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Initial Management of Indeterminate Renal Masses in a Statewide Collaborative: a MUSIC-KIDNEY analysis

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INTRODUCTION AND OBJECTIVE: The widespread use of imaging has led to the increasing detection of incidental renal lesions. Although some may be accurately classified as suspicious (renal cell carcinoma) and others as benign (Bosniak I-IF cysts or angiomyolipomas), other lesions are best initially characterized as 'indeterminate', for example when they cannot be determined to be enhancing without additional imaging sequences. Optimal management is not well understood. We assess the use of follow up imaging in the management of indeterminate renal lesions (IRL).

METHODS: The Michigan Urological Surgery Improvement Collaborative—Kidney mass: Identifying and Defining Necessary Evaluation and therapy (MUSIC-KIDNEY) commenced data collection in September 2017 by recording clinical, radiographic, pathologic, and follow-up data at 13 diverse practices. At initial evaluation, data was recorded regarding the radiologist interpretation of each imaging study (suspicious, indeterminate, benign) as well as the clinician's assessment. Patients with complete data were assessed at 120 days after initial evaluation as to whether observation or treatment was performed.

RESULTS: 19.6% (472/2413) patients (pts) were recorded as having an IRL at their initial imaging study, of which 36% had non-contrast imaging. 23.9% (113/472) of pts with IRL underwent subsequent imaging (SI), of which 59.3% (67/113) were re-classified as solid enhancing lesions, 20.4% as benign lesions, with only 20.4% IRL remaining. Of these 113 pts with repeat imaging, 17 underwent biopsy (15 malignant, 1 benign, 1 indeterminate) and 10 of 15 patients with cancer on biopsy underwent treatment, while the remaining selected surveillance. Pts with initial IRL reclassified to suspicious were less likely to have benign histology at pre-treatment biopsy (8.7% vs. 9.7%) or surgery (6.1% vs. 10.5%) compared with lesions initially characterized as suspicious, but these did not reach statistical significance.

CONCLUSIONS: Until now, outcomes of indeterminate renal masses have been poorly understood. About 80% of patients with indeterminate renal lesions can be reclassified with subsequent dedicated imaging. Patients with benign renal lesions, including Bosniak I-IF cysts, T1a AMLs, and other non-enhancing lesions or pseudotumors can be reassured and should not undergo intervention. Initial contrast axial imaging, the addition of further imaging and consideration of biopsy more fully characterizes an indeterminate renal lesion, often affecting subsequent management.

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