

AMSER Rad Path Case of the Month:

63 y.o. female presents with incidental finding of a
2cm right renal mass

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Patient Presentation

HPI:

CS is a 63 y.o. female with a history of osteopenia, anxiety, hypothyroidism, and OA s/p hysterectomy and B/L salpingoophorectomy who was found to have a 2cm right renal mass on CTAP with contrast during pre-op workup. She has no urologic symptoms.

Pertinent social history:

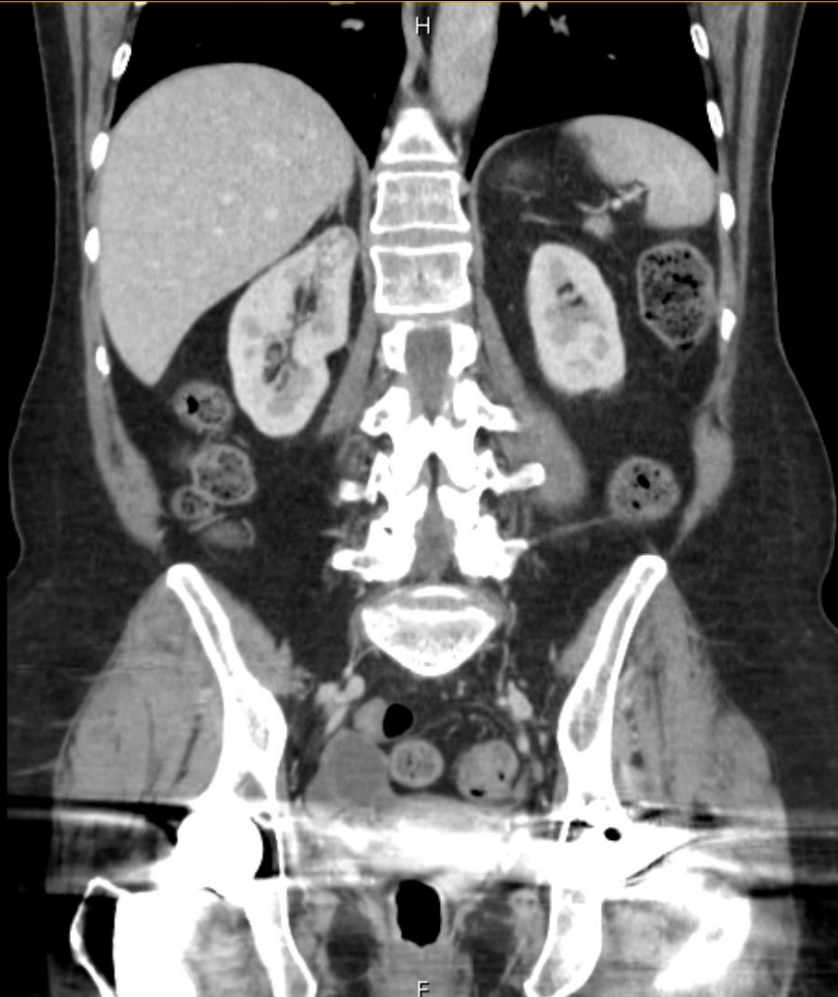
18 pack year history (quit 35 years ago)

Pertinent physical exam findings: N/A

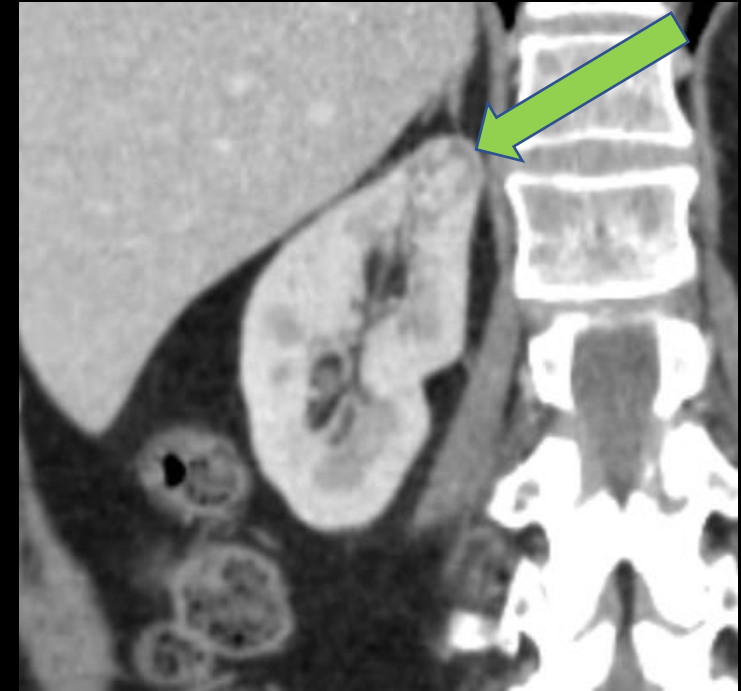
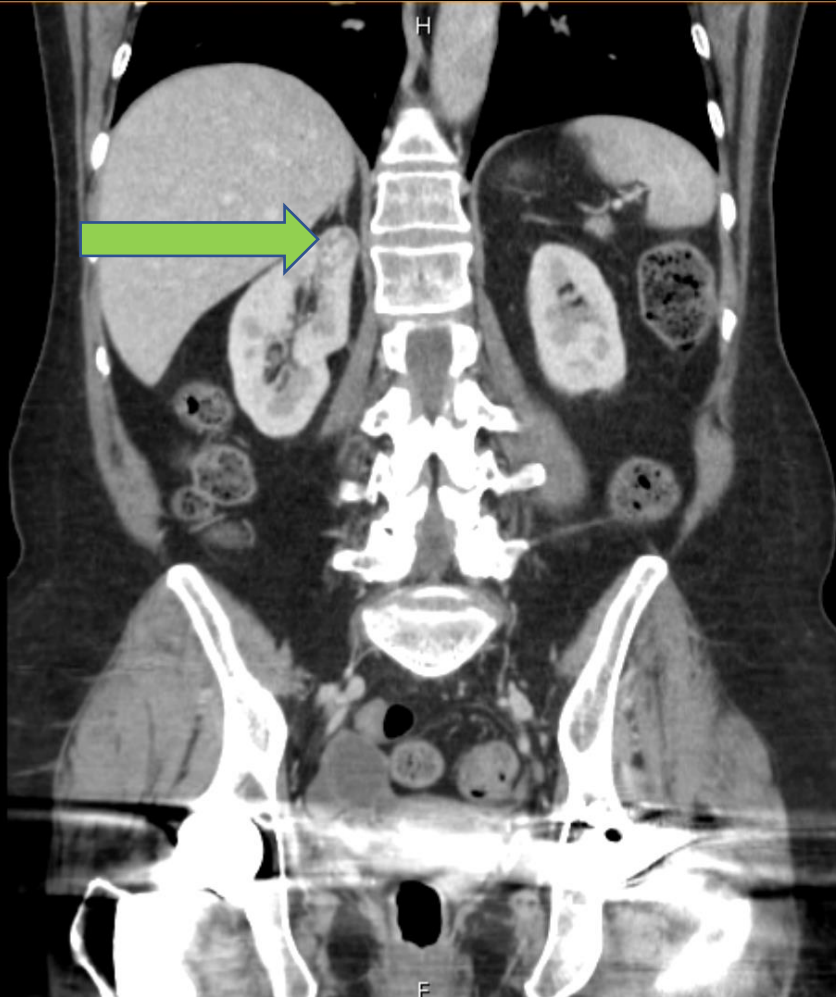
Pertinent Labs

- Creatinine, BUN, and eGFR all within normal limits

Radiology Images (not labeled)



Radiology Images (labeled)

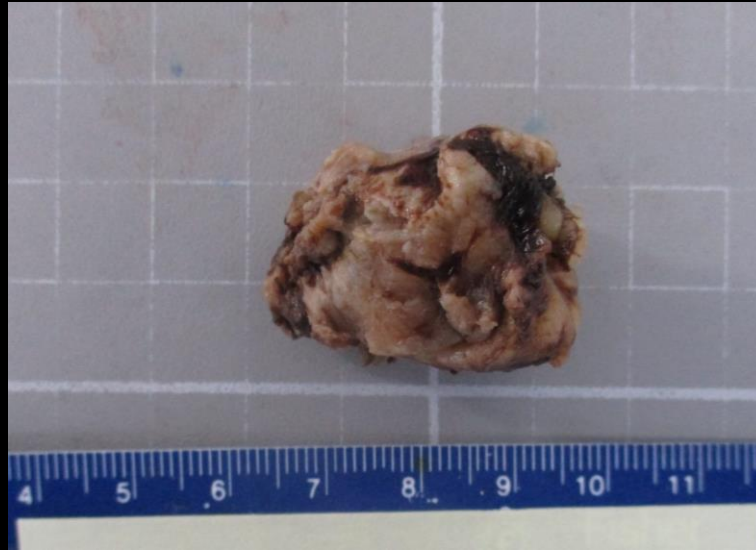


There is a 2cm heterogeneously enhancing mass on the superior pole of the right kidney (green arrow)

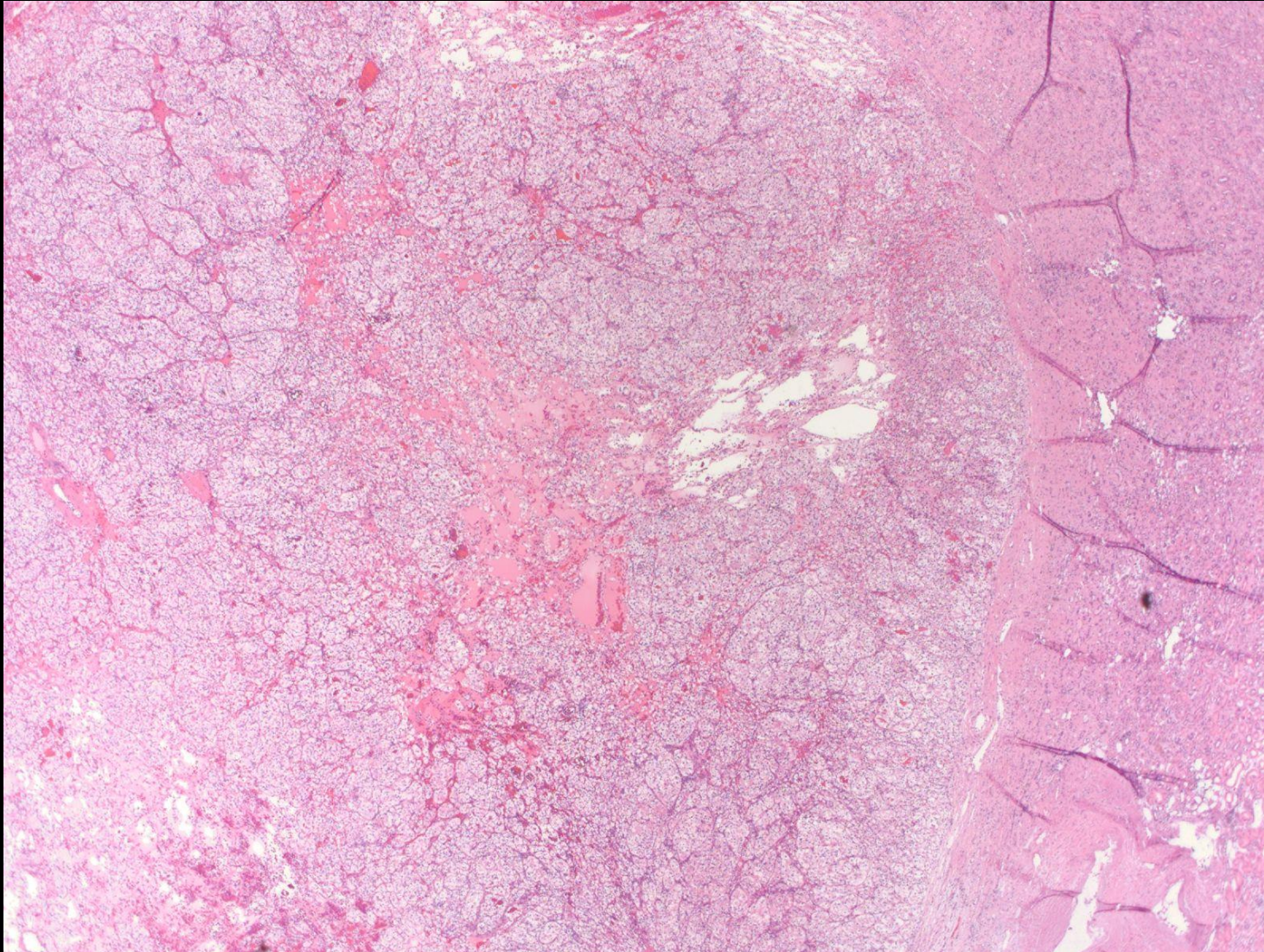
DDX (based on imaging): Solitary Renal Mass

- Renal Cell Carcinoma
 - Clear cell type (most common)
 - Chromophobe type
 - Papillary type
 - Collecting duct type (<1%)
- Benign Lesions
 - Renal Abscess/focal pyelonephritis
 - Oncocytoma: homogenous well-circumscribed solid mass
 - Often contains a central scar
 - Angiomyolipoma
 - Enhancing mass that contains macroscopic fat
 - can usually be distinguished from the microscopic fat of clear cell on imaging
 - Metanephric adenoma
 - BRAF600 mutation (90%)
 - Wilm's tumor (children)
- Metastatic disease

Gross Path



Micro Path (labeled)



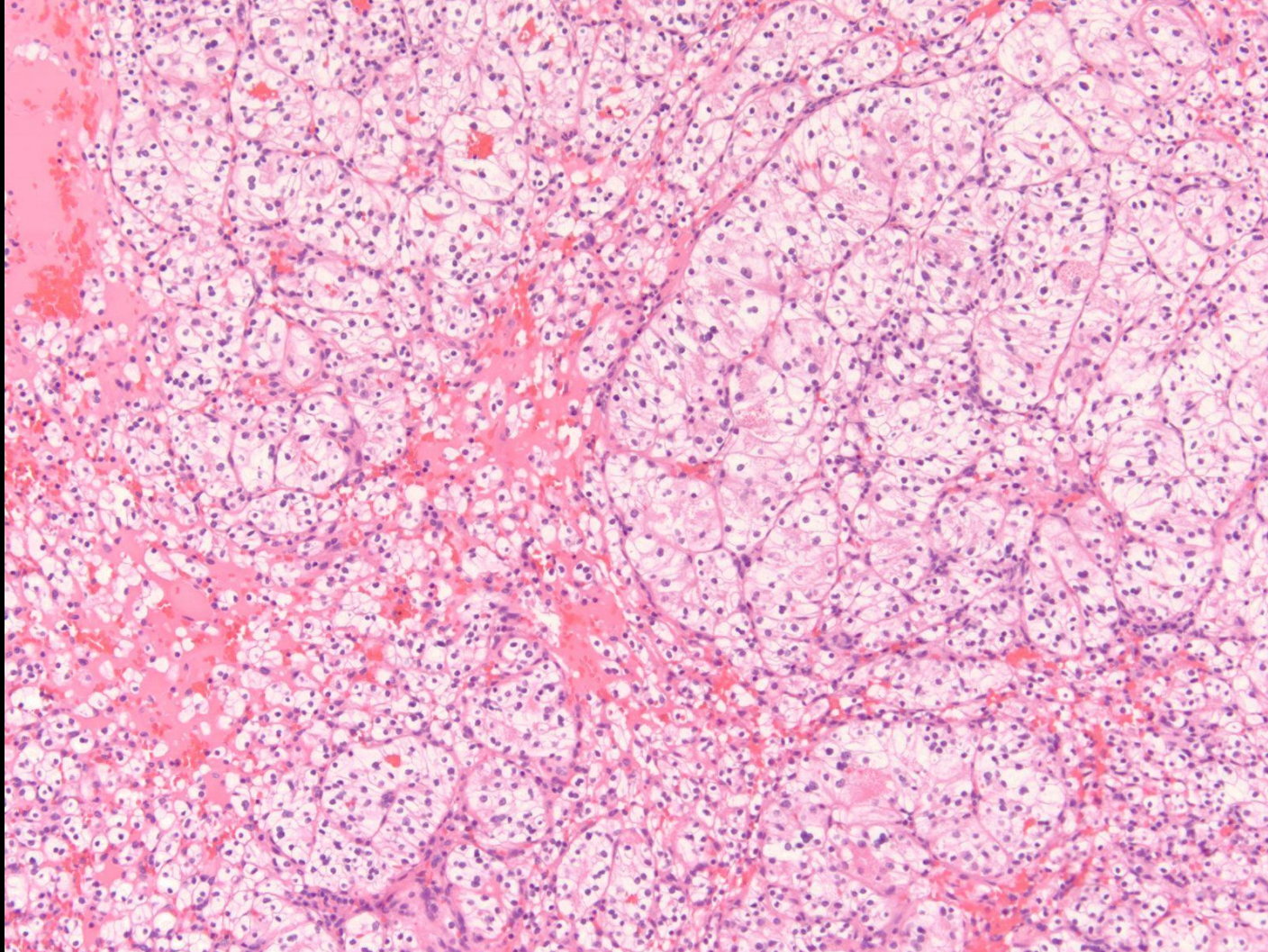
Low-power view of the tumor in relation to kidney parenchyma.

Note the pushing borders and the defined circumscription of the tumor without the presence of a tumor capsule.

Surgical margins are benign

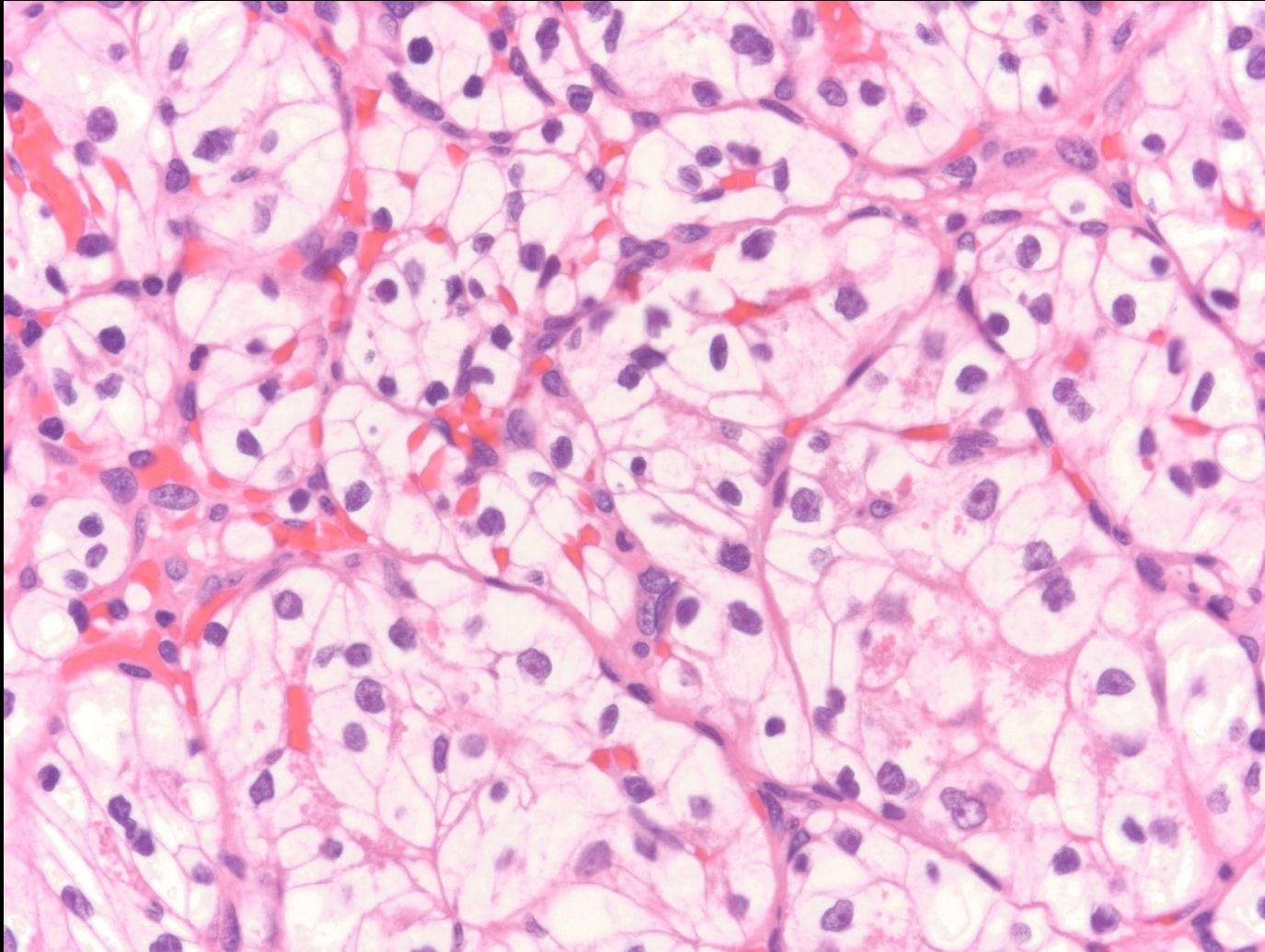
Negative for lymphovascular invasion

Micro Path (labeled)



Middle-power view of the tumor showing round/polygonal cells and centrally located nuclei.

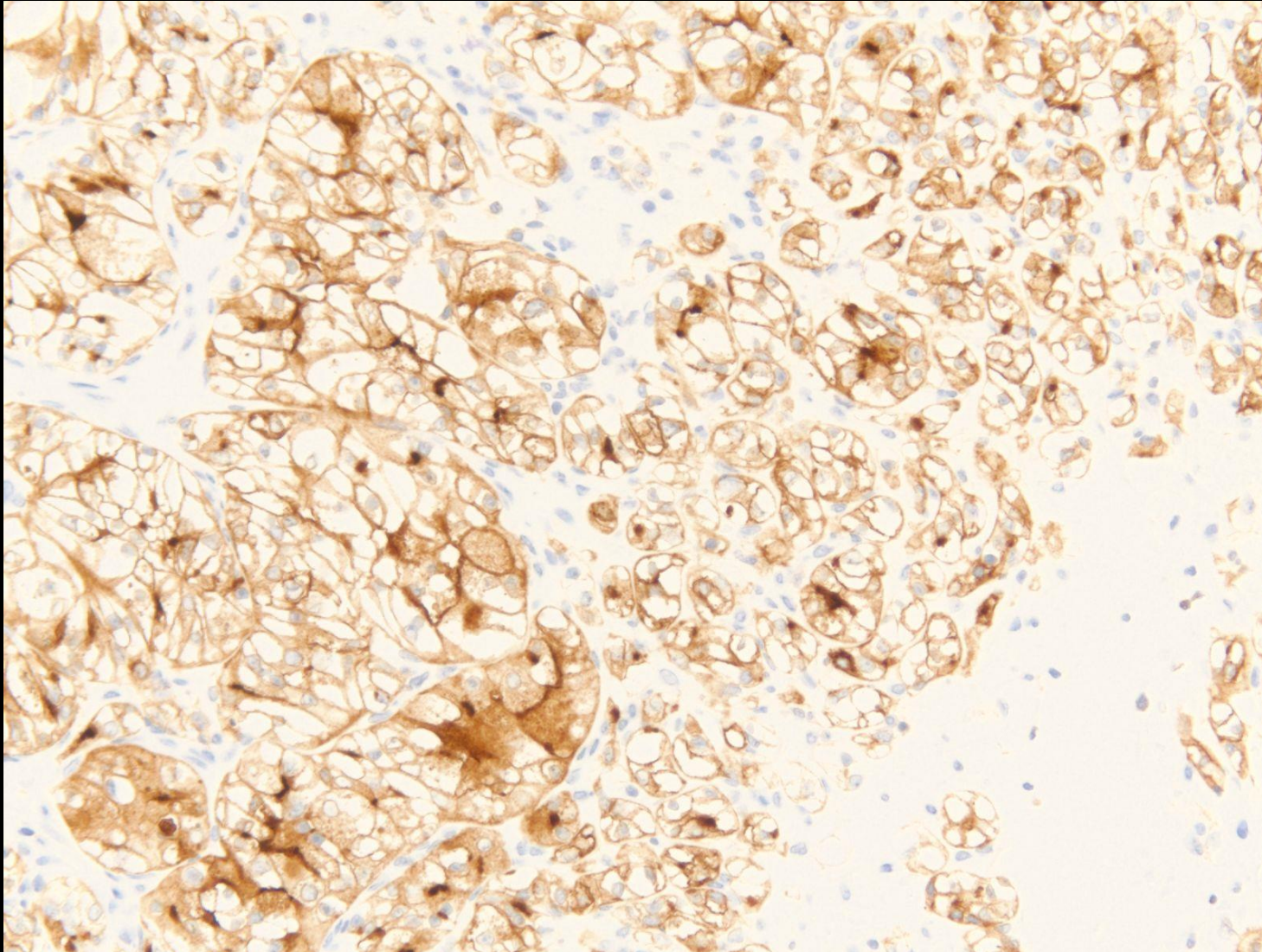
Micro Path (labeled)



High-power view of the tumor showing the cells arranged in nests within a fine vascular network.

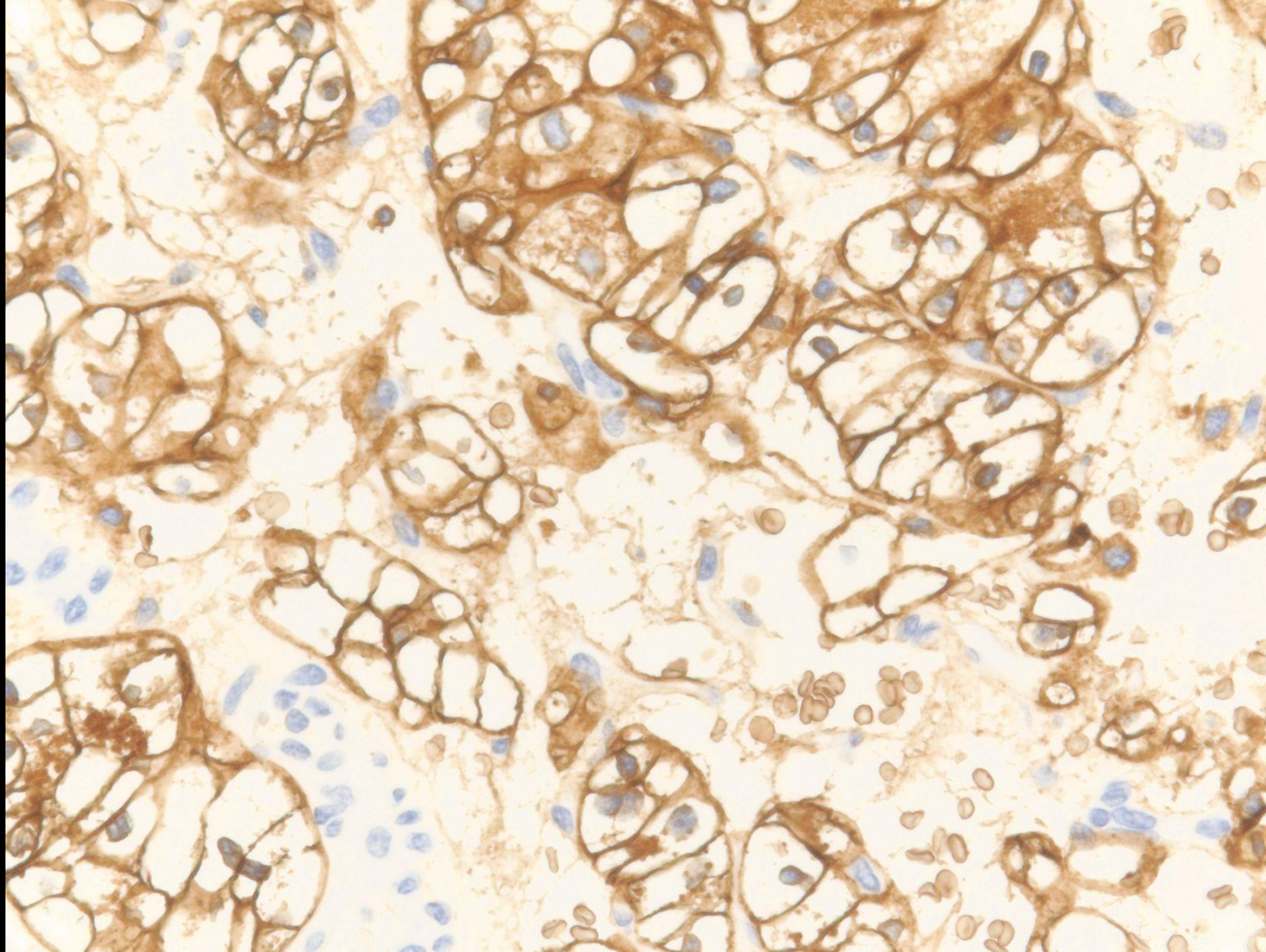
WHO/ISUP nucleolar grade is 2 of 4

Micro Path (labeled)



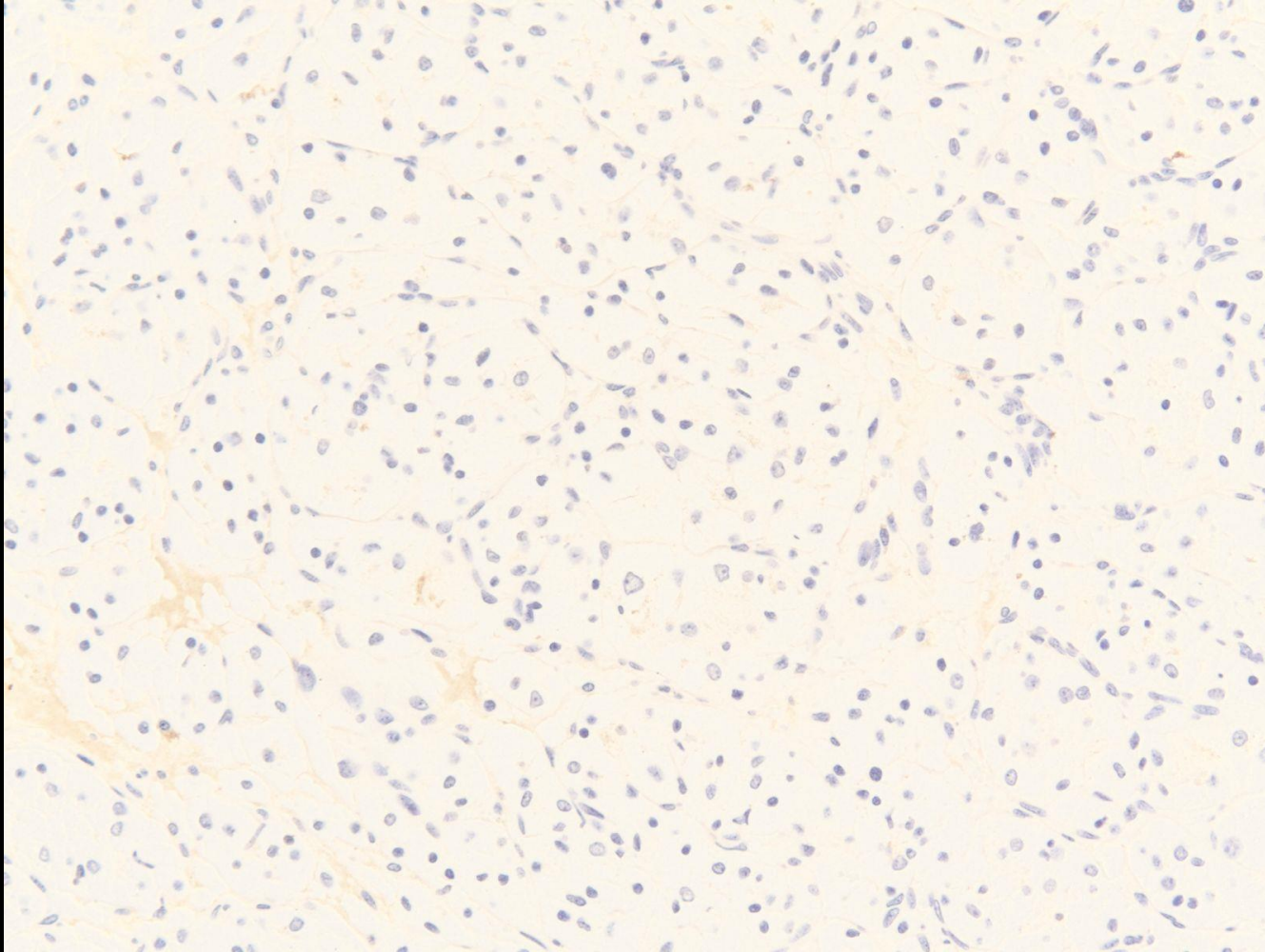
Immunohistochemistry for CD10 is strongly positive on the cell membrane of the tumor cells.

Micro Path (labeled)



Immunohistochemistry for Carbonic anhydrase IX (CAIX) is strongly positive on the cell membrane of the tumor cells.

Micro Path (labeled)



Immunohistochemistry for Cytokeratin 7 (CK7) is negative.

Final Dx:

Renal Cell Carcinoma, Clear Cell Type
pT1a NX

Case Discussion

- Renal Malignancies
 - Kidney Cancer is the 6th most common cancer in men and the 9th most common cancer in women
 - Mean Diagnosis of 64 years
- Clear Cell Renal Cell Carcinoma (ccRCC)
 - Accounts for 80% of renal malignancies
 - Associated with Von Hippel Lindau and Tuberous sclerosis

Case Discussion

- Microscopic Histopathology
 - Cells with lipid-rich ample cytoplasm
- Immunohistochemistry
 - CD10 staining was more frequently detected in clear cell carcinoma (91%) than in chromophobe carcinoma (45%) and oncocytoma (29%)
 - CK7 is most commonly seen in chromophobe type
- The carcinoma cells were positive for carbonic anhydrase IX and CD10, but negative for CK7.
- This immunohistochemical pattern is consistent with ccRCC

Case Discussion

- Treatment
 - Partial or total nephrectomy cures most cases
 - Locally advanced or metastatic disease requires systemic therapy
 - Anti-angiogenic agents-VEGF/VEGFR targeted for single agent therapy:
 - Sorafenib, sunitinib, Pazopanib, Axitinib, Cabozatinib
 - PD-1/PD-L1 immune checkpoint inhibitors:
 - Nivolumab, Pembrolizumab
 - PI3K/Akt/mTOR kinase activity inhibitor:
 - Temsirolimus, Everolimus

References:

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