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Case Report
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Multiple Primary Malignant Neoplasms of the Kidney, Rectum and Pancreas: A Case Report

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Abstract

Patients with multiple malignant primary neoplasms (MPMN) are often described as synchronous or metachronous tumors based on their chronology of presentation. Based on our literature search, there has been no reported case of a patient with triple primary malignant neoplasms consisting a combination of kidney, rectum and pancreas metachronously. Here we reported a patient diagnosed with renal cell carcinoma in 2004, and the other two neoplasms were observed during follow-up in 2001 and 2015 respectively. He received surgical treatment for renal and rectum neoplasm and chemotherapy was given for the pancreatic adenocarcinoma. Clinicians and scientists need to emphasis on the importance of the regular physical examination and timely follow-up for older cancer patients because of being at higher risk of second primaries.

Keywords: Multiple primary malignant neoplasms; Renal cancer; Rectal carcinoid; Pancreatic cancer

Introduction

Multiple primary malignant neoplasms (MPMN) refer to the same host that has two or more than two primary malignant neoplasms in single or multiple organs synchronously or metachronously. According to the number of tumors, it can be divided into double or triple cancers and triple cancers are very rare [1]. A patient has been diagnosed with the renal cell carcinoma, rectal carcinoid and pancreatic adenocarcinoma patients were admitted in Peking Union Medical College Hospital in recent year.

Case Presentation

The 54-year-old male patient underwent the renal B-mode ultrasound examination in November 2004 and the result revealed that the left kidney had low, irregular echo with the abundant blood flow. Then he received the renal blood flow chart which indicated the glomerular filtration rate of the right kidney was 46.9 ml/min, while the left kidney 45.5 ml/min. Abdominal enhancement computed tomography revealed the occupation at the middle of the left kidney with the diameter of 4cm, enhanced significantly. The patient had denied the dysuria, hematuria since the onset without the percussion pain of kidney during physical examination. In November 24, 2004, he underwent the percutaneous double renal arteries angiography and left renal artery embolization. Intraoperative blood flow in the left kidney was very rich, which indicated the great possibility of malignant neoplasms, so the embolization of the renal artery with the gelatin sponge was given. The next day he underwent the retroperitoneal laparoscopic radical resection of left renal carcinoma. The tumor with the diameter of 3-4 cm, deep to renal collecting system, with the red brown profile at the middle of the left renal was resected during the operation. Pathology findings were clear-cell carcinoma, moderately differentiated (Figure 1A).

In October 2011, the patient found the tumor from the submucosa of the rectum by regular physical examination. However, the chief complaint of him did not include the change of stool character, pus and blood stool, and tenesmus. The he received the colonoscopy and the result showed there was a soft protrusion from submucosa at the wall of rectum 3 cm from the anus with the diameter of 3cm and the smooth surface. Rectal examination results were accord with it. Then the patient received the transanal endoscopic microsurgery in December 1, 2011. During operation, a 0.6cm tumor was removed 3 cm from the dentate line, with 1cm periphery totally removed along it. The postoperative pathologic results indicated the neuroendocrine tumor, G1, invaded the submucosal layer (Figure 1B). Immunohistochemical results were as follows: Syn (+), CgA (-), CDX2 (-), CD20 (-), CK7 (-), CEA (-), SMA (-).

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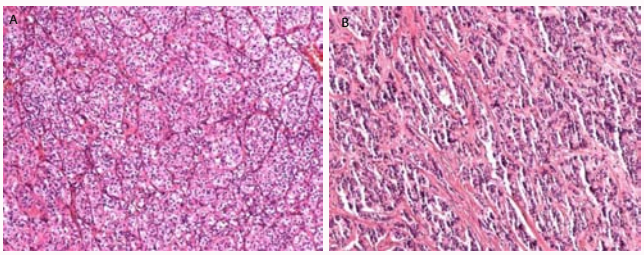

Figure 1: Histological examination of the clear-cell carcinoma of the kidney, moderately differentiated (A) and the neuroendocrine tumor of the rectum which invaded the submucosal layer (B) (H&E, ×200).

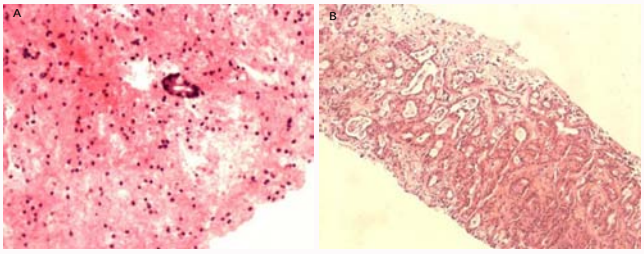

Figure 2: Histological examination of the biopsy of the pancreatic tissue, the ductal adenocarcinoma with a little heteromorphic glandular epithelium (A) and the liver lesion, abnormal glands with high possibility of metastasis (B) (H&E, ×400).

On 23 October 2015, he performed positron emission computed tomography (PET-CT) to evaluate the whole body condition and accidently found a low density occupation at pancreatic tail. It was around 3.5x3.1x3.2 cm, out of contour with an increased uptake of radioactive, SUV max 5.1, considering the primary pancreatic cancer. Meanwhile there were also multiple liver low density lesions with increased metabolism. Next the patient underwent the endoscopic ultrasonography guided fine needle aspiration (EUS-FNA) for further diagnosis in November 5, 2015. There was a 3.4x3cm nearly-circular lesion at the tail of the pancreas with clear boundary. The internal echo was uneven and the dilated-pancreatic-duct-like structure was visible. Pathological smear indicated the ductal adenocarcinoma, and a little heteromorphic glandular epithelium in the pancreatic puncture tissue (Figure 2A). Because the origin of the tumor could not identify clearly by this result, this case was discussed in the consultation center of the pancreatic disease in Peking Union Medical College Hospital in November 24. Specialist in our hospital suggested him performing EUS-FNA liver biopsy, and the final result indicated that the abnormal glands in the liver tissue with high possibility of metastasis (Figure 2B). Then the immunohistochemical results were as follows: CA9 (-), PAX8 (-), Vimentin (+), CK19 (+), CK7 (+), hepotocyte (-). Combined with immunohistochemistry, history and serum CA199 1645 U/ml, the diagnosis of pancreatic adenocarcinoma with live metastasis was clear, T3N2M1, IV period. The patient receives chemotherapy with combination of Gemcitabine and Tegafur and has good control of his disease.

Discussion

According to the diagnostic standard of MPMN in 1932 revised by Warren [2]: (1) every tumor was malignant identified by histology (2) each tumor had its unique pathological morphology (3) tumor occurred in different parts of the body without any connection (4) excluded the metastasis of each other. According to the diagnostic time, MPMN could be divided into the synchronized MPMN (the interval time<6 months) and the metachronized MPMN (the interval time >6 months). The interval times of the onset of three primary malignant tumors were more than 6 months in our report and they were independent of each other determined by immunohistochemical stain, which meets Warren's criteria and could be diagnosed as MPMNs. And this kind of MPMN has not been reported in the published literature before. This report perhaps was the first case with the combination of the renal cancer, rectal carcinoid and pancreatic adenocarcinoma in the world.

Most renal carcinomas were clear-cell carcinomas, and the blood spread and lymph node metastasis were common. The diagnostic accuracy of radiology was reliable and the 5-year survival rate was relatively high. The renal cancer was diagnosed in 2004, and this patient was diagnosed with rectal carcinoid 6 years after that, which should be described as metachronous tumor. The pathological diagnosis was neuroendocrine tumor, except for the metastasis of the renal carcinoma definitely. The pathological type of pancreatic cancer was adenocarcinoma usually. As for this patient, the PET-CT suggested the primary pancreatic cancer and multiple metastasis lesions of the liver in 2015, but the biopsy of the pancreas failed to identify the exact pathologic type. Finally the liver biopsy showed that atypical glandular cells were arranged and the immunohistochemical result was vimentin (+) and CK19 (+), CK7 (+), hepotocyte (-), so it could be diagnosed accurately as primary pancreatic cancer with liver invasion. By the way, the evaluated serum tumor marker CA199 further corroborated the diagnosis of primary pancreatic cancer.

The incidence of MPMN increased year by year. According to literature report, the prevalence of MPMN reported varies from 0.7% to 11.7% of all patients with carcinomas in western countries [3], however, in China it was about only 0.09% [4]. The pathogenesis of MPMN was still unknown, which might be related to genetic factors, the instability of the chromosome, the susceptibility of body, environmental factors, the decline of the immunity and iatrogenic factors (radiotherapy, chemotherapy and so on) [5].

There was no uniform standard for the treatment of MPMN, and different measures should be given according to the personal situation and the specificity of the different tumor. Surgery, radiotherapy and chemotherapy were the main treatments for malignant tumors at present. As for the patient in our report, the effect of the surgical treatment was obvious for renal cell carcinoma and rectal carcinoid, without any recurrence and metastasis. However, pancreatic adenocarcinoma was at IV period with multiple hepatic metastatic lesions. Considering the age of the patient, he lost the opportunity of the surgery. The chemotherapy was given to the patient and now he was still in good state. In general, although difficult to differentiate with recurrent and metastatic carcinoma, the prognosis of MPN was better than that of metastatic and recurrent cancer. Enough attention should be paid to avoid missing the opportunity of surgical treatment. For cancer patients, regular physical examination and timely follow-up were very important to ensure early diagnosis, active treatment and better prognosis.

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