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Abstract

A rare case of resectable solitary pancreatic metastasis from a renal cell carcinoma is reported. The patient was a 57-year-old man who presented with epigastralgia. He had undergone a radical nephrectomy of the right side 30 months previously. The diagnosis of pancreatic metastasis was based on the patient's past history and angiographic demonstration of typical hypervascular tumor staining. Histological examination was confirmatory. The patient was successfully treated by pancreaticoduodenectomy followed by alpha-interferon administration. As of 6 months after surgery, he remains well.

KEYWORDS: renal cell carcinoma, pancreatic metastasis

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— Brief Note —

Solitary Pancreatic Metastasis from Renal Cell Carcinoma

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A rare case of resectable solitary pancreatic metastasis from a renal cell carcinoma is reported. The patient was a 57-year-old man who presented with epigastralgia. He had undergone a radical nephrectomy of the right side 30 months previously. The diagnosis of pancreatic metastasis was based on the patient's past history and angiographic demonstration of typical hypervascular tumor staining. Histological examination was confirmatory. The patient was successfully treated by pancreaticoduodenectomy followed by α-interferon administration. As of 6 months after surgery, he remains well.

Key words : **renal cell carcinoma, pancreatic metastasis**

Renal cell carcinoma (RCC) is a malignant tumor with a high metastatic potential. It frequently spreads to the lung, lymph node, liver, bone, adrenal gland, and contralateral kidney. The pancreas, however, is rarely involved, and metastatic foci in the pancreas are usually unresectable. We report a case of resectable solitary pancreatic metastasis from a right RCC, and a review of relevant literature.

The patient, aged 55 years presented with macrohematuria in November, 1989. Ultrasonography revealed a 10-cm tumor with irregular hypoechegenic internal echoes in the right kidney (Fig. 1a). Renal angiography of the right side showed a hypervascular tumor in the lower portion of the kidney. Vena cavernography demonstrated thrombosis in the vena cava arising from the right renal vein (Fig. 2a). The serum levels of the tumor markers, CEA and CA19-9, were within normal limits. Right radical nephrectomy and partial vena cavectomy were performed based on a diagnosis of renal cell carcinoma. The resected right kidney weighed 750 g and contained a yellow tumor 10-cm in diameter. Histological examination showed clear cell carcinoma (Fig. 3a).

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In August, 1991, the patient was rehospitalized for epigastric pain. Ultrasonography showed a solid, 6-cm hypoechegenic mass with irregular internal echoes in the head of the pancreas. The main pancreatic duct was dilated (Fig. 1b). Celiac angiography demonstrated a hypervascular mass in the head of the pancreas (Fig. 2b). The tumor markers, CEA, CA19-9, SPAN-I, AFP and PIVKA-II, were within normal limits. There was no clinical syndrome due to hormonal hypersecretion. A metastatic pancreas tumor was suspected, rather than an islet cell tumor or acinar cell tumor on the basis of the past history and the findings of investigations. At surgery, a hard mass was found in the head of the pancreas, and pancreaticoduodenectomy was performed. The pathological specimen consisted of neoplastic cells with the same characteristic appearance as the clear cell carcinoma of the right kidney (Fig. 3b). The patient was treated with α-interferon and has been well for 6 months since the operation.

Approximately 3.7-4.5 % of all malignant pancreatic tumors are metastatic and 0.9-1.7 % originate from RCC (1, 2), which is an aggressive tumor that directly invades surrounding tissues and metastasizes to distant organs via the lymphatic system and blood vessels. The most com-

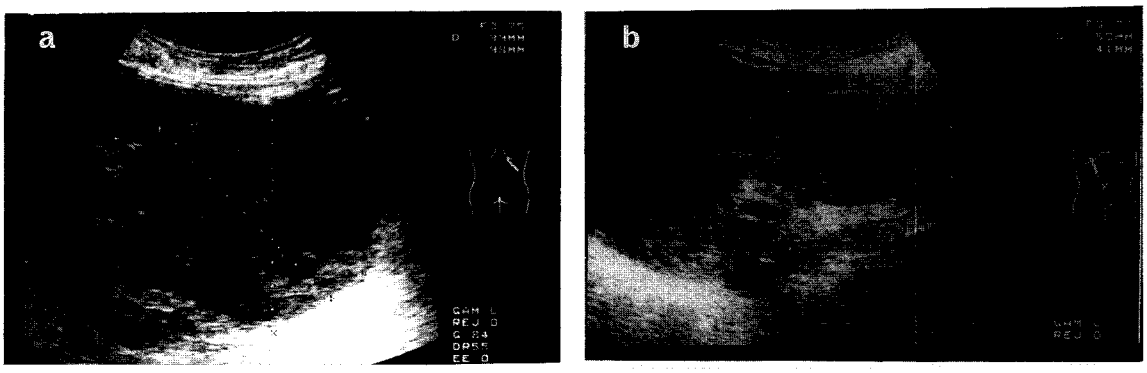

Fig. 1 Ultrasonographs of primary (a) and metastatic (b) tumors. (a): A 10-cm tumor with irregular hypoechogenic internal echoes is demonstrated in the right kidney; (b): The lesion in the head of the pancseas shows the same features as the primary lesion.

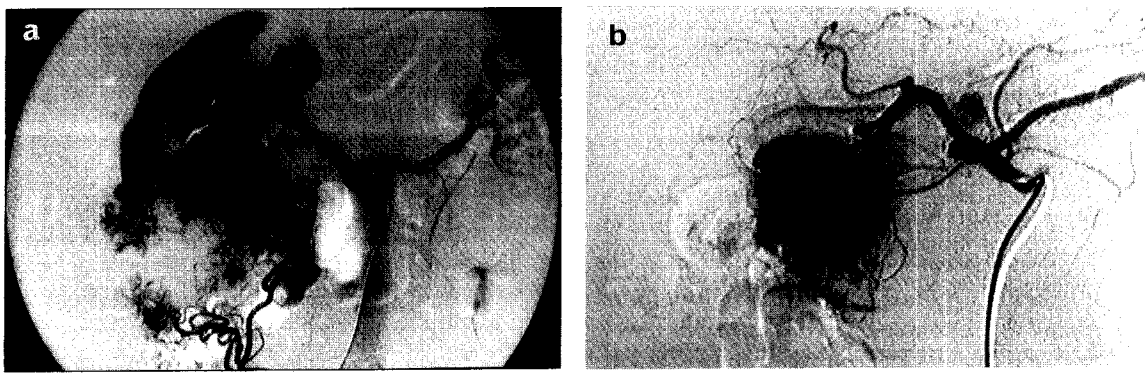

Fig. 2 Angiograhs of primary (a) and metastatic (b) tumors. (a): Selective right renal angiography shows a lower pole tumor with extensive neovascularity. (b): Celiac angiography shows a hypervascular tumor in the head of the pancreas.

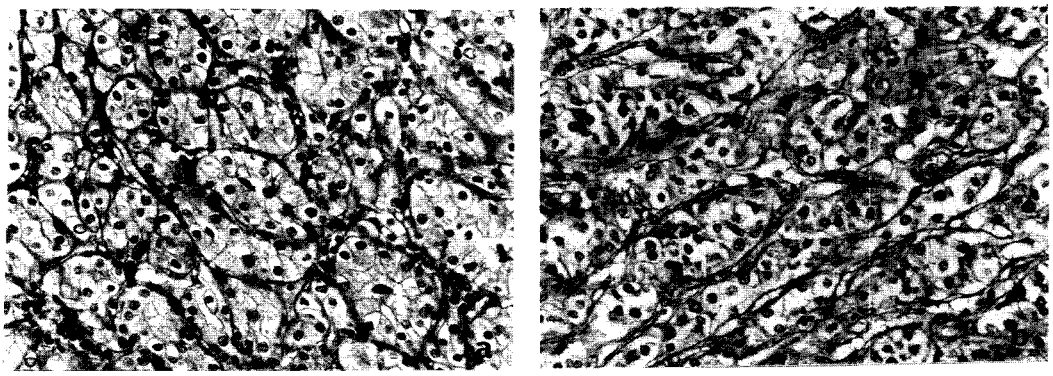

Fig. 3 Pathologic findings of primary (a) and metastatic (b) tumors. (a): Primary lesion in the right kidney shows a renal cell carcinoma of the clear cell type. The growth pattern is alveolar and tumor cells are uniform with clear cytoplasms and relatively uniform small nuclei. (HE × 200) (b): Metastatic lesion in the pancreas shows the same features as the primary lesion. (HE × 200)

Table 1 Cases of resected pancreatic metastasis from renal cell carcinoma

No.	Age (Year)	Sex	Author	Primary site	Metastatic site	Size of metastases	Panc. Surg. (Int. after op.)	Outcome (after pancreatectomy)
1	50	M	Marquand (1971)	Right	Head	5 cm	PD (Simultaneous)	Alive (28 mos)
2	66	M	Guttman (1972)	Right	Head	1.5 cm	TP (13 years)	Died (23 days)
3	60	M	Hermanutz (1977)	Left	Head	Fist-size	PD (14 years)	Died (19 days)
4	43	F	Saxon[7] (1980)	Bilateral	Head	5 cm	PD (6 mos)	Alive (12 mos)
5	76	M	Yazaki (1981)	Left	Body	1.5 cm	PD (Simultaneous)	Alive (9 mos)
6	58	F	Weerdenoburg (1984)	Right	Total	Multiple	TP (11 years)	Alive (10 mos)
7	55	M	Skaarup (1984)	Bilateral	Head and tail	Two lesions	TP (2 years)	Died (15 years)
8	72	M	Kishimoto (1985)	Left	Total	15 cm	TP (Simultaneous)	Died (6 mos)
9	66	F	Audisio (1985)	Right	Head	8 cm	PD (20 years)	Alive (12 mos)
10	71	F	Amemiya (1988)	Right	Head	2 cm	PR (Simultaneous)	Alive (22 mos)
11	66	F	Hirano (1988)	Right	Body	2.5 cm	DP (10 years)	Alive (2 mos)
12	60	F	Sharma (1988)	Left	Tail	6 cm	DP (Simultaneous)	Alive (12 mos)
13	67	F	Carini (1988)	Bilateral	Head	7 cm	PD (13 years)	Alive (13 mos)
14	49	F	Iwanami (1989)	Left	Body and tail	4 cm 0.8 cm	DP (6 years)	Unknwn
15	53	F	Simpson (1989)	Left	Body and tail	5 cm	DP (17 years)	Alive (24 mos)
16	70	F	Temellini[9] (1989)	Left	Head	5 cm	PD (25 years)	Alive (12 mos)
17	39	M	Strijk (1989)	Right	Tail	4 cm	DP (7 years)	Alive (12 mos)
18	59	M	Gohji (1990)	Bilateral	Tail	9 cm	DP (2.5 years)	Alive (12 mos)
19	66	F	Yamamoto (1991)	Left	Body and tail	3 cm 5 cm	DP (17 years)	Alive (2 mos)
20	57	H	Takeuchi (1992)	Right	Head	6 cm	PD (2 years)	Alive (6 mos)

Panc. Surg.: pancreatic surgery, Int. after op.: interval after operation for primary tumor, mos: months, PD: pancreatimoduodenectomy, DP: distal pancreatectomy, PR: partial resection.

mon sites of metastasis are lung (35 %), lymph node (34 %), liver (33 %), bone (32 %), adrenal gland (19 %), contralateral kidney (11 %), brain (6 %), heart (5 %), spleen (5 %), bowel (4 %), and skin (3 %) (3). The pancreas is rarely affected: pancreatic metastases have been found in only 1.3–3 % at autopsy (4, 5). Klugo *et al.* (6) reporting on 101 patients with metastatic RCC, noted pancreatic metastases in only 2.8 %. Metastases localized solely in the pancreas were even rarer, and metastatic foci were rarely resectable. A review of the literature through 1992 revealed only 20 cases of resectable RCC metastasis localized in the pancreas including our own case. The patients included nine men and 11 women ranging in age from 39–76 years (mean, 60.2 years). The primary site was the right kidney in nine patients, the left kidney in seven, and both kidneys in four. The metastatic

site was the head of the pancreas in nine patients, the head and tail in one, the body in two, the body and tail in three, the tail in three, and the entire pancreas in two. In 15 of the 20 cases, the pancreatic metastases were detected 6 months to 25 years after nephrectomy. The resected tumors were from 1.5–15-cm in diameter; histologically, all were of the clear cell subtype (Table 1).

This patient was fortunately treated by pancreaticoduodentomy followed by α-interferon administration. Prognosis of metastatic renal cell carcinoma is poor. According to Saxon (7), the 5-year survival rate is 29–35 % even after successful surgical resection. Other treatments, including irradiation, chemotherapy, and hormonal therapy have been no more effective than surgical resection. The response rate to α-interferon therapy is 15 –20 % (8), and tumor regression has been confirmed. Surgical resection alone or, whenever possible, in conjunction with interferon therapy confers the best chance for recovery at present.

The longest period to the detection of pancreatic metastasis is 25 years after nephrectomy (9), indicating the need for a careful long-term follow-up of patients who have undergone surgery for RCC. As shown in this case, standard serum tumor markers were not useful for the early detection of recurrence of RCC. However, several noninvasive imaging techniques, including ultrasonography, computed tomography, and magnetic resonance imaging may detect metastases in a reasonably early stage. Ultrasonography, in particular, can be performed repeatedly at low cost and no risk.

References

1. Whittington R, Moylan DJ, Dobelbower RR and Kramer S: Pancreatic tumours in patients with previous malignancy. Clin Radiol (1982) **33**, 297–299.
2. Opocher E, Galeotti F, Spina GP, Battaglia G and Hernandez C: La diagnosi dei tumori secondari del pancreas: Analisi di 13 casi. Minerva Med (1982) **73**, 577–581.
3. Paulson DF, Perez CA and Anderson T: Cancer of the kidney and ureter; in Cancer, Principles and Practice of Oncology, Devita, Hellman and Resenberg eds, JB Lippincott, Philadelphia (1985) pp 895–913.
4. Willis RA: Pathology of tumours, Butterworths, London (1967) pp 163–190.
5. Tongio J, Peruta O, Wenger JJ and Warter P: Métastases duodénales et pancréatiques du néphroépithélime: A propes de quatre observations. Ann Radiol (1977) **20**, 641–647.
6. Klugo RC, Detmers M, Stiles RE, Talley RW and Cerny JC: Aggressive versus conservative management of stage IV renal cell carcinoma. J Urol (1977) **118**, 244–246.
7. Saxon A, Gootesman J and Doolas A: Bilateral hypernephroma with solitary pancreatic metastasis. J Surg Oncol (1980) **13**, 317–322.
8. Muss HB: Interferon therapy of metastatic renal cell cancer. Semi Surg Oncol (1988) **4**, 199–203.
9. Temellini F, Bavosi M, Lamarra M, Quagliarini P and Giuliani F: Pancreatic metastasis 25 years after nehprectomy for renal cancer. Tumori (1989) **75**, 503–504.

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