

Sarcomatoid renal cell carcinoma

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October 15, 2020

RAD 4001

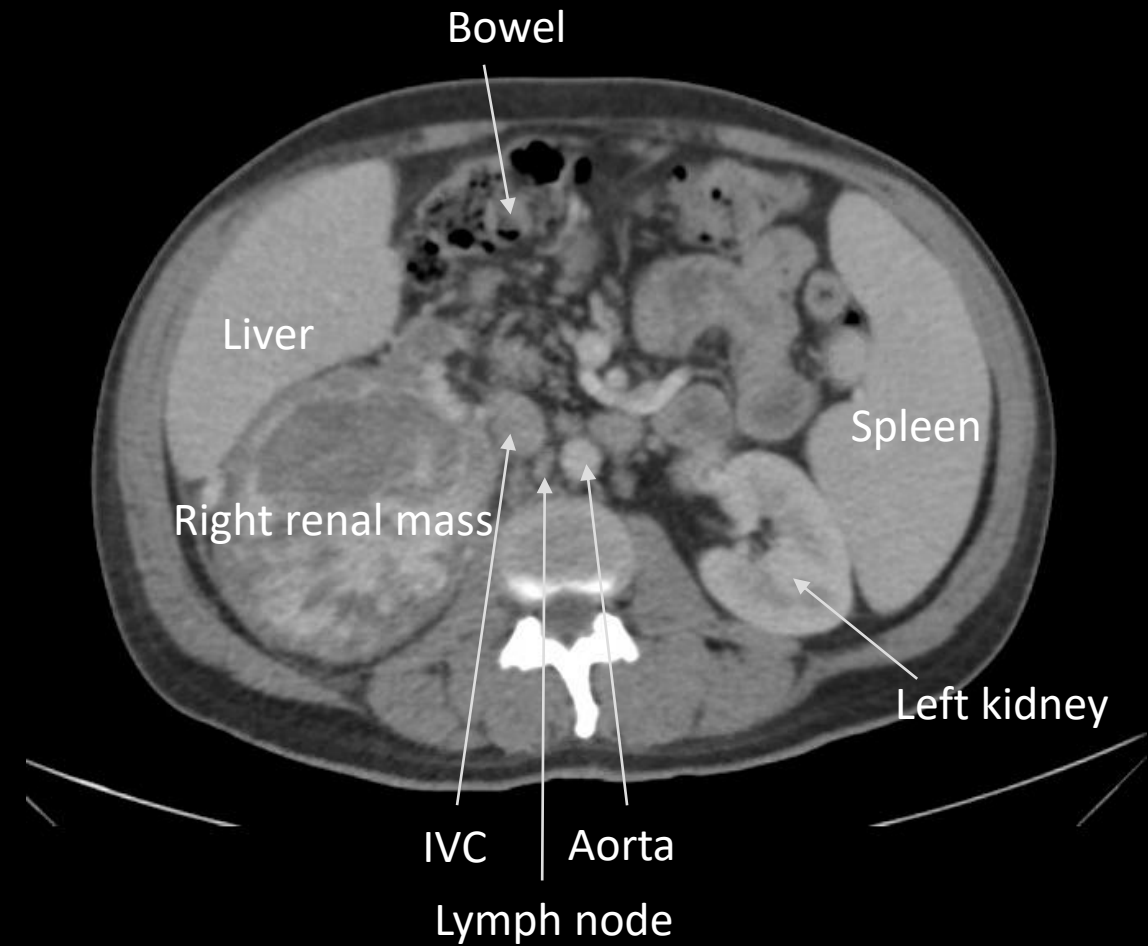
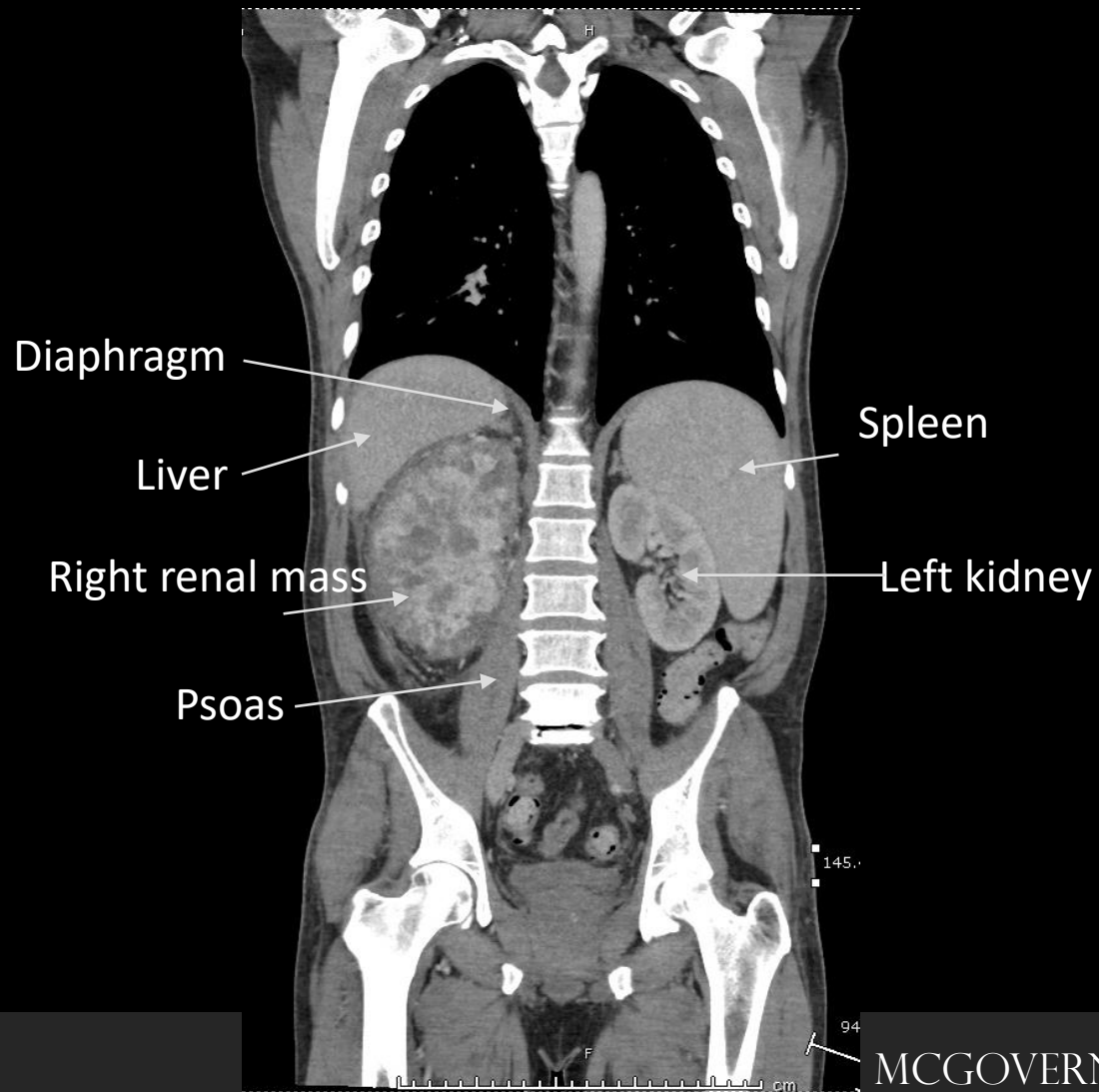
Julia Talley, M.D. and Joseph Hasapes, M.D.



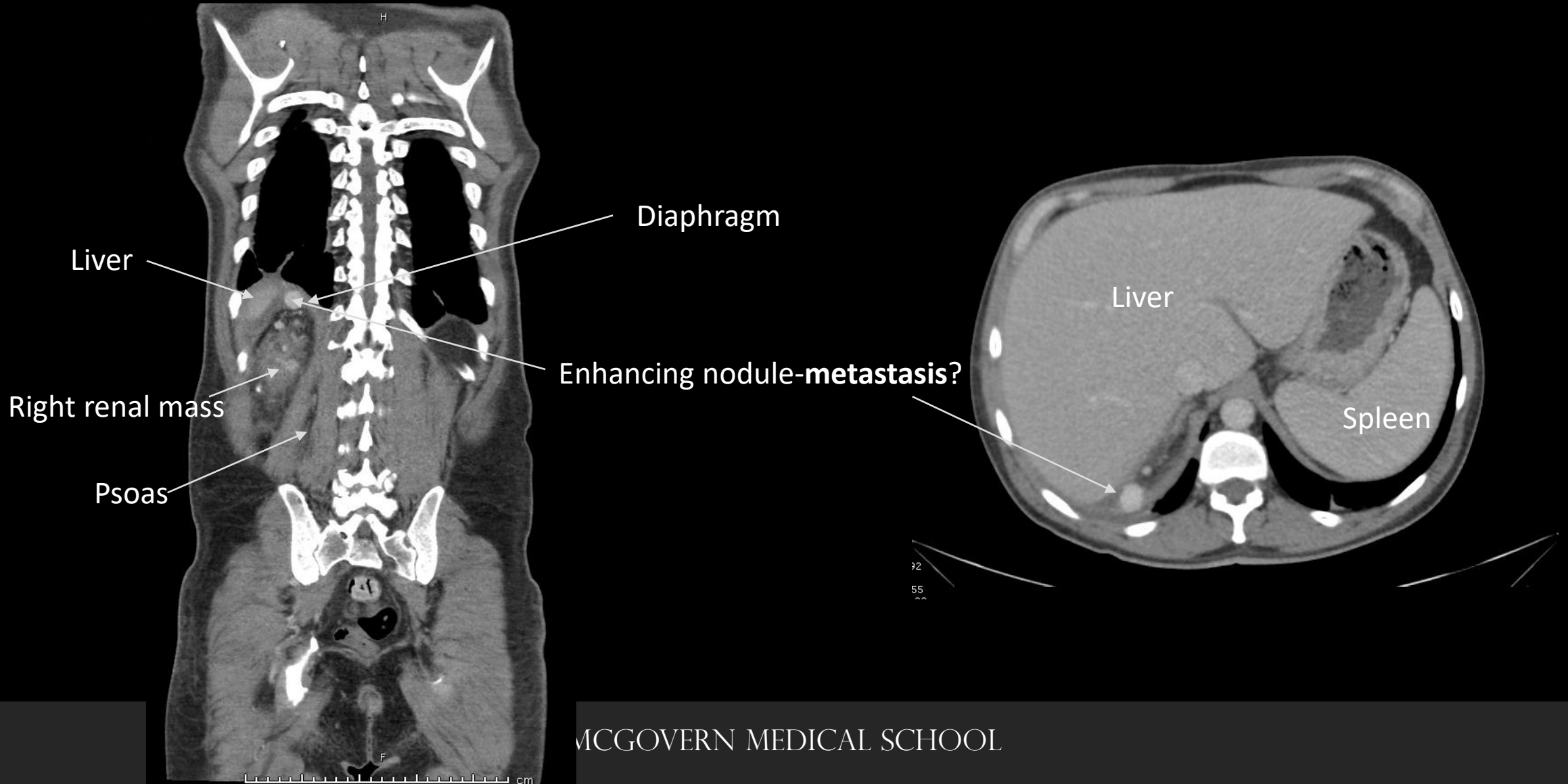
Clinical History

- 2/2020: 51 year-old man presents to ED with right flank pain & hematuria
 - PMH: T2DM, HTN, GERD
 - SH: ~30 pack year history, rare EtOH use
 - ROS: Unintentional weight loss (20 lbs in 6 mos); hematuria, dysuria
 - Hgb 4.4
 - Physical exam: TTP in RUQ and R CVA, firm mass palpated R side/flank
 - CT C/A/P ordered

Relevant Imaging 2/22/20



Relevant Imaging 2/22/20



Differential Diagnosis

- Renal cell carcinoma
 - Oncocytoma
 - Medullary carcinoma
 - Collecting duct carcinoma
 - Transitional cell carcinoma
- Angiomyolipoma
- Lymphoma
- Metastasis

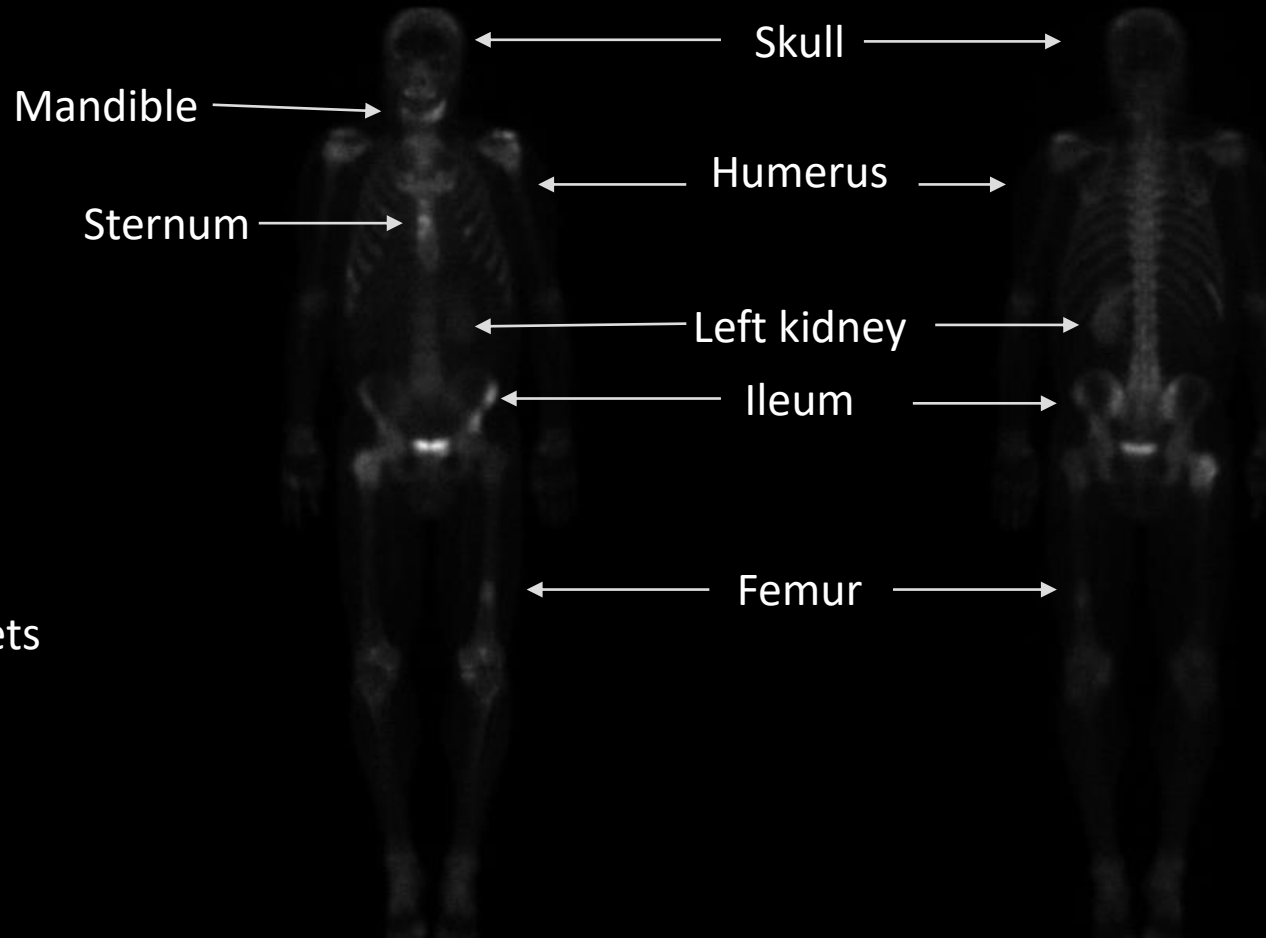
Discussion

- Large, solid renal masses with enhancement → RCC until proven otherwise
- As mass size increases:
 - Risk of malignancy increases
 - Likelihood of aggressive pathology increases
- Classic clinical presentation of RCC: flank pain, hematuria, palpable flank mass (5-10% of cases)
- Median age dx: 66. M>F
- Long-term dialysis: 3-6x risk compared to normal population
- Risk factors: smoking, obesity, petroleum exposure, ionizing radiation, etc.
- Tissue required for formal diagnosis—also informs treatment and prognosis
- 5-year OS:
 - >50% if no distant mets
 - <10% with distant metastases

Clinical course

- 3/2020: Right radical nephrectomy, adrenalectomy, RPLND, resection of right diaphragmatic nodule, diaphragm repair
 - Pathology: clear cell renal cell carcinoma (WHO grade 4) with sarcomatoid morphology
 - 16.5cm invading in vessel, renal sinus, perirenal fat, and beyond Gerota's fascia. No adrenal involvement. 0/6 LN. Peritoneal biopsy negative. Diaphragmatic nodule positive for RCC → pT4N0M1
- 4/2020: Widely metastatic disease identified [NM bone scan]
- 5/2020: Ipilimumab and nivolumab started
- 7/2020: CT CAP with disease progression → switched to cabozantinib and nivolumab

Relevant imaging

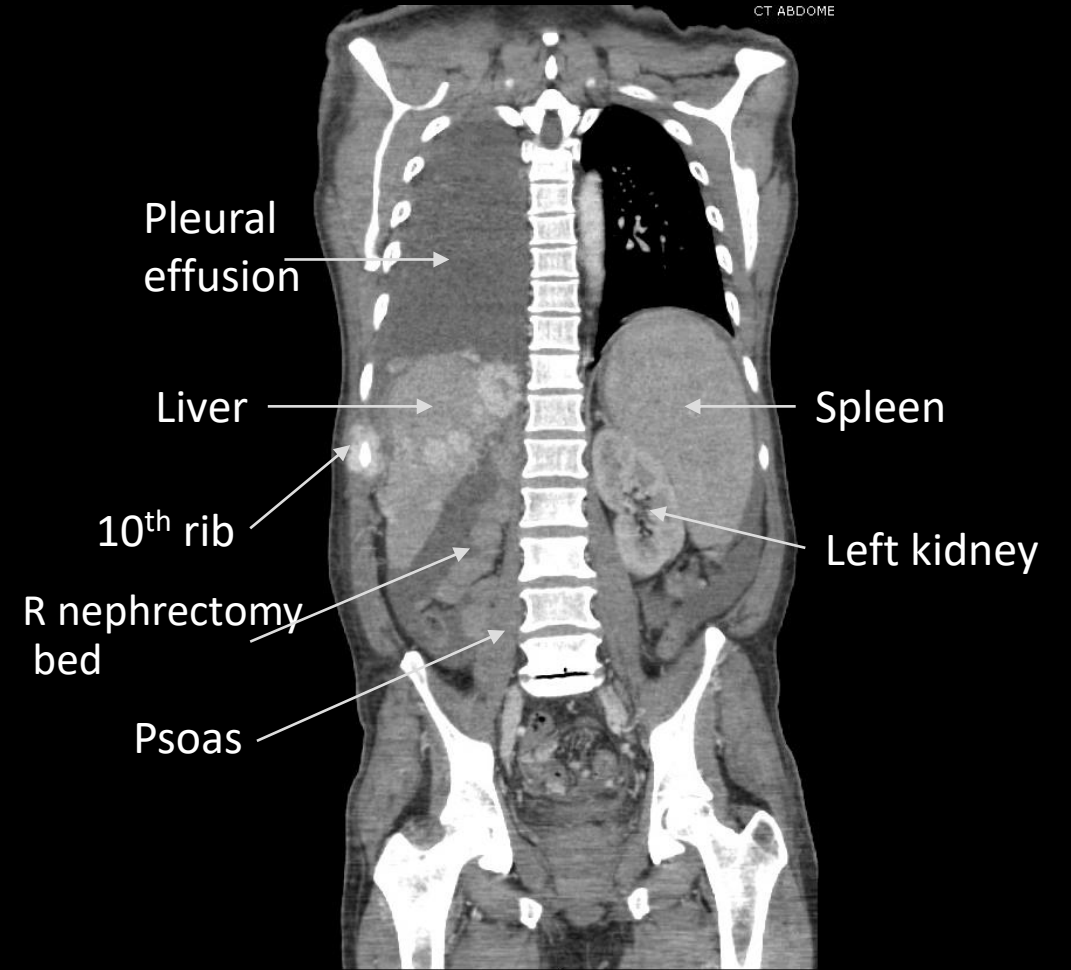
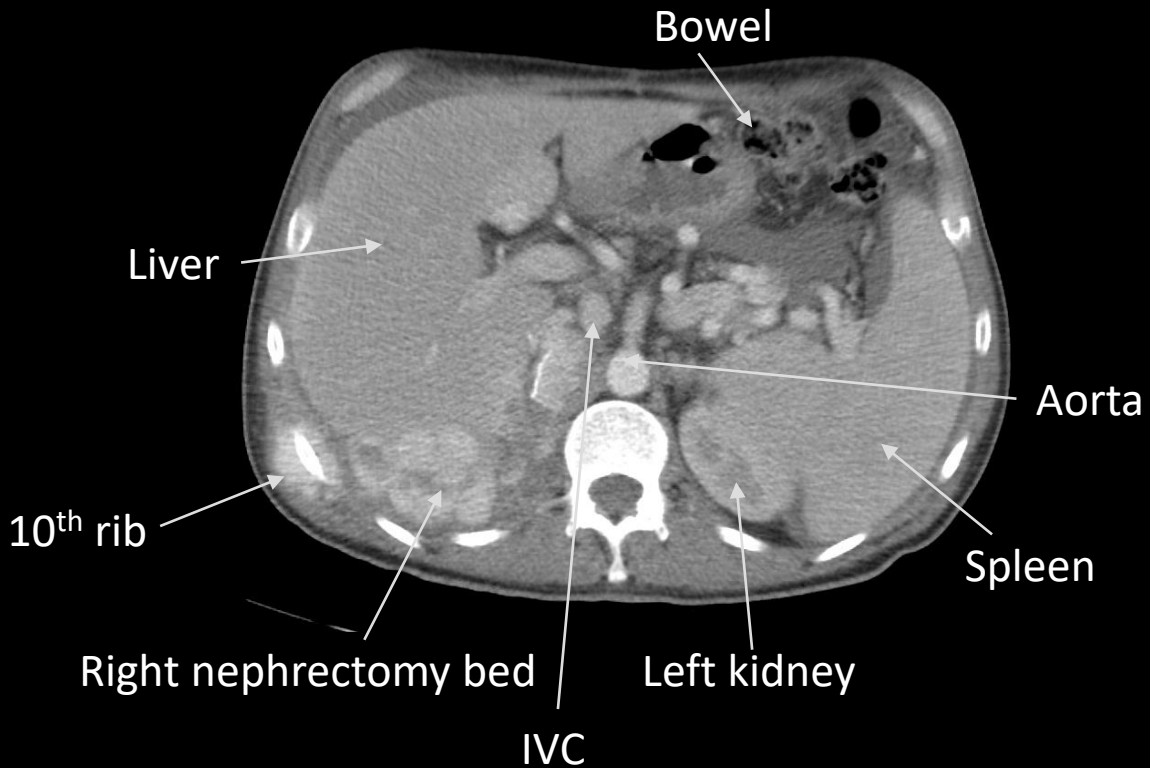


NM Bone Scan
4/2020
Widespread bony mets

→ 5/2020: Ipilimumab and nivolumab started (3 cycles)

More relevant imaging 7/2020

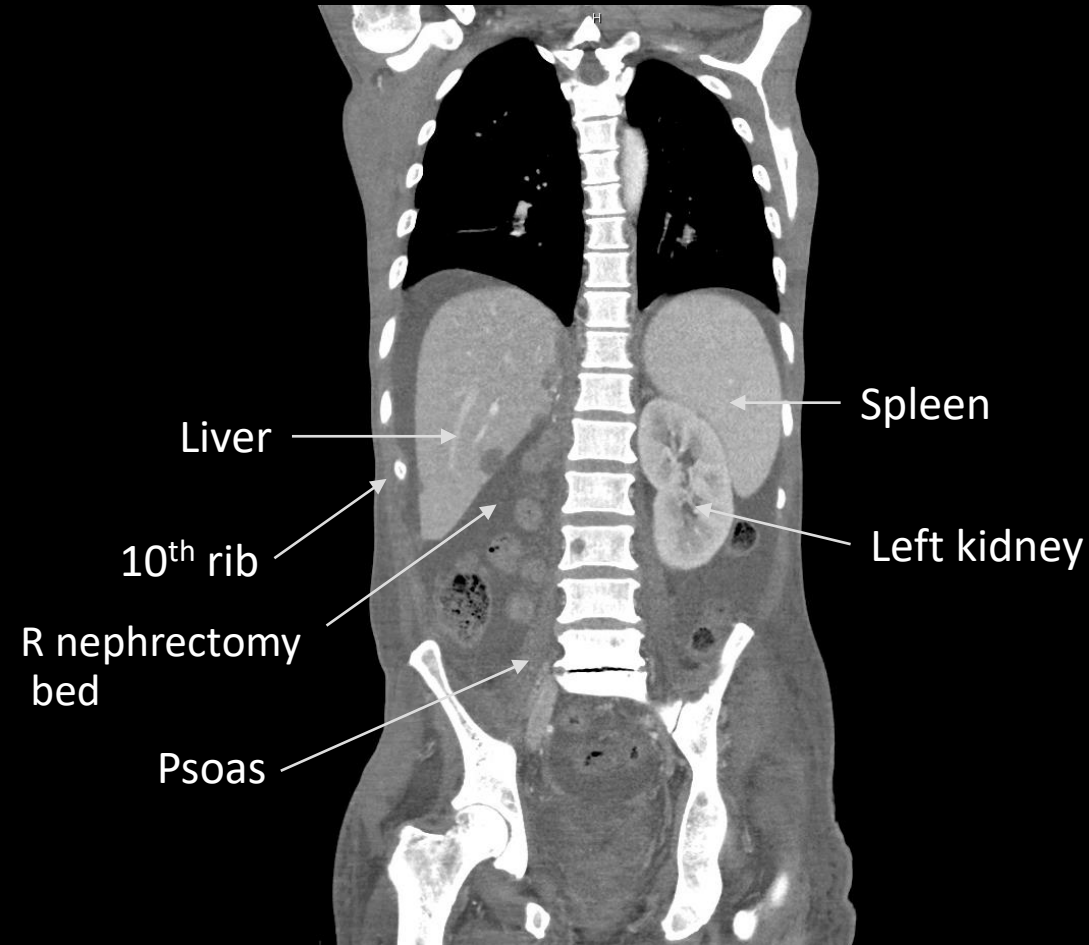
[s/p 3 cycles ipi+nivo]



Disease progression → Nivo + Cabozantinib (3 cycles)
MCGOVERN MEDICAL SCHOOL

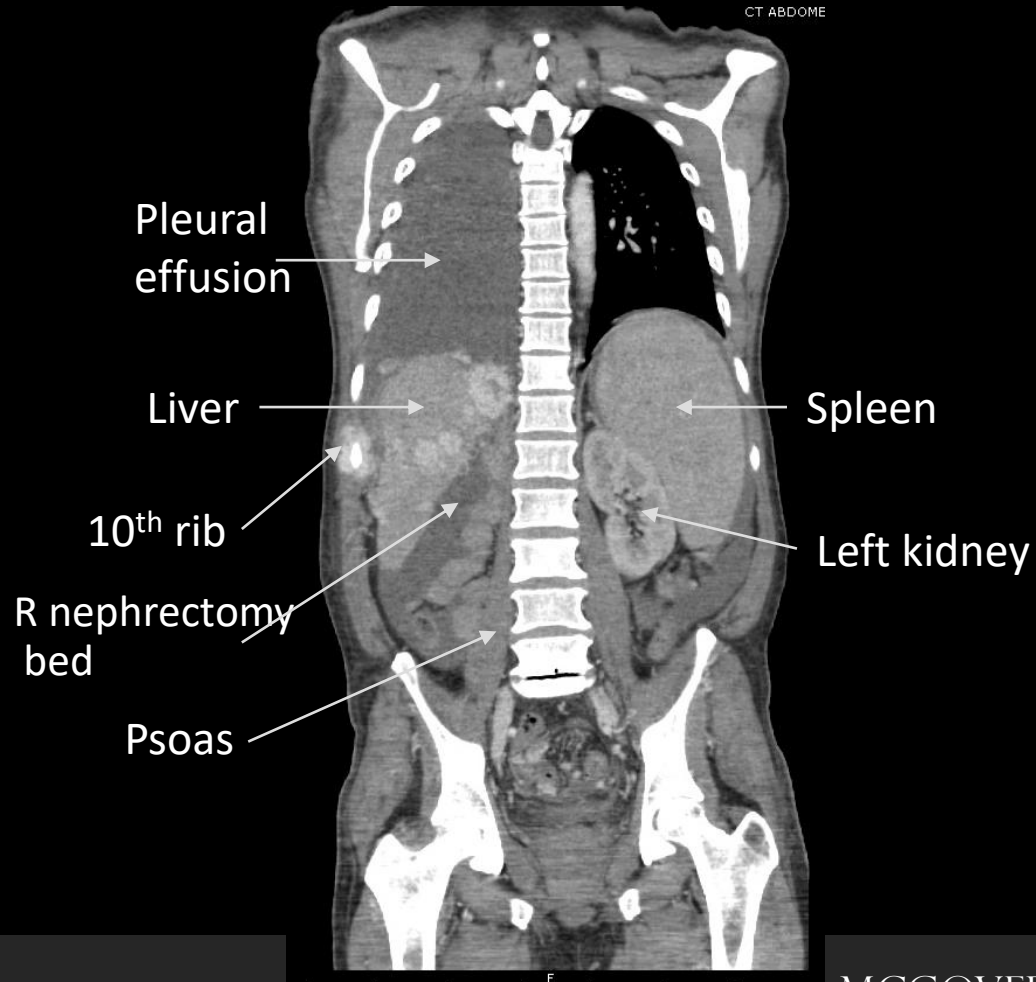
More relevant imaging 9/2020

[s/p 3 cycles nivo+cabozantinib]

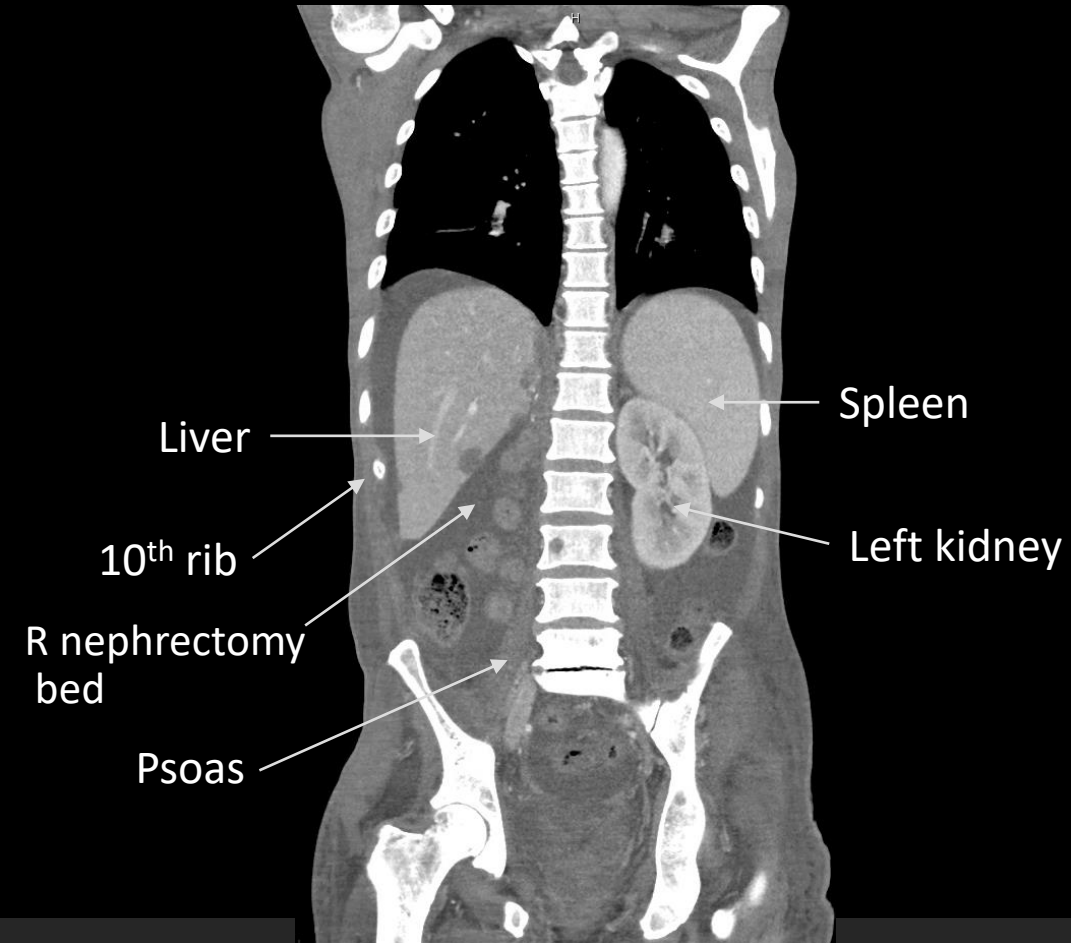


More relevant imaging

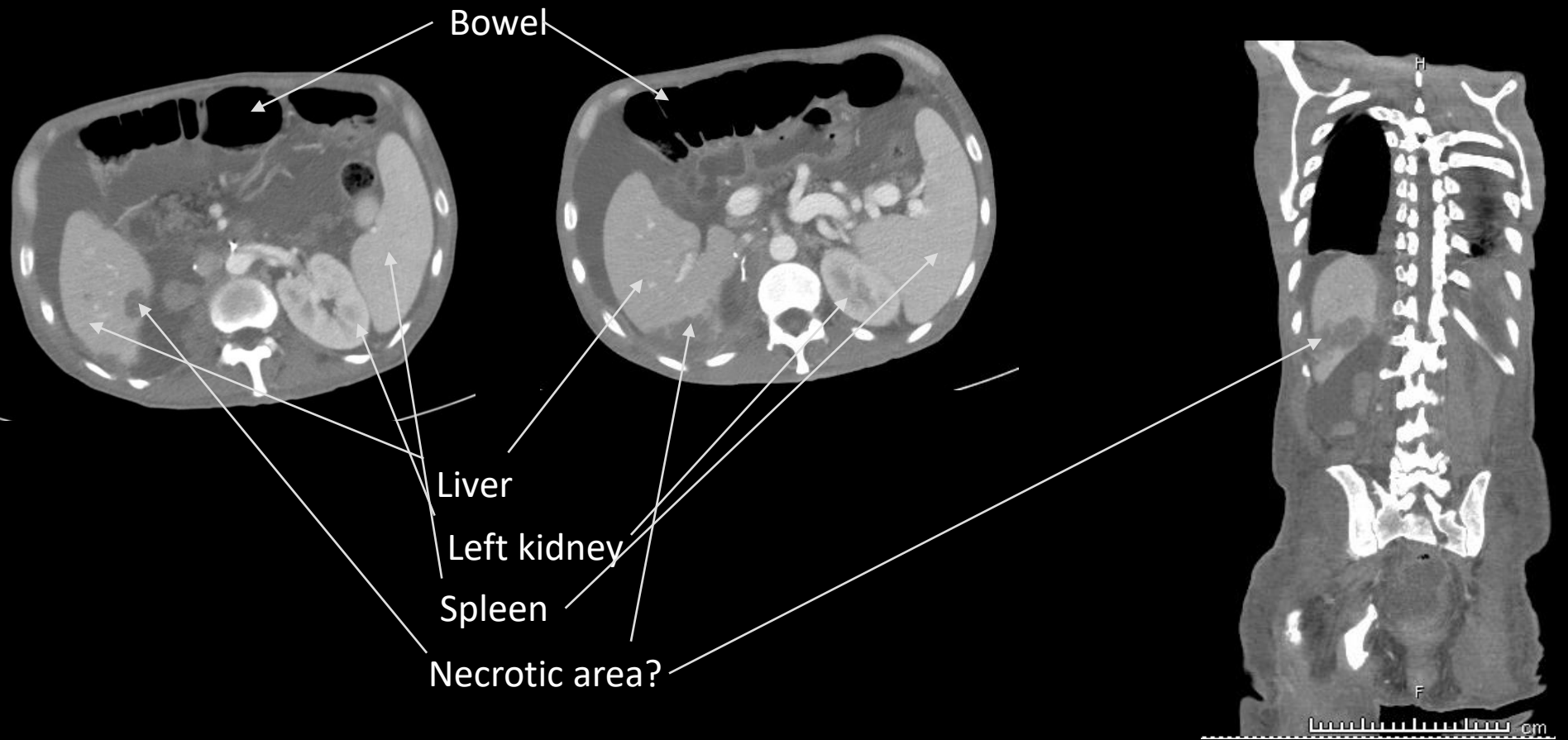
Ipi + nivo
7/2020



Cabo + nivo
9/2020

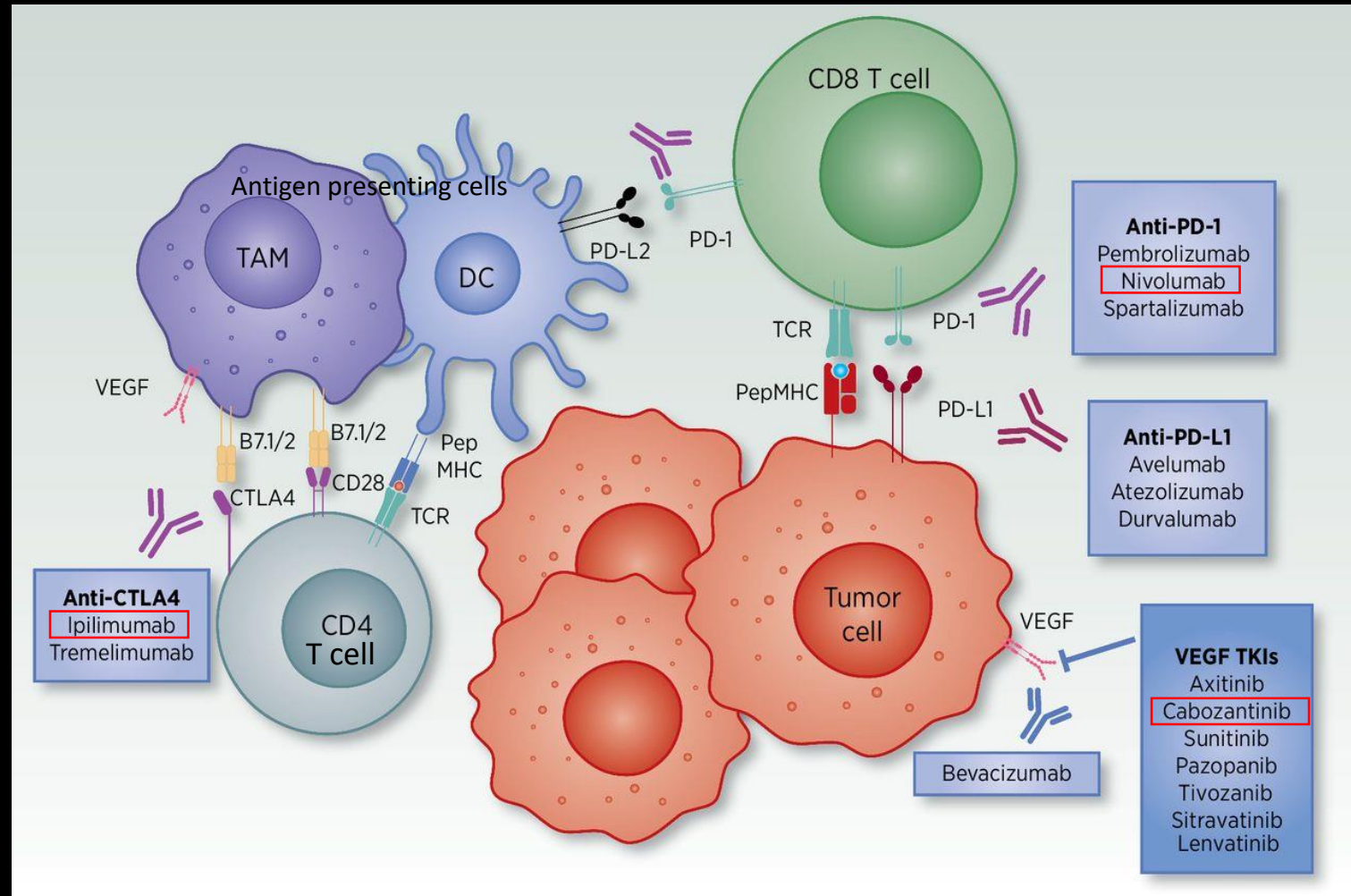


More relevant imaging 9/30/20



Treatment

- Frontline tx RCC: immunotherapy (dual checkpoint inhibition)
 - CheckMate 214 study ipi + nivo vs. sunitinib: improved ORR, OS (Motzer et al, *NEJM*, 2018)
- Cabozantinib + nivo
 - CheckMate 9ER study: cabozantinib + nivo vs. sunitinib (Choueiri et al, *J Ann Onc*, 2020): superior PFS, OS, ORR



Final Diagnosis

Metastatic sarcomatoid renal cell carcinoma responsive to second line treatment

ACR appropriateness Criteria

Variant 4: Gross hematuria. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
CTU without and with IV contrast	Usually Appropriate	☼☼☼☼
MRU without and with IV contrast	Usually Appropriate	○
CT abdomen and pelvis without and with IV contrast	May Be Appropriate	☼☼☼☼
MRI abdomen and pelvis without and with IV contrast	May Be Appropriate	○
MRI abdomen and pelvis without IV contrast	May Be Appropriate	○
US kidneys and bladder retroperitoneal	May Be Appropriate	○
CT abdomen and pelvis with IV contrast	May Be Appropriate	☼☼☼☼
CT abdomen and pelvis without IV contrast	May Be Appropriate	☼☼☼☼
Radiography abdomen and pelvis (KUB)	Usually Not Appropriate	☼☼
Arteriography kidney	Usually Not Appropriate	☼☼☼☼
Radiography intravenous urography	Usually Not Appropriate	☼☼☼☼

American College of Radiology ACR Appropriateness Criteria®

Clinical Condition: Renal Cell Carcinoma Staging

Radiologic Procedure	Rating	Comments	RRL*
CT abdomen without and with IV contrast	9	This procedure is complementary to x-ray chest.	☼☼☼☼
X-ray chest	8	This procedure is complementary to CT.	☼
MRI abdomen without and with IV contrast	8	This procedure is an alternative to CT.	○
CT abdomen with IV contrast	7	This procedure is an alternative to CT without and with contrast.	☼☼☼
CT chest without IV contrast	6		☼☼☼
CT chest with IV contrast	6		☼☼☼
CT abdomen and pelvis with IV contrast	5		☼☼☼
CT abdomen and pelvis without and with IV contrast	5	This procedure may be appropriate but there was disagreement among panel members on the appropriateness rating as defined by the panel's median rating.	☼☼☼☼
MRI abdomen without IV contrast	5		○
Bone scan whole body	5		☼☼☼
MRI head without and with IV contrast	4		○
CT head with IV contrast	4		☼☼☼
CT abdomen and pelvis without IV contrast	3		☼☼☼
CT chest without and with IV contrast	3		☼☼☼
MRI head without IV contrast	3		○
CT head without IV contrast	3		☼☼☼
CT head without and with IV contrast	3		☼☼☼
US abdomen	3		○
FDG-PET/CT skull base to mid-thigh	3		☼☼☼☼
CT abdomen without IV contrast	2		☼☼☼

Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

*Relative Radiation Level

Take Home Points

- Large renal mass? Think malignancy
- Imaging of metastatic disease is complex
- Marked response to therapy is possible-even in the presence of diffuse metastatic disease

References

- Ng, Chuan S., et al. "Renal cell carcinoma: diagnosis, staging, and surveillance." *American Journal of Roentgenology* 191.4 (2008): 1220-1232.
- Motzer, Robert J., et al. "Nivolumab plus ipilimumab versus sunitinib in advanced renal-cell carcinoma." *New England Journal of Medicine* (2018).
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- Choueiri, T., et al. "Nivolumab+ cabozantinib vs sunitinib in first-line treatment for advanced renal cell carcinoma: First results from the randomized phase III CheckMate 9ER trial: 696O_PR." *Annals of Oncology* 31 (2020).



Questions?

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