



## INTRODUCTION

Renal cell carcinoma represents less than ~3% of adult malignancies. Hematuria, flank pain and palpable abdominal mass constitute the classical diagnostic triad. It spreads via direct extension, lymphatic dissemination or venous invasion. The most common metastatic sites are the lungs (55%), followed by lymph nodes (34%), liver (33%), bone (32%), adrenal glands (19%), contralateral kidney (11%) and brain (6%). Peritoneal metastasis is very rare, accounting for 1% of cases [1]. Peritoneal carcinomatosis at initial presentation is even rarer. Literature search revealed that **only 9 cases of renal cell carcinoma presenting with peritoneal metastasis have been reported** [2]. Herein we report a case of 45 year old male presenting with right sided flank and abdominal pain and found to have renal cell carcinoma with peritoneal metastasis.

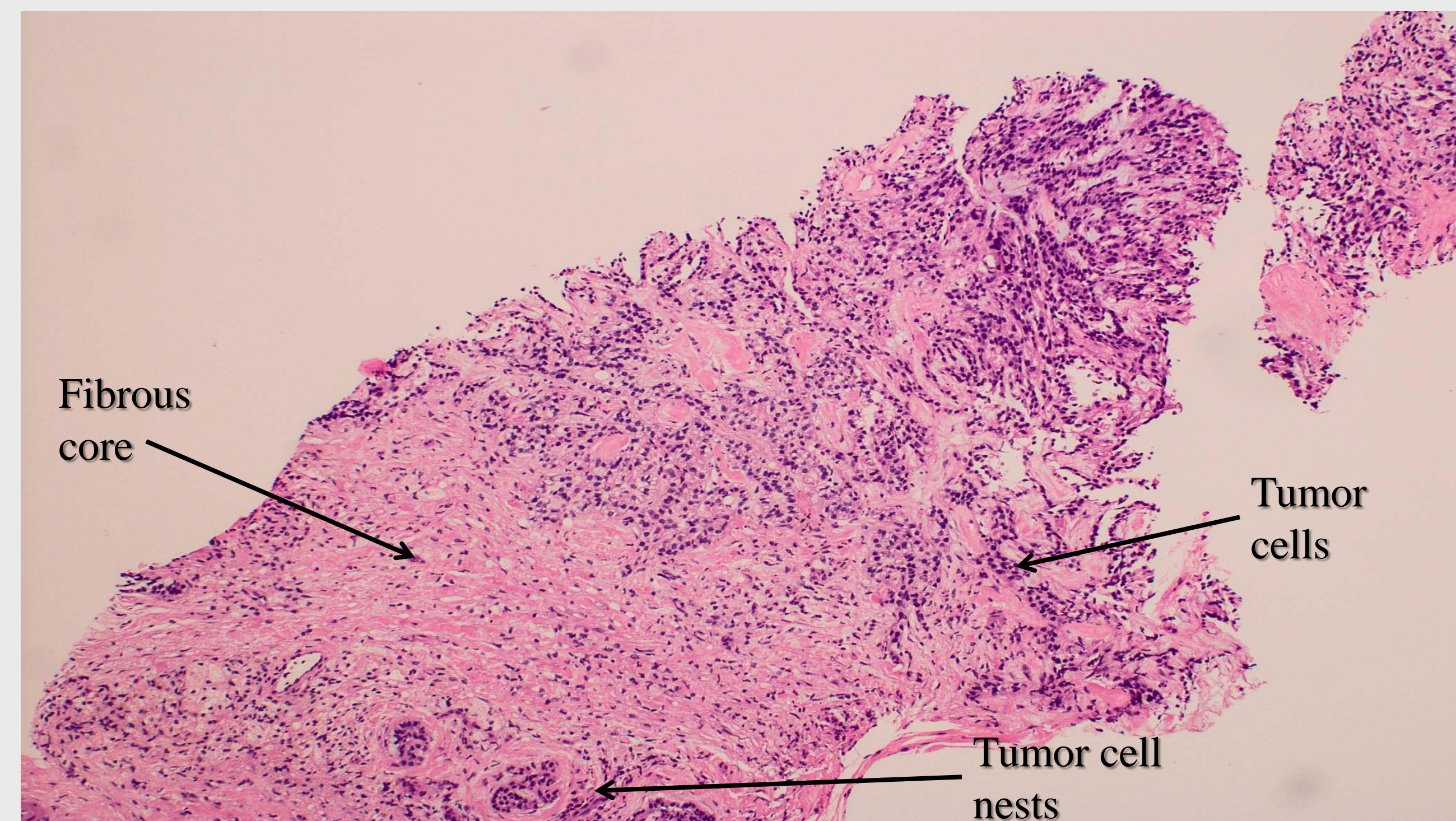
## CASE PRESENTATION

A 45 year old chronic smoker male with medical history of depression and bipolar disorder presented with right sided flank and abdominal pain for 2 weeks. Pain intensity was 7/10, worse with coughing and associated with fever, nausea and vomiting for one day. On physical examination the abdomen was diffusely tender with no distension, guarding, rigidity or rebound tenderness. Patient reported a 12 pound weight loss over 4 years. The lab results showed a WBC count of 16,500/  $\mu$ L with 84% neutrophils. LDH was found to be 440 U/L. A CT scan of abdomen and pelvis with contrast showed prominent, heterogeneously lobulated, serosal based implants along the liver, especially along the posterior aspect where it measured greater than 11 cm in diameter. Similar mesenteric infiltration extending in right pericolic gutter, throughout omentum and in bilateral inguinal regions was found. A mildly prominent 3.7 X 2.2 X 2.7 cm lobulated hypodensity at the medial upper pole of right kidney was observed which was interpreted as a direct continuation of mesenteric process. The retroperitoneal mass pathology revealed malignant neoplasm with papillary and spindle cell features with marked necrosis. Immunohistochemical stains were positive for Cytokeratin (AE1-AE3) in both papillary and spindle cell components and negative for TTF-1, D240, CK-5, 6, Calretinin, CD10 and RCC. The results were deemed consistent with non-clear cell renal carcinoma. The patient received systemic therapy with temsirolimus after cytoreductive nephrectomy. Patient later developed disease progression including new refractory malignant ascites with diffuse peritoneal implants and seeding, omental caking and new right pleural effusion. Peritoneal implant biopsy confirmed renal cell carcinoma with disease progression. Patient opted for palliative care and received home hospice services. He expired approximately 13 months after the diagnosis.

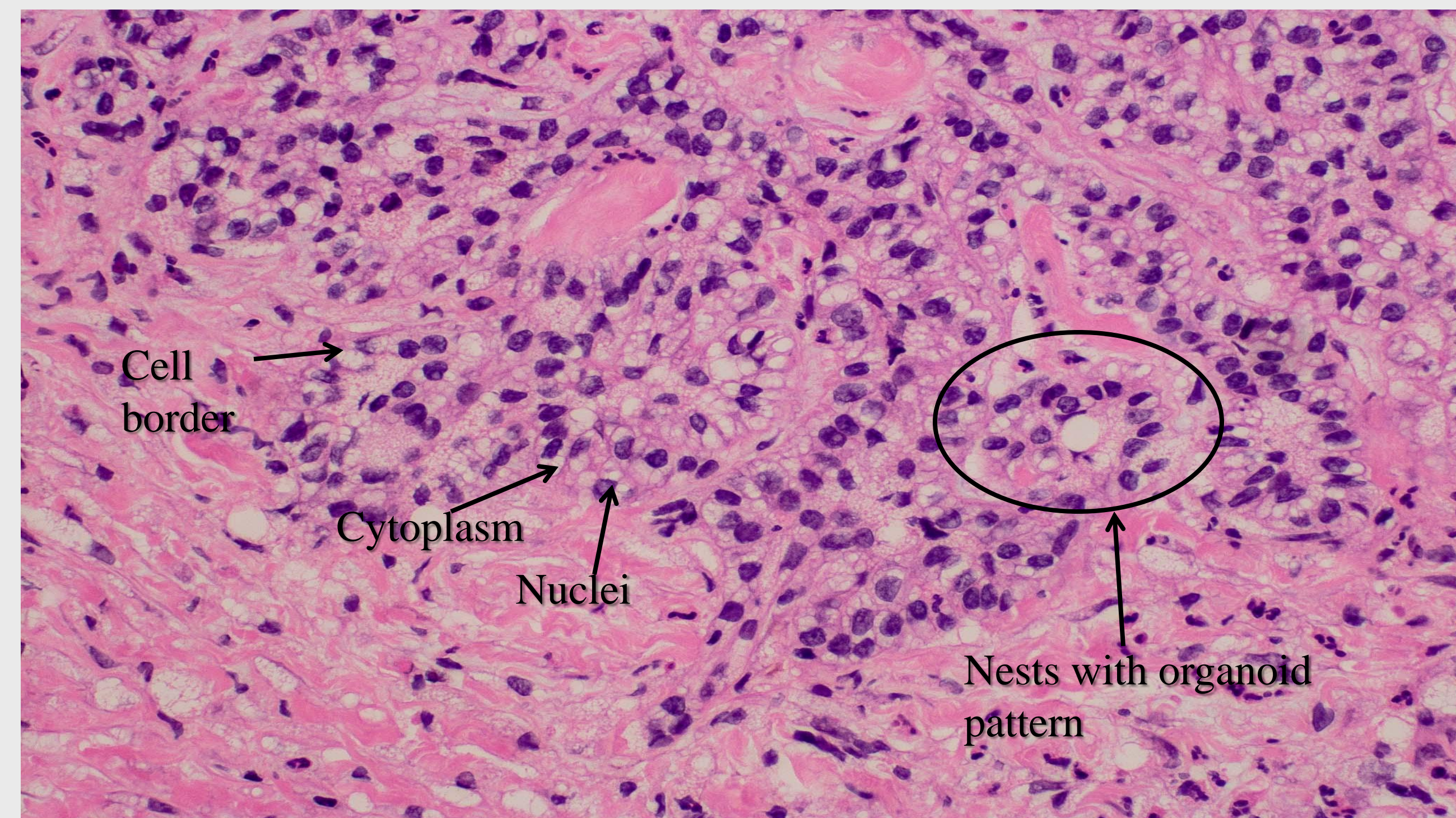
## IMAGING / PATHOLOGY



CT Abd/Pelvis C+ : Mesenteric implants with right kidney tumor



Peritoneal implant biopsy showing cores of soft tissue admixed with nests of tumor cells (5X magnification)



Tumor cells showing enlarged and bland nuclei with abundant, clear cytoplasm consistent with renal cell carcinoma (10X magnification)

## DISCUSSION / CONCLUSIONS

Non-clear cell renal cell carcinoma represents approximately 20%–25% of all renal cell carcinoma patients and comprises of a diverse group of histologic types, including type 1 papillary renal cancer, TFE3 kidney cancer, type 2 papillary renal cancer, fumarate hydratase- and succinate dehydrogenase-associated renal cancer, chromophobe kidney cancer, collecting duct carcinoma, and medullary renal cell carcinoma [3]. This case reports a very rare scenario of non-clear cell renal cell carcinoma with peritoneal carcinomatosis as the initial presentation. Peritoneal carcinomatosis is usually associated with carcinomas of the gastrointestinal and female reproductive tracts, especially ovarian high-grade serous carcinoma [2]. This patient presented with  $\geq 3$  poor prognostic signs of survival ( $\geq 2$  sites of metastasis, LDH of  $>1.5$  times of normal, hemoglobin level  $<$  normal limit and interval of less than a year from original diagnosis to start of systemic therapy) [4]. Temsirolimus is the category 1 systemic therapy for patients with relapsed or stage IV and medically or surgically unresectable poor prognosis patients with non clear cell renal carcinoma. Clinical trials of targeted agents have predominantly focused on patients with clear cell histology due to their high prevalence as compared to non-clear cell renal cell carcinoma. Since the role of targeted agents in non-clear cell renal cell carcinoma warrants further investigation, panel enrollment in clinical trials is the preferred strategy for non-clear cell renal cell carcinoma [4]. The rare incidence, challenging treatment and poor prognosis of renal cell carcinoma with peritoneal metastasis deserves literature communication.

## BIBLIOGRAPHY

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