Case Report

Hepatic Metastasis of Papillary Renal Carcinoma Preoperatively Diagnosed as Cystadenocarcinoma of the Liver: Report of a Case

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The patient was a 48-year-old man who had been found to have a hepatic tumor 6.6 cm in diameter on a CT scan and was admitted to our hospital for further examination. His past medical history included left nephrectomy for papillary renal cell carcinoma in December 2003. An abdominal CT scan revealed a multilocular cystic mass showed 75 mm in diameter in S7 of the right lobe of liver. Abdominal ultrasonography showed a highly echoic mass 70 mm in diameter in the right lower abdomen. On abdominal MRI a multilocular cystic mass measuring 80 mm × 65 mm was seen in S7 of the right lobe of liver, and it was depicted as mild high intensity on the T1-weighted images and very high intensity on the T2-weighted images. Celiac arteriography showed a hypervascular mass in the arterial phase and a tumor stain in the venous phase. Based on these findings, a diagnosis of cystadenocarcinoma of the liver was made, and surgery was performed. Intraoperative exploration revealed that the tumor was located in the right lobe of the liver. Right lobectomy was performed, and macroscopic examination of the surgical specimen showed that the tumor measured 70 mm × 70 mm × 50 mm. The cut surface was cavernous and brown. The histopathological diagnosis was papillary carcinoma, and the histological findings resembled those of the papillary renal cell carcinoma in the surgical specimen obtained previously. The multilocular cystic mass in the liver misdiagnosed as a cystadenocarcinoma of the liver was a metastasis from the papillary renal carcinoma in the previous surgical specimen.

Key Words: papillary renal carcinoma, hepatic metastasis, cystadenocarcinoma

Introduction

Renal cancer is prone to metastasize. If it metastasized to the liver, the foci are often multiple and impossible to resect surgically. We describe a case of hepatic metastasis of a papillary renal carcinoma that was preoperatively misdiagnosed as a cystadenocarcinoma of the liver, and we discuss its diagnosis based on a review of the literature.

Case Report

The patient was a 48-year-old man who had been found to have a 1-cm hepatic tumor on a CT scan in October 2004. The tumor had gradually increased in size to 6.6 cm by October, 2006, the patient was admitted to our hospital for further examinations. His past medical history included left nephrectomy for papillary renal cell carcinoma (RCC) in December 2003.

On the physical examination on admission the
An abdominal CT scan in October 2004 revealed a 1-cm hepatic tumor. The tumor gradually increased in size, and an abdominal CT scan in July 2006 revealed a multilocular cystic mass 75 mm in diameter in S7 of the right lobe of liver (Fig. 1).

Abdominal ultrasonography showed a highly echoic mass 70 mm in diameter in the right lower abdomen (Fig. 2).

Abdominal MRI revealed a multilocular cystic mass measuring 80 mm × 65 mm in S7 of the right lobe of liver that was depicted as mild high intensity on the T1-weighted images and very high intensity on the T2-weighted images (Fig. 3).

Celiac arteriography showed a hypervascular mass in the arterial phase and a tumor stain in the venous phase.

Based on these findings, a diagnosis of a cystadenocarcinoma of the liver was made, and surgery was performed.

Intraoperative exploration in October 2006 revealed that the tumor was located in the right lobe of the liver, and right lobectomy was performed.

Macroscopic examination of the surgical specimen revealed a solitary unencapsulated demarcated
tumor measuring 70 mm × 70 mm × 50 mm in size, and its cut surface had a brownish cavernous structure. The surgical margin was negative (Fig. 4).

Microscopical examination revealed that the tumor contained multilocular cysts lined with flat or papillary cuboidal epithelium. Some papillae contained a fibrovascular core that was thickened by edema or hyaline connective tissue. The tumor cells were high nuclear grade and contained eosinophilic cytoplasm and pseudostratified nuclei on papillary cores (HE, ×50).

Fig. 4  Macroscopically, the tumor was a solitary unencapsulated, well-demarcated tumor measuring 70 mm × 70 mm × 50 mm and its cut surface showed a brownish cavernous structure. The surgical margin was negative.

Fig. 5  Microscopically, the tumor contained multilocular cysts lined with flat or papillary cuboidal epithelium. Some papillae contained a fibrovascular core and were thickened by edema or hyaline connective tissue. The tumor cells are high nuclear grade and contain eosinophilic cytoplasm and pseudostratified nuclei on papillary cores (HE, ×50).

Fig. 6  The renal cell carcinoma (up to 8 cm in size) in the previously operated specimen was located in the periphery of the kidney, and there was no extension into or invasion of the pelvis. The cut surface showed a brownish cavernous structure.

The RCC in the previous surgical specimen was 8 cm in diameter and located at the periphery of the kidney. There was no extension into or invasion of the pelvis. The cut surface showed a brownish cavernous structure (Fig. 6). The tumor cells were cuboidal, contained eosinophilic cytoplasm, and had a tubular or papillary structure (Fig. 7). These findings resembled to the pathohistological features of the hepatic tumor resected this time.

The post-operative course was uneventful, and the patient was discharged on postoperative day 13.

Discussion

Papillary RCCs have characteristic gross, histologic, and cytogenic features that differentiate
them from other types of RCC. When defined histologically as tumors more than 50% of whose volume is occupied by true papillae, they constitute 7.5% to 14% of all RCCs\(^1\). Papillary tumors are more common than nonpapillary RCCs, in end-stage renal failure\(^2\), more frequently multifocal, and more often associated with tubular dysplasia and adenomas\(^3\). They are also often grossly cystic and necrotic\(^4\). A clinicopathological study showed a statistically significant survival advantage for papillary renal tumors over nonpapillary renal tumors\(^5\).

RCC may spread by direct extension or systemically by a hematogenous, retrograde hematogenous, or lymphatic route. Hematogenous extension of RCCs via the renal vein, inferior vena cava, or right atrium typically involves the lungs\(^6\). Metastasis has been found to occur to every organ and tissue in the body and to involve unusual sites. Kinouchi and Kotake\(^7\) reported the following metastatic sites in 119 cases of RCC: lung, 72 cases (59%); bone, 43 cases (35%); liver, 15 cases (12%); lymph nodes, 12 cases (10%); adrenal gland, 7 cases (6%); and brain, 7 cases (6%).

Papillary RCC was classified into type 1 and type 2 by Delahunt et al\(^8\). Briefly, type 1 consists of small cells having scanty pale cytoplasm and small ovoid nuclei containing inconspicuous nucleoli, with the cells arranged in a single layer on the basement membrane of the papillary core. Type 2 is characterized by cells having large nuclei and prominent nucleoli and exhibiting nuclear pseudostatification, and their cytoplasm is typically voluminous and eosinophillic. The rates of metastasis by both type 1 and type 2 are the same as that of nonpapillary RCC, i.e., type 1, 17.4% and type 2, 25.0%\(^8\).

There was no significant differences in the results of treatment for metastatic RCC according to the metastatic site. Hepatic metastasis by RCC, however, is exceptional. When RCC metastasizes to the liver, there are often multiple foci and they are impossible to resect surgically\(^9\). The right lobectomy of the liver in our case, was successful, because the lesion was a solitary hepatic metastasis of papillary RCC. Papillary RCC has a better prognosis than nonpapillary RCC, and thus aggressive resection for hepatic metastasis appears to be useful.

From 2% to 4% of metastatic hepatic carcinomas exhibit a cystic degeneration\(^10,11\). The most common primary lesions that give rise to liver metastasis are leiomyosarcoma of the digestive tract, cancer of the large intestine, gastric cancer, ovarian cancer, and lung cancer. The multilocular cystic mass in the liver of our patient was misdiagnosed as cystoadenocarcinoma of the liver because the cystic mass was a metastasis from the papillary renal carcinoma in the perivascular surgical specimen.

**Conclusion**

We have reported a case of hepatic metastasis by papillary renal carcinoma that was preoperatively misdiagnosed as cystoadenocarcinoma of the liver, and we have discuss the diagnosis and treatment based on a review of the literature.
References


