Simultaneous resection of pancreas and liver metastases from different metachronous primary cancers

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Abstract Resection of a pancreatic head tumor and partial resection of the liver for metastatic lesions were carried out simultaneously in a 72-year-old woman. The patient had a history of two previous operations, right nephrectomy for renal cell carcinoma (clear cell type), done 14 years previously, and an Autincloss procedure for cancer of the left breast (solid tubular carcinoma); (T1N0M0; stage I) done 7 years previously. At the current presentation, preoperative radiographic examination showed a hypervascular tumor in each of the pancreatic and hepatic lesions, but with different patterns. On the basis of histological findings in the two resected specimens, it was difficult to establish whether the hepatic tumor originated from the renal cell carcinoma or the breast cancer, but postoperative immunohistochemical studies for carcinoembryonic antigen (CEA), estrogen receptors, and gross cystic disease fluid protein (GCDFP)-15 showed that the pancreatic tumor had metastasized from the renal cell carcinoma, and the liver tumor from the breast cancer. The immunohistochemical investigation of different markers thus proved to be useful in making the final diagnosis of metastatic lesions from different and metachronous cancers.

Key words Pancreas metastasis · Liver metastasis · Renal cell carcinoma · Breast cancer · Metachronous cancer

Introduction

The pancreas is an uncommon site for the metastasis of renal cell carcinoma (RCC), but such metastases may occur long after manifestation of the primary disease. Many patients are asymptomatic, and the pancreatic metastasis is detected during routine follow-up RCC examination. In general, a high rate (4.4%–6.4%) of double cancers has been reported for urogenic carcinomas. Immunohistochemical studies are used to identify the source of metastatic lesions, and carcinoembryonic antigen (CEA) staining, which stains the cytoplasm; estrogen receptor staining, which stains the nuclei; and staining for gross cystic disease fluid protein (GCDFP)-15, which is a specific tissue marker of apocrine epithelium, make it possible to distinguish two different metastatic lesions from two different metachronous cancers. Here, we report a rare case of simultaneous resection of different cancer lesions from different metachronous cancers.

Case report

In 1982, a 58-year-old woman with RCC of the right kidney was treated by right nephrectomy after transarterial embolization. Histological examination of the surgical specimen showed RCC of the clear cell type. In 1989, she was diagnosed with cancer of the breast, and underwent an Autincloss procedure (Br + Ax). Histological examination of the resected specimen showed solid tubular type carcinoma that was classified as T1N0M0; stage I. In 1993, follow-up computed tomography (CT) showed a space-occupying lesion in the liver (Couinaud’s segment V), and it was treated with chemotherapy (CAF therapy: cyclophosphamide [CPA], 100 mg/day p.o. for 11 days; adriamycin [ADM], 40 mg i.v. days 1 and 8; 5-fluorouracil [5FU], 650 mg i.v. days 1 and 8). A different chemotherapy regimen (tegaful · uracil [UFT] four capsules/day p.o. and tamoxifen 20 mg/day p.o.) was administered after discharge. Follow-up CT showed complete remission 3 months after the completion of chemotherapy.

A follow-up CT in 1995 showed a tumor in the pancreatic head, and mild dilatation of the main pancreatic duct. Magnetic resonance imaging (MRI) revealed the pancreatic tumor to be iso-intense on a T1 image and of
slightly high intensity on a T2 image. Tumor marker studies showed slight elevation of the serum CEA level (8.0 ng/ml), and carbohydrate antigen (CA) 15-3 (20.1 U/ml) and CA19-9 (0 U/ml) values, but these were within the normal range. In 1996, the tumor in the pancreatic head had increased in size (2.5 cm in diameter), and the liver tumor (segment V; 2 cm in diameter) had reappeared and gradually increased in size. Tumor markers in serum showed no marked changes: CEA (6.0 ng/ml), CA 19-9 (9.3 U/ml), alpha-fetoprotein (AFP; 11 ng/ml), and protein induced by vitamin K antagonist (PIVKA)-II; <0.07 AU/ml), but major elevations in DUPAN-2 (1100 U/ml) and elastase I (26300 ng/dl) were observed.

A preoperative MRI examination showed almost the same patterns for the pancreatic head tumor and the liver tumor on T1, T2, and Gd-DTPA images. Endoscopic retrograde pancreatography (ERP) showed a smoothly compressed narrow portion in the main pancreatic duct, with mild dilatation of the distal pancreatic duct. Endoscopic ultrasonography (EUS) revealed a low-echoic mass in the pancreatic head. Dynamic CT and angiographic studies showed different types of tumoral enhancement; markedly spotted hypervascularity in the pancreas tumor (a, b, arrow A), and peripheral enhancement with progressive and concentric filling in the hepatic tumor (a, b, arrow B).

About 3 months postoperatively, follow-up CT showed multiple liver metastases, and chemotherapy (CAF) was administered. However, the patient also had lung and bone (scapula and vertebra) metastases, and she died on September 9, 1997.

**Discussion**

The preferred sites of metastasis of RCC, in descending order of frequency, are the lung, liver, bone marrow, and adrenal gland. Pancreatic metastases from RCC...