

Duodenum-preserving pancreatic head resection for pancreatic metastasis from renal cell carcinoma: a case report

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Abstract

Introduction We report a case of duodenum-preserving pancreatic head resection (DPPHR) for the treatment of pancreatic head metastasis from renal cell carcinoma (RCC). **Case report** The patient was a 59-year-old male with a medical history of RCC 18 years ago. Abdominal imaging studies revealed a hypervascular mass localized in the pancreatic head without distant metastasis or tumor invasion into the adjacent organs including the common bile duct and duodenum. Under the preoperative diagnosis of pancreatic metastasis from RCC, the tumor was completely resected by DPPHR. The pathological examination of the resected specimen confirmed the preoperative diagnosis. **Conclusion** As lymph node metastasis has been rarely reported in previous cases of pancreatic metastasis from RCC, DPPHR should be considered as a less invasive surgical option to provide a favorable postoperative quality of life (QOL).

Keywords Duodenum-preserving pancreatic head resection · Pancreatic metastasis · Renal cell carcinoma · Pancreas · Minimal invasive surgery

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Introduction

The subtotal resection of the pancreas head, preserving the duodenum and thin rim of the pancreas head near the duodenum, has the potential to lead to a favorable postoperative QOL [1] unlike more invasive surgical options. Duodenum preserving pancreatic head resection (DPPHR) was first introduced by Beger et al. in 1985 [2] for chronic pancreatitis and has subsequently been applied to the surgical treatment of benign tumors and low grade malignancies in the pancreatic head [3].

Renal cell carcinoma (RCC) rarely presents as isolated metastasis in the pancreas [4]. In such cases, *nodal involvement has been rare* [5, 6]. We report here a case of pancreatic head metastasis of RCC, which was successfully treated by DPPHR without radical lymph node dissection.

Case study

The patient was a 59-year-old male who had a medical history of radical nephrectomy for left RCC at age 41. At 56 years of age, he had undergone right upper lobectomy of the lung for RCC metastases. He started to complain of abdominal and back pain 1 month before admission. Physical examination revealed abdominal tenderness but no icterus. The peripheral blood tests showed elevated levels of serum glucose (178 mg/dl; normal range, 70–110), amylase (204 U/l; 40–115), lipase (784 U/l; 13–60), CA 19–9 (192 U/ml; <37) and DUPAN-2 (990 U/ml; <150). Computed tomography revealed a well-enhanced round mass with a maximum diameter of 3.0 cm in the pancreas head and large stones in the common bile duct

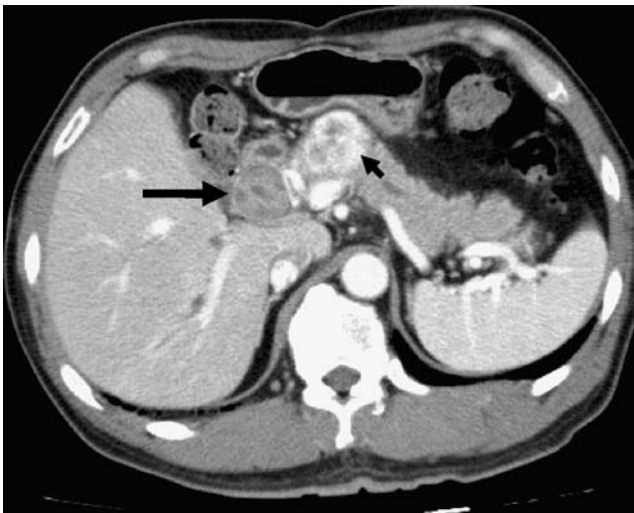


Fig. 1 Computed tomography reveals a hypervascular round mass in the pancreatic head (*arrowhead*). The low density area inside the mass indicates tumor necrosis. A large stone is seen in the common bile duct (*an arrow*)

(Fig. 1). Endoscopic retrograde cholangio-pancreatography revealed multiple stones in the common bile duct. The distal main pancreatic duct was dilated due to compression by the tumor. Retention of the contrast media in the tumor indicated communication between the pancreatic duct system and the necrotic section of the pancreas within the tumor (Fig. 2).

Together with the clinical history of RCC and associated lung metastasis, these findings suggested a preoperative diagnosis of a pancreatic metastatic tumor from RCC, rather than a nonfunctioning endocrine tumor of the pancreas. As the preoperative imaging studies indicated no other metastatic lesions or tumor invasion into the adjacent organs, including the duodenum and common bile duct, DPPHR was performed instead of pancreaticoduodenectomy (PD). The 3.0-cm diameter resected tumor was limited to the pancreas head and was associated with central

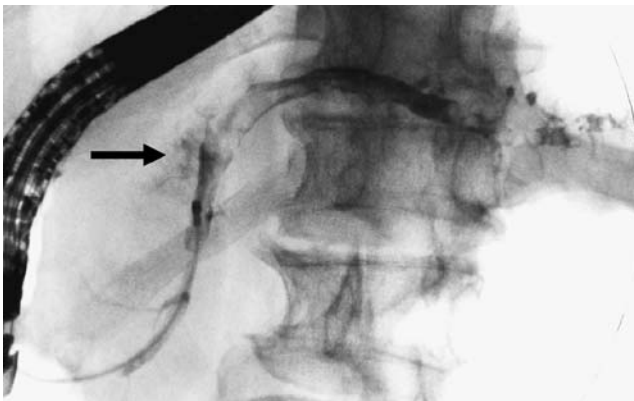


Fig. 2 Endoscopic retrograde pancreatography reveals communication between the pancreatic duct system and necrotic cavity inside the tumor (*an arrow*)

necrosis. Pathological examination showed clear cell carcinoma identical to the tumor type of the previously resected RCC (Fig. 3). No lymph node metastasis was found. He is presently well without surgery that induced any evidence of recurrence 1 year after the operation. In our case, surgical diabetes mellitus due to pancreatic resection was not induced.

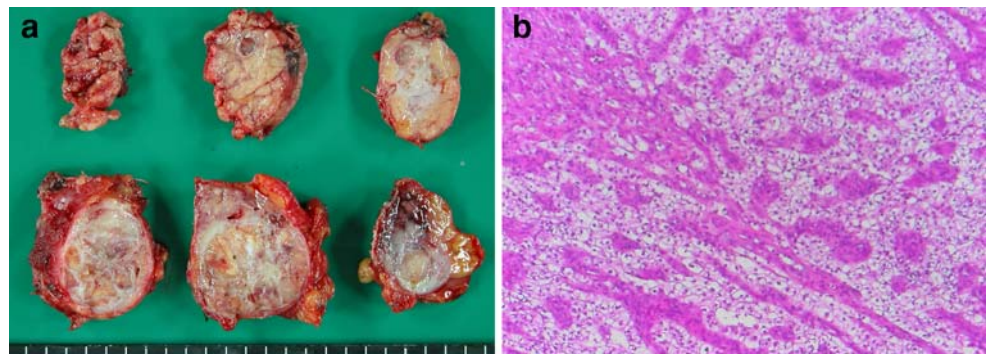
Discussion

The pancreatic metastasis from malignancies in other organs is very rare, accounting for 0.4 to 3% of resected pancreatic tumors [5, 7]. The most common primary malignancy is RCC, followed by lung and breast cancer. Pancreatic metastasis is recognized both synchronously and metachronously to the primary RCC [4, 7]. Surgical resection is the most effective treatment for isolated pancreatic metastasis of RCC, yielding more than 70% of the 5-year survival rate after surgical resection [4].

PD is the most commonly employed surgical treatment for metastatic tumors in the pancreatic head [4, 7] and involves total resection of the tumor lesion and possibly metastasized lymph nodes. As a result of MEDLINE research from 1952 to 2005, 63 cases of pancreatic head metastasis from RCC treated by classic Whipple or pylorus preserving PD were described with individual patient's conditions in English literature [5, 6, 8–36]. The postoperative mortality rate was 6.3% (four patients) due to sepsis or postoperative myocardial infarction [23, 30, 32, 33]. Major postoperative complications occurred in 14 cases (36%), including hematoma, abscess, or pancreatic fistula. In only 25 cases (64%), no postoperative complication was observed. The mean follow up of all alive patients was 31 months in described articles and three pancreatic recurrences (42%) after seven Whipple resections was reported in one case series [32]. Less invasive pancreatic surgery, including DPPHR, is considered in exceptional cases [4], due to the report by Bass et al. of a high recurrence rate after the local resection of RCC metastatic tumors of the pancreas [7]. By comparison, Nakagohri et al. [37] reported a long disease-free survival period after partial pancreatic head resection. For this reason, the recommendation of radical pancreatectomy or local resection for a better prognosis remains controversial.

From our experience, DPPHR should be considered the treatment of choice for RCC metastatic tumors of the pancreatic head for three reasons. First, the preservation of adjacent organs is important for the QOL of patients. The previous studies revealed that DPPHR provided the better QOL in the course of treatment for chronic pancreatitis compared with pylorus preserving pancreaticoduodenectomy [1]. Secondly, the incidence of lymph node metastasis

Fig. 3 **a** The gross appearance of the resected specimen shows the tumor of 3.0 cm in diameter accompanying the central necrosis. **b** The microscopic examination reveals clear cell carcinoma identical to the tumor type of the previously resected RCC (3b)



reported for resected RCC metastases of the pancreas was extremely rare, indicating no requirement for radical lymph node dissection [5, 6]. The review of the literature found that only two cases (4.5%) had peripancreatic lymph node metastasis after PD [17, 32], and the other 42 reported cases had no metastasis to regional lymph node around the pancreas. Thirdly, the patients with RCC often have long-term survival after appropriate treatment, as observed in this case, placing greater importance on QOL after surgery.

In conclusion, we successfully treated a patient with pancreatic metastasis from RCC by DPPHR, a rarely used surgical method for this condition. As radical lymph node dissection is not mandatory, preservation of intact adjacent organs should be considered in the treatment of pancreatic metastasis from RCC to maintain patient QOL.

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