

Review Article

# Saudi Oncology Society and Saudi Urology Association combined clinical management guidelines for renal cell carcinoma

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## Abstract

This is an update to the previously published Saudi guidelines for the evaluation, medical, and surgical management of patients diagnosed with renal cell carcinoma (RCC). It is categorized according to the stage of the disease using the tumor node metastasis staging system 7<sup>th</sup> edition. The guidelines are presented with supporting evidence level, they are based on comprehensive literature review, several internationally recognized guidelines, and the collective expertise of the guidelines committee members (authors) who were selected by the Saudi Oncology Society and Saudi Urological Association. Considerations to the local availability of drugs, technology, and expertise have been regarded. These guidelines should serve as a roadmap for the urologists, oncologists, general physicians, support groups, and healthcare policy makers in the management of patients diagnosed with RCC.

**Key Words:** Cancer, carcinoma, cell, guidelines, kidney, management, renal, Saudi Oncology Society, Saudi Urological Association

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## INTRODUCTION

Renal cancer represents the third common genitourinary cancer in Saudi Arabia after urinary bladder and prostate.<sup>[1]</sup>

It accounts for 3.4% of all male cancers and 2.0% of all female cancers. In 2010, a total of 167 cases were diagnosed in males and 117 cases in females. The age-standardized rate

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in males was 2.9/100,000 and in females was 2/100,000 populations.

All cases of renal cell carcinoma (RCC) should preferably seen or discussed in a multidisciplinary forum.

## 1. Pretreatment evaluation

### 1.1. Evaluation of suspicious renal mass:

- 1.1.1. History and physical examination
- 1.1.2. Blood count, renal, and hepatic profile
- 1.1.3. Computed tomography scan of chest, abdomen, and pelvis
- 1.1.4. Urine analysis
- 1.1.5. Urine cytology should be done if urothelial cancer is suspected
- 1.1.6. Indications of renal mass biopsy, suspicion of renal abscess, suspicion of metastases, suspicion of renal lymphoma, and prior to systemic therapy. Furthermore, strongly advocated before nonsurgical options (i.e., active surveillance, cryoablation, and radiofrequency ablation)
- 1.1.7. Brain imaging and bone scan should be done only if clinically indicated.

## 2. Staging<sup>[2]</sup>

The American joint commission on cancer staging tumor node metastasis 7<sup>th</sup> addition will be adopted [Appendix I].

## 3. Treatment

### 3.1. Localized disease (T1a):

- 3.1.1. The recommended treatment is surgical excision preferably by partial nephrectomy (open, laparoscopic, or robotic) in all cases and especially in patients with solitary kidney, bilateral tumors, familial renal cell cancer, or renal insufficiency (evidence level-I [EL-1])<sup>[3-9]</sup>
- 3.1.2. Radical nephrectomy (preferably laparoscopic) should be reserved for cases where partial nephrectomy is not technically feasible after consultation with an experienced surgeon (EL-1)<sup>[3-16]</sup>
- 3.1.3. Nonsurgical options (i.e., active surveillance, cryoablation, and radiofrequency ablation) are all inferior to surgical excision in terms of oncological outcome and are not recommended except in patients with significant comorbidities that interdict surgical intervention (EL-2).<sup>[17-21]</sup>

### 3.2. Localized disease (T1b)

- 3.2.1. The recommended treatment is radical nephrectomy (preferably laparoscopic) (EL-1)<sup>[22-33]</sup>
- 3.2.2. Partial nephrectomy may be an option, especially in a patient with a solitary kidney,

bilateral tumors, familial renal cell cancer, or renal insufficiency. However, this should only be performed by experienced surgeon in a high-volume center (EL-1)<sup>[22-27]</sup>

- 3.2.3. Nonsurgical options (i.e., active surveillance, cryoablation, and radiofrequency ablation) are not recommended.

### 3.3. Localized disease (T2)

- 3.3.1. The recommended treatment is radical nephrectomy (EL-1)<sup>[22-27]</sup>
- 3.3.2. Partial nephrectomy and nonsurgical options (i.e., active surveillance, cryoablation, and radiofrequency ablation) are not recommended.

### 3.4. Localized disease (T3)

- 3.4.1. The recommended treatment is radical nephrectomy with complete excision of all venous thrombus in the renal vein, inferior vena cava, and right atrium (EL-2)
- 3.4.2. These surgeries should only be performed in a tertiary care centers with the availability of cardiac, vascular or hepatic surgeon depending on the case (EL-2).<sup>[28,29]</sup>

### 3.5. Excision of the ipsilateral adrenal gland

- 3.5.1. Ipsilateral excision of the adrenal gland during radical nephrectomy is indicated in upper pole kidney tumors or in the presence of a concurrent radiologically detectable adrenal gland lesion (s) (EL-2).<sup>[30-33]</sup>

### 3.6. Lymphnode dissection

- 3.6.1. Resection of the regional lymphnodes (within Gerota's fascia) is an integral part of radical nephrectomy
- 3.6.2. Resection of the nonregional lymphnodes provides no therapeutic advantages and it is used for staging purposes (EL-1).<sup>[34]</sup>

3.7. When doing partial nephrectomy the surgeon should aim to obtain adequate surgical margin and avoid tumor inoculation except in patients with Von Hippel-Lindau syndrome<sup>[35-37]</sup>

3.8. Postoperative follow-up after treatment we use the European Association Of Urology Guidelines [Appendix I].

### 3.9. Metastatic/advanced unresectable disease:

- 3.9.1. Risk stratification for metastatic RCC
- 3.9.2. The Memorial Sloan-Kettering Cancer Center (MSKCC) risk classification for metastatic disease:<sup>[38]</sup> Risk factors are:
- 3.9.3. A Karnofsky performance status of <80%
- 3.9.4. Serum lactic dehydrogenase level >1.5 times the upper limit of normal
- 3.9.5. Corrected serum calcium >10 mg/dL (2.5 mmol/L)

- 3.9.6. Hemoglobin concentration below the lower limit of normal
- 3.9.7. No prior nephrectomy (i.e., no disease-free interval)
- 3.9.8. Each of the above gives a score of one. Patients will be classified according to the total score as follow:
- 3.9.9. 0: No risk factors: Good risk group
- 3.9.10. 1, 2: Risk factors: Intermediate risk
- 3.9.11. 3, 4, 5: Risk factors: High risk
- 3.9.12. Heng criteria validates component of the MSKCC with the addition of
- 3.9.13. Neutrophils greater than the upper limit of normal
- 3.9.14. Platelets greater than the upper limit of normal.<sup>[39]</sup>
- Several scenarios could be faced in patients with metastatic disease. Accordingly the following should be considered:
- 3.9.15. Potentially resectable primary with solitary metastasis or multiple resectable lung metastasis: Those patients should undergo primary nephrectomy and resection of the metastatic lesion/s (EL-2).<sup>[40-42]</sup> Following complete resection no further therapy or “adjuvant therapy” is indicated (EL-3)
- 3.9.16. Potentially resectable primary and multiple nonresectable metastasis: Those patients should undergo resection of the primary tumor if in good performance status (EL-1),<sup>[43-52]</sup> then should start systemic therapy according to the following guidelines:
- 3.9.16. 1. Clear cell histology, good, and intermediate risk: Options of therapy include systemic therapy with either sunitinib (EL-1), bevacizumab and interferon  $\alpha$ -2a or pazopanib (EL-1). High dose interleukin-2 in highly selected patients and centers
- 3.9.16. 2. Clear cell histology with poor risk: Temezirolimus is the preferred treatment (EL-1). Alternative options include sunitinib (EL-2)
- 3.9.16. 3. Nonclear cell histology: Options of therapy include temsirolimus (EL-2), sunitinib (EL-2), or sorafenib (EL-2). Medullary and collecting duct carcinoma should be treated with platinum-based chemotherapy (EL-3).
- 3.9.17. Unresectable primary with or without metastatic disease: Those patients with good performance status should be offered systemic therapy according to their histology and MSKCC risk group as in item 4.8.2
- 3.9.17. 1. Recurrent disease postprimary nephrectomy: Treatment will depend if resectable or not:
- 3.9.17. 1.1. If resectable solitary metastasis: Surgical resection should be attempted (EL-2). No systemic therapy is of benefit following complete resection (EL-3)
- 3.9.17. 1.2. If nonresectable recurrence: Patient should be treated as metastatic disease according to their histology and MSKCC risk group and Heng criteria as in Item 3.9.1-3.
- 3.9.18. Second line therapy posttyrosine kinase inhibitors (TKIs) failure: Patients who fail 1<sup>st</sup> line TKI's should receive second-line therapy if in reasonable performance status, options of second line agents include everolimus (EL-1) or axitinib (EL-1)
- 3.9.19. Third line: Consider everolimus.

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#### Conflicts of interest

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#### REFERENCES

1. Cancer Incidence Report, Saudi Arabia, 2010. Available from: <http://www.chs.gov.sa>. [Last accessed on 2015 Nov 15].
2. Greene FL, Page DL, Fleming ID, Fritz AG, Balch CM, Haller DG, *et al.* editors, American Joint Committee on Cancer Staging Manual. 6<sup>th</sup> ed. New York, NY: Springer; 2002.
3. Lau WK, Blute ML, Weaver AL, Torres VE, Zincke H. Matched comparison of radical nephrectomy vs nephron-sparing surgery in patients with unilateral renal cell carcinoma and a normal contralateral kidney. *Mayo Clin Proc* 2000;75:1236-42.
4. Lee CT, Katz J, Shi W, Thaler HT, Reuter VE, Russo P. Surgical management of renal tumors 4 cm. or less in a contemporary cohort. *J Urol* 2000;163:730-6.
5. Kim SP, Thompson RH, Boorjian SA, Weight CJ, Han LC, Murad MH, *et al.* Comparative effectiveness for survival and renal function of partial and radical nephrectomy for localized renal tumors: A systematic review and meta-analysis. *J Urol* 2012;188:51-7.
6. Van Poppel H, Da Pozzo L, Albrecht W, Matveev V, Bono A, Borkowski A, *et al.* A prospective, randomised EORTC 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;59:543-52.
7. Tan HJ, Norton EC, Ye Z, Hafez KS, Gore JL, Miller DC. Long-term survival following partial vs radical nephrectomy among older patients with early-stage kidney cancer. *JAMA* 2012;307:1629-35.
8. Gill IS, Kavoussi LR, Lane BR, Blute ML, Babineau D, Colombo JR Jr, *et al.* Comparison of 1,800 laparoscopic and open partial nephrectomies for single renal tumors. *J Urol* 2007;178:41-6.

9. Gong EM, Orvieto MA, Zorn KC, Lucioni A, Steinberg GD, Shalhav AL. Comparison of laparoscopic and open partial nephrectomy in clinical T1a renal tumors. *J Endourol* 2008;22:953-7.
10. Berger A, Brandina R, Atalla MA, Herati AS, Kamoi K, Aron M, et al. Laparoscopic radical nephrectomy for renal cell carcinoma: oncological outcomes at 10 years or more. *J Urol* 2009;182:2172-6.
11. Burgess NA, Koo BC, Calvert RC, Hindmarsh A, Donaldson PJ, Rhodes M. Randomized trial of laparoscopic v open nephrectomy. *J Endourol* 2007;21:610-3.
12. Gabr AH, Gdor Y, Strobe SA, Roberts WW, Wolf JS Jr. Patient and pathologic correlates with perioperative and long-term outcomes of laparoscopic radical nephrectomy. *Urology* 2009;74:635-40.
13. Hemal AK, Kumar A. A prospective comparison of laparoscopic and robotic radical nephrectomy for T1-2N0M0 renal cell carcinoma. *World J Urol* 2009;27:89-94.
14. Hemal AK, Kumar A, Kumar R, Wadhwa P, Seth A, Gupta NP. Laparoscopic versus open radical nephrectomy for large renal tumors: A long-term prospective comparison. *J Urol* 2007;177:862-6.
15. Luo JH, Zhou FJ, Xie D, Zhang ZL, Liao B, Zhao HW, et al. Analysis of long-term survival in patients with localized renal cell carcinoma: Laparoscopic versus open radical nephrectomy. *World J Urol* 2010;28:289-93.
16. Weight CJ, Lieser G, Larson BT, Gao T, Lane BR, Campbell SC, et al. Partial nephrectomy is associated with improved overall survival compared to radical nephrectomy in patients with unanticipated benign renal tumours. *Eur Urol* 2010;58:293-8.
17. Chen DY, Uzzo RG. Optimal management of localized renal cell carcinoma: Aurgery, ablation, or active surveillance. *J Natl Compr Canc Netw* 2009;7:635-42;quiz 643.
18. Rais-Bahrami S, Guzzo TJ, Jarrett TW, Kavoussi LR, Allaf ME. Incidentally discovered renal masses: Oncological and perioperative outcomes in patients with delayed surgical intervention. *BJU Int* 2009;103:1355-8.
19. Abouassaly R, Lane BR, Novick AC. Active surveillance of renal masses in elderly patients. *J Urol* 2008;180:505-8;discussion 508-9.
20. Kunkle DA, Uzzo RG. Cryoablation or radiofrequency ablation of the small renal mass: A meta-analysis. *Cancer* 2008;113:2671-80.
21. O'Malley RL, Berger AD, Kanofsky JA, Phillips CK, Stifelman M, Taneja SS. A matched-cohort comparison of laparoscopic cryoablation and laparoscopic partial nephrectomy for treating renal masses. *BJU Int* 2007;99:395-8.
22. Dash A, Vickers AJ, Schachter LR, Bach AM, Snyder ME, Russo P. Comparison of outcomes in elective partial vs radical nephrectomy for clear cell renal cell carcinoma of 4-7 cm. *BJU Int* 2006;97:939-45.
23. Leibovich BC, Blute M, Cheville JC, Lohse CM, Weaver AL, Zincke H. Nephron sparing surgery for appropriately selected renal cell carcinoma between 4 and 7 cm results in outcome similar to radical nephrectomy. *J Urol* 2004;171:1066-70.
24. Simmons MN, Weight CJ, Gill IS. Laparoscopic radical versus partial nephrectomy for tumors >4 cm: Intermediate-term oncologic and functional outcomes. *Urology* 2009;73:1077-82.
25. Peycelon M, Hupertan V, Comperat E, Renard-Penna R, Vaessen C, Conort P, et al. Long-term outcomes after nephron sparing surgery for renal cell carcinoma larger than 4 cm. *J Urol* 2009;181:35-41.
26. Weight CJ, Larson BT, Gao T, Campbell SC, Lane BR, Kaouk JH, et al. Elective partial nephrectomy in patients with clinical T1b renal tumors is associated with improved overall survival. *Urology* 2010;76:631-7.
27. Thompson RH, Siddiqui S, Lohse CM, Leibovich BC, Russo P, Blute ML. Partial versus radical nephrectomy for 4 to 7 cm renal cortical tumors. *J Urol* 2009;182:2601-6.
28. Joudi FN, Konety BR. The impact of provider volume on outcomes from urological cancer therapy. *J Urol* 2005;174:432-8.
29. Eastham JA. Do high-volume hospitals and surgeons provide better care in urologic oncology? *Urol Oncol* 2009;27:417-21.
30. Lane BR, Tiong HY, Campbell SC, Fergany AF, Weight CJ, et al. Management of the adrenal gland during partial nephrectomy. *J Urol* 2009;181:2430-6;discussion 2436-7.
31. O'Malley RL, Godoy G, Kanofsky JA, Taneja SS. The necessity of adrenalectomy at the time of radical nephrectomy: A systematic review. *J Urol* 2009;181:2009-17.
32. Kuczyk M, Wegener G, Jonas U. The therapeutic value of adrenalectomy in case of solitary metastatic spread originating from primary renal cell cancer. *Eur Urol* 2005;48:252-7.
33. Kuczyk M, Münch T, Machtens S, Bokemeyer C, Wefer A, Hartmann J, et al. The need for routine adrenalectomy during surgical treatment for renal cell cancer: the Hannover experience. *BJU Int* 2002;89:517-22.
34. Blom JH, van Poppel H, Maréchal JM, Jacqmin D, Schröder FH, de Prijck L, Sylvester R; EORTC Genitourinary Tract Cancer Group. Radical nephrectomy with and without lymph-node dissection: Final results of European Organization for Research and Treatment of Cancer (EORTC) randomized phase 3 trial 30881. *Eur Urol* 2009;55:28-34.
35. Blackley SK, Ladaga L, Woolfitt RA, Schellhammer PF. *Ex situ* study of the effectiveness of enucleation in patients with renal cell carcinoma. *J Urol* 1988;140:6.
36. Marshall FF, Taxy JB, Fishman EK, Chang R. The feasibility of surgical enucleation for renal cell carcinoma. *J Urol* 1986;135:231.
37. Rosenthal CL, Kraft R, Zingg EJ. Organ-preserving surgery in renal cell carcinoma: Tumor enucleation versus partial kidney resection. *Eur Urol* 1984;10:222.
38. Motzer RJ, Mazumdar M, Bacik J, Berg W, Amsterdam A, Ferrara J. Survival and prognostic stratification of 670 patients with advanced renal cell carcinoma. *J Clin Oncol* 1999;17:2530-40.
36. Hofmann HS, Neef H, Krohe K, Andreev P, Silber RE. Prognostic factors and survival after pulmonary resection of metastatic renal cell carcinoma. *Eur Urol* 2005;48:77-81;discussion 81-72.
37. Mickisch GH, Garin A, van Poppel H, de Prijck L, Sylvester R; European Organisation for Research and Treatment of Cancer (EORTC) Genitourinary Group. Radical nephrectomy plus interferon-alfa-based immunotherapy compared with interferon alfa alone in metastatic renal-cell carcinoma: A randomised trial. *Lancet* 2001;358:966-70.
38. Flanigan RC, Salmon SE, Blumenstein BA, Bearman SI, Roy V, McGrath PC, et al. Nephrectomy followed by interferon alfa-2b compared with interferon alfa-2b alone for metastatic renal-cell cancer. *N Engl J Med* 2001;345:1655-59.
39. Heng DY, Xie W, Regan MM, Warren MA, Golshayan AR, Sahi C, et al. Prognostic factors with metastatic renal cell carcinoma treated with vascular endothelial growth factor-targeted agents: Result from a large, multicenter study. *J Clin Oncol* 2009;27:5794-9.
40. Kavolius JP, Mastorakos DP, Pavlovich C, Russo P, Burt ME, Brady MS. Resection of metastatic renal cell carcinoma. *J Clin Oncol* 1998;16:2261-6.
41. Piltz S, Meimarakis G, Wichmann MW, Hatz R, Schildberg FW, Fuerst H. Long-term results after pulmonary resection of renal cell carcinoma metastases. *Ann Thorac Surg* 2002;73:1082-7.
42. Adam R, Chiche L, Aloia T, Elias D, Salmon R, Rivoire M, et al. Hepatic resection for noncolorectal nonendocrine liver metastases: Analysis of 1,452 patients and development of a prognostic model. *Ann Surg* 2006;244:524-35.
43. Motzer RJ, Hutson TE, Tomczak P, Michaelson MD, Bukowski RM, Rixe O, et al. Sunitinib versus interferon alfa in metastatic renal-cell carcinoma. *N Engl J Med* 2007;356:115-24.
44. Escudier B, Pluzanska A, Koralewski P, Ravaud A, Bracarda S, Szczylik C, et al. Bevacizumab plus interferon alfa-2a for treatment of metastatic renal cell carcinoma: A randomised, double-blind phase III trial. *Lancet* 2007;370:2103-11.
45. Rini BI, Halabi S, Rosenberg JE, Stadler WM, Vaena DA, Ou SS, et al. Bevacizumab plus interferon alfa compared with interferon alfa monotherapy in patients with metastatic renal cell carcinoma: CALGB 90206. *J Clin Oncol* 2008;26:5422-8.
46. Sternberg CN, Davis ID, Mardiak J, Szczylik C, Lee E, Wagstaff J, et al. Pazopanib in locally advanced or metastatic renal cell carcinoma: Results of a randomized phase III trial. *J Clin Oncol* 2010;28:1061-8.
47. Hudes G, Carducci M, Tomczak P, Dutcher J, Figlin R, Kapoor A, et al. Temsirolimus, interferon alfa, or both for advanced renal-cell carcinoma. *N Engl J Med* 2007;356:2271-81.



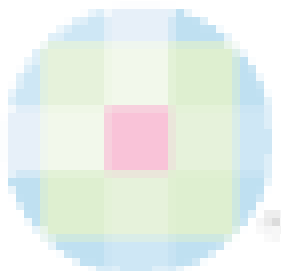
48. Choueiri TK, Plantade A, Elson P, Negrier S, Ravaud A, Oudard S, *et al.* Efficacy of sunitinib and sorafenib in metastatic papillary and chromophobe renal cell carcinoma. *J Clin Oncol* 2008;26:127-31.
49. Oudard S, Banu E, Vieillefond A, Fournier L, Priou F, Medioni J, *et al.* Prospective multicenter phase II study of gemcitabine plus platinum salt for metastatic collecting duct carcinoma: Results of a GETUG (Groupe d'Etudes des Tumeurs Uro-Genitales) study. *J Urol* 2007;177:1698-702.
50. Strouse JJ, Spevak M, Mack AK, Arceci RJ, Small D, Loeb DM. Significant responses to platinum-based chemotherapy in renal medullary carcinoma. *Pediatr Blood Cancer* 2005;44:407-11.
51. Motzer RJ, Escudier B, Oudard S, Hutson TE, Porta C, Bracarda S, *et al.* Efficacy of everolimus in advanced renal cell carcinoma: A double-blind, randomised, placebo-controlled phase III trial. *Lancet* 2008;372:449-56.
52. Motzer RJ, Escudier B, Oudard S, Hutson TE, Porta C, Bracarda S, *et al.* Phase 3 trial of everolimus for metastatic renal cell carcinoma: Final results and analysis of prognostic factors. *Cancer* 2010;116:4256-65.

## APPENDIX

### Appendix 1: Surveillance following surgery adapted from European Association of Urology

Risk profile	Treatment	Surveillance						
		6 months	1 year	2 years	3 years	4 years	5 years	After 5 years
Low	RN/PN	US	CT	US	CT	US	CT	Discharge
Intermediate	RN/PN/cryoablation/RFA	CT	US	CT	US	CT	CT	CT alternate 2 years
High	RN/PN/cryoablation/RFA	CT	CT	CT	CT	CT	CT	CT alternate years

CT: Computed tomography, RN: Radical nephrectomy, PN: Partial nephrectomy, RFA: radiofrequency ablation, US: Ultrasound



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