GUIDELINE SUMMARY
KIDNEY CANCER

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 preservation of renal function.[5-7]

1 Padala et al., Epidemiology of renal cell carcinoma. World J. Oncol. 2020; 11: 79–87. 2 Medina-Rico et al, Epidemiology of renal cancer in developing countries: Review of the literature. Can Urol Assoc J 2018; 12: E154–E162. 3 Robson CJ et al., Radical nephrectomy for renal cell carcinoma. J. Urol. 1963; 89: 37–42. 4 Van Poppel et al., A prospective, randomized ORTC intergroup phase 3 study comparing the oncologic outcome of elective nephron-sparing surgery and radical nephrectomy for low-stage renal cell carcinoma. Eur. Urol. 2011;59: 543–552 5 Andrews et al., Oncologic Outcomes Following Partial Nephrectomy and Percutaneous Ablation for cT1 Renal Masses. Eur Urol. 2019 Aug;76(2):244-251. doi: 10.1016/j.eururo.2019.04.026. Epub 2019 May 3. PMID: 31060824. 6 Morkos et al., Percutaneous Cryoablation for Stage 1 Renal Cell Carcinoma: Outcomes from a 10-year Prospective Study and Comparison with Matched Cohorts from the National Cancer Database. Radiology. 2020 Aug;296(2):452-459. doi: 10.1148/radiol.2020192325. Epub 2020 Jun 9. PMID: 32515677. 7 Rosenberg et al., Percutaneous cryoablation of renal lesions with radiographic ice ball involvement of the renal sinus: analysis of hemorrhagic and collecting system complications. AJR Am J Roentgenol. 2011 Apr;196(4):935-9. doi: 10.2214/AJR.10.5182. PMID: 21427348. a Campbell et al. Renal Mass and Localized Renal Cancer: AUA Guideline. J. Urol 2017; 198:520-529. b Pierorazio et al., Management of Renal Masses and Localized Renal Cancer: Systematic Review and Meta-Analysis: J. Urol 2016; 196:989-999. 66 Pierorazio PM, Johnson MH, Patel HD et al: Management of renal masses and localized renal cancer. AHRQ Publication 16-EHC001-EF, 2016 #167

NCCN GUIDELINES

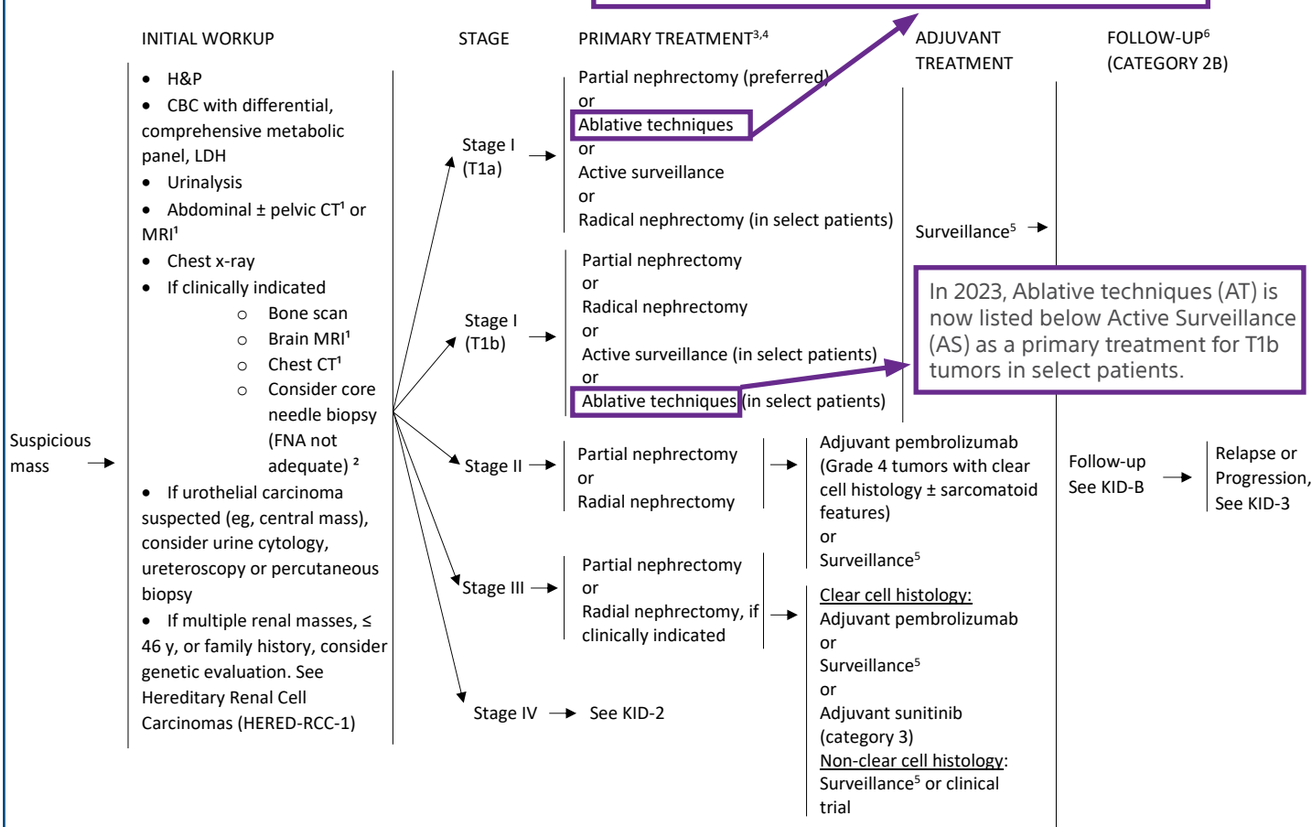
www.nccn.org

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

NCCN Guidelines Version 1.2024

Kdney Cancer

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.



[1] Imaging with and without contrast is strongly preferred, such as a renal protocol.
[2] Biopsy of small lesions may be considered to obtain or confirm a diagnosis or malignancy and guide surveillance or ablative techniques, cryosurgery, and radiofrequency ablation strategies.
[3] If metastatic disease is present or the patient cannot tolerate ureteroscopy.
[4] See Principles of Surgery (KID-A)
[5] Stereotactic body radiotherapy (SBRT) may be considered for medically inoperable patients with Stage I kidney cancer (category 2B), with Stage II/III kidney cancer (both category 3).
[6] See Follow-up (KID-B)
[7] No single follow-up plan is appropriate for all patients. Follow-up should be individualized based on patient requirements.

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

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 sage T1 renal lesions.
- Thermal ablation is an option for clinical T1b masses in select patients not eligible for surgery.
- Biopsy of lesions is recommended to be done prior to or at time of ablation.
- Ablative techniques may require multiple treatments to achieve the same local oncologic outcomes as conventional surgery.[a,b]

a Campbell S, Uzzo R, Allaf M, et al. Renal mass and localized renal cancer. AUA Guideline. J Urol 2017; 198:520-529.
b Pierorazio P, Johnson M, Patel H, et al. Management of renal masses and localized renal cancer: Systematic review and meta-analysis. J Urol 2016; 196:989-999.

Conclusion

As ablation has continued to be a more readily accepted primary treatment for RCC, the Guidelines have been updated to read as General Principles of Management for Renal Cell Carcinoma where it previously was referenced as Guidelines for Renal Cell Carcinoma Surgery. The increased utilization of ablation has also resulted in the inclusion of ablative techniques as a primary treatment option for T1b tumors for select patients.

AUA GUIDELINES

AUA Version 2021 – Published 2017

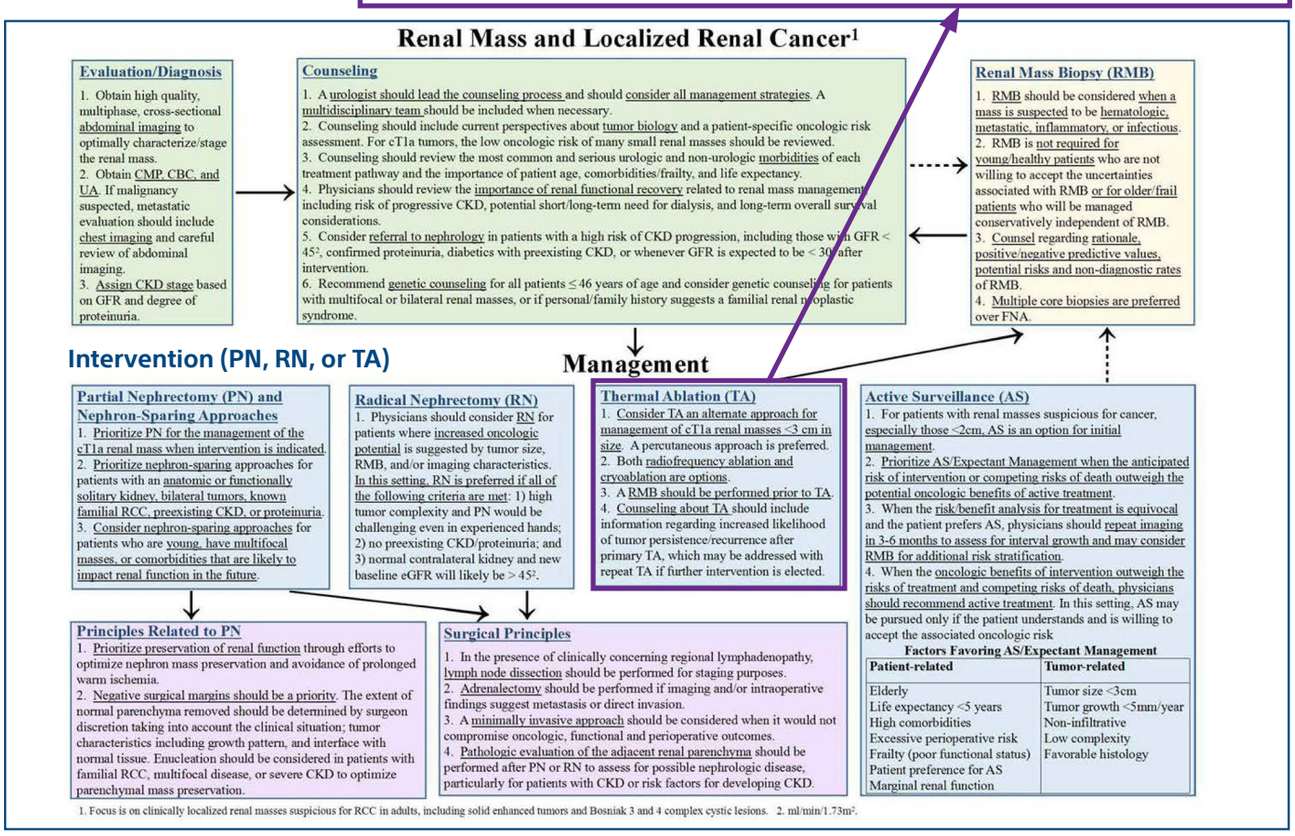
This guide provides references to the most recent AUA guidelines and where thermal ablation may be used to treat patients with kidney cancer.

Ablation referenced in the following sections of the 2022 guidelines

4, 14, 25 (Figure 5), 28, 29, 30, 35 (Figure 6), 39

In 2017, Thermal Ablation (including cryoablation and radiofrequency ablation) was added to the treatment algorithm for T1a solid renal masses < 3 cm. Discussion notes that –

- Maturing body of evidence allows for more meaningful assessment of oncologic outcomes compared to surgery[211]
- Comparable metastasis-free survival for PN and TA[65]
- 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 TA[65]
- Percutaneous approach preferred over laparoscopic, due to shorter anesthesia time, hospital stay, and time to recovery[327,] as well as economic advantages[301,323]
- Increasing tumor size reported as a predictor of local recurrence and incomplete ablation, thus TA recommended for masses < 3 cm[317-322]



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."

211 Andrews JR, Atwell T, Schmit G et al: Oncologic outcomes following partial nephrectomy and percutaneous ablation for ct1 renal masses. Eur Urol 2019; 76: 244. 301 Castle SM, Gorbatiy V, Avallone MA et al: Cost comparison of nephron-sparing treatments for cT1a renal masses. Urol Oncol 2013; 31: 1327 317 Tanagho YS, Roytman TM, Bhayani SB et al: Laparoscopic cryoablation of renal masses: single-center long-term experi-ence. Urology 2012; 80: 307. 318 Gervais DA, McGovern FJ, Arellano RS et al: Radiofrequency ablation of renal cell carcinoma: part 1, Indications, results, and role in patient management over a 6-year period and ablation of 100 tumors. AJR Am J Roentgenol 2005; 185: 64.319 Best SL, Park SK, Youssef RF et al: Long-term outcomes of renal tumor radio frequency ablation stratified by tumor diam-eter: size matters. J Urol 2012; 187: 1183 320 Sidana A, Aggarwal P, Feng Z et al: Complications of renal cryoablation: a single center experience. J Urol 2010; 184: 42. 321 Lehman DS, Hruby GW, Phillips CK et al: First Prize (tie): Laparoscopic renal cryoablation: efficacy and complications for larger renal masses. J Endourol 2008; 22: 1123. 322 Atwell TD, Carter RE, Schmit GD et al: Complications following 573 percutaneous renal radiofrequency and cryoablation procedures. J Vasc Interv Radiol 2012; 23: 48 323 Hinshaw JL, Shadid AM, Nakada SY et al: Comparison of percutaneous and laparoscopic cryoablation for the treatment of solid renal masses. AJR Am J Roentgenol 2008; 191: 1159 327 Bandi G, Hedican S, Moon T et al: Comparison of postoperative pain, convalescence, and patient satisfaction after lapa-roscopic and percutaneous ablation of small renal masses. J Endourol 2008; 22: 963.

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