Renal cell carcinoma (RCC) is the ninth most common neoplasm in the USA and is rapidly increasing in prevalence worldwide.1,2 Historically, the treatment for RCC was radical nephrectomy, but partial nephrectomy overtook radical nephrectomy as the standard of care for small tumors as it had demonstrated equal oncologic outcomes compared to radical nephrectomy, and it preserves renal function and therefore delays or prevents initiation of hemodialysis.3,4 More recently, tumor ablation has emerged as an alternative to surgery in the treatment of RCC, specifically for early stage (≤ 4 cm, localized) RCC tumors. The marked increase in volume of percutaneous ablations in the US is likely due in large part to a growing body evidence demonstrating comparable outcomes with partial nephrectomy, but with decreased complications and improved oncologic function.5,6


In 2021, ablation was moved above Active Surveillance (AS) and Radical Nephrectomy (RN), and is now listed below Partial Nephrectomy (PN) as a primary treatment for T1a tumors.

In 2023, Ablative techniques (AT) is now listed below Active Surveillance (AS) as a primary treatment for T1b tumors in select patients.

Note: All recommendations are category 2A unless otherwise indicated. Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

Ablation referenced in the following sections of the 2022 guidelines

- KID-1, KID-3, KID-A, KID-B of 1, KID-B of 5, HERED-RCC-C of 1, 2, MS-4, MS-5, MS-6, MS-8, MS-11, MS-25

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GUIDELINE SUMMARY | I KIDNEY CANCER

NCCN Guidelines Continued

Under the PRINCIPLES OF SURGERY (KID-A), thermal ablation is discussed as follows:
• Thermal ablation (eg, cryosurgery, radiofrequency ablation) is an option for the management of clinical cT1 renal lesions.
• Thermal ablation is an option for clinical cT1b masses in select patients not eligible for surgery.

Ablative therapies may require multiple treatments to achieve the same local oncologic outcomes as conventional surgery.1-5

Conclusion
As ablation has continued to be a more readily accepted primary treatment for RCC, the Guidelines have been updated to reflect the results of several large randomized controlled trials of ablation versus nephrectomy.16 Ablative approaches may also have a potential role in the local treatment of cT1b tumors as well as oligometastatic RCC. However, further research in this area is warranted before strong recommendations can be made. Ablative approaches may thus also be considered primary treatments for T1b tumors.

AUA GUIDELINES

AUA Version 2021 – Published 2021

This guide provides references to the most recent AUA guidelines and where thermal ablation may be used to treat patients with kidney cancer.

Ablation referenced in the following sections of the 2022 guidelines

4, 14, 25 (Figure 3), 28, 30, 35 (Figure 6), 39

In 2017, Thermal Ablation (including cryoablation and radiofrequency ablation) was added to the treatment algorithm for T1b solid renal masses < 3 cm. Discussion notes that –
• Maturing body of evidence allows for more meaningful assessment of oncologic outcomes compared to surgery1-5
• Comparable metastasis-free survival for PN and TA21
• Cancer-specific survival of 94% (TA) compared to 100% (PN)65
• While meta analysis reported local recurrence-free survival (LRFS) as favoring nephrectomy, it showed no statistical difference in LRFS between TA and PN when allowing for repeat TA65
• Percutaneous approach preferred over laparoscopic, due to shorter anesthesia time, hospital stay, and time to recovery22 as well as economic advantages21-23
• Increasing tumor size reported as a predictor of local recurrence and incomplete ablation, thus TA recommended for masses ≤ 3 cm21-23

Renal Mass and Localized Renal Cancer1

Management

Active Surveillance (AS)
1. For patients with renal mass undergoing cancer for cT1 renal masses, cT1 renal masses ≤ 3 cm in diameter. In 2017, Thermal Ablation (including cryoablation and radiofrequency ablation) was added to the treatment algorithm for T1b solid renal masses < 3 cm. Discussion notes that –
• Maturing body of evidence allows for more meaningful assessment of oncologic outcomes compared to surgery1-5
• Comparable metastasis-free survival for PN and TA21
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SOCIETY OF INTERVENTIONAL RADIOLOGY

Society of Interventional Radiology Position Statement on the Role of Percutaneous Ablation in Renal Cell Carcinoma

January 5, 2020

According to the position paper, “In accordance with multidisciplinary and society guidelines, SIR considers thermal percutaneous ablation (PA) to be an acceptable treatment option for stage T1a RCC neoplasms (≤ 4 cm in diameter) in carefully selected patients and can be offered over active surveillance. PA may also have a potential beneficial role to play in the treatment of T1b tumors as well as oligometastatic RCC. However, future research in this area is warranted before strong recommendations can be made. SIR also recommends further investigation directly comparing ablation modalities, as well as comparing PA to surgical therapies with RCTs or other prospective study designs with adherence to standardized reporting of trials.”


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P01-D49004-AB

Page dimensions: 612.0x1008.0
[Image 5x226 to 584x673]