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### ***“CT-Guided Microwave Ablation: A Safe and Effective Tool for Treatment of Small Renal Masses”***

#### **Introduction:**

The increased utilization of abdominal imaging has resulted in higher rates of incidental detection and subsequent intervention for small renal masses. Though less research has been made available in comparison to other ablative methods, CT-guided microwave ablation has repeatedly proven to be a time efficient, less invasive treatment option for these incidentally found masses.

**Objective:** Our research aimed to clarify the safety and efficacy of microwave ablation compared to the preferred treatment of nephrectomy.

#### **Methods:**

We performed a retrospective chart review of patients within the LSU Health Sciences network who presented with evidence of a renal mass on imaging and subsequently underwent same day renal mass biopsy and CT-guided microwave ablation or biopsy then nephrectomy between the years of 2015 and 2022. Chi-square test was used to compare groups.

#### **Results:**

Of the 184 patients included in this study, 8 of the 95 patients (8.42%) who underwent CT guided microwave ablation experienced complications compared to 16 of the 89 patients (17.89%) who underwent nephrectomy ( $p < 0.05$ ). However, when comparing recurrence rate 8.16% of patients had recurrence with ablation compared to 2.25% of patients who underwent nephrectomy ( $p = NS$ ). Additionally, 38.95% of renal masses in the ablation group had final pathology that was benign.

#### **Conclusion:**

Our data supports CT-guided microwave ablation of small renal masses as a reasonable alternative to nephrectomy. Patients who underwent ablation had a significantly lower complication rate compared to those who underwent nephrectomy. As many of the small renal masses in this study were benign, microwave ablation served as a tool to spare patients from more invasive treatment of non-malignant masses. Additionally, recurrence rate was not statistically different between the two groups, further speaking to its utility in treatment. As AUA guidelines from 2021 currently lack solid evidence for encouraging usage of microwave ablation, additional research should be conducted to characterize its utility in treatment.