Case report

Synchronous primary gastric cancer and renal cell carcinoma: A case report and literatures review

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A 73-year-old woman was admitted and treated because of epigastric fullness, palpitation, and tarry stool for 2 days. Gastric cancer was found via panendoscopy. A preoperative abdominal computed tomographic scan revealed a hypervascular mass in the left kidney; renal cell carcinoma (RCC) was the initial impression. A concomitant surgery for subtotal gastrectomy and radical left nephrectomy was performed. The pathological examination confirmed gastric adenocarcinoma (T2a) and RCC (T2b). Convalescence was uneventful and she was discharged in stable condition. There was no evidence of tumor recurrence at a 20-month follow-up examination.

The incidence of synchronous gastric cancer and RCC is quite low, and concomitant surgery is rare. Surgeons need to be aware of the possibility of a synchronous second primary cancer when the initial gastric cancer is diagnosed. A concomitant surgery for gastrectomy and radical nephrectomy can be safely performed in selected patients, which can achieve feasible oncological control.

1. Introduction

Synchronous presentations of cancer in patients with gastric cancer are infrequent. The incidence of synchronous renal cell carcinoma (RCC) with gastric cancer is quite low (0.11–0.37%), and concomitant surgery for treating gastric cancer and RCC is rare. Because patients with gastric cancer are at risk of developing a second, additional primary form of cancer, this may negatively influence the clinical prognosis. Surgeons should try to diagnose synchronous cancers in gastric cancer patients, especially in the elderly. Herein, we present our experience of performing a concomitant gastrectomy and nephrectomy on a patient diagnosed with synchronous gastric cancer and RCC.

2. Case report

A 73-year-old woman was admitted to our hospital because of epigastric fullness, palpitations, and tarry stool passage for 2 days. She was a vegetarian and nonsmoker. She denied progressive body weight loss in recent months. A physical examination demonstrated no palpable abdominal masses or tenderness; however, pale conjunctiva was found. Blood tests exhibited low hemoglobin (5.1 g/dL), and a blood transfusion was given. Stool occult blood test results were positive, and a panendoscopy revealed a large ulcer with an elevated margin located at the great curvature of the stomach, indicating Bowmann type II or III lesions. A biopsy was performed, and the pathology report indicated gastric adenocarcinoma. Abdominal computed tomography (CT) revealed a hypervascular tumor in the left kidney measuring 12 × 9 × 12 cm (Fig. 1). A primary or metastatic renal tumor was the initial impression. A concomitant subtotal gastrectomy (Fig. 2) and radical left nephrectomy (Fig. 3) were performed. The total operative time was 395 minutes, and the estimated blood loss was 750 mL. Paralytic ileus was found postoperatively, and conservative treatment was administered to this patient. She was discharged on the 16th day after surgery. The final pathology report indicated a moderately differentiated gastric adenocarcinoma (pT2aN0M0; Fig. 2) and clear-and granular-type RCC (pT2N0M0; Fig. 3). There was no evidence of recurrence after at the 20-month follow-up examination.

3. Discussion

The incidence of gastric cancer with a second, synchronously presenting primary cancer varies from 2.0–10.9%. Colorectal,
lung, and liver cancers are frequently reported in the medical literature. However, synchronous RCC is rare. The incidence ranges from 0.11–0.37%, and the male-to-female ratio is 2:1.\textsuperscript{1–4} Although studying different populations and using different methods may have contributed to differences in the reported rates of incidence, it has been reported that the incidence of synchronous cancer is higher in early-stage gastric cancers than in the advanced stages of the disease (5.2% vs. 2.4%, \textit{p} < 0.001) in a retrospective study.\textsuperscript{3} This might be associated with the increasing incidence of early gastric cancer and the fact that patients who are diagnosed with colorectal cancer routinely undergo gastroscopies.

Gastrointestinal symptoms are the most common clinical manifestations in patients with synchronous cancer of the kidney and stomach.\textsuperscript{5} Most renal tumors are found incidentally via imaging studies. Although the left renal tumor mass was large enough to palpate in our patient, the patient presented with no complaints regarding the classical triad of RCC (hematuria, groin pain, and the presence of a palpable mass).

There are few reports that discuss the preferred treatment modality for improving the clinical prognosis of patients with synchronous gastric cancer and RCC. The pathological stage of the secondary primary cancer might be the primary factor that influences the treatment modality for these patients. Most patients who have resectable synchronous tumors have both tumors operated on at the same time, and this does not lead to increased postoperative mortality.\textsuperscript{5} Although minor complications (e.g., ileus and prolonged hospitalization) do occur, there are typically no major complications during hospitalization.

The survival rate is 84.1% at 3 years and 69.3% at 5 years for patients with a second primary cancer. The respective 10-year survival rates are 69.3% and 40.1% for gastric cancer patients without and with a second primary cancer. This difference between the two groups is statistically significant.\textsuperscript{1} Ha et al found that the 5-year survival rate was only 24% after therapeutic resection was performed on 11 patients who had been simultaneously diagnosed with gastric cancer and RCC.\textsuperscript{4} In our patient, no tumor recurrence was noted on at 20-month follow-up examination, although more time is required to further elucidate these results.

It has been reported that an unstable genetic status, microsatellite instability, family history, and environmental factors (e.g., diet, smoking, etc.) are risk factors for the development of second

\textbf{Fig. 1.} A demarcated hypervascular tumor in the left kidney measuring approximately $12 \times 9 \times 12$ cm.

\textbf{Fig. 2.} A Bormann type II lesion (arrow) measuring approximately $3 \times 3$ cm, which was found during the subtotal gastrectomy. The pathological report confirmed a moderately differentiated adenocarcinoma that had invaded the muscularis propria layer (hematoxylin & eosin, 200×).
primary cancers in patients with early gastric cancer. However, Cheng et al.'s suggestion that radiotherapy and/or chemotherapy may play an important role in the oncogenicity of multiple primary cancers as the molecular basis for the association of synchronous double cancers is not completely understood. Negative TP53 and RAS mutations have been reported in patients with alimentary tract malignancies. However, there are still no studies describing the genetic events that lead to the development of synchronous gastric adenocarcinoma and RCC.

More than 50% of metachronous tumors that appear after early gastric cancer are diagnosed within 5 years after surgery. It is important to detect synchronous or metachronous carcinomas at sites other than the stomach in patients with early gastric cancer during the course of long-term follow-up examinations. We suggest that postoperative examinations be periodically performed for at least 5 years after surgery.

Finally, synchronous gastric cancer and RCC are rare, and radical surgery plays a major role in treatment. It is believed that a concomitant gastrectomy and radical nephrectomy can be safely performed in selected patients without the development of major complications. Feasible oncologic control and a survival should be expected.

Conflicts of interest statement

The authors declare that they have no financial or non-financial conflicts of interest related to the subject matter or materials discussed in the manuscript.

References