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Echogenic Renal Masses on Ultrasound: Distinguishing Between Renal Angiomyolipomas From Renal Cell Carcinomas

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Introduction

Small echogenic renal masses detected on ultrasound are most commonly angiomyolipoma (AMLs), however up to 5.1% of echogenic renal masses detected on ultrasound are renal cell carcinoma (RCC) [1]. While AMLs are the most common benign renal tumors, with prevalence between 0.2-0.6%. Most of these benign neoplasms are found incidentally on imaging and despite having smooth muscle, blood vessels, and adipose tissue, this is a heterogenous pathology. When AML contains little fat, they are isoechoic or only slightly hyperechoic on U/S and they can be mistaken for RCC [2].

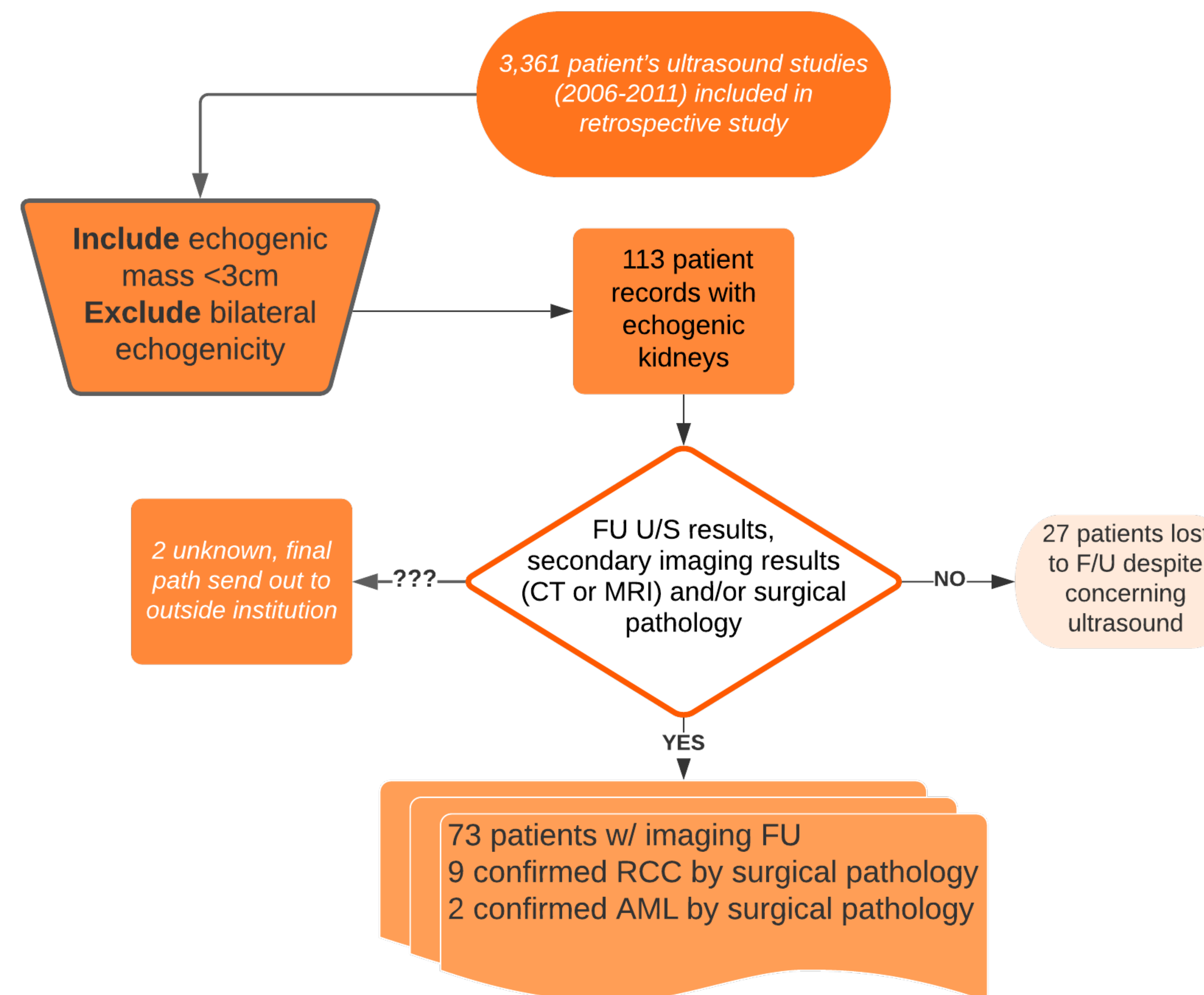
OBJECTIVES

1. Characterize feature differences on ultrasound between the two renal pathologies of AML and RCC
2. Determine if small echogenic renal masses up to 1cm can be safely ignored due to low rate of malignancy [3]

MATERIALS & METHODS

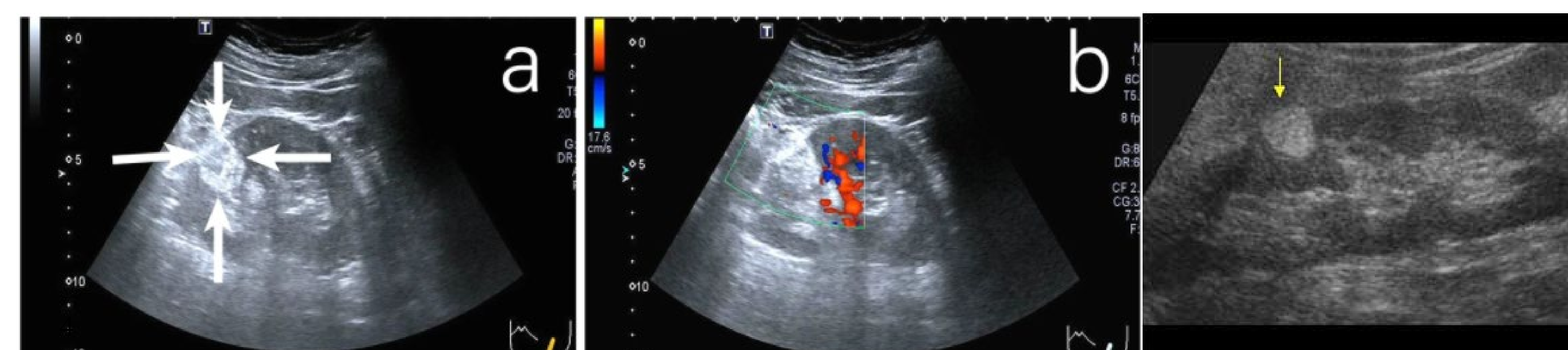
Retrospective chart review of all ultrasound studies at a single-center (UC Davis Medical Center) that has echogenic renal masses <3 cm between 2006-2011.

RESULTS



Of the 73 patients with follow up imaging, 31 (42.47%) were confirmed to be AML.

- Well-defined and measurable margins
- Hyperechoic
- W/o abnormal internal vascularity/hypovascular
- May resemble renal scar with fat
- May be exophytic
- +/- acoustic shadowing, +/- homogeneity



CONCLUSIONS

Future studies will further delineate ultrasound differences between AML and RCC to prevent future AML patients from undergoing multiphase contrast-enhanced computed tomography (CT) and percutaneous biopsy while preventing a high miss rate of RCC. Extending the database and follow-up duration will yield more echogenic ultrasounds that proceeded to final pathology resulted to investigate texture variation and echogenicity of fat poor AMLs and size as diagnostic factor.

REFERENCES

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2. Vos, N., & Oyen, R. (2018). Renal Angiomyolipoma: The Good, the Bad, and the Ugly. *Journal of the Belgian Society of Radiology*, 102(1), 41. DOI: <http://doi.org/10.5334/jbsr.1536>
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5. <https://www.ultrasoundcases.info/cases/urinary-tract-and-male-reproductive-system/kidney-and-ureter/benign-renal-tumors/>

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