib or bevacizumab+interferon α, while those who failed the first-line treatment can receive a high dose of IL-2 [12]. Also, those with poor prognosis can have temsirolimus as first-line therapy or sunitinib as a second-line [12]. Moreover, patients who received previous treatment of cytokines can have sorafenib as a first-line treatment or sunitinib as a second-line treatment [12]. Those who had multitargeted therapy can have everolimus as first-line therapy and tyrosine kinase inhibitor as a second-line [12].

Conclusions

RCCs metastasis to the pancreas is extremely rare and usually involves aggressive invasion; regular long-term follow-up with CT scan is recommended. The survival rate is highly dependent on the tumor stage. Surgical intervention has good results in most cases.

Department and Institution where work was done

Department of General Surgery, Hepatobiliary Surgery Section, King Fahad Specialist Hospital, Dammam, Saudi Arabia

Conflict of interest

None.

References:

1. Skinner DG, Colvin RB, Vermillion CD et al: Diagnosis and management of renal cell carcinoma A clinical and pathologic study of 309 cases. Cancer, 1971; 28(5): 1165–77
2. Wilcox CS: Therapy in nephrology & hypertension. Therapy in nephrology & hypertension. Elsevier Inc., 2008
3. Sountoulides P, Metaxa L, Cindolo L: Atypical presentations and rare metastatic sites of renal cell carcinoma: A review of case reports. J Med Case Rep, 2011; 5(1): 429
4. Al Abdrabalnabi AA, AlQattan AS, Algarni S et al: Metastatic renal cell carcinoma to the pancreas, thyroid, & subcutaneous tissue 13 years after Radical nephrectomy: A case report. Int J Surg Case Rep, 2019; 60: 183–85
5. Chin W, Cao L, Liu X et al: Metastatic renal cell carcinoma to the pancreas and subcutaneous tissue 10 years after radical nephrectomy: A case report. J Med Case Rep, 2020; 14(1): 36
6. Choi YJ, Lee JH, Lee CR et al: Laparoscopic total pancreatectomy for multiple metastasis of renal cell carcinoma of the pancreas: A case report and literature review. Ann Hepato-Biliary-Pancreatic Surg, 2017; 21(2): 96
7. Fikatas P, Klein F, Andreou A et al: Long-term survival after surgical treatment of renal cell carcinoma metastasis within the pancreas. Anticancer Res, 2016; 36(8): 4273–78
8. Wu C, Zhou Z, Ye X, Hu W: Synchronous renal cell carcinoma metastasis to the contralateral adrenal gland and pancreas: A case report with 7-year follow-up subsequent to surgical therapy. Oncol Lett, 2016; 11(6): 4144–46
9. Khiella M, Maximus MA, Fayek SA: Renal cell carcinoma metastases to the pancreas and the thyroid gland: A case report and review of the literature. Cureus, 2018; 10(12): 1–6
10. Kusnierz K, Mrowiec S, Lampe P: Results of surgical management of renal cell carcinoma metastatic to the pancreas. Contemp Oncol (Pozn), 2015; 1(1): 54–59
11. Kamli H, Li L, Gobe GC: Limitations to the therapeutic potential of tyrosine kinase inhibitors and alternative therapies for kidney cancer. Ochsner J, 2019; 19(2): 138–51
12. Ballarin R: Pancreatic metastases from renal cell carcinoma: The state of the art. World J Gastroenterol, 2011; 17(43): 4747

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]