



# Management of Localized Renal Masses: The European Association of Urology (EAU), American Urological Association (AUA) and American Society of Clinical Oncology (ASCO) Guidelines' Perspective

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According to the European Association of Urology (EAU), American Urology Association (AUA) and American Society of Clinical Oncology (ASCO) Guidelines, the contemporary management options for patients with localized renal masses include: active surveillance, partial nephrectomy, radical nephrectomy, and thermal ablation.

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A detailed overview of the most recent Guidelines recommendations on the management of localized renal masses (LMR) is shown in Fig. 15.1.

Active surveillance is reported as a safety and effective option for small renal masses in well-selected patients [1, 2]. Particularly, in frail or comorbid patients with a limited life expectancy, physicians should prefer active surveillance when the potential risks of intervention outweigh the oncological benefits of intervention. Clearly, in case of clinical progression during follow-up, patients should be reassessed for potential delayed active treatment.

As such, all Guidelines underline that active surveillance should be considered for specific patient and/or tumour populations (Fig. 15.1).

Regarding surgical treatment of LRMs, all Guidelines recognize the pivotal role of partial nephrectomy as the gold standard treatment of all cT1 renal masses, if technically feasible and oncologically safe, given its advantages over radical nephrectomy in terms of renal function preservation [3, 4].

Furthermore, the latest EAU Guidelines also recommended to consider partial nephrectomy for selected patients with cT2 renal masses if affected by chronic kidney disease or with a solitary kidney [5]. Of note, the latest AUA Guidelines stress that clinicians should prioritize nephron-sparing approaches for patients with solid or Bosniak 3/4 complex cystic renal masses and an anatomic or functionally solitary kidney, bilateral tumors, known familial RCC, preexisting CKD,

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Treatment	EAU European Association of Urology	AUA American Urological Association	ASCO American Society of Clinical Oncology
<b>Active Surveillance (AS)</b>	<ul style="list-style-type: none"> <li>Offer AS or TA to frail and/or comorbid patients with small renal masses. (weak)</li> <li>When TA or AS are offered, discuss with patients about the harms/benefits with regards to oncological outcomes and complications. (strong)</li> </ul>	<ul style="list-style-type: none"> <li>For patients with a solid renal mass &lt; 2cm, or those that are complex but predominantly cystic, clinicians may elect AS with potential for delayed interventions for initial management. (Conditional Recommendation, Evidence Level: Grade C)</li> <li>[...] AS with potential for delayed intervention may be pursued only if the patient understands and is willing to accept the associated oncologic risks. [...] (Moderate Recommendation, Evidence Level: Grade C)</li> </ul>	<ul style="list-style-type: none"> <li>AS should be an initial management option for patients who have significant comorbidities and limited life expectancy. (Peer evidence based, evidence quality: intermediate, strength of recommendation: moderate)</li> </ul>
<b>Partial Nephrectomy (PN)</b>	<ul style="list-style-type: none"> <li>Offer PN to patients with T1 tumours. (strong)</li> <li>Offer PN to patients with T2 tumours and a solitary kidney or chronic kidney disease, if technically feasible. (weak)</li> </ul>	<ul style="list-style-type: none"> <li>Clinicians should prioritize PN for the management of the cT1a renal mass when intervention is indicated. [...] (Moderate Recommendation, Evidence Level: Grade B)</li> <li>Clinicians should prioritize nephron-sparing approaches for patients with solid or Bosniak 3/4 complex cystic renal masses and an anatomic or functionally solitary kidney, bilateral tumors, known familial RCC, preexisting CKD, or proteinuria. (Moderate Recommendation, Evidence Level: Grade C)</li> <li>Nephron-sparing approaches should be considered for patients with solid or Bosniak 3/4 complex cystic renal masses who are young, have multifocal masses, or comorbidities that are likely to impact renal function in the future [...]. (Moderate Recommendation, Evidence Level: Grade C)</li> </ul>	<ul style="list-style-type: none"> <li>PN for small renal masses is the standard treatment that should be offered to all patients for whom an intervention is indicated and who possess a tumour that is amenable to this approach. (Peer evidence based, evidence quality: intermediate, strength of recommendation: strong)</li> </ul>
<b>Radical Nephrectomy (RN)</b>	<ul style="list-style-type: none"> <li>Offer laparoscopic RN to patients with T2 tumours and localized masses not treatable by PN. (strong)</li> </ul>	<ul style="list-style-type: none"> <li>Clinicians should consider RN for patients with a solid or Bosniak 3/4 complex cystic renal mass whenever increased oncologic potential is suggested by tumor size, renal mass biopsy (if obtained), and/or imaging. (Moderate Recommendation, Evidence Level: Grade B)</li> </ul>	<ul style="list-style-type: none"> <li>RN for small renal masses should be reserved only for patients who possess a tumor of significant complexity that is not amenable to PN [...]. (Peer evidence based, evidence quality: intermediate, strength of recommendation: strong)</li> </ul>
<b>Minimally Invasive Surgical Approach</b>	<ul style="list-style-type: none"> <li>Do not perform minimally invasive surgery if this approach may compromise oncological, functional- and peri-operative outcomes. (strong)</li> </ul>	<ul style="list-style-type: none"> <li>In patients undergoing surgical excision of a renal mass, a minimally invasive approach should be considered when it would not compromise oncologic, functional, and perioperative outcomes. (Expert Opinion)</li> </ul>	<p>Not reported.</p>
<b>Thermal Ablation (TA)</b>	<ul style="list-style-type: none"> <li>Do not routinely offer TA for tumours &gt; 3 cm and cryoablation for tumours &gt; 4 cm. (weak)</li> <li>Offer AS or TA to frail and/or comorbid patients with small renal masses. (weak)</li> <li>Perform a percutaneous renal mass biopsy prior to, and not concomitantly with, TA. (strong)</li> <li>When TA or AS are offered, discuss with patients about the harms/benefits with regards to oncological outcomes and complications. (strong)</li> </ul>	<ul style="list-style-type: none"> <li>Clinicians should consider TA as an alternate approach for the management of cT1a solid renal masses &lt; 3 cm in size [...]. (Moderate Recommendation, Evidence Level: Grade C)</li> <li>Both radiofrequency ablation (RFA) and cryoablation may be offered as options for patients who elect TA. (Conditional Recommendation, Evidence Level: Grade C)</li> <li>A renal mass biopsy should be performed prior to (preferred) or at the time of ablation to provide pathologic diagnosis and guide subsequent surveillance. (Expert Opinion)</li> <li>Counseling about TA should include information regarding an increased likelihood of tumor persistence or local recurrence after primary TA relative to surgical excision [...]. (Strong Recommendation, Evidence Level: Grade B)</li> </ul>	<ul style="list-style-type: none"> <li>Percutaneous TA should be considered an option for patients who possess tumours such that complete ablation will be achieved. A biopsy should be obtained before or at the time of ablation. (Peer evidence based, evidence quality: intermediate, strength of recommendation: moderate)</li> </ul>

**Fig. 15.1** Overview of the most recent European Association of Urology (EAU), American Urological Association (AUA) and American Society of Clinical Oncology (ASCO) Guidelines’ recommendations on the management of localized renal masses

or proteinuria, as well as for those who are young, have multifocal masses, or comorbidities that are likely to impact renal function in the future.

While radical nephrectomy has still a valuable role for specific patient characteristics, especially when partial nephrectomy is not technically feasible, it is however associated with a detrimental impact on postoperative renal function and a potential risk of overtreatment [6]. A detailed overview of the contemporary decision-making schemes regarding partial versus radical nephrectomy in patients is discussed in the previous sub-chapter. Regardless from the indication to perform radical nephrectomy, all Guidelines coherently recommend to perform a minimally invasive (laparoscopic or robotic) procedure, provided that this approach does not jeopardize perioperative, functional or oncological outcomes [7]. Yet, the well-known possible advantages of robotic-assisted and laparoscopic approaches for partial and radical nephrectomy in terms of hospital stay and blood loss (as compared to the open counterpart) are recognized by all Guideline panels. If pre-operative imaging and intraoperative findings suggest an organ-confined disease, ipsilateral adrenalectomy and extended lymph node dissection should be avoided at the time of nephrectomy.

Notably, all international Guidelines recognize a role for percutaneous tumor ablation in select patients with LRMs (Fig. 15.1). In detail, while clinicians may offered thermal ablation to frail/comorbid patients with small renal masses, the EAU Guidelines strongly recommend to perform renal tumor biopsy *before* the procedure to optimize decision-making, and to avoid tumor ablation for tumours >3 cm and cryoablation for tumours >4 cm. Both radiofrequency ablation (RFA) and cryoablation may be offered as options for patients who elect TA. Of note,

counseling about tumor ablation should include information regarding an increased likelihood of tumor persistence or local recurrence after relative to surgical excision [8]. According to EAU and AUA guidelines, when thermal ablation is planned, physicians should discuss with patients all potential benefits and harms of the procedure, considering the results of renal mass biopsy previously performed. Patients must be informed about oncological outcomes, especially about the higher risk of recurrence and persistence of tumor compared to partial nephrectomy [9].

In conclusion, the management of LRMs is an evolving field and is object of increasing interest among clinicians, surgeons, and researchers. Although different therapeutic strategies are available, the ultimate goal of treatment is to achieve the *Trifecta* (oncologic efficacy, renal function preservation, and minimization of treatment-related morbidity) while improving patient's quality of life. The current Guidelines from the major international Urological Associations reflect this concept and provide a framework to pursue a patient-centered, value-based model of care in routine clinical practice.

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