



Rapidly progressive growth of Renal Clear Cell Carcinoma and Gastrointestinal Stromal Tumor during the 3rd trimester of pregnancy: A clinical and diagnostic dilemma

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ABSTRACT

The incidence of cancer among pregnancy, albeit rare, presents as a significant diagnostic challenge for clinicians especially with considerations for materno-fetal well-being. The double-edged sword of Renal Clear Cell Carcinoma and Gastrointestinal Stromal Tumor in near-term pregnant woman was encountered in our case and skillfully maneuvered via combination of advanced diagnostic techniques involving CT, MRI and endoscopy. A discussion board comprising of experts was set up and after extended consultation involving patient's relatives, elective cesarean was performed at 34 weeks after which surgical excision resulted in successful extraction of both the tumors, ensuring the survival of both mother and child.

1. Introduction

The detection of cancer in pregnant women presents as a significant diagnostic as well as clinical challenge with many symptoms presenting as innocuous pregnancy related ailments. The commonly diagnosed cancers during pregnancy are melanoma, lymphomas, breast & cervical cancer with leukemia, lung, ovarian, genitourinary and gastrointestinal cancers presenting as rare occurrences. The incidence ratio of cancer diagnosis during pregnancy is extremely low of 1:1000, out of which 20–30% includes women younger than 45 years old.¹

Renal Clear Cell Carcinoma (RCC), or hypernephroma, is kidney cancer originating from the proximal convoluted tubules.

Gastrointestinal stromal tumors (GISTs) are the most frequent mesenchymal tumors of the gastrointestinal tract, most commonly arising in the stomach (60–80%). GISTs are categorized as spindle cell (70%) or the epithelioid type (20%) or occasionally pleomorphic cells that frequently express the c-kit protein, as revealed during immunohistochemistry.² GISTs are distinctly unusual with an annual incidence rate of 1:100,000 with gestational presentation as an even rarer occurrence.¹

2. Case presentation

A 34 year old pregnant woman was advised an USG abdomen for persistent dyspepsia in spite of medication in her second trimester. USG revealed a left renal space-occupying lesion and an upper abdominal mass possibly arising from the stomach. Further imaging with MRI was done to confirm a left renal lower polar mass with gastric neoplasm [Figs. 1 and 2]. Upper GI endoscopy done revealed a submucosal lesion, biopsy suggested possibility of GIST. Fine needle aspiration cytology from renal mass suggested a clear cell variant of Renal Cell Carcinoma (RCC). After 34 weeks elective cesarean section was performed.

Following delivery of a healthy child, the patient was taken up for contrast-enhanced computed tomography (CECT) of Chest and Abdomen for a formal metastatic screen. After 1 month of lower uterine segment Cesarean section (LUCS), the patient underwent exploratory laparotomy followed by left radical nephrectomy and partial gastrectomy of the tumor arising at greater curvature of the stomach [Fig. 3]. Histopathology revealed clear cell carcinoma of left kidney (pT2) with low grade stromal tumor of the stomach of possible Mullerian origin.

Patient recovered well from surgery and is under regular follow up.

3. Discussion

The frequently reported symptoms in pregnant women who have

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Abbreviations:

RCC	Renal Clear Cell Carcinoma
GIST	Gastrointestinal Stromal Tumor
CECT	Contrast-enhanced computed tomography
CT	Computed Tomography
MRI	Magnetic Resonance Imaging

which polymorphism of the estrogen receptor is hypothesized to play a pivotal role in the pathogenesis. In fact, studies in animal models have shown that the manifold increase in pregnancy-related hormones, especially estrogen, lead to proliferation of renal cells either directly or through the action of relevant growth factors as both estrogen and progesterone receptors are present in normal and neoplastic renal cells.⁴

The prognosis of both the mother and the foetus depends on timely diagnosis and proper management of the RCC and the GIST. Surgical intervention, which remains as the only therapeutic option, depends on a variety of factors like time of diagnosis, shape and size of tumor,

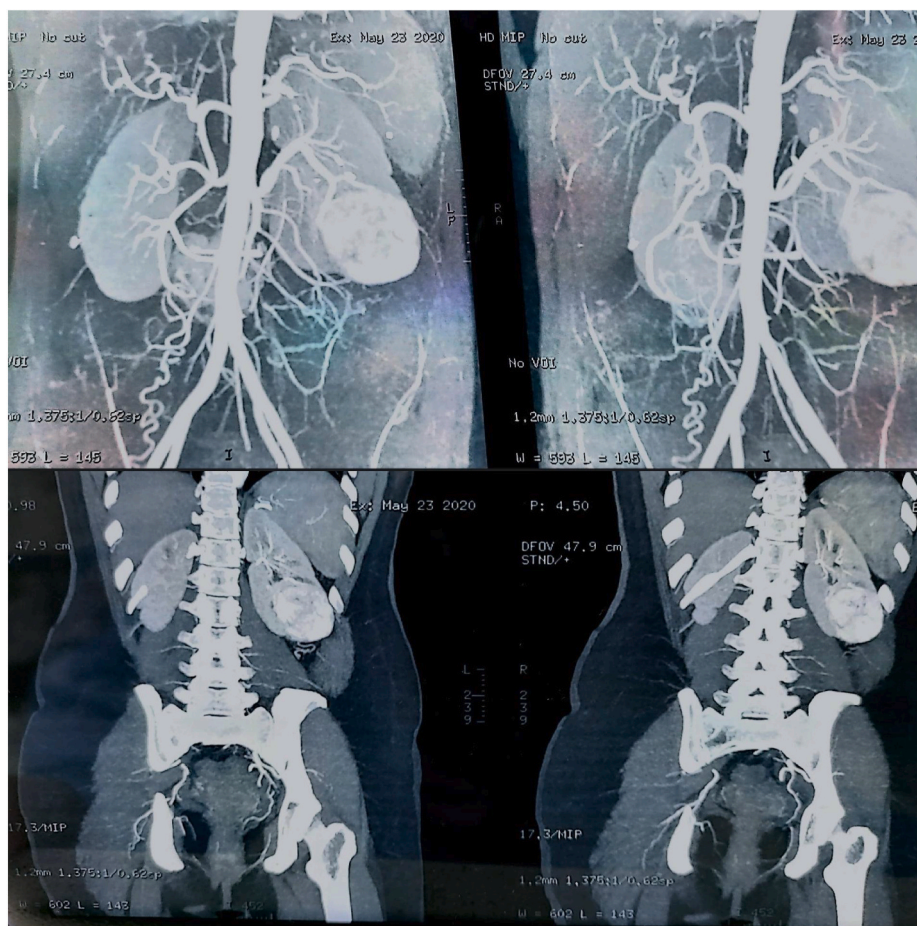


Fig. 1. CT with contrast showing Renal Mass at the lower pole of the left kidney.

been later diagnosed with RCC are palpable mass, fever, hypertension, hematuria and abdominal pain. Most of the clinical features of GISTs including nausea, vomiting, abdominal pain and fullness, GI bleeding, anemia or fatigue are indefinite.¹

In GISTs, the presence of a well differentiated epithelial component consisting of glandular structures with immunohistochemical features is highly suggestive of Mullerian differentiation. Confirmatory diagnosis can be made from the morphological features, cytokeratin expression profile, along with presence of estrogen and progesterone receptor expression of the glandular component.³

Our pregnant patient was incidentally detected to have an abnormal renal and gastric mass, which was eventually diagnosed as Renal Clear Cell Carcinoma and Gastrointestinal stromal tumor respectively. This occurrence of the two rare neoplastic conditions in a pregnant woman is an extremely rare association and stresses on the multidisciplinary approach for the treatment strategy.

Several reasons have been cited for the appearance of RCC, out of

general maternal health and the probability of survival of the foetus.⁴

Surgery is considered to be the gold standard and complete surgical excision of GIST, clear margins is preferred for best cure.⁵ Chemotherapy and radiotherapy have not shown much efficacy. The time of delivery is a very significant factor and must be taken into consideration when treating pregnant women with cancer.

In our case, the GIST was low grade but the RCC, although being quite large, was diagnosed near term so, a conclusion was reached to delay surgery till fetal delivery.

4. Conclusion

Though the case had a uniquely complicated course and presentation, through proper and timely intervention the maternal health was successfully recovered without any compromise with the health of the baby. This report of the tumorous process diagnosed during gestation highlights the necessity of a long term multidisciplinary approach

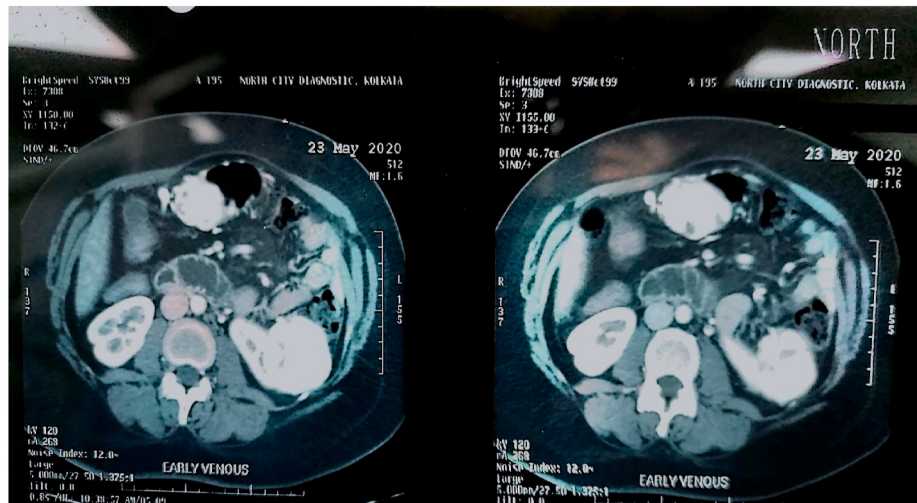


Fig. 2. CECT abdomen with oral contrast delineating a gastric mass in the Body/antrum.

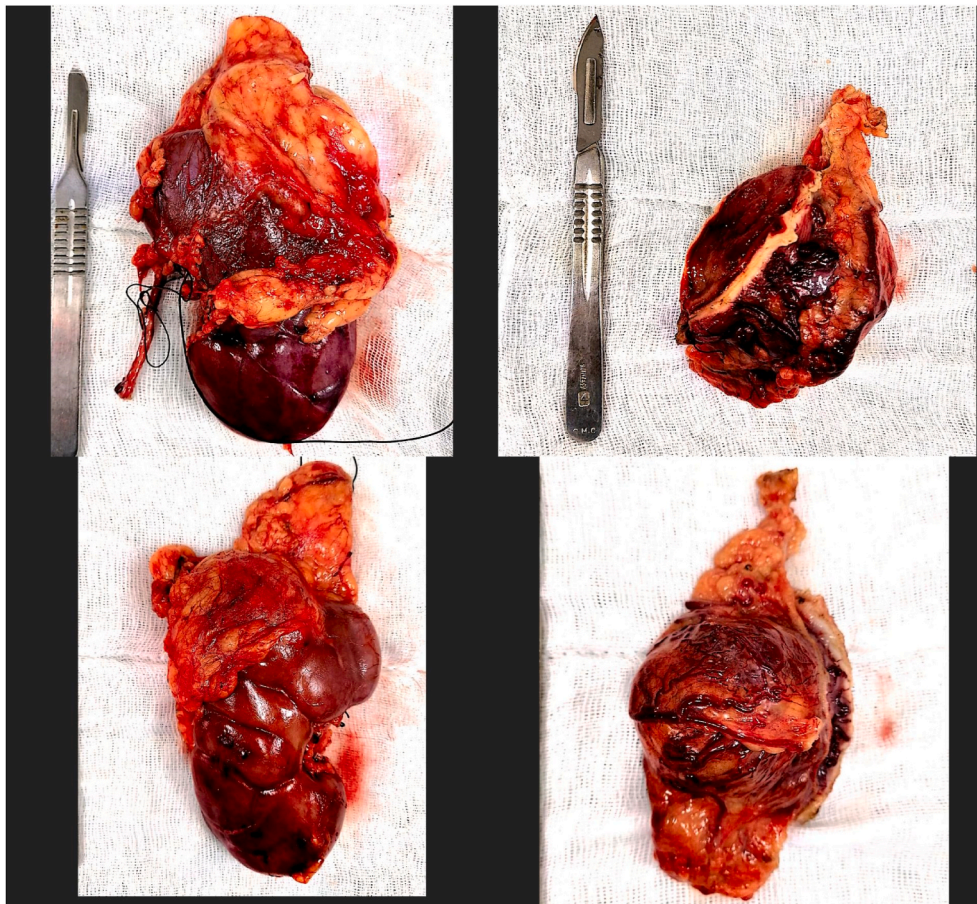


Fig. 3. EXTRACTED SPECIMENS To the left is the nephrectomy specimen and to the right is the gastrectomy specimen.

between different specialities in the treatment plan. Nevertheless, in case of any malignancy, maternal health should be prioritized followed by fetal morbidity and malignancy, hence an educated decision must be made after informing the patient of all the associated risks and management options in the presence of a multi-disciplinary team of medical professionals.

CRedit authorship contribution statement

Sumantra Dey: Writing - Original Draft, Writing - Review & Editing, Supervision. **Rupesh Pakrasi:** Writing - Review & Editing, Supervision, Visualization. **Dipti Saha:** Writing - Original draft, Data curation. **Shreya Datta:** Writing - Original draft, Data curation.

Consent

Informed consent was obtained from the patient prior to submission of the Case report.

Submission declaration

The Case report is an original article that has not been published or submitted elsewhere.

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Declaration of competing interest

None.

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