CASE REPORT

Renal Cell Carcinoma Invading the Descending Colon

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Introduction

Renal cell carcinoma accounts for 3% of adult malignancies, 1/4th of cases presenting with metastasis or local invasion to adjacent structures. Colon involvement is rare, occurring in about 1% of RCC. Only 7 such cases have been reported previously, with 6 of those cases showed sarcomatoid differentiation on histology, compatible with locally aggressive behaviour. The current case involves a patient with left sided renal cell carcinoma directly invading the descending colon, histologically confirmed to have sarcomatoid differentiation.

Case Description: A 59 year old man presented with left sided loin pain for three months and constipation with painless PR bleeding in the preceding month. He complained of incomplete evacuation of bowels and a loss of appetite for 2 months. There were no episodes of fever or haematuria.

He had no comorbid conditions. He was a cigarette smoker, consuming 1- 2 cigarettes per day prior to diagnosis.

There was no history of renal or any other carcinoma in his family.

On examination, the patient was not pale. There was mild left sided loin tenderness but no masses were palpable on abdominal examination. No left sided varicocoele noted.

On seeking treatment privately. an abdominal USS was done, which showed a mixed echogenic mass in the left kidney, favouring a renal neoplasm. Patient underwent a CECT of the abdomen in ward, which confirmed a left-sided renal cell carcinoma in the lower pole, measuring 9.7×7.7×6.5cm infiltrating into the proximal descending colon and left quadratus lumborum muscle.

A left nephrectomy with possible left hemicolectomy was planned with consent for a possible stoma taken. Preoperative assessment showed a Hb of 8.3g/dl and blood transfusions were given to optimize the patient.

During the surgery the tumour mass was seen over the lower pole of the left kidney, infiltrating into the descending colon and then further attached to the anterior abdominal wall. Posteriorly, the tumour extended to the quadratus lumborum muscle. There was a superior attachment to the left hemidiaphragm. Segmental resection of the involved distal transverse and descending colon was done and access to the primary tumour gained. The tumour was completely obstructing the lumen of the bowel. En-bloc removal of left kidney with tumour, resected part of transverse and upper descending colon and part of renal bed was done. Primary anastomosis of the transverse colon and descending colon was done and colostomy avoided.

Patient was admitted to the ICU for initial post operative care. His subsequent recovery was uneventful, and he was discharged on D9 for review in the clinic.

Histology

The tumour was 6×7×8 in size with full thickness bowel involvement. Resection margins were clear and renal vessels and ureter were not involved.

Microscopically, part of the tumour showed clear cell renal carcinoma while the majority of the tumour showed sarcomatoid areas with possible rhabdoid differentiation. The infiltrative component of invading tumour showed predominant sarcomatoid change. A diagnosis of Clear cell renal carcinoma with sarcomatoid/rhabdoid differentiation was confirmed- pT4,pN0 Mx- Stage 4

Follow up

Patient was clinically well on his follow up appointment. Referral to oncological services was arranged with

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histopathology report.

Discussion

Renal cell carcinoma is the 7th most common malignancy in the world accounting for 2.2% of all cancer diagnoses annually. It spreads via local invasion or distant metastasis. Locally invasive variants (2% of tumours) are aggressive with a worse prognosis and commonly involve the ipsilateral adrenal gland, the renal vein, the IVC, retroperitoneal lymph nodes and rarely, adjacent organs. The liver, spleen, pancreas, colon and duodenum are generally spared due to their intraperitoneal location and the well encapsulated nature of the tumour. GI tract involvement in RCC is very uncommon and when present, is usually due to distant metastasis.

Only 10% of patients present with the classical triad of haematuria, flank pain and loin mass. 60% of RCCs are diagnosed incidentally. CECT Abdomen is the gold standard in diagnosis, assessing tumour size, involvement of adjacent organs, infiltration of regional lymph nodes as well as status of the contralateral kidney.

Colon invading RCC has been reported in only 7 previously published cases, underscoring the rarity of large bowel invasion. This is due to their being anatomically remote from each other.

A literature review yielded 7 similar cases to this case.

Sarcomatoid differentiation can occur in any type of RCC and is the commonest form of tumour dedifferentiation. At diagnosis, they are advanced (stage 3or 4), either locally or >50% presenting with distant metastasis. The higher the proportion of sarcomatoid change, the worse the prognosis,

Table 1

Case	*Patient details and Investigative findings*	*Treatment given*	*Histology*
Perez et al- 1998 (1)	74yr Male, left renal mass invading sigmoid colon	Left radical nephrectomy and left hemicolectomy	Clear cell RCC with sarcomatoid differentiation
Pompa et al-2003 (2)	Left renal mass invading descending colon, adrenal gland and spleen		Spindle cell sarcoma of kidney with arcomatoid differentiation
Mori et al- 2004 (3)	71yr Male, Right inferior renal tumour invading ascending colon.	Right nephrectomy and right hemicolectomy	Clear cell RCC
Wu et al- 2006 (4)	42yr Male, Right renal tumour invading right lobe and and caudate lobe of liver and hepatic flexure of colon	Conservatively managed	RCC with sarcomatoid differentiation
Paine at al- 2012 (5)	53yr Male, left renal mass invading descending colon	Left radical nephrectomy and partial colectomy with transverse colostomy	Clear cell RCC with sarcomatoid differentiation
Miry et al- 2020 (6)	Renal mass invading colon with bowel obstruction and perforation		Chromophobe type RCC
Byrnes et al- 2021 (7)	68yr Male, tumour in midpole of right kidney invading hepatic flexure	Radical right nephrectomy and extended right hemicolectomy	RCC with sarcomatoid differentiation.

with 5-year survival rates of 22% in sarcomatoid RCCs vs 79% in non sarcomatoid RCC. Surgery has been the mainstay in treatment of RCC as it is notoriously resistant to chemotherapy. Response has been seen with immunomodulators, radiation and radiofrequency ablation.

In patients with colon invasion, the most feasible option remains a radical nephrectomy with radical en bloc resection with the aim of achieving negative resection margins.. Due to the rarity of such cases, clear cut guidelines are not available in decision making. However, if the patient is fit and clinically stable, open radical surgery is justified.

In conclusion, the decision to operate in this patient, reduced disease burden and prevented a potential catastrophic GI haemorrhage, bowel obstruction or perforation, as was seen in some of the other reported cases. RCC involving the colon is always aggressive as evidenced by the presence of sarcomatoid differentiation. It remains an unusual presentation.

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Learning Points:

- Gastrointestinal tract involvement in renal cancer by direct invasion is rare, but a possibility to be considered in in renal carcinoma presenting with GI symptoms
- Such carcinomas are highly aggressive and almost always show a sarcomatoid differentiation on histology confirming its nature.
- Complete radical surgical resection is the only feasible treatment option in such tumours.