

## Mismatch between preoperative imaging and surgical findings in clear cell renal carcinoma: A case report

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### Abstract

Renal tumors, particularly clear cell renal carcinoma, often present a perplexing discordance between preoperative radiological findings and surgical observations. This case study describes a 33-year-old female with a large renal tumor that extended into adjacent structures, as suggested by preoperative imaging. However, intraoperative assessment revealed an absence of liver invasion, emphasizing the complexity of preoperative evaluation. The multidisciplinary tumor board's decision to proceed with surgery played a pivotal role in her successful management. The case underscores the significance of multidisciplinary collaboration, adaptability in surgical planning, and meticulous clinical attention in addressing radiological-surgical discordance in renal tumor cases.

**Keywords:** Clear cell renal carcinoma; Radiological-surgical discordance; Multidisciplinary approach; Surgical management; Preoperative assessment

### 1. Introduction

Renal tumors, especially clear cell renal carcinoma, present a complex challenge in terms of diagnosis, preoperative assessment, and surgical management. One of the most intriguing and sometimes perplexing features of these cases is the often observed discordance between preoperative radiological findings and surgical findings at the time of the intervention. This discordance, which can vary in terms of size, location, and even histopathological nature, constitutes a critical aspect of renal tumor management and poses a significant challenge for clinicians, particularly urologists [1,2].

Radiological and surgical discordance raises important questions about clinical decision-making, surgical planning, and managing patient expectations. While modern imaging, including MRI and CT scanning, plays a crucial role in early detection of renal tumors and determining their presumed extent, it can sometimes underestimate or overestimate the surgical reality. This disparity can have a significant impact on surgical strategy, short- and long-term outcomes, and the patient's quality of life [1,3,4].

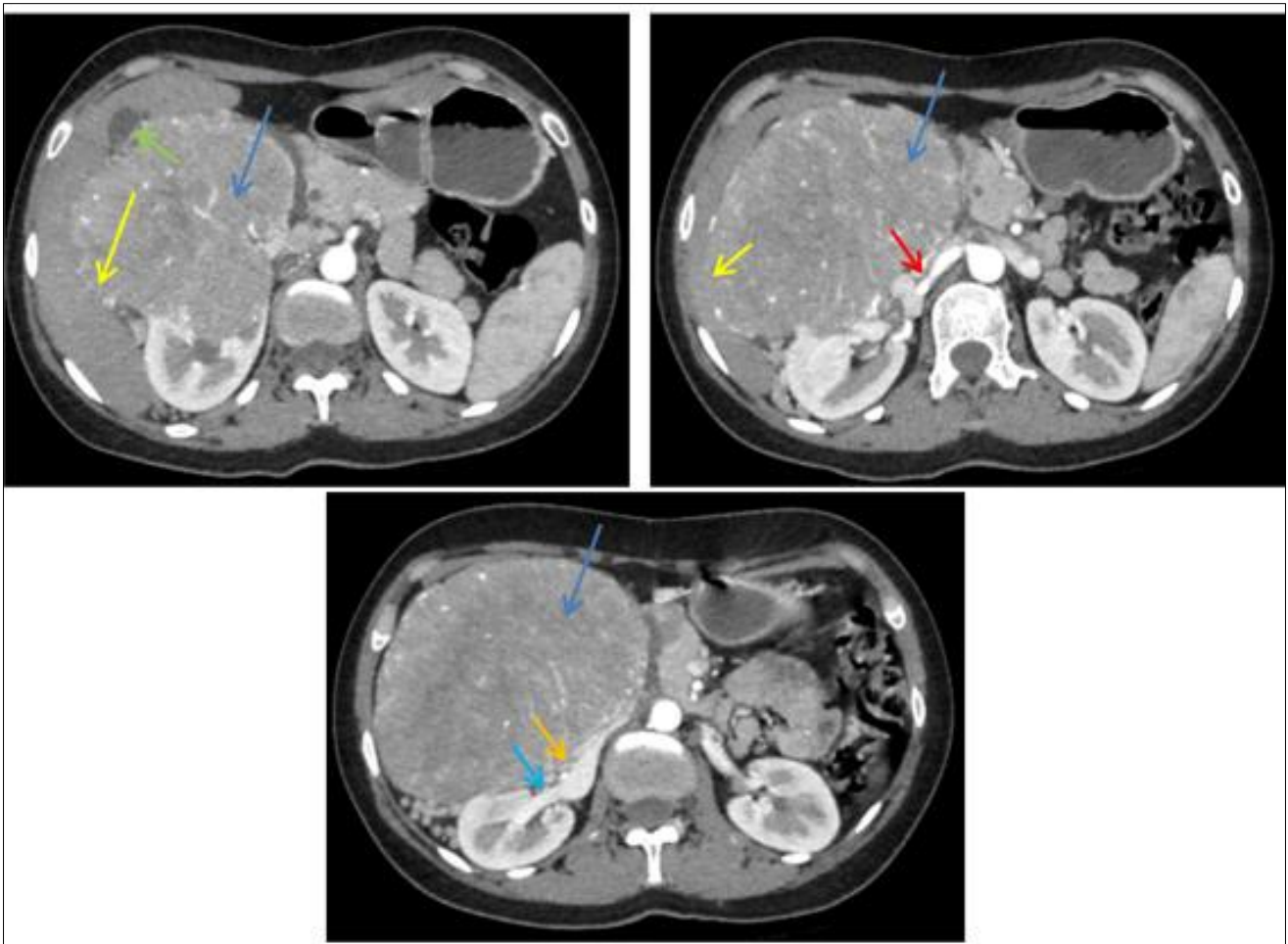
In this context, we will examine an actual clinical case that illustrates the complex nature of radiological and surgical discordance in the context of renal tumors, highlighting the challenges and critical considerations that clinicians face when managing these patients.







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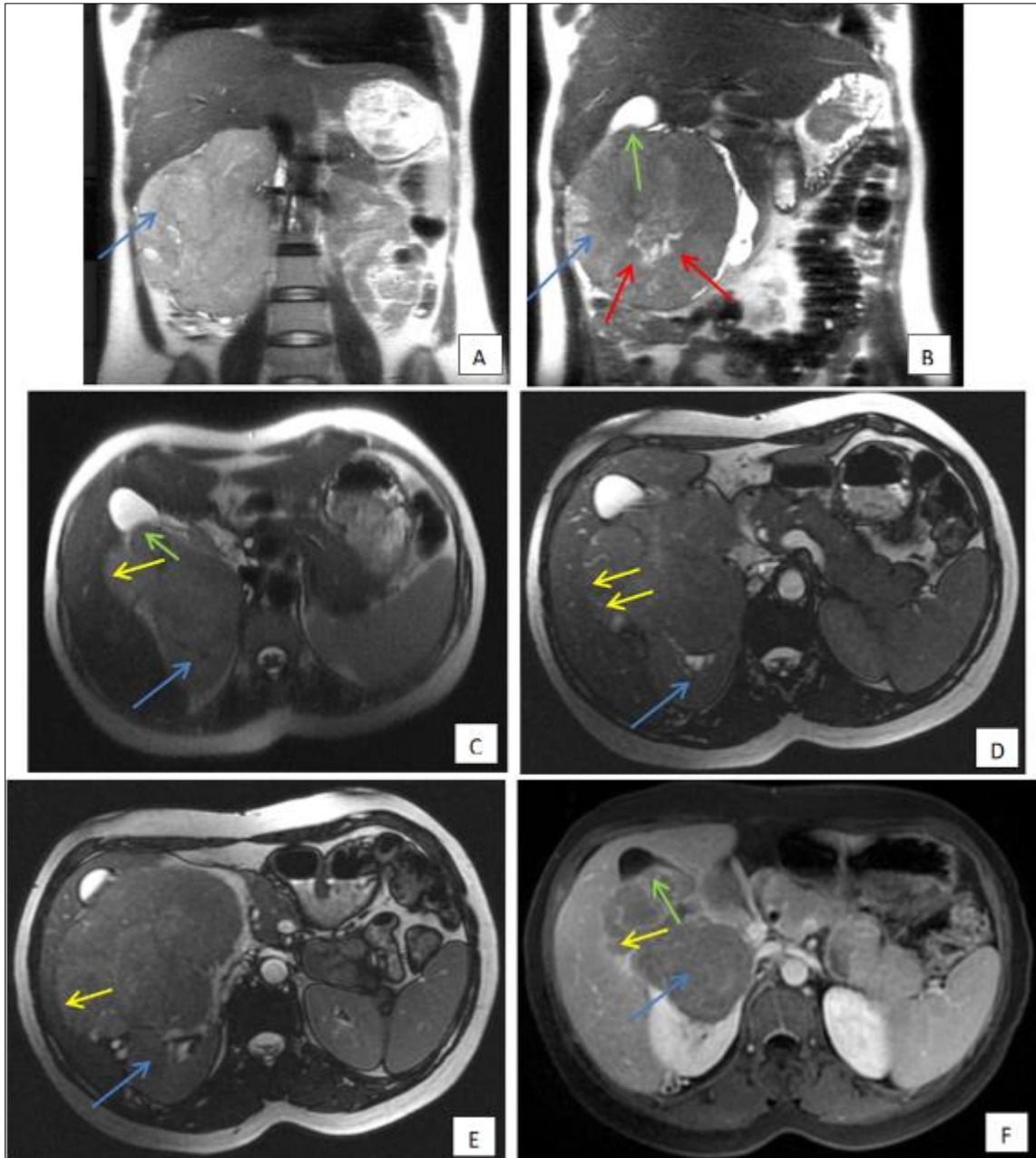
## 2. Case Presentation





We describe the case of a 33-year-old female who underwent thyroidectomy in January 2018 for papillary thyroid carcinoma (classified as Pt2 NX MX). In June 2023, she presented with right hypochondrial pain. Clinical examination revealed a palpable mass of 12 cm in this region, raising concerns about renal pathology.

Initial ultrasound imaging showed a tissue mass of 20 cm within the right kidney, necessitating further evaluation by CT scanning. The CT scan revealed a tissue process confined to the right kidney but with significant extension, invading liver segments 5, 6, and 4a, as well as the gallbladder, raising suspicions of hepatic metastasis in segment 7. Furthermore, this process caused compression of the inferior vena cava and the right renal vein, as well as deviation of vascular structures on the contralateral side. MRI also confirmed tumor extension into these regions. A renal biopsy confirmed clear cell carcinoma.

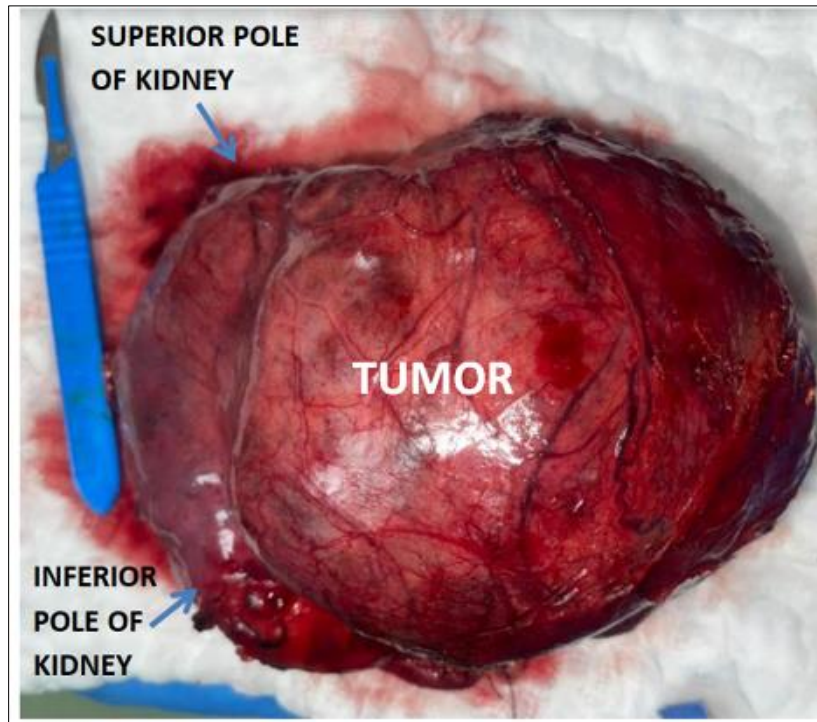


**Figure 1** Contrast CT scan showing a large right renal mass , invading the liver  and gallbladder , with no invasion of the renal artery  or vein , and having of tight contact with the vena cava .



**Figure 2** An MRI was performed for the same patient, showing the same results, a massive right renal mass  with central necrosis , invading the liver  and the gallbladder . (A, B) Coronal T2, (C) Axial T2, (D, E) FIESTA, (F) Axial enhanced T1

After a comprehensive patient evaluation and careful case analysis during the multidisciplinary tumor board meeting (MTB), it was decided to proceed with surgical intervention for the management of the voluminous clear cell renal tumor. The selected surgical approach was a right subcostal incision. The surgery proceeded without major incidents. Detailed intraoperative examination revealed an absence of liver invasion, which was discordant with the preoperative imaging results. Estimated blood loss during the procedure was approximately 400 ml, which was considered well-controlled.



**Figure 3** Macroscopic view of the tumor

The patient was closely monitored postoperatively, and the surgical recovery was satisfactory. She was allowed to leave the hospital on the third postoperative day (J +3). This coordinated decision-making and the success of the surgical intervention underscore the importance of a multidisciplinary approach in managing complex renal tumors, taking into account the discordance between preoperative radiological findings and actual surgical findings. Thorough evaluation and coordination among medical teams contributed to the successful management of this patient.

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### 3. Discussion

Radiological and surgical discordance is a complex phenomenon that can have significant implications in the management of renal tumors. In the present case, discordance was evident between preoperative imaging results and intraoperative findings [2,5]. This discordance raises important questions regarding its causes and clinical implications.

One hypothesis that may explain this discordance is the substantial size of the renal tumor. Large tumors can exert pressure on surrounding structures, compressing blood vessels and adjacent organs, which can create the impression of more extensive disease on imaging. Medical literature has also documented that tumor size can be a contributing factor to radiological-surgical discordance [6].

The decision of the multidisciplinary tumor board (MTB) to opt for surgical intervention was crucial in managing this patient. The absence of liver invasion during surgical exploration was reassuring, but it also highlighted the complexity of preoperative assessment. Medical literature emphasizes the importance of MTBs in managing complex renal tumors, allowing for informed decision-making and real-time adaptation of surgical strategies [7]

The surgery proceeded without major incidents, with moderate blood loss, which is in line with previous studies showing that complex renal surgery can be successfully performed with proper complication management [7]. The patient was allowed to leave the hospital on the third postoperative day (J +3), indicating effective postoperative management.

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### 4. Conclusion

This case highlights the challenges and considerations related to radiological and surgical discordance in the management of renal tumors. It also underscores the importance of multidisciplinary evaluation, surgical adaptability, and attention to clinical details to achieve optimal outcomes in such situations.

## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

### *Statement of informed consent*

No conflict of interest to be disclosed.

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