Four cases of advanced renal cell carcinoma with pancreatic metastasis successfully treated with radiation therapy

Abstract We report four patients with pancreatic metastasis of renal cell carcinoma who were successfully treated with radiation therapy. The patients were one woman and three men with a median age of 55 years (range, 49 to 62 years) who underwent radical nephrectomy for primary renal cell carcinoma. The median interval from nephrectomy to the diagnosis of pancreatic metastasis was 129 months (range, 54 to 176 months). Two patients experienced melanorrhea and the other two were asymptomatic and diagnosed during standard follow up. In each patient, a total of 50 Gy in 2-Gy fractions over 5 weeks was prescribed, without any adverse events. All patients remain alive with a median follow up of 31 months (range, 11 to 81 months).

Key words Pancreatic metastasis • Pancreatic resection • Radiation therapy • Radiological characteristic • Renal cell carcinoma

Introduction Renal cell carcinoma (RCC) can metastasize to sites such as the thyroid gland and pancreas, in addition to the lymph nodes, lung, liver, and bones. The pancreas is an uncommon location for metastasis from other primary cancers, and pancreatic metastases account for less than 5% of all pancreatic malignancies. Pancreatic metastases are not commonly treated with surgical resection, but this procedure improves the prognosis for pancreatic metastases of RCC. However, such resection cannot always be performed safely, especially for elderly patients or those with diabetes mellitus. Here, we describe the clinical features, treatment, and outcome in four patients with multiple pancreatic metastases of RCC who were treated successfully with radiation therapy (RT).

Case reports

Case 1 A 62-year-old man underwent left nephrectomy for Robson Stage 3 RCC with lymph node involvement. He was treated with interferon-α for 24 months and showed no evidence of disease for 100 months after the operation. Subsequently a celiac arteriogram and an abdominal computed tomography (CT) scan demonstrated multiple enhancing masses in the pancreatic head, body, and tail (Fig. 1a). RT combined with interferon-α was performed in 2-Gy fractions for a total of 50 Gy over 5 weeks; the RT was given by 10-MeV X-rays from linear accelerators, using four portals. Stable disease persisted for 69 months after the RT (Fig. 1b), but subsequently a chest CT scan demonstrated liver metastases. He remains alive at 81 months after the RT.

Case 2 A 51-year-old woman underwent right nephrectomy for Robson Stage 1 RCC and was treated with interferon-α for 60 months after the operation. She was treated with interferon-α for 24 months and showed no evidence of disease for 100 months after the operation. Subsequently a celiac arteriogram and an abdominal computed tomography (CT) scan demonstrated multiple enhancing masses in the pancreatic head, body, and tail (Fig. 1a). RT combined with interferon-α was performed in 2-Gy fractions for a total of 50 Gy over 5 weeks; the RT was given by 10-MeV X-rays from linear accelerators, using four portals. Stable disease persisted for 69 months after the RT (Fig. 1b), but subsequently a chest CT scan demonstrated liver metastases. She remains alive at 81 months after the RT.
Case 3

A 59-year-old man underwent left nephrectomy for Robson Stage 1 RCC and showed no evidence of disease for 99 months after the operation. Subsequently an abdominal CT scan demonstrated a solitary enhancing mass in the pancreatic tail, and distal pancreatectomy was performed. Histologic examination revealed metastatic RCC. The patient presented with melanorrhea at 46 months after the distal pancreatectomy and an abdominal CT scan demonstrated multiple enhancing masses in the pancreatic head, body, and tail (Fig. 3a). RT combined with interferon-α was performed in 2-Gy fractions, for a total of 50 Gy, over 5 weeks; the RT was given by 10-MeV X-rays from linear accelerators, using four portals. Stable disease has persisted for 21 months after the RT, without disease progression (Fig. 3b).

Case 4

A 49-year-old man underwent right nephrectomy for Robson Stage 4 RCC with lung metastases. He was treated with interferon-α and interleukin-2 for 34 months after the operation and then lung metastasectomy was performed. Histologic examination revealed metastatic RCC. Despite treatment with interleukin-2 for 8 months after the metastasectomy, skin metastases of the bilateral femur were apparent, and surgical resection and RT were performed. He was then treated with interleukin-2 for a further 9 months, without evidence of disease. Subsequently an abdominal CT scan demonstrated multiple enhancing masses in the pancreatic head and tail (Fig. 4a). RT combined with interleukin-2 was performed in 2-Gy fractions, for a total of 50 Gy, over 5 weeks; the RT was given by 10-MeV X-rays from linear accelerators, using five portals.