

Case Report

Synchronous malignancy of stomach and kidney: an unusual combination: a case report

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ABSTRACT

Synchronous occurrence of primary gastric cancer with primary renal cell carcinoma (RCC) is exceedingly rare. We report a case of a 70 years old gentleman who presented with a history of epigastric fullness and tarry stools from 1 month, along with significant weight loss which he was unable to quantify. Esophagogastroduodenoscopy showed ulceroproliferative growth in the antropyloric region of stomach causing complete outlet obstruction. Histopathology revealed poorly differentiated mucinous adenocarcinoma. Contrast enhanced computed tomography (CECT) abdomen showed an asymmetrical circumferential growth in the antropyloric region leading to obstruction. A heterogeneously enhancing hypervascular mass was also visualized over the lower pole of left kidney with an initial impression of metastasis. A concomitant radical subtotal gastrectomy and radical left nephrectomy was performed. Pathological examination confirmed gastric adenocarcinoma (T4a) and renal cell carcinoma-RCC (T3a). Most of the operable synchronously occurring second primary malignancy (SPM) can be resected in a single stage.

Keywords: Renal cell carcinoma, Gastric adenocarcinoma, Second primary malignancy

INTRODUCTION

Multiple primary malignant neoplasms (MPMN) are defined as two or more primary malignant tumours that arise from different organs and occur in the body at the same time.¹ MPMN was first described by Billroth in 1869.² Warren and Gates in 1932 laid the criteria to define the synchronous tumours.³ The two tumours may be diagnosed at the same time (synchronous) or the second tumour detected later after 6 months (metachronous). The incidence of MPMN has been carried out by the review of cancer registries in several countries and ranged from 0.7-11%. The major site of MPMN in the digestive system was the large intestine, followed by stomach and liver. Genitourinary cancers, especially cervical and ovarian cancers, bladder and prostate cancers were the common associated non-gastrointestinal (non-GI) cancers, followed by cancers of lung and breast.⁴ The incidence of double primary malignancies varies from 0.73% to 11.2%.²

Though the combination of gastro-intestinal and genitourinary tumours are not very uncommon, synchronous gastric and renal malignancies are very rare (0.11-0.37%) and only 3 cases have been reported from India.^{3,13-15}

CASE REPORT

A 70 years old gentleman presented to our hospital with epigastric fullness, dark tarry stools from one month and nonbilious vomiting soon after eating for twenty days. He also had anorexia since the onset of his symptoms with progressive weight loss which he was unable to quantify. There was history of ball rolling movements over the upper abdomen. No history of jaundice. Patient was a known diabetic since 3 years on regular medication. He had no history of previous surgery and no history of any malignancy in the family. He consumes alcohol twice a week for past ten years and is not a smoker.

General physical examination revealed pallor. Abdominal examination demonstrated visible gastric peristalsis on inspection and was soft on palpation. A bimanually palpable and ballotable firm mass measuring 15×10 cm was felt in the left lumbar region. Digital rectal examination revealed tarry stools. Complete blood count showed hemoglobin of 6.2 g/dl and serum electrolytes being sodium-130 mEq/l, potassium-3.4 mEq/l and chloride-100 mEq/l. Liver function test was deranged with total protein-4.1 g/dl (normal range: 6-8.3 g/dl), albumin-2.0 g/dl (normal range: 3.7-5.3 g/dl) and globulin-2.1 g/dl (normal range: 2.3-3.6 g/dl). Upper gastrointestinal (UGI) endoscopy showed an ulceroproliferative growth (type III Borrmann lesion) in the antropyloric region of stomach causing complete outlet obstruction (Figure 1). The pathologic examination of endoscopic gastric biopsy revealed poorly differentiated mucinous adenocarcinoma. CECT abdomen and pelvis showed an asymmetrical, circumferential wall thickening in the pyloric region leading to obstruction (Figure 2a) and a heterogeneously enhancing hypervascular mass over the lower pole of left kidney characteristic of renal cell carcinoma (Figure 2 b). Since the patient had gastric outlet obstruction and bleeding, gastrectomy was planned first. The patient was stable after radical subtotal gastrectomy, hence proceeded with left radical nephrectomy (Figure 3 and 4). The biopsy was moderately differentiated gastric adenocarcinoma (Figure 5) infiltrating the serosa - pT4a, Nx, Mx and renal cell carcinoma (Figure 6) - clear cell variant (grade III Fuhrman). One perihilar lymph node shows tumour deposits - pT3a N1 Mx.



Figure 3: Gastrectomy specimen.



Figure 4: Nephrectomy specimen.

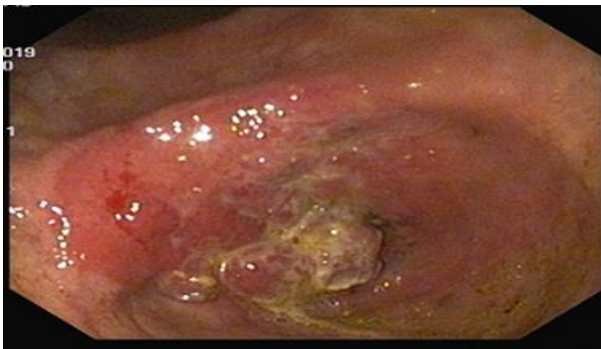


Figure 1: UGI endoscopy.

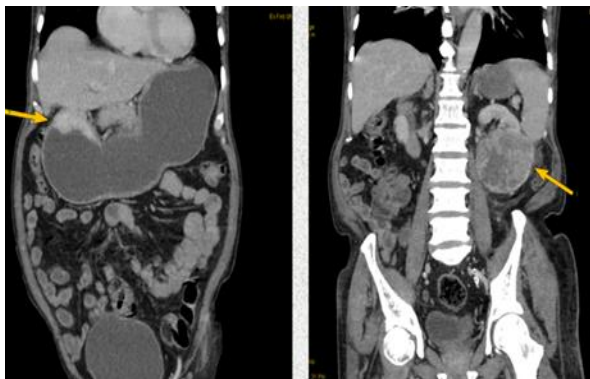


Figure 2: (a) and (b) CECT abdomen.

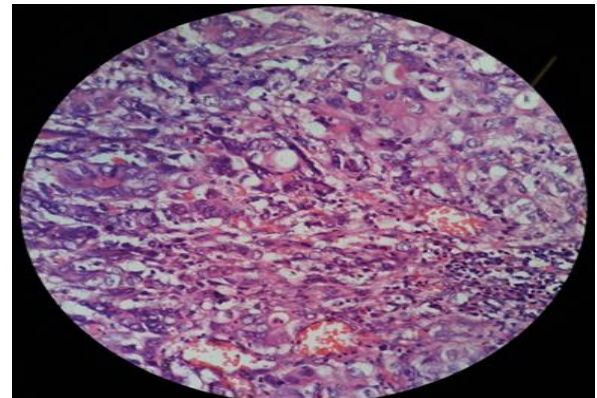


Figure 5: Grade II moderately differentiated gastric mucinous adenocarcinoma.

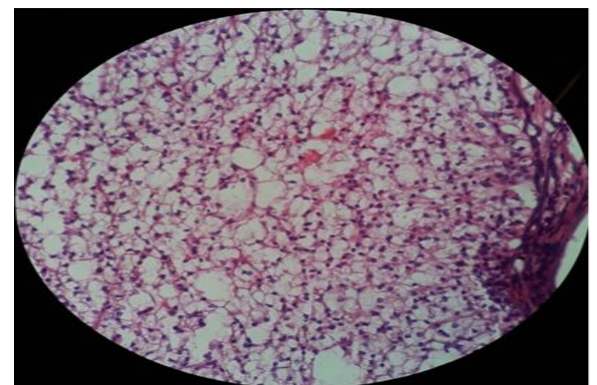


Figure 6: Grade III (Fuhrman's) clear cell variant of renal cell carcinoma.

DISCUSSION

Billroth first documented the occurrence of multiple malignancies in the same patient in 1860's and designated the following criteria for multiple primaries: differing histologic appearance, different locations and production of independent metastasis.² It was modified by Warren and Gates in 1932 stating: each of the tumor must be confirmed by histology, each must be geographically separated by normal non neoplastic mucosa and distinct, and probability of one being a metastasis of the other must be excluded.^{2,3} Hong et al. in 1990, based on criteria described by Warren and Gates added other data for defining multiple tumours.⁵ The tumours have to be histologically certified as malignant. If they are of identical histological type, there must be an interval of at least three years between the two malignancies and/or be a distance of at least 2 cm of mucosa unchanged between the index tumour and second primary tumour. It has to exclude the possibility that the second tumour to be a metastasis of the index tumour. Gluckman described contiguous lesions or lesions separated only by carcinoma in situ were considered multifocal single primaries.⁶

The 'index primary' is defined as the first malignancy diagnosed while a 'simultaneous primary' is a second malignancy discovered during the workup of the index tumor.⁷ Synchronous primaries include second malignancy occurring within 6 months of the index primary and metachronous diagnosed after 6 months.^{7,8}

The incidence of MPMN ranges from 0.7% to 11.7% in the literature.⁹ Most frequently observed tumour pairs in men are genito-urinary and gastro-intestinal.¹⁰ RCC is associated with primary malignancies including prostate, bladder, rectum and non-Hodgkin's lymphoma.¹¹ Gastric cancer associated RCC is very rare and the incidence reported varies from 0.7% to 3.5%.¹² Literature search shows only 3 cases reported from India.¹³⁻¹⁵ Occurrence of multiple primary malignancies can be due to various genetic events or common environmental risk factors such as smoking, alcoholism, family history of cancer or immunological defects and prior irradiation or chemotherapy.¹⁶ Various familial cancer syndromes are linked to SPM including lynch I and II syndromes, Li-Fraumeni syndrome, Fanconi anaemia, xeroderma pigmentosum and Von Hippel-Lindau.¹⁷

RCC is the most common cancer arising from the kidney with commonest metastatic sites being the lungs, bones, liver and brain whereas gastric metastases from RCC are exceedingly rare. Metastases to stomach from a primary RCC are located in the gastric body and fundus. Clear cell histology is the predominant form of RCC and the presence of clear cell morphology in any unknown lesion should prompt the pathologist to consider the possibility of metastatic RCC. In the present case, the biopsy of stomach showed adenocarcinoma and kidney was clear cell variant of renal cell carcinoma. Most of the synchronous SPM are incidentally diagnosed during the staging evaluation of the

index tumor. Any unusual site of metastasis should be thoroughly evaluated to rule out the possibility of SPM. A baseline positron emission tomography-computed tomography (PET-CT) may aid in the diagnosis. Each tumor should be evaluated and staged independently and treated aggressively to achieve maximum therapeutic benefit.

In general, the most symptomatic and detrimental tumour to the patient's survival or one which improves the quality of life should be tackled first. If the patient is fit, resection of both tumours can be attempted and could be combined with post-operative radiotherapy, chemotherapy or other treatment modalities.¹⁸ We also initially planned for gastric resection since the patient was stable after that, nephrectomy was performed too.

CONCLUSION

Synchronous gastric adenocarcinoma and RCC are exceedingly rare. Second primary is usually detected while investigating for the symptomatic one. A strong clinical suspicion and thorough evaluation is needed to differentiate between metastatic disease and a SPM. Most of the operable synchronously occurring SPM can be resected in a single stage. A regular follow up can detect most of the metachronous second primary malignancies at an early stage.

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