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The first case: acute abdomen due to gastric gastrointestinal stromal tumor perforation with synchronous renal cell carcinoma

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The first case: Acute abdomen due to gastric gastrointestinal stromal tumor perforation with synchronous renal cell carcinoma

AIM: *Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal neoplasms of the gastrointestinal tract and they may coexist with renal cell cancers (RCC). The main treatment method of GIST and RCC is curative elective surgery. Surgery followed by oncological treatment with sunitinib is the main treatment option when these tumors coexist.*

CASE REPORT: *A 32-year-old male, after a traffic accident applied to the emergency department. A thoraco-abdominopelvic computed tomography was performed, which demonstrated the presence of diffuse hemorrhagic fluid in the abdomen with 11x10 cm exophytic gastric mass and 2 x 2 cm right renal mass. After emergent laparotomy with gastric wedge resection and partial nephrectomy, patient was discharged uneventfully.*

CONCLUSIONS: *If the patient's clinical condition is suitable for surgery, both tumors can be removed simultaneously, even in emergency situations. Thus, difficulties and complications that may occur during follow-up and the second operation can be avoided.*

KEY WORDS: Acute Abdomen, Gastrointestinal Stromal Tumor, Renal Cell Carcinoma,

Introduction

Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal neoplasms of the gastrointestinal tract, derived from interstitial Cajal cells, constitute 1% of all gastrointestinal neoplasms, and are most common in the stomach (65%)¹. Although the majority of GISTs are sporadic, there are forms associated with syndromes

or specific inheritable mutations^{2,3}. They may coexist with renal cell cancers⁴. Renal cell carcinoma (RCC) accounts for 2-3% of all adult malignancies; clear-cell is the most common histological subtype⁵. Approximately 70-85% of all RCCs are clear-cell, 7-15% are papillary tumors⁶. In a particular number of patients, GISTs are detected incidentally through imaging examinations or surgical procedures that are performed for other diseases. GISTs symptoms may include abdominal distension and pain, nausea, weight loss, dysphagia, but RCC usually presents itself as an asymptomatic abdominal mass. To the best of our knowledge, this is the first case presenting with life-threatening hemorrhagic shock due to gross GIST rupture of the stomach with synchronous RCC.

We aimed to present this first report with the acute abdomen clinic investigating the relationship between these two tumor types, which may have similar genetic mutations in the tyrosine kinase pathway.

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Case Report

A 32-year-old male, after a traffic accident outside the vehicle, applied to the emergency with hypovolemic shock. A thoraco-abdominopelvic computed tomography (CT) was performed after medical resuscitation, which demonstrated the presence of diffuse hemorrhagic fluid in the abdomen with 11x10 cm exophytic gastric mass and 2x2 cm right renal mass, without metastasis (Figs. 1 A, B). The patient underwent explorative laparotomy. A diffuse clotted blood caused by perforated GIST localized in the gastric corpus was found (Figs. 2 A, B). After gastric wedge resection, a right partial nephrectomy for RCC was performed (Fig. 2C). Subsequently, the peritoneal cavity was lavaged with 10 L of 0.9% NaCl solution. Histopathological examination revealed a stage IIIB GIST (spindle cell, CD 117+, mitotic count 6/50 per high-power field) according to the 8th edition of the American Joint Committee on Cancer TNM staging system. The partial nephrectomy specimen was reported as stage I RCC (clear cell, histologic grade 1, no tumor necrosis). All resection margins were clear of tumor. On the postoperative 7th day, the patient was discharged without complications.

Discussion

This case reveals that RCC and GIST can be seen simultaneously. There are few cases where elective surgery is performed for GIST and synchronous or metachronous RCC⁴. Although the main treatment method of GIST and RCC is curative elective surgery, there are cases of gastrointestinal stromal tumors undergoing emergency surgery due to bleeding or perforation. We could not find any case report in which emergency surgery due to ruptured GIST with concomitant partial or total nephrectomy for asymptomatic RCC to be presented in the literature. Besides these, this present case contains the first description of successful treatment option under emergent condition for RCC accompanying perforated GIST. The incidence of synchronous malignant tumors to the GIST has been reported at high rates ranging from 13,8% to 43%^{1,7}. Mendonca et al⁴ reported in a retrospective study of 405 patients treated surgically for GIST, that 2.2% of the cases had synchronous RCC. The relationship between RCC subtypes and second primary tumor association has been demonstrated. An epidemiological study from Sweden showed the increased risk of second primary cancers after papillary RCC⁸.

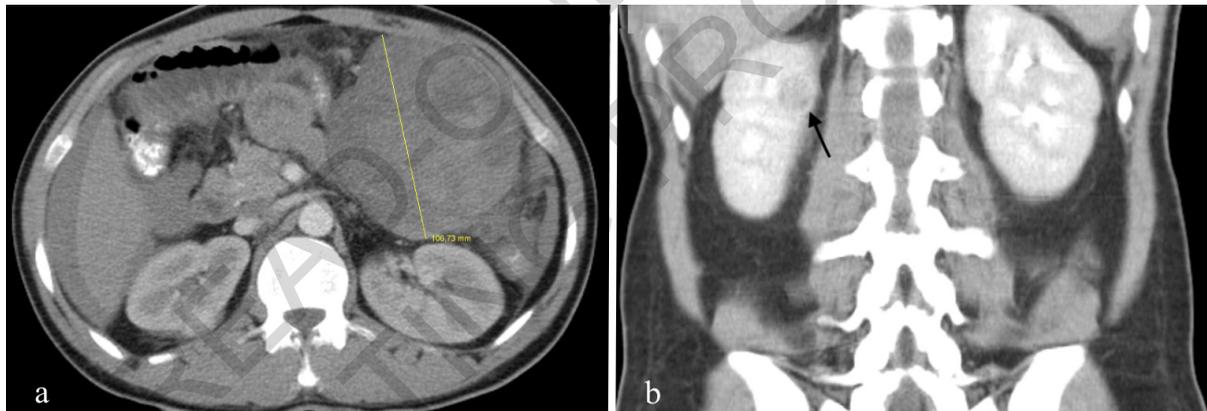


Fig. 1: Abdominal computed tomography image showing synchronous, a) Gastrointestinal stromal tumor and, b) Renal cell carcinoma (black arrow).

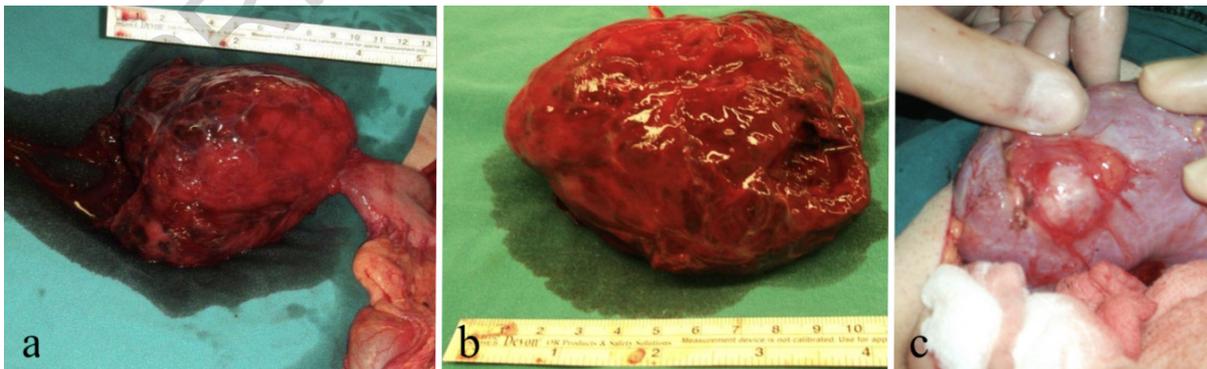


Fig. 2: Intraoperative findings, a) Gastrointestinal stromal tumor originating from greater curvature of stomach, b) Gastrointestinal stromal tumor specimen, c) Renal cell carcinoma.

Rabbani et al ⁹ reported that papillary histologic types of RCC have an association with a second primary malignancy. This case report contributes to the literature that second primary tumors can also be detected in other RCC subtypes such as clear cell RCC by revealing the association of clear cell RCC subtype and GIST. The aforementioned data support the need for more investigations into RCC subtypes that accompanies with GIST.

Surgical resection with curative intent is the mainstay treatment option for patients with GIST and achieving R0 resection is known to be a good prognostic factor. Sunitinib is used as a first-line therapy in RCC and as a second-line therapy in GIST ⁹. Taking into account the pathological subtypes, surgery followed by oncological treatment with sunitinib is the main treatment option when these tumors coexist. Partial nephrectomy, ablative techniques or active surveillance are the treatment options for stage-1 RCC that are recommended by current guidelines ¹⁰. Active surveillance and local ablative techniques are an option to provide local control of the disease especially in elderly patients with significant comorbidities or short life expectancy. Since the patient was young and his general health condition was stable with medical resuscitation, both tumors were resected simultaneously. Due to the pathological stage, mitotic number and clinical appearance of GIST, postoperative medical treatment was required. We referred the patient to the medical oncology clinic for medical treatment planning. Although synchronous RCC was asymptomatic, sunitinib treatment was planned to include the treatment of both the GIST and RCC. In addition, the simultaneous removal of both tumors even in emergency situations, if the patient's clinical condition is appropriate for surgery, is important in terms of preventing difficulties and complications that may occur during follow-up and the second operation.

Conclusion

It should be kept in mind that second primary tumors may accompany GIST. If detected preoperatively, it may cause changes in both elective and emergency surgical treatment planning. Our case report highlights the importance of preoperative systemic evaluation and total abdominal exploration in preventing diagnostic errors and planning the definitive treatment. Funding: There is no organization that funded our research.

Riassunto

I tumori stromali gastrointestinali (GIST) sono le neoplasie mesenchimali più comuni del tratto gastrointestinale e possono coesistere con i tumori a cellule renali (RCC). Il principale metodo di trattamento di GIST e RCC è la chirurgia elettiva curativa. La chirurgia seguita da un trattamento oncologico con sunitinib è l'op-

zione terapeutica principale quando questi tumori coesistono. Si presenta il caso clinico di un uomo di 32 anni, che dopo un incidente stradale si è rivolto al pronto soccorso. È stata eseguita una tomografia computerizzata toraco-addominopelvica che ha dimostrato la presenza di liquido emorragico diffuso nell'addome ed una massa gastrica esofitica di 11x10 cm e una massa renale destra di 2x2 cm. Dopo la laparotomia d'emergenza con resezione cuneiforme gastrica e nefrectomia parziale, il paziente è stato dimesso senza incidenti.

CONCLUSIONI: Se le condizioni cliniche del paziente sono idonee all'intervento chirurgico, entrambi i tumori possono essere rimossi contemporaneamente, anche in situazioni di emergenza. Pertanto, è possibile evitare difficoltà e complicazioni che possono verificarsi durante il follow-up e il secondo intervento.

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