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Gastrointestinal Stromal Tumor in the Stomach Co-Existent with Renal Cell Carcinoma

CASE REPORT

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ABSTRACT

Gastrointestinal stromal tumours (GIST) are the most common mesenchymal tumours of the gastrointestinal system (GIS). They may co-exist with renal cell cancers (RCC). While a couple of cases have been reported in literature, these are in the form of case reports. This case report presents the case of a patient with GIST in the stomach and simultaneously detected RCC. Within the scope of the treatment, wedge resection to the stomach and partial nephrectomy were performed. The patient, who had no post-op complications, was discharged on post-op day 7. Gastrointestinal stromal tumours (GIST) are the most common mesenchymal tumours of the gastrointestinal system (GIS). They may co-exist with renal cell cancers (RCC). While a couple of cases have been reported in literature, these are in the form of case reports. This case report presents the case of a patient with GIST in the stomach and simultaneously detected RCC. Within the scope of the treatment, wedge resection to the stomach and partial nephrectomy were performed. The patient, who had no post-op complications, was discharged on post-op day 7.

Key words: Gastrointestinal stromal tumour, renal cell carcinoma, synchronous development

INTRODUCTION

Gastrointestinal stromal tumours (GIST) are generally located within a wide clinical spectrum ranging from asymptomatic progressive tumours to rapidly progressive aggressive tumours. They are the most frequently seen gastrointestinal mesenchymal forms of malignancy (1). They comprise less than 1% of all GIS malignancies (2). Primary GIST cases are most frequently seen in the stomach (50–70%) (1). Most patients present between the 5th and 7th decades (2). The main treatment for GISTs is surgery (3). RCCs account for 80–90% of adult primary renal tumours and for 2% of all cancer types. They are generally seen over 40 years of age (4). RCCs and GISTs are familial tumours and mutations in the c-MET and c-KIT proto-oncogenes are seen. Both of these have tyrosine kinase receptors (5). A secondary primary tumour co-existent with GIST tumours is a very rare condition. In this study, we aim to present the case of a simultaneous existence of GIST in the stomach and RCC alongside a review of the literature.

CASE REPORT

A 60-year-old female patient presented to our clinic complaining of abdominal pain. During the examination a palpable, painless, mobile lesion of about 8x6 cm in the epigastrium was detected. Computerized tomography revealed a 12x8 cm mass in the greater curvature of the stomach which had heterogeneous density with distinctive lobule contoured borders and no invasion into the surrounding structures, most of which had intensive contrast (Figure 1). Further, a solid lesion of about 4x3 cm with smooth contours was detected in the right renal lower pole posterior that had diffuse heterogeneous contrast involvement showing exophytic extension from the cortex to the surrounding. Following surgery it was seen that the patient had a smooth contoured mass of about 10x8x6 cm in the greater curvature of the stomach (Figure 2) and a smooth contoured mass of about 4x3 cm in the lower pole of the right kidney (Figure 3). Neither of the masses had invaded the surrounding tissues. A wedge resection of the stomach and partial nephrectomy were performed on the patient.

The stomach tumour was encapsulated and composed of spindle cells growing in the form of fascicles. Tumour invasion into the muscularis and serousa layer were also reported. Seventeen mitoses were counted on 50 HPF. Immunohistochemistry was performed by the streptavidin biotin peroxidase method. Tumour cells were positive for tyrosine-protein kinase Kit (c-KIT), CD34 and vimentin, but were negative for S-100 and smooth muscle actin (SMA). The pathological analysis of the lesion resected from the stomach revealed that it was a high-grade gastrointestinal stromal tumour (Figure 4a - b). Pathological analysis of the nephrectomy material revealed that it was renal cell cancer (Figure 5). It was seen that the surgical borders were negative for both tumours. The patient, who had no post-op complications, was discharged on post-op day 7 with her treatment plan organized. Imatinib 300 mg/

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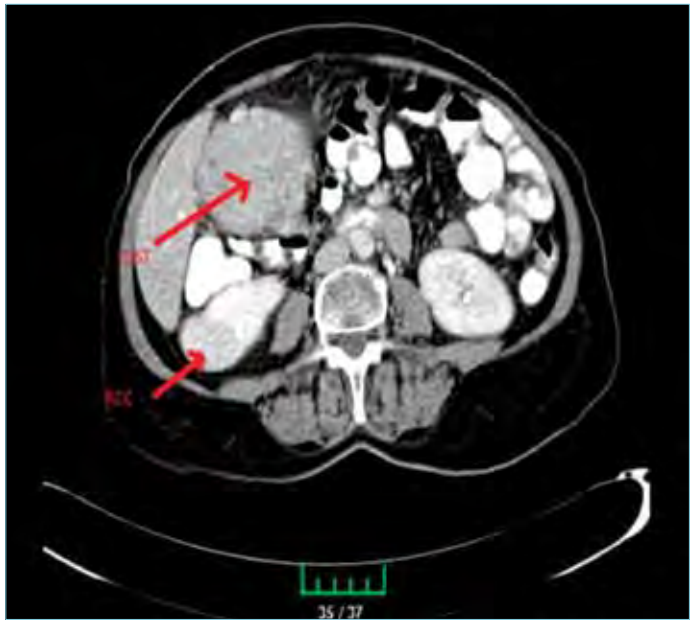

Figure 1. Abdominal computed tomography findings of gastric gastrointestinal stromal tumour and renal cell cancer

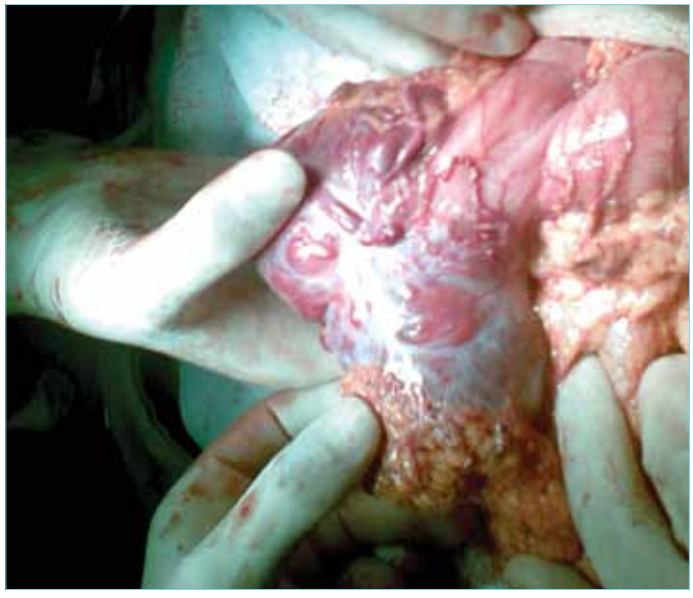

Figure 2. Gross finding. Even though the size of the mass was 10 cm, the mass was successfully resected and retrieved without any breakage (GIST)

day was started as adjuvant therapy. Postoperatively, the patient continued imatinib therapy and no recurrence or metastasis was found in the right kidney at the twelve-month follow-up.

DISCUSSION

Mazur and Clark first coined the term GIST to refer to a distinct group of gastrointestinal sarcomas in 1983. Although GISTs are the most common mesenchymal tumours, they account for 1–3% of all malignancies of the gastrointestinal system (2). Primary GIST cases are most frequently seen in the stomach (50–70%) and small intestine (25–35%), colon and rectum (5–10%), mesenterium or omentum (7%), and the oesophagus (<5%), respectively (1). GISTs

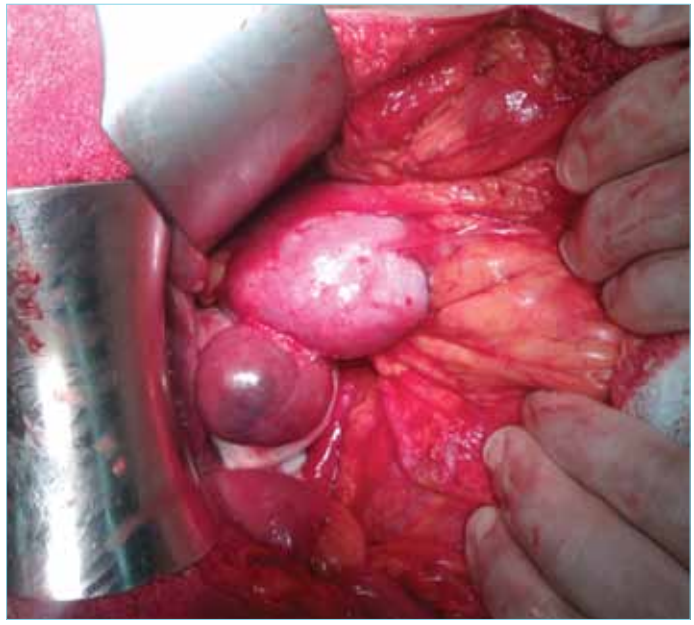

Figure 3. Intraoperative images of the lower pole renal mass (solid arrow)

are mesenchymal tumours and are generally brought about by neoplastic mutation of Cajal intestinal cells (6). Patients with these tumours present most frequently with complaints of bleeding, bowel obstruction, abdominal pain, and palpable mass, or these tumours can randomly be detected during surgical, radiological, or endoscopic procedures (7, 8). Our patient's presenting symptoms were abdominal pain and abdominal mass.

GISTs may co-exist with colorectal cancers, prostate cancers, and lymphoid tissue cancers (9).

The surgical removal of the tumour is the most significance chance for cure in these patients. Metastasis to the lymph nodes is infrequent with GISTs and is seen in about 5% of patients. Therefore, dissection of the lymph nodes is not recommended. There is still no treatment protocol for adjuvant chemotherapy or radiotherapy (3). The effectiveness of imatinib treatment in totally resected tumours by surgery is a controversial issue (1, 10). Our patient had surgical resection. Imatinib treatment was initiated as adjuvant treatment.

Renal cell carcinoma accounts for 2% of all cancers, while it comprises 80% of malignant renal tumours. Its incidence in male patients is twice that in female patients (5). The patients are generally over 40 years of age. The most frequently detected symptoms are haematuria, abdominal pain, and palpable mass. Its primary treatment is surgery and five year survival rate is an average of 70% (4). Studies in literature reported co-existence of renal cell carcinoma with lymphoma, colon, breast, thyroid, ovary, and stomach cancers (11-16).

RCCs and GISTs are familial tumours caused by mutations in the c-MET and c-KIT proto-oncogenes, both of which have tyrosine kinase receptors (5). These two tumours, however, may co-exist as sporadic cases. This condition has been suggested to be related to the potential of imatinib mesylate (Gleveec), used in the treatment of gastrointestinal stromal tumours, to cause secondary tu-

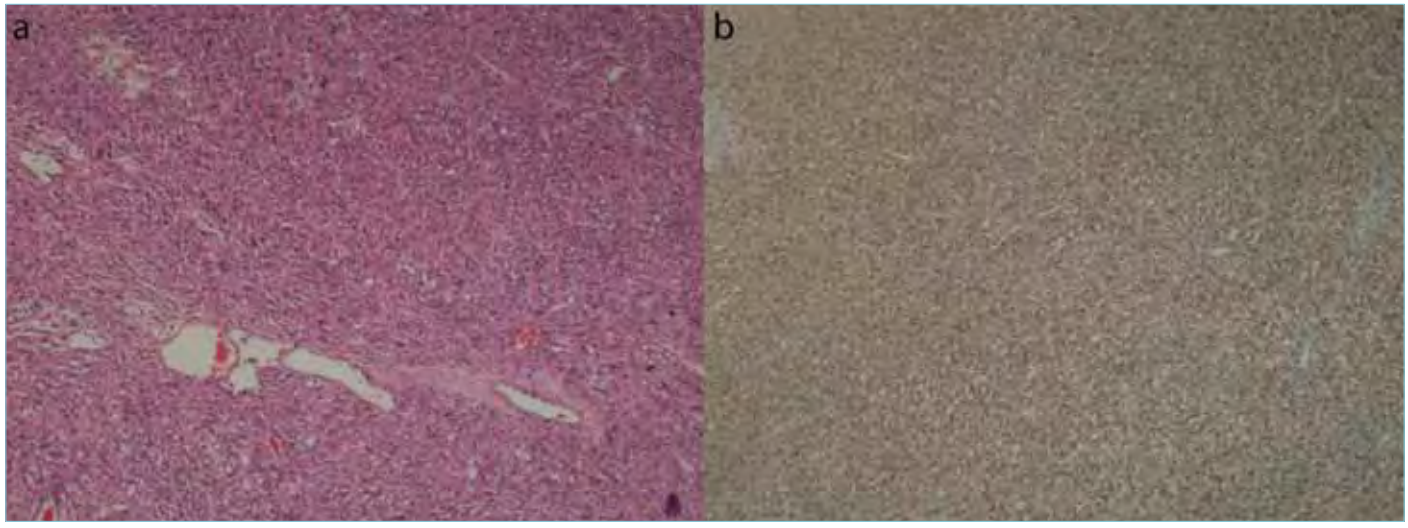

Figure 4. **Gastrointestinal stromal tumor HEx10 (a) CD117 positive immunostaining (b)**

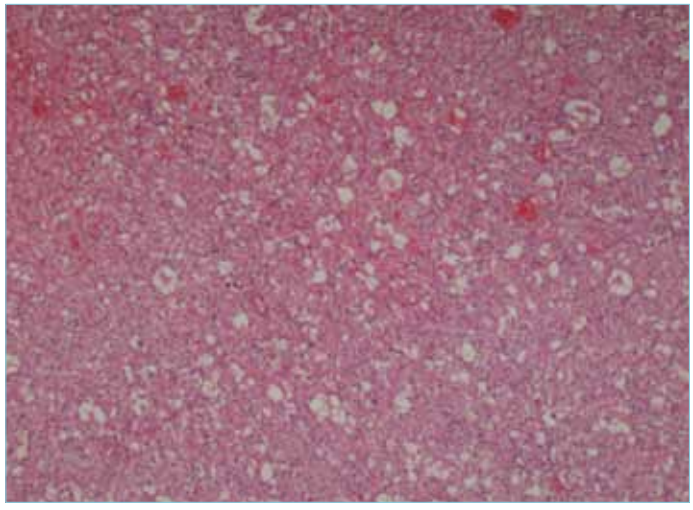

Figure 5. **Papillary renal cell carcinoma (HEx20)**

mours, especially papillary renal cell cancers (17). However, GIST and RCC were detected simultaneously in our case and a surgical procedure was performed regarding both tumours in the same session.

CONCLUSION

GIST may also co-exist with malignancies in other organs. But its synchronized existence with RCC is a rare condition. Although it has been reported that this is related to certain mutations, multicentre studies with a wide scope need to be conducted on the issue.

Informed consent: Written informed consent was obtained from patient who participated in this study.

Authors' contributions: Conceived and designed the experiments or case: EG, TK. Performed the experiments or case: AK, MHÇ. Analyzed the data: EG, HHE. Wrote the paper: EG, MHÇ. All authors read and approved the final manuscript.

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