

RADY Synchronous Bilateral Renal Oncocytoma

Sagar Patel, September 2019

Focused patient history and workup

Chief Complaint: “bilateral renal masses”

History of Present Illness

- 76 yo M referred to Urologic Oncology for evaluation of bilateral renal masses found during work-up for urinary tract infection following left inguinal and small ventral hernia repair
- Endorses flank and abdominal pain
- Denies weight loss, fevers, hematuria, or flank pain

Past Medical History

- Alzheimer's Disease
- Major Depressive Disorder

Past Surgical History

- Hernia repair

Family History

- Negative for malignancy

Social History

- Former Smoker (quit 1 year ago)

Physical Exam

- Soft, appropriately tender following surgery, nondistended abdomen, no CVA tenderness, no masses palpated

Focused patient history and workup

Laboratory Work-up

CBC:

- WBC 5.6, RBC 5.15, HGB 15.3, Plt 217

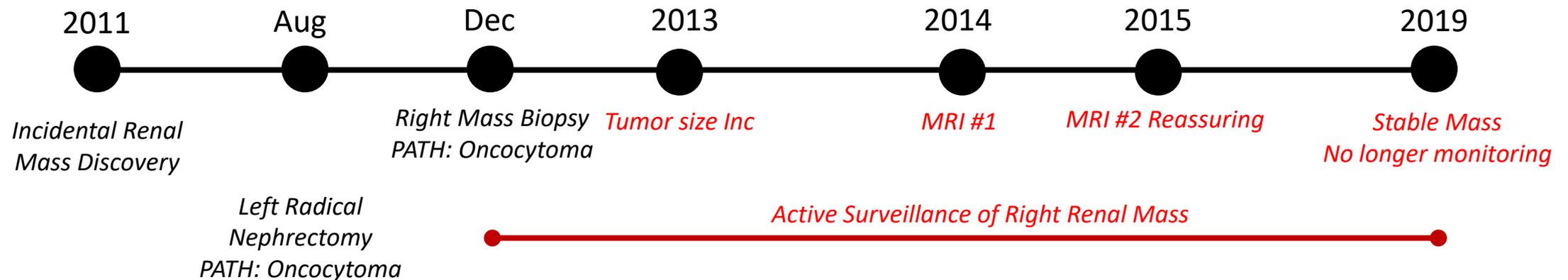
BMP

- Na 139, K 4.2, Cl 105, CO2 25, BUN 21, Cr 1.1, Glu 149

Ca 9.4

U/A

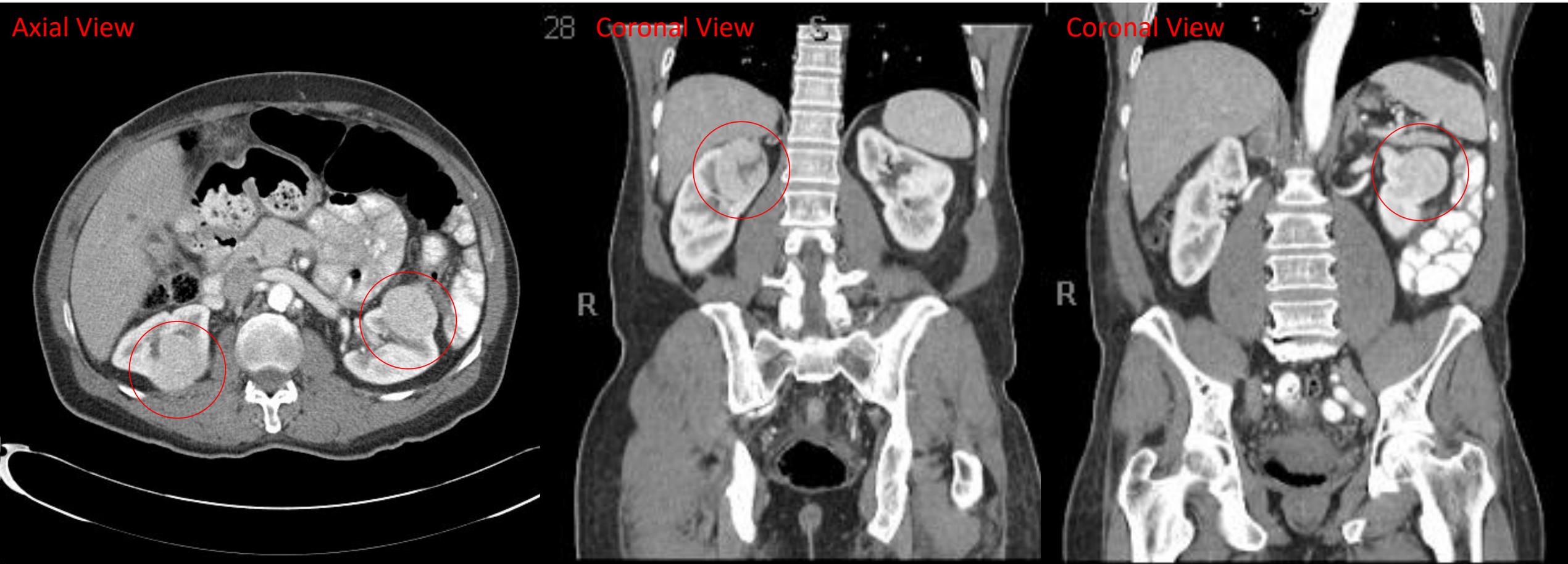
- Color Yellow, Urine Blood Negative, Urine Leukocytes Negative, Nitrites & LE Negative



List of imaging studies

- **Computed Tomography Abdomen and Pelvis w/ Contrast**
 - Obtained 8/18/11
- **Ultrasound Guided Renal Mass Biopsy**
 - Obtained 12/5/11
- **Computed Tomography Repeat Abdomen and Pelvis w/ Contrast**
 - Obtained 10/22/13
- **Magnetic Resonance Imaging Abdomen**
 - Obtained 5/13/14 & 5/5/15

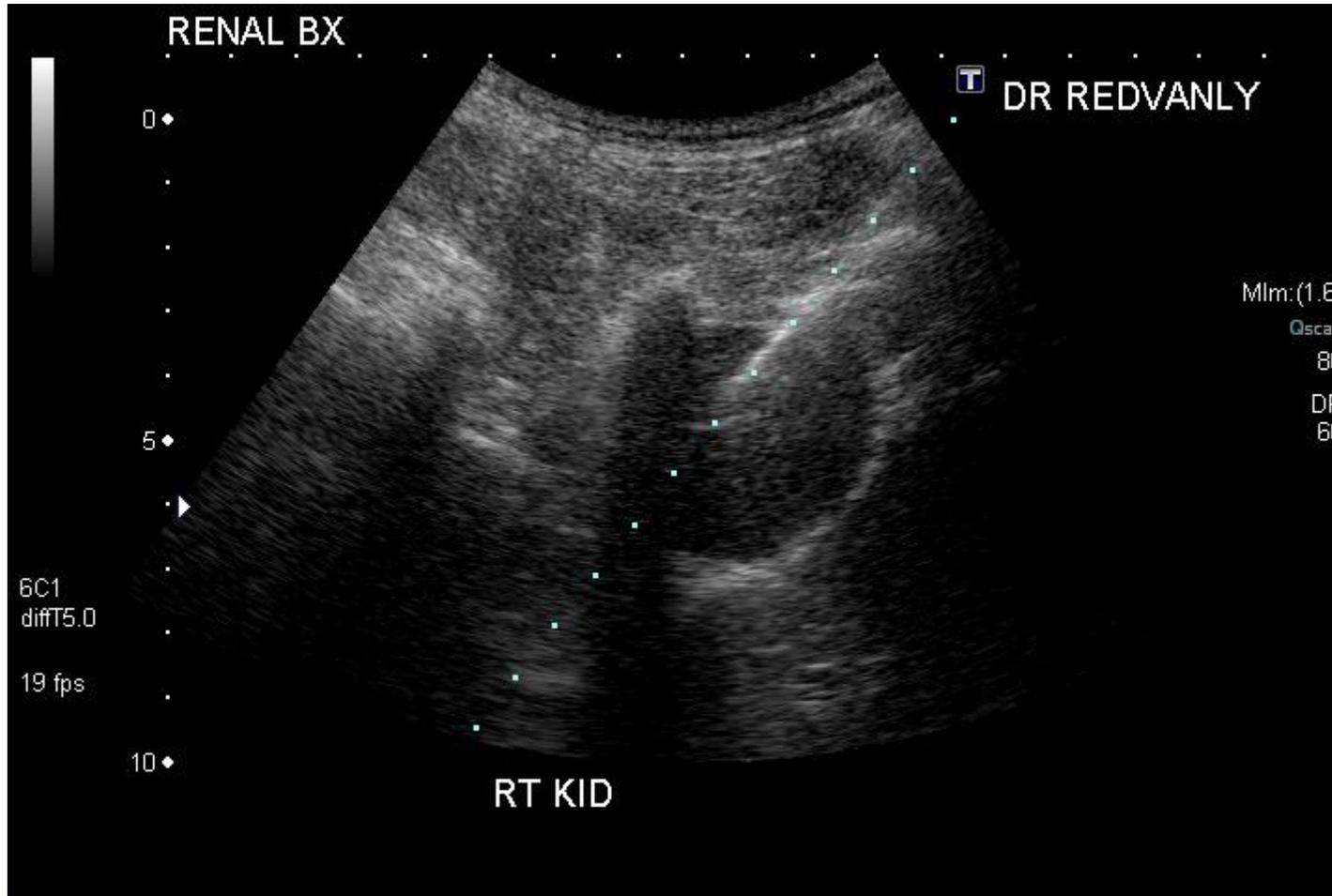
CT Abdomen and Pelvis w/ Contrast - 2011



Right | Size 4.1 X 1.6 cm | Hounsfield Units 88

Left | Size 4.6 X 4.1 cm | Hounsfield Units 114

Ultrasound Guided Renal Mass Biopsy - 2011



Ultrasound Directed Right Renal Mass
Core Biopsy w/ 18 gauge biopsy gun

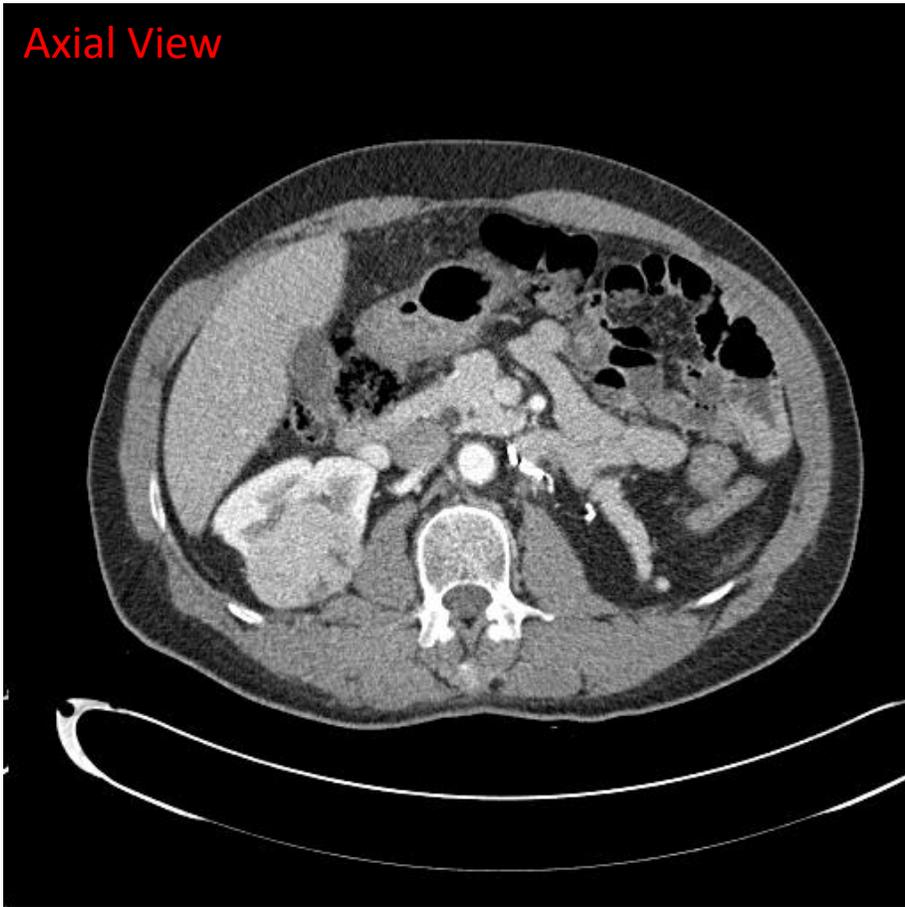
Right Kidney: Long window at right
lateral aspect

Largest Diameter: 3.9

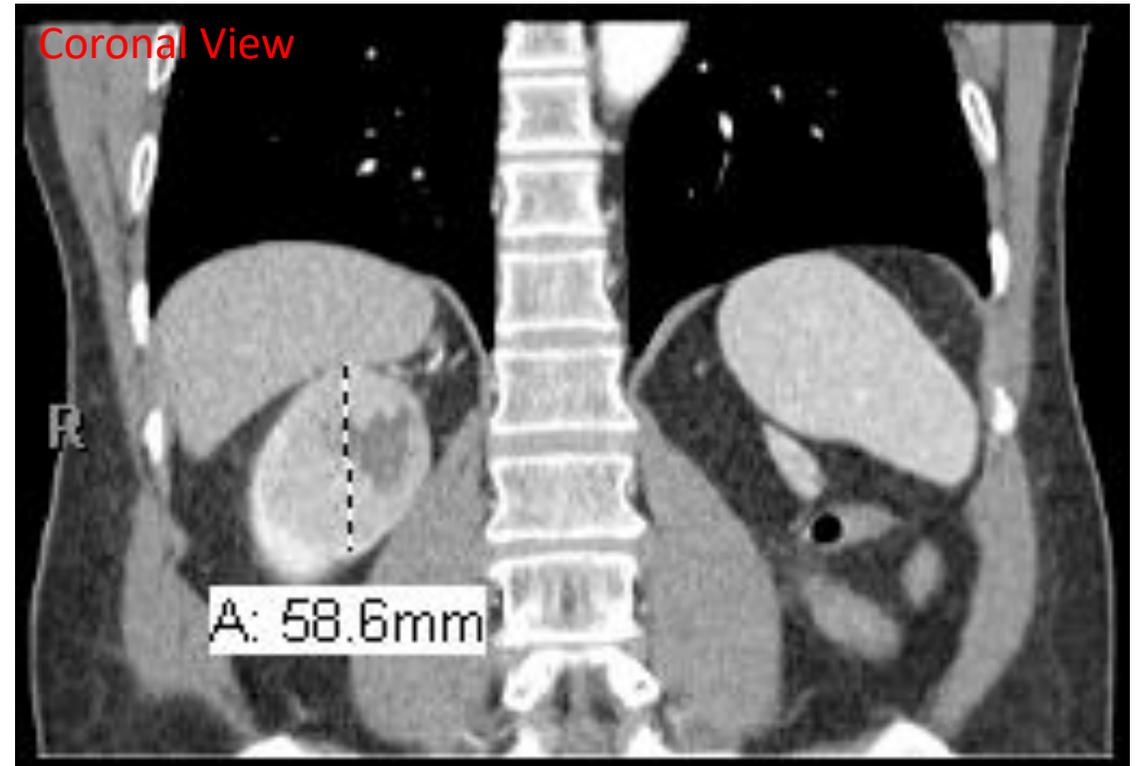
Pathology: Oncocytoma

CT Repeat Abdomen and Pelvis w/ Contrast - 2013

Axial View



Coronal View

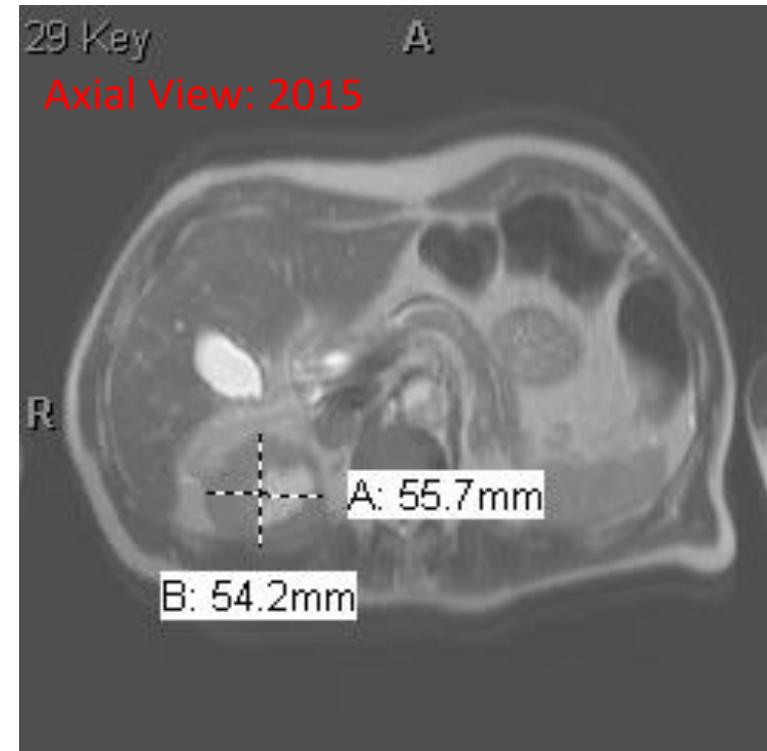
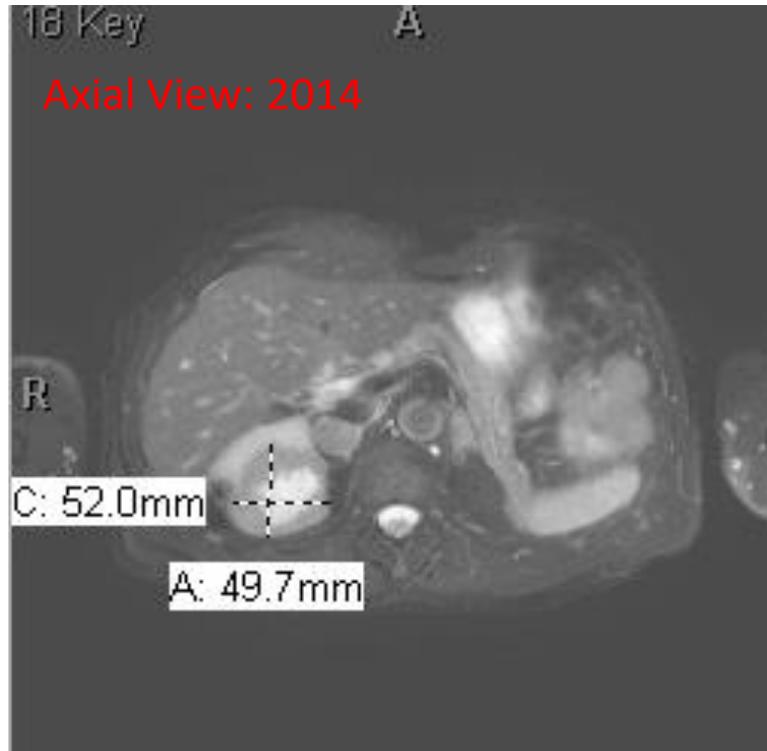


Left Kidney s/p nephrectomy

Right Kidney noted to **increase in size from 4.1 to 5.3 cm** comparing axial view on previous CT

Mild enhancing features

Magnetic Resonance Imaging Abdomen - 2014 & 2015

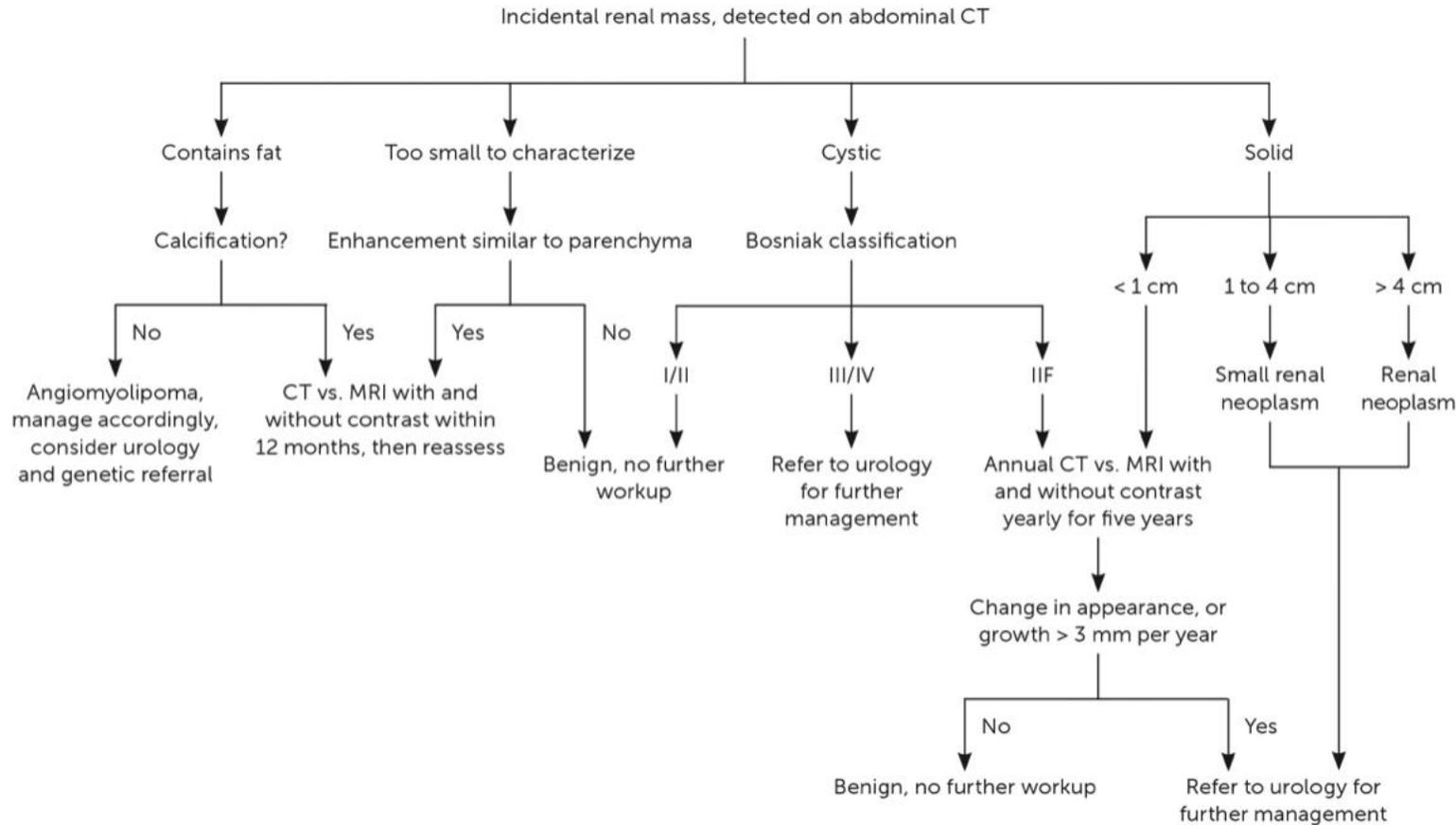


Right Renal Mass **increased in size from 5.2 to 5.5 cm** over 1 year time frame.
T2 images of hyperintensity noted in the renal mass, suggestive of oncocytoma (supported by pathology results).
Of note, left nephrectomy bed is normal

Patient treatment or outcome

- Initial CT A/P showed synchronous bilateral renal masses concerning for malignancy
 - Case was presented at multidisciplinary tumor board and upon review, there was concern that left renal mass had associated neovascularization with segmental vein and contrast enhancing features suggestive for renal cell carcinoma
- Patient underwent laparoscopic assisted left radical nephrectomy
 - Pathology showed oncocytoma
- Contralateral right mass was biopsied showing oncocytoma
- Patient was monitored for several years on active surveillance protocol for right renal mass and post-nephrectomy NCCN guidelines for left renal mass
 - Right renal mass marginally grew in size for which MRI was ordered confirming benign features and no disease recurrence in left renal bed

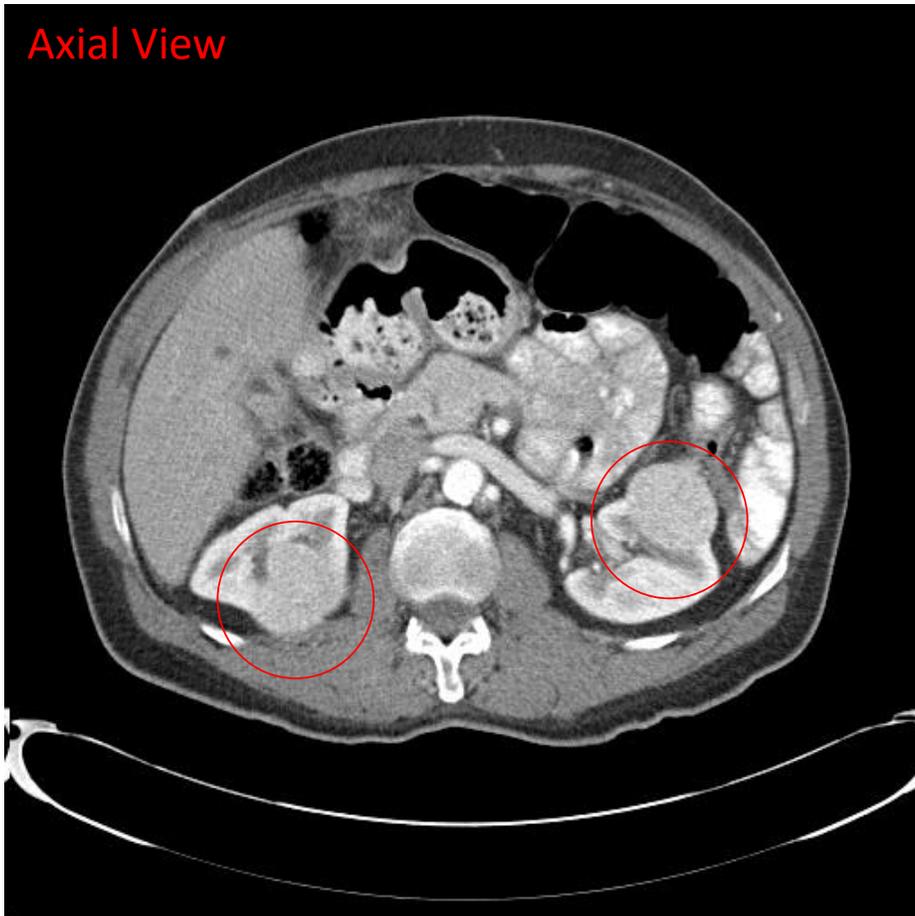
Work up for Renal Masses¹



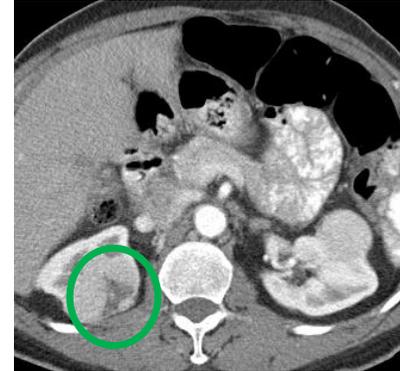
Incidental renal masses are diagnosed more frequently due to pervasive use of abdominal imaging.

In this case, the patient was diagnosed with small renal neoplasms for which he was referred to Urologic Oncology for further evaluation.

Discussion: CT Findings Abdomen and Pelvis w/ Contrast



- Well circumscribed with uniform enhancement
- No evidence of necrotic features
 - Necrosis is a feature associated with carcinoma
 - **Central Stellate Scars**, pathognomonic for oncocytomas, can be confused for necrosis noted in RCC.²
- Enhancement can be concerning for renal malignancy. Even with histology, renal oncocytomas are often mixed up with chromophobe renal cell carcinoma. There is evidence that larger tumor size and presentation at younger age is associated with chromophobe RCC compared to oncocytomas, which is likely to be associated with multifocality.³



Discussion: MRI Abdomen and Pelvis

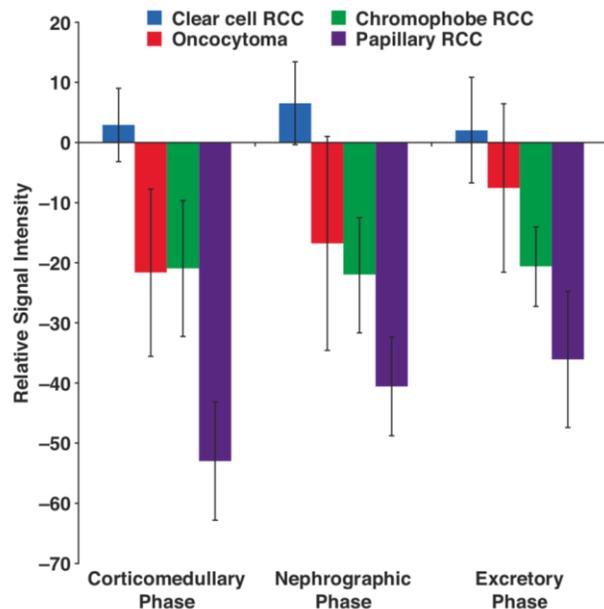
- Frequently, urologists order MRIs to further evaluate renal masses for enhancement/intensity and greater resolution.
- Rosenkrantz et al. demonstrated that there was no difference in general MRI features for renal oncocytomas and chromophobe RCC in regards to enhancement homogeneity, hypervascularity, T2 hyperintensity, peripheral location, and enhancement during corticomedullary, nephrographic, and excretory phase.⁴
- Multiparametric MRIs may be useful for differentiating oncocytomas and chromophobe RCC with a sensitivity and specificity of 92.3% and 93.8%.⁵

Discussion: Renal Oncocytomas

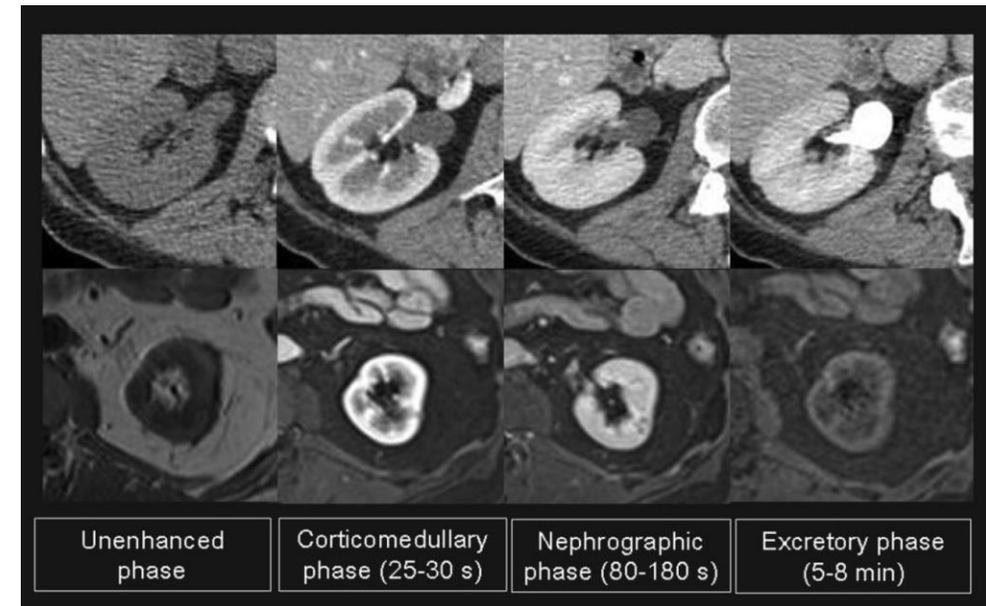
- Peak occurrence age range is 40-60 years with a female predominance; 2-10% of renal masses are attributed to oncocytomas.⁶
- There are a few reports of metastatic renal oncocytomas. Frequently, oncocytomas can infiltrate peripheral renal tissue or grow larger in size, concerning urologists to intervene with surgical management.⁷
- Synchronous bilateral renal masses are renal neoplasms diagnosed on both kidneys within 6 months of presentation of first mass.
- 4-14% of oncocytomas present as bilateral masses. There is strong evidence in literature for patients with bilateral unknown renal masses to perform ipsilateral nephrectomy (partial or radical) followed by contralateral biopsy upon the diagnosis of oncocytoma on surgical pathology.⁸
- With advanced imaging modalities, interdisciplinary approach to diagnosis of benign renal masses prior to surgical intervention could improve prognosis for these patients as well as reduce healthcare cost and burden.

Discussion: Renal Cell Carcinoma⁹

- RCC is the most common type of malignancy of the kidney.
 - Clear cell (70%) and papillary (10-15%) are the two most common subtypes
 - Chromophobe represents 4-6% of RCC
- Histologically, oncocytomas and chromophobe RCC share similarities. Sheeting arrangement of tumor cells and wrinkled nuclei distinguish chromophobe RCC.
- Post nephrectomy, the 5- and 10-year disease free survival rates are 83.9% and 77.9%.



The study by Young et al. demonstrated that clear cell RCC demonstrates a higher intensity during all contrast phases compared to renal oncocytomas, chromophobe, and papillary RCC.¹⁰



Wrap-Up Top Three

- Although the majority of renal masses are malignant, patients with benign renal masses still undergo nephrectomy for concerns of malignancy.
- Oncocytomas are frequently confused for renal cell carcinomas, particularly chromophobe subtype, in both histologic and radiographic analysis.
- There may be clinically significant use of parametric abdominal MRI to better understand clinical decisions regarding surgical intervention versus active surveillance.

References

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