

# AMSER Rad-Path Case of the Month

62-yo female presents with abdominal pressure and flank pain



Andrew Magyan, MS4

Lake Erie College of Osteopathic Medicine

Cody Marshall, DO, PGY-3

Shweta Patel, DO

Goutham Vemana, MD

Matthew Hartman, MD

Allegheny Health Network



# Patient Presentation

- **HPI:** Patient presented with abdominal pressure and pelvic/flank pain
- **PMHx:** Appendiceal cancer, schwannoma, osteoporosis, arthritis, depression
- **SHx:** appendectomy, hysterectomy, tonsillectomy
- **Vitals:** BP 154/82, HR 90, RR 16, SpO<sub>2</sub> 99%, 97.8°
- **Physical exam:** Normal
- **ROS:** No fever or chills, increased urinary frequency, sensation of pressure with urination, x1 emesis

# Pertinent Labs

- No pertinent labs!

What Imaging Should We Order?

# Select the applicable ACR Appropriateness Criteria

**Variant 4:** Acute nonlocalized abdominal pain. Not otherwise specified. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
CT abdomen and pelvis with IV contrast	Usually Appropriate	⊕⊕⊕
CT abdomen and pelvis without IV contrast	Usually Appropriate	⊕⊕⊕
MRI abdomen and pelvis without and with IV contrast	Usually Appropriate	○
US abdomen	May Be Appropriate	○
MRI abdomen and pelvis without IV contrast	May Be Appropriate	○
CT abdomen and pelvis without and with IV contrast	May Be Appropriate	⊕⊕⊕⊕
Radiography abdomen	May Be Appropriate	⊕⊕
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	⊕⊕⊕⊕
WBC scan abdomen and pelvis	Usually Not Appropriate	⊕⊕⊕⊕
Nuclear medicine scan gallbladder	Usually Not Appropriate	⊕⊕
Fluoroscopy upper GI series with small bowel follow-through	Usually Not Appropriate	⊕⊕⊕
Fluoroscopy contrast enema	Usually Not Appropriate	⊕⊕⊕

This imaging modality was ordered by the ER physician

# Findings (unlabeled)



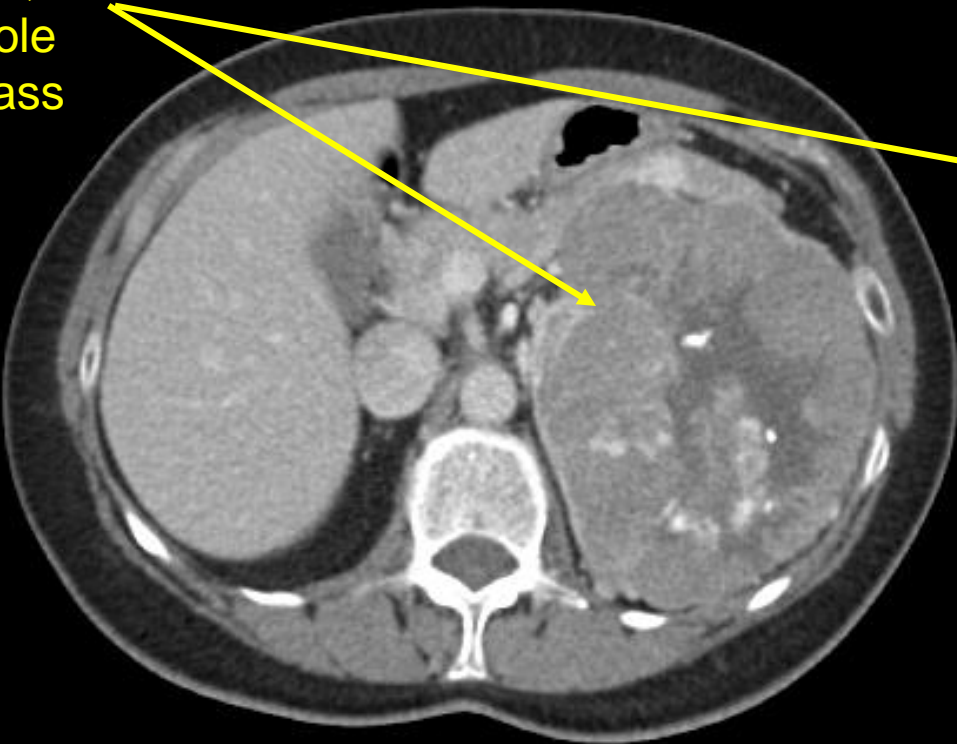
Axial



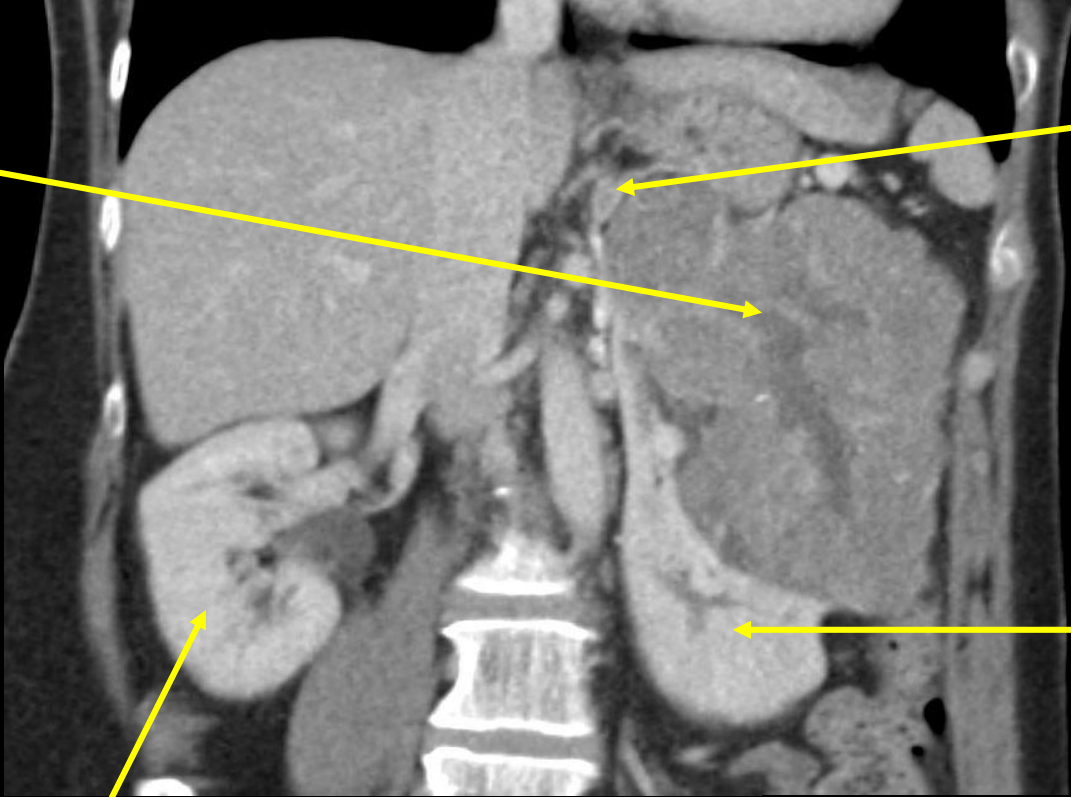
Coronal

# Findings (labeled)

Irregular, lobulated, upper pole renal mass



Axial



Adrenal gland

Left kidney

Right kidney

Coronal

# Gross Pathology

Adrenal gland

Tumor





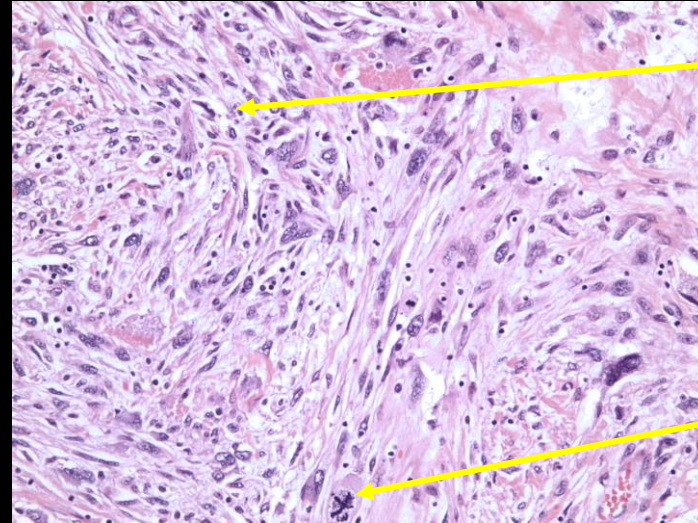
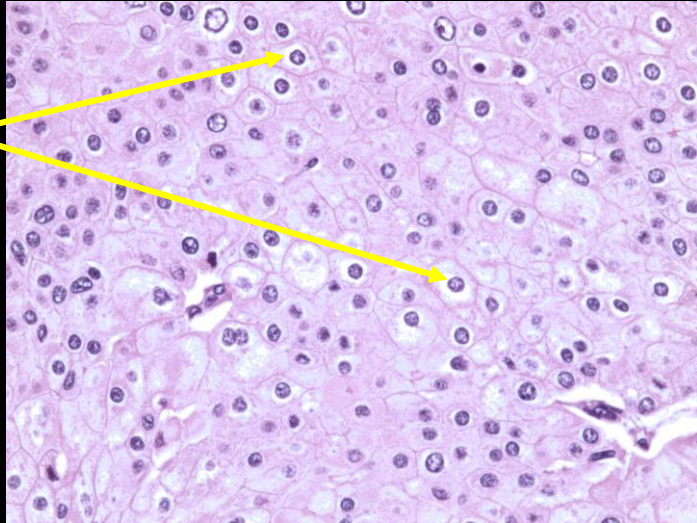
# Differential dx:

- Renal cell carcinoma
- Metastatic disease

# Surgical Pathology

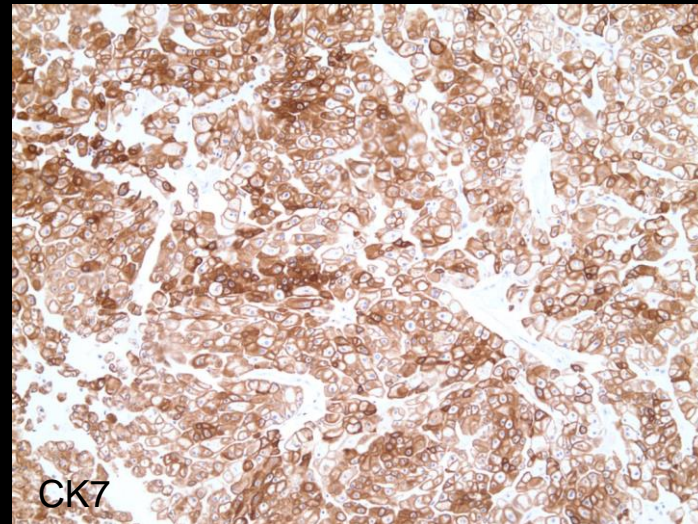
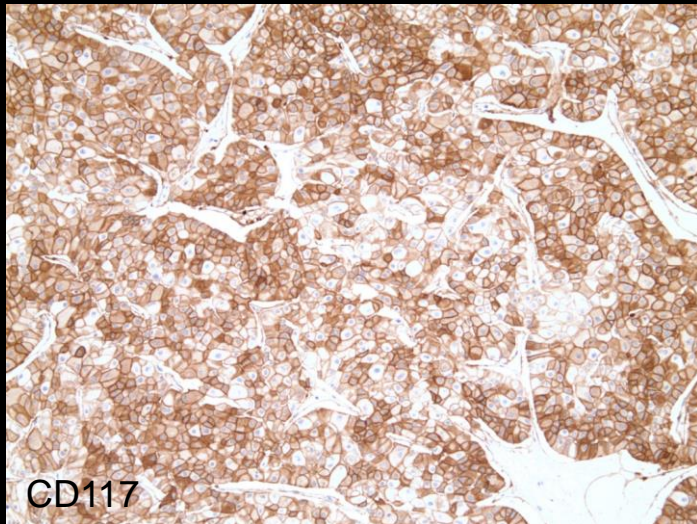
“Raisinoid” nuclei  
with perinuclear  
halos

Cells are eosinophilic  
with pale cytoplasm



Sarcomatoid  
differentiation: cells  
are spindled with  
elongated nuclei,  
highly pleomorphic

Atypical mitosis



CD117 and CK7  
diffusely positive  
which correlates  
with chromophobe  
diagnosis.

Final Dx:

Chromophobe renal cell carcinoma

# Case Discussion

- **Renal cell carcinoma**

- Most common presenting symptoms consisted of hematuria, abdominal mass, flank pain, and weight loss
- Can have areas of necrosis, cyst formation, hemorrhage and calcification

- **Epidemiology**

- Account for 80-85% of primary renal neoplasms
- Approx. 25% of patients have distant metastasis or advanced locoregional disease at presentation
  - Patient was found to have 2.2cm right middle lobe lung lesion
- 2x as common in males vs females, median age at diagnosis is 64
- Predisposing factors: smoking, hypertension, obesity, dialysis, von Hippel-Lindau disease

# Case Discussion

- **Pathology**

- Chromophobe subtype is rare (5% of renal cell carcinomas)
  - Arises from intercalated cells of collecting ducts
  - Better prognosis than clear cell subtype
- Areas of extreme pleomorphism and sarcomatoid differentiation
  - Sarcomatoid features only seen in ~10% of chromophobe renal cell carcinomas

- **Treatment**

- Radical nephrectomy
- Responsive to Everolimus
  - Patient will start due to lung lesion (sarcomatoid features are poor prognostic indicator)
  - Limited evidence for efficacy of vascular endothelial growth factor inhibitors

# References:

- American College of Radiology ACR Appropriateness Criteria Acute Non-localized abdominal pain.  
<https://acsearch.acr.org/docs/69467/Narrative/>
- Marko, J et al. “Chromophobe Renal Cell Carcinoma with Radiologic-Pathologic Correlation.” *Radiographics*, 13 Aug. 2021,  
<https://pubs.rsna.org/doi/10.1148/rg.2021200206>
- *UpToDate*. <https://www.uptodate.com/contents/clinical-manifestations-evaluation-and-staging-of-cell-carcinoma/>
- *UpToDate*. <https://www.uptodate.com/contents/epidemiology-pathology-and-pathogenesis-of-renal-cell-carcinoma/>
- *UpToDate*. <https://www.uptodate.com/contents/the-treatment-of-advanced-non-clear-cell-renal-cell-carcinoma/>