

Evidence based medicine

部分腎臟切除對T1b腎細胞惡性腫瘤的治療效果

高雄醫學大學附設中和醫院

泌尿科

VS: Dr. 李威明 R: Dr. 耿俊閔

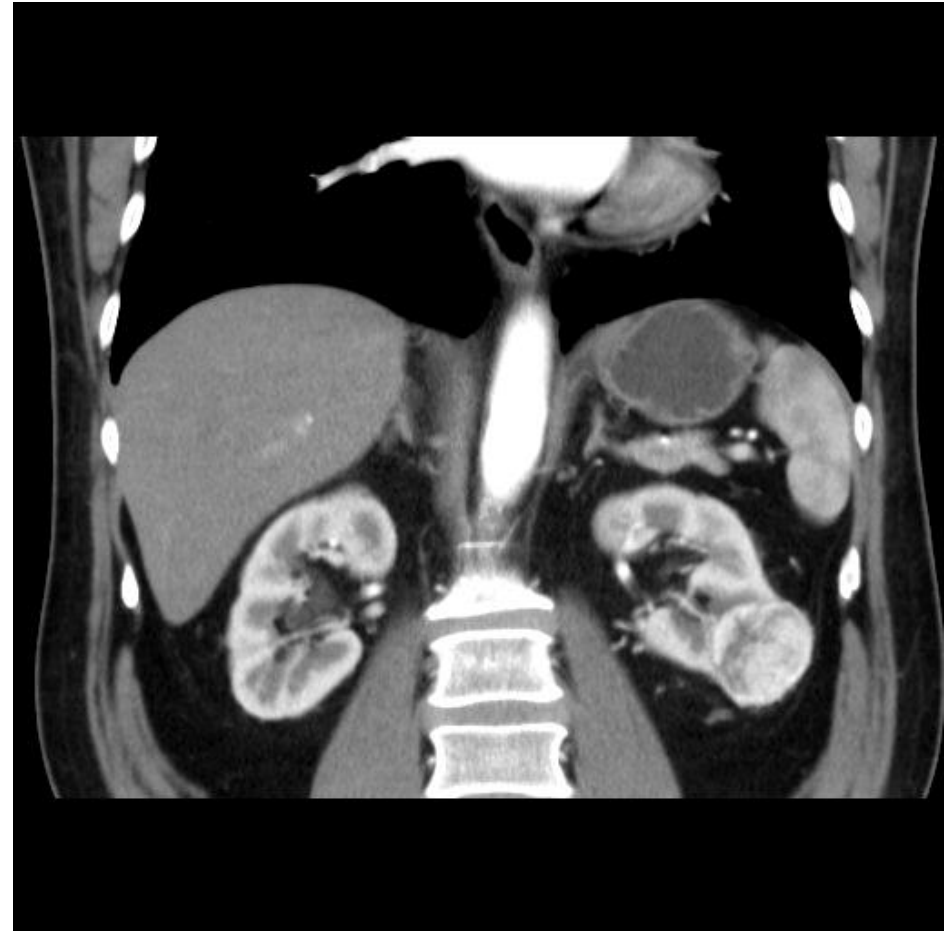
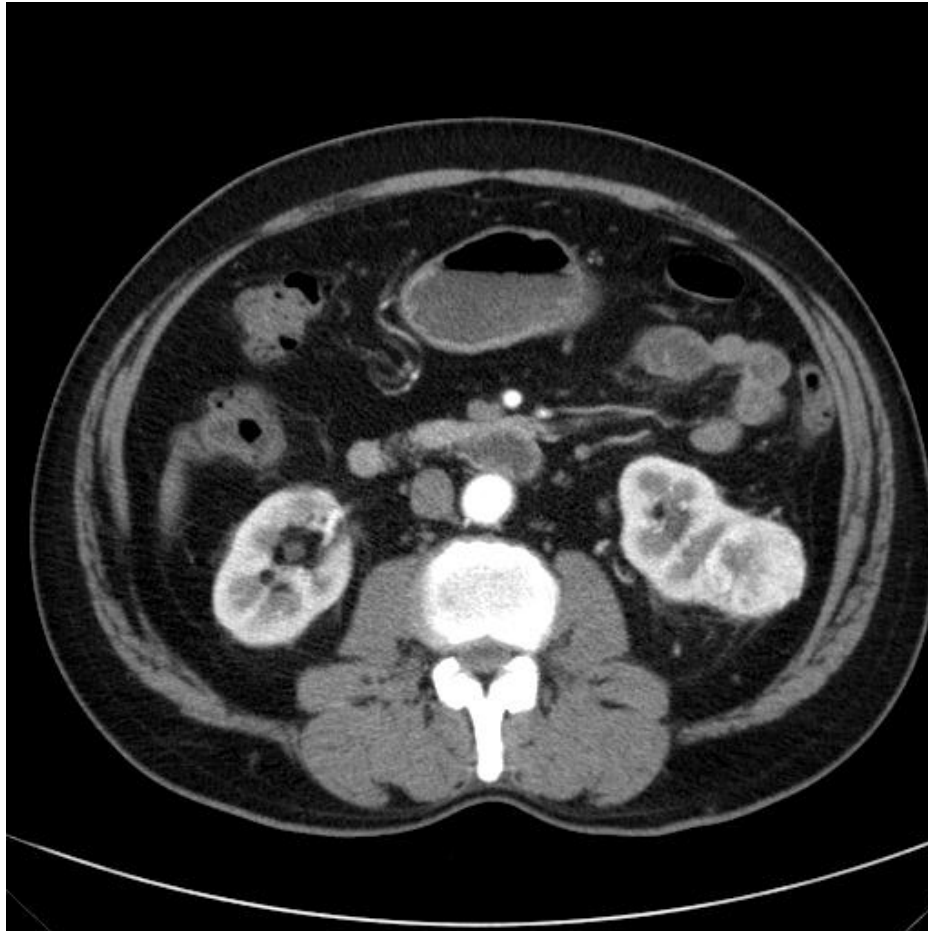
Date: 99/6/10

Clinical Scenario

- 劉先生是60歲男性，在一次例行性的腹部超音波檢查中發現了左腎有一顆4公分左右的腫瘤，經斷層掃描確定後懷疑是腎細胞惡性腫瘤，4.1公分，侷限性，臨床分期為T1bN0Mx。
- 醫師建議施行左腎根治性腎臟癌切除術，但劉先生希望能盡量保留左腎，以減少日後透析的機會，因此想了解部分腎臟切除術(含腎元保留手術)對於T1b的腎細胞惡性腫瘤預後如何？



Image- Abdominal CT



Background

Renal cell carcinoma

- Most common malignant renal mass
- Originate from renal parenchyma
- male 2-3x, 40-70 years, average 55-60 years, smokers
- Triad: gross hematuria (40-70%), flank pain (40%), flank palpable mass (20-40%)



TNM staging system for kidney cancer

Primary tumor (T)	
TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
T1	Tumor 7 cm or less in greatest dimension, limited to the kidney
T1a	<u>Tumor 4 cm or less in greatest dimension, limited to the kidney</u>
T1b	<u>Tumor more than 4 cm but not more than 7 cm in greatest dimension, and limited to the kidney</u>
T2	Tumor more than 7 cm in greatest dimension, limited to the kidney
T2a	Tumor more than 7 cm but less than or equal to 10 cm in greatest dimension, limited to the kidney
T2b	Tumor more than 10 cm, limited to the kidney
T3	Tumor extends into major veins or perinephric tissues but not into the ipsilateral adrenal gland and not beyond Gerota's fascia
T3a	Tumor grossly extends into the renal vein or its segmental (muscle containing) branches, or tumor invades perirenal and/or renal sinus fat but not beyond Gerota's fascia
T3b	Tumor grossly extends into the vena cava below the diaphragm
T3c	Tumor grossly extends into the vena cava above the diaphragm or invades the wall of the vena cava
T4	Tumor invades beyond Gerota's fascia (including contiguous extension into the ipsilateral adrenal gland)



Table 1 - Primary surgical treatment of renal cell carcinoma according to T stage (TNM 2002)

T1a	Nephron-sparing surgery	Open	Recommended standard
	Nephron-sparing surgery	Laparoscopic	Optional in experienced centres
T1b-T2	Radical nephrectomy		Reasonable in selected patients
	Radical nephrectomy	Open	Adequate (higher morbidity)
		Laparoscopic	Recommended standard
	<u>Nephron-sparing surgery</u>		<u>Feasible but generally not recommended</u>
T3, T4	Radical nephrectomy	Open	Recommended standard for most patients
		Laparoscopic	Feasible in selected patients

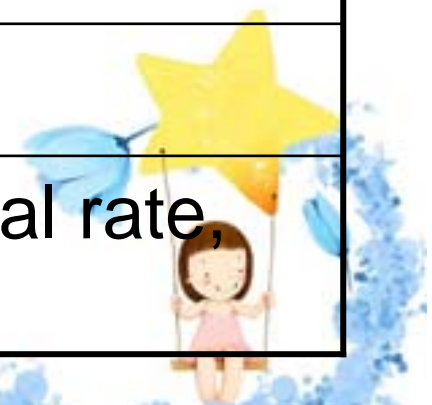
- 在2002年對RCC治療的準則如上：
 - T1a (<4cm)是建議做部份腎臟切除或全切除手術
 - 若是T1b (>4cm, <7cm)則只建議做根治性腎臟切除手術



Ask Questions by PICO

Questions: Is partial nephrectomy had the same prognosis/outcome over T1b RCC comparing to radical nephrectomy

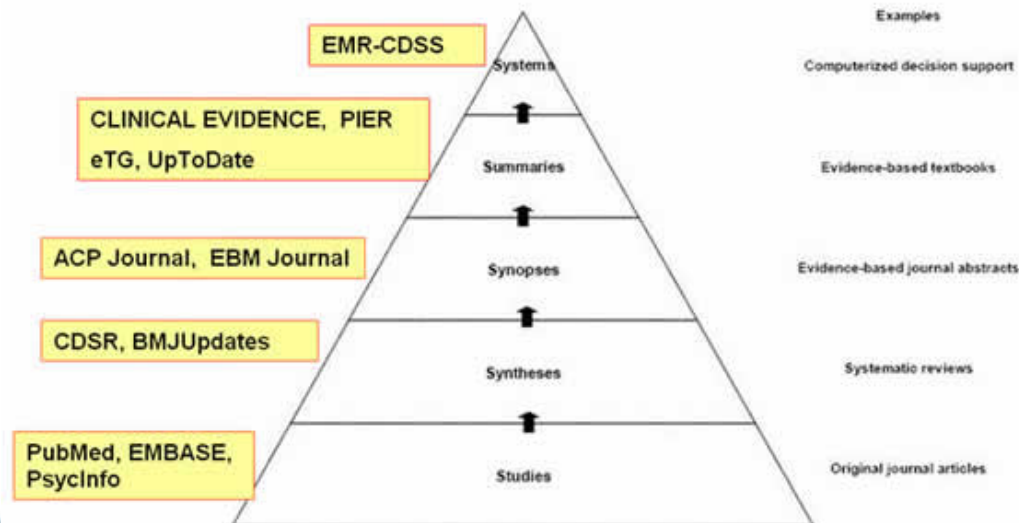
Patient	RCC with T1b (4-7cm), single, localized
Intervention	Radical nephrectomy
Comparison	Partial nephrectomy
outcomes	Recurrent rate, 5-year-survival rate, complications, prognosis...



Search Database

- UpToDate, Cochrane, Pubmed...

5S model of organization of EB information services



"5S" levels of organization of evidence from health care research.
Haynes: ACP J Club, Volume 145(3). November/December 2006.A8



Level of Evidence

Oxford Centre for EBM - Level of evidence	
Level	Therapy / Prevention, Aetiology / Harm
1a	SR (with homogeneity*) of RCTs
1b	Individual RCT (with narrow Confidence Interval‡)
1c	All or none§
2a	SR (with homogeneity*) of cohort studies
2b	Individual cohort study (including low quality RCT; e.g., <80% follow-up)
2c	"Outcomes" Research; Ecological studies
3a	SR (with homogeneity*) of case-control studies
3b	Individual Case-Control Study
4	Case-series (and poor quality cohort and case-control studies§§)
5	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"

Search strategy

- Key words
- MeSH terms

P	RCC with T1b (4-7cm), single, localized
I	Radical nephrectomy
C	Partial nephrectomy, Nephron sparing surgery



Search Results for "renal cell carcinoma AND radical nephrectomy AND partial nephrectomy"

All search results

Prioritize adult topics

Prioritize pediatric topics

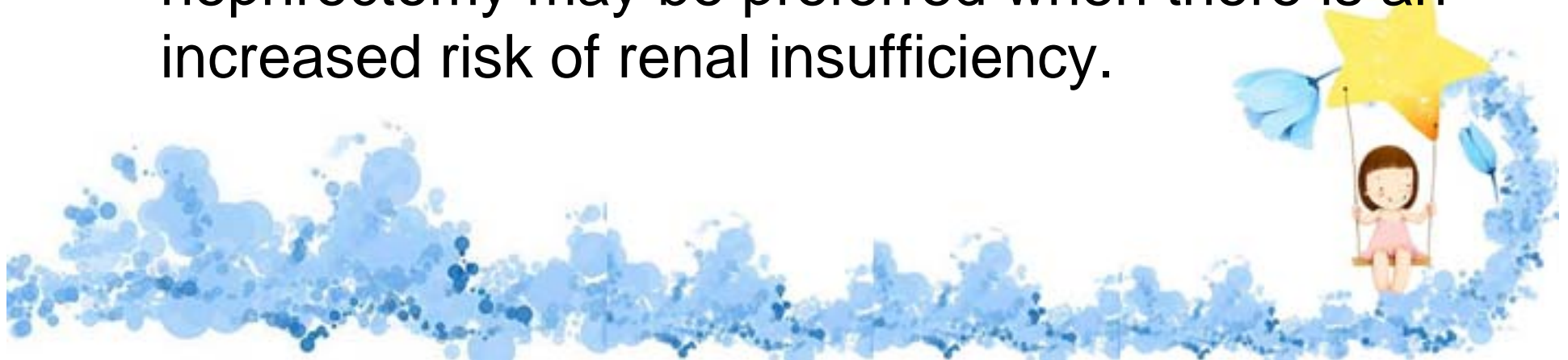
Prioritize patient topics

- Surgical management of localized renal cell carcinoma
- Overview of the prognosis and treatment of renal cell carcinoma
- Clinical features, diagnosis, and management of von Hippel-Lindau disease
- Radiofrequency ablation and cryoablation for renal cell carcinoma
- Patient information: Renal cell carcinoma (kidney cancer)
- Clinical manifestations, evaluation, and staging of renal cell carcinoma
- Immunotherapy of renal cell carcinoma
- Epidemiology, pathology, and pathogenesis of renal cell carcinoma
- Surveillance for metastatic disease after nephrectomy for renal cell carcinoma
- Molecularly targeted therapy for advanced renal cell carcinoma
- Role of surgery in patients with metastatic renal cell carcinoma
- Evaluation of a solid renal mass

Surgical management of localized renal cell carcinoma

2010 UpToDate®

- **Partial nephrectomy :**
 - There are no randomized trials that compare partial nephrectomy with radical nephrectomy
 - For patients with a T1b (>4 and <7 cm) lesion, we suggest radical nephrectomy rather than partial nephrectomy (Grade 2C). Partial nephrectomy may be preferred when there is an increased risk of renal insufficiency.



TI Safety and efficacy of partial nephrectomy for all T1 tumors based on an international multicenter experience.


AU Patard JJ; Shvarts O; Lam JS; Pantuck AJ; Kim HL; Ficarra V; Cindolo L; Han KR; De La Taille A; Tostain J; Artibani W; Abbou CC; Lobel B; Chopin DK; Figlin RA; Mulders PF; Belldegrun AS

SO J Urol 2004 Jun;171(6 Pt 1):2181-5, quiz 2435.

PURPOSE: We compared cancer specific survival of patients undergoing partial and radical nephrectomies for T1N0M0 renal tumors according to tumor size in a large multicenter series. MATERIALS AND METHODS: A retrospective analysis of 1454 patients undergoing partial or radical nephrectomy for T1N0M0 renal tumors from 7 international academic centers was performed. Data were obtained for each patient including TNM stage (determined according to the 2002 TNM criteria), tumor size, type of surgery (partial versus radical nephrectomy) and cancer specific survival. Recurrence events were recorded when available. RESULTS: Partial and radical nephrectomies were performed in 379 (26.1%) and 1075 (73.9%) cases, respectively. Mean followup +/- SD was 62.5 +/- 51.8 months. Recurrence data were available on 544 patients. There were no significant differences in local or distant recurrence rates between patients undergoing partial or radical nephrectomy for either T1a (p = 0.6) or T1b tumors (p = 0.5). For patients with T1a tumors, there was no significant difference in the rate of cancer specific deaths between the partial (314) and radical (499) nephrectomy groups (2.2% versus 2.6%, respectively, p = 0.8). For patients with T1b tumors there was also no significant difference in the rate of cancer specific deaths between patients undergoing partial (65) and patients undergoing radical (576) nephrectomy (6.2% versus 9%, respectively, p = 0.6). CONCLUSIONS: Partial nephrectomy is becoming the gold standard for renal tumors less than 4 cm but this treatment is much more controversial for larger T1 tumors. This large multicenter study suggests that it is safe to expand the indications of partial nephrectomy to include patients with T1N0M0 tumors up to 7 cm. However, careful patient selection remains necessary.

AD Department of Urology, University of California Los Angeles, Los Angeles, California 90095-1738, USA.

PMID15126781



54

TI Kidney preserving surgery in renal cell tumors: indications, techniques and results in 152 patients.

AU Moll V; Becht E; Ziegler M

SO J Urol 1993 Aug;150(2 Pt 1):319-23.

Between 1975 and 1991, 142 patients with renal cell carcinoma and 10 with oncocytoma underwent a total of 164 kidney preserving operations. The indication for surgery was imperative (group 1, 47 patients) among those with a solitary kidney (9), renal insufficiency (17) or bilateral tumors (21). Of the patients with small or peripheral tumors and a healthy contralateral kidney 105 were selected for elective surgery (group 2). Most procedures were done either without ischemia (24%) or with warm ischemia (69%). In some patients from the imperative indication group hypothermia was achieved by in situ perfusion (5%) or ex vivo work bench surgery and autotransplantation (2%). Complication rates were 15% for group 1 and 9.5% for group 2. In group 1, 3 patients died of cancer, 5 lived with metastases and 2 had local tumor recurrence. No patient in group 2 had recurrences or metastases. The tumor-specific survival rate of patients with kidney preservation for renal cell carcinoma was comparable to that of a control group undergoing radical nephrectomy. Due to the high reliability and efficacy, kidney preserving surgery for renal cell carcinoma should be done more often, even in patients with a normally functioning contralateral kidney.

AD Clinic of Urology, University of Saarland Medical Center, Homburg/Saar, Germany.

PMID 8326552





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There are 3 results out of 6162 records for: renal cell carcinoma and radical nephrectomy and partial nephrectomy in Cochrane Database of Systematic Reviews"

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[Surgical management of localised renal cell carcinoma](#)

Ghulam Nabi, Anne Cleves, Mike Shelley

May 2010

Review



[Surgical management for upper tract transitional cell carcinoma](#)

Bhavan Prasad Rai, Nicholas P Cohen, Mike Shelley, James MO N'Dow, Samuel McClinton, Ghulam Nabi, British Association of Urological Surgeons (BAUS), Section of Oncology

October 2008

Protocol



[Transperitoneal versus retroperitoneal radical laparoscopic nephrectomy for renal cell cancer](#)

Yichen Wang, Zhi Ping Wang, Zhi-Long Dong, JiaJi Wang

October 2009

Protocol

[Intervention Review]

Surgical management of localised renal cell carcinoma

Ghulam Nabi², Anne Cleves³, Mike Shelley¹

¹Cochrane Prostatic Diseases and Urological Cancers Unit, Research Dept, Velindre NHS Trust, Cardiff, UK. ²Department of Surgery, University of Dundee, Dundee, UK. ³Cancer Research Wales Library, Cardiff University Velindre Hospital, Cardiff, UK

Contact address: Mike Shelley, Cochrane Prostatic Diseases and Urological Cancers Unit, Research Dept, Velindre NHS Trust, Velindre Road, Whitchurch, Cardiff, Wales, CF4 7XL, UK. mike.shelley@velindre-tr.wales.nhs.uk.

Editorial group: Cochrane Prostatic Diseases and Urologic Cancers Group.

Publication status and date: Edited (no change to conclusions), published in Issue 5, 2010.

Review content assessed as up-to-date: 13 October 2009.

Citation: Nabi G, Cleves A, Shelley M. Surgical management of localised renal cell carcinoma. *Cochrane Database of Systematic Reviews* 2010, Issue 3. Art. No.: CD006579. DOI: 10.1002/14651858.CD006579.pub2.

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Background

Surgical excision remains the core to the management of localised renal cancer and several studies have evaluated the safety and clinical effectiveness of laparoscopic surgery and other recently introduced interventions for the localised disease.

Objectives

To identify and review the evidence from randomised trials comparing different surgical interventions in localised renal cell carcinoma.

Search strategy

Randomised or quasi randomised trials comparing various surgical interventions in the management of adults with surgically resectable localised renal cancer. RCTs were identified by searching The Cochrane Central Register of Controlled Trials (CENTRAL, Issue 3, 2009), MEDLINE (Silver Platter, from 1966 to August 2009), EMBASE via Ovid (from 1980 to August 2009), and a number of other data bases.

Selection criteria

Studies were assessed for eligibility and quality, and data from published trials were extracted by two reviewers.

Data collection and analysis

Two review authors independently assessed trial quality and extracted data.

Main results

No randomised trials were identified meeting the inclusion criteria reporting on the comparison between open radical nephrectomy with laparoscopic approach or new modalities of treatment such as radiofrequency or cryoablation. Three randomised controlled trials compared the different laparoscopic approaches to nephrectomy (transperitoneal versus retroperitoneal) and found no statistical difference in operative or perioperative outcomes between the two treatment groups. There were several non-randomised and retrospective case series reporting various advantages of laparoscopic renal cancer surgery such as less blood loss, early recovery and shorter hospital stay

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((((("Carcinoma, Renal Cell"[Mesh] AND "Nephrectomy"[Mesh]) AND radical nephrectomy) AND) AND nephron-s

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Search History

Search	Most Recent Queries	Time	Result
#8	<u>Search ((((((Carcinoma, Renal Cell"[Mesh] AND "Nephrectomy"[Mesh]) AND radical nephrectomy) AND) AND nephron-sparing surgery)) AND T1bN0M0</u>	13:28:25	<u>1</u>
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#4	Search (("Carcinoma, Renal Cell"[Mesh] AND "Nephrectomy"[Mesh]) AND radical nephrectomy) AND partial nephrectomy	13:27:09	<u>287</u>



Results: 8

**"Carcinoma, Renal Cell"[Mesh] AND
"Nephrectomy"[Mesh] AND radical
nephrectomy AND partial
nephrectomy AND T1b**

[\[Current surgical aspects of renal cell carcinoma\]](#)

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Wien Med Wochenschr. 2009;159(21-22):535-42. Review. German.
PMID: 19997839 [PubMed - indexed for MEDLINE]
[Related citations](#)

[The expanding role of partial nephrectomy: a critical analysis of indications, results, and complications.](#)

2. Touijer K, Jacqmin D, Kavoussi LR, Montorsi F, Patard JJ, Rogers CG, Russo P, Uzzo RG, Van Poppel H.
Eur Urol. 2010 Feb;57(2):214-22. Epub 2009 Oct 20. Review.
PMID: 19853988 [PubMed - indexed for MEDLINE]
[Related citations](#)

[Laparoscopic radical versus partial nephrectomy for tumors >4 cm: intermediate-term oncologic and functional outcomes.](#)

3. Simmons MN, Weight CJ, Gill IS.
Urology. 2009 May;73(5):1077-82.
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[Related citations](#)

[Cancer-specific and non-cancer-related mortality rates in European patients with T1a and T1b renal cell carcinoma.](#)

4. Zini L, Patard JJ, Capitanio U, Crepel M, de La Taille A, Tostain J, Ficarra V, Bernhard JC, Ferrière JM, Pfister C, Villers A, Montorsi F, Karakiewicz PI.
BJU Int. 2009 Apr;103(7):894-8. Epub 2008 Dec 2.
PMID: 19076131 [PubMed - indexed for MEDLINE]
[Related citations](#)

[Partial nephrectomy in the treatment of localized renal cell carcinoma: experience of Taichung Veterans General Hospital.](#)

5. Li JR, Yang CR, Cheng CL, Ho HC, Chiu KY, Su CK, Chen WM, Ou YC.
J Chin Med Assoc. 2007 Jul;70(7):281-5.
PMID: 17631464 [PubMed - indexed for MEDLINE]
[Related citations](#)

[\[How far should partial nephrectomy be extended for renal cell carcinoma?\]](#)

6. Méjean A.

Ann Urol (Paris). 2006 Nov;40 Suppl 3:S68-71. Review. French.

PMID: 17366858 [PubMed - indexed for MEDLINE]

[Related citations](#)

[Open partial nephrectomy for the treatment of renal cell carcinoma.](#)

7. Shuch B, Lam JS, Belldegrun AS.

Curr Urol Rep. 2006 Jan;7(1):31-8. Review.

PMID: 16480666 [PubMed - indexed for MEDLINE]

[Related citations](#)

[Safety and efficacy of partial nephrectomy for all T1 tumors based on an international multicenter experience.](#)

8. Patard JJ, Shvarts O, Lam JS, Pantuck AJ, Kim HL, Ficarra V, Cindolo L, Han KR, De La Taille A, Tostain J, Artibani W, Abbou CC, Lobel B, Chopin DK, Figlin RA, Mulders PF, Belldegrun AS.

J Urol. 2004 Jun;171(6 Pt 1):2181-5, quiz 2435.

PMID: 15126781 [PubMed - indexed for MEDLINE]

[Related citations](#)



The expanding role of partial nephrectomy: a critical analysis of indications, results, and complications.

Touijer K, Jacqmin D, Kavoussi LR, Montorsi F, Patard JJ, Rogers CG, Russo P, Uzzo RG, Van Poppel H.


Urology Service, Department of Surgery, Memorial Sloan-Kettering Cancer Center, New York, NY, USA. touijera@mskcc.org

Abstract

CONTEXT: The gained expertise in the surgical technique of partial nephrectomy (PN) with excellent oncologic outcome and reduced morbidity has contributed to more frequent use of PN in many centres of reference, and the recent evidence favouring PN over radical nephrectomy (RN) in the prevention of chronic kidney disease and possibly linking it to a better overall survival (OS) will constitute a strong argument for wider use of PN. OBJECTIVE: To objectively analyse the advantages of PN over RN and to evaluate the risk-benefit ratio of expanding the indications of PN T1b renal cortical tumours. EVIDENCE ACQUISITION: Literature searches on English-language publications were performed using the National Library of Medicine database. The queries included the keywords partial nephrectomy and nephron sparing surgery. Eight hundred four references were scrutinised, and 175 publications were identified and reviewed. Sixty-nine articles were selected for this review. These references formed the basis for this analysis and were selected based on their relevance and the importance of their content.

EVIDENCE SYNTHESIS: The use of PN has been steadily increasing, particularly in tertiary care centres. This trend is now strengthened by evidence supporting the role of PN in reducing the risk of chronic kidney disease in patients with renal masses ≤ 4 cm. A wider use of PN for larger tumours, granted technical feasibility, is supported by the preliminary evidence, suggesting an OS advantage favouring PN over RN. However, the potential for selection bias and residual confounding factors may contribute to the observed difference. In the carefully selected patients with tumours >4 cm, PN obtained equivalent oncologic outcome to that achieved after RN. Although higher morbidity rates were seen after PN, the complication type and severity were not prohibitive. CONCLUSIONS: The available evidence supports elective PN as the standard surgical treatment for renal cortical tumours ≤ 4 cm. For larger tumours, PN has demonstrated feasibility and oncologic safety in the carefully selected patient population studied. Copyright 2009 European Association of Urology. Published by Elsevier B.V. All rights reserved.

PMID: 19853988 [PubMed - indexed for MEDLINE]

 Publication Types, MeSH Terms

Impact factor: 6.512

Publication Types:

Review

Cancer-specific and non-cancer-related mortality rates in European patients with T1a and T1b renal cell carcinoma.

Zini L, Patard JJ, Capitanio U, Crepel M, de La Taille A, Tostain J, Ficarra V, Bernhard JC, Ferrière JM, Pfister C, Villers A, Montorsi F, Karakiewicz PI.

Cancer Prognostics and Health Outcomes Unit, University of Montreal Health Center, Montreal, QC, Canada.

Abstract

OBJECTIVE: To examine cancer-specific and non-cancer-related mortality rates in 451 patients with T1a-bN0M0 renal cell carcinoma (RCC) treated with either radical or partial nephrectomy (RN or PN) in Europe. PATIENTS AND METHODS: Between 1987 and 2007, 451 patients with T1a-bN0M0 RCC were treated for histologically confirmed RCC with RN or PN at one of seven participating European institutions. The preoperative American Society of Anesthesiology (ASA) score was available for all patients and was used to control for baseline comorbidities. The preoperative glomerular filtration rate (GFR) was estimated using the Modification of Diet in Renal Disease study group equation. We used univariate and multivariate competing-risks regression analyses to test the effect of the ASA score, GFR, T stage (T1a vs T1b) and nephrectomy type (RN or PN) on RCC-specific mortality and non-RCC-related mortality. RESULTS: In patients with T1a-b RCC cancer-specific mortality was unaffected by stage, nephrectomy type or GFR. Conversely, non-RCC-related mortality was strongly affected by the ASA score and GFR. Unlike in a previous report, nephrectomy type did not affect non-RCC-related mortality. This lack of significance relative to RN may stem from the relatively high rate of PN use in the present series. CONCLUSION: PN or RN virtually eliminate the risk of cancer-specific mortality in patients with T1a-b RCC. Poor preoperative ASA score and impaired renal function appear to represent relative contra-indications to surgical management of T1a-b lesions.

PMID: 19076131 [PubMed - indexed for MEDLINE]

Impact factor: 2.704

☒ Publication Types, MeSH Terms

Publication Types:

Multicenter Study

Research Support, Non-U.S. Gov't

Partial nephrectomy in the treatment of localized renal cell carcinoma: experience of Taichung Veterans General Hospital.

Li JR, Yang CR, Cheng CL, Ho HC, Chiu KY, Su CK, Chen WM, Ou YC.

Division of Urology, Department of Surgery, Taichung Veterans General Hospital, Taichung, Taiwan, ROC.

Abstract

BACKGROUND: Partial nephrectomy has been considered an effective and efficient method in the treatment of localized renal cell carcinoma. Herein, we retrospectively review our experience with partial nephrectomy in the treatment of localized renal cell carcinoma and compared it with patients who received radical nephrectomy. METHODS: From 1982 to 2005, 35 patients who received partial nephrectomy for localized renal cell carcinoma were enrolled in this study. Ten patients were female (28.6%). The median age was 70 years (range, 42-82 years). Sixteen (45.7%) patients had pathologic T1a tumors; 17 (48.6%) patients had pathologic T1b tumors and 2 (5.7%) patients had pathologic T2 tumor (7cm). In the meantime, 128 patients who had T1N0M0 renal cell carcinoma and who received radical nephrectomy were assigned to a control group. Thirty-nine patients (30.5%) were female in this group. The median age was 62 years (range, 30-83 years). The tumor characteristics, location, surgical techniques and patient survival were subsequently compared. RESULTS: The median tumor size in the partial nephrectomy group was 3.9cm (range, 1.5-7.0cm), and it was 4.5cm (range, 1-6.5cm) in radical nephrectomy group. The tumor size was smaller in the partial nephrectomy group ($p = 0.003$). The median follow-up period was 4.38 years (range, 0.05-17.99 years) in the partial nephrectomy group and 5.66 years (range, 0.01-22.25 years) in the radical nephrectomy group. There was no local recurrence or distant metastasis in the partial nephrectomy group. The 5-year overall survival was 85.0% compared with 91.4% in the radical nephrectomy group ($p = 0.126$). The 5-year disease specific survival in the partial nephrectomy group was 100%. The postoperative serum creatinine level increased to $>2.0\text{mg/dL}$ in 5 (14.3%) patients in the partial nephrectomy group, but no patient needed hemodialysis during follow-up. CONCLUSION: From our review, partial nephrectomy is safe and provides excellent disease control in the treatment of localized renal cell carcinoma in selected patients. Renal function preservation was observed in the partial nephrectomy group, while the operated kidney showed functioning in the follow-up nuclear medicine survey.

[How far should partial nephrectomy be extended for renal cell carcinoma?]

[Article in French]

Méjean A.

Service d'Urologie, Hôpital Necker, 149, rue de Sèvres, 75015 Paris, France. arnaud.mejean@nck.ap-hop-paris.fr

Abstract

Conservative renal surgery for cancer has now achieved consensus for imperative, relative, and elective indications (tumor < 4 cm with healthy contralateral kidney). The results show 90%-100% 10-year survival rates and 0%-3% recurrence rates. Surgical techniques are improving and complication rates are decreasing with experience. It is now recognized that margin thickness has no real significance provided that it is negative, even if excision is flush with the tumor capsule. Finally, the frequently cited multifocal lesions are no longer an argument against conservative surgery. The usual limitations of conservative surgery are the size and location of the tumor. Nevertheless, there is no statistically significant difference in the survival and recurrence rates between T1a (< 4 cm) and T1b (4-7 cm) tumors, even if the risk of renal sinus fat tissue involvement increases proportionally with tumor size. Finally, resecting tumors of the renal sinus is possible without adding to the risk of metastasis but increases the risk of surgical complications. The risk of deteriorated renal function with radical nephrectomy is now well documented. Laparoscopy, which has become the reference treatment mode for radical nephrectomy, remains reserved for conservative surgery for exophytic tumors less than 3-4 cm because of the technical difficulties involved in resection and hemostasis. Although conservative surgery is now recognized, extending its indications to tumors greater than 4 cm or in cases of parenchymatous location is supported by real arguments that need to be confirmed. The limit remains the surgical feasibility.

PMID: 17366858 [PubMed - indexed for MEDLINE]

☰ Publication Types, MeSH Terms

Publication Types:

English Abstract

Review

Impact factor: 0.226

Curr Urol Rep. 2006 Jan;7(1):31-8.

Open partial nephrectomy for the treatment of renal cell carcinoma.

Shuch B, Lam JS, Beldegrun AS.

Department of Urology, David Geffen School of Medicine, UCLA, Los Angeles, CA 90095-1738, USA.

Abstract

Open partial nephrectomy, or nephron-sparing surgery (NSS), is now considered the standard of care for the treatment of small renal tumors. The oncologic efficacy and safety of NSS for the treatment of stage-T1a renal tumors has been repeatedly demonstrated to be equivalent to radical nephrectomy. NSS initially was reserved for patients with solitary kidneys, impaired renal function, hereditary tumor syndromes, bilateral renal tumors, and those with significant comorbidities predisposing to future renal failure. The indications have expanded recently to allow elective partial nephrectomy in the setting of a normal contralateral kidney. Furthermore, recent data demonstrate that partial nephrectomy for larger tumors (T1b), which have been historically treated with radical nephrectomy, is a viable option when surgical margins can safely be achieved. In the era of minimally invasive techniques, laparoscopic NSS is technically feasible, yet long-term studies are still needed to assess oncologic efficacy. New NSS ablative technologies, such as cryoablation and radiofrequency ablation, are on the horizon. In this article, we discuss the role of open NSS and surgical technique in the contemporary management of renal tumors.

PMID: 16480666 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms

Publication Types:

Review



Safety and efficacy of partial nephrectomy for all T1 tumors based on an international multicenter experience.

Patard JJ, Shvarts O, Lam JS, Pantuck AJ, Kim HL, Ficarra V, Cindolo L, Han KR, De La Taille A, Tostain J, Artibani W, Abbou CC, Lobel B, Chopin DK, Figlin RA, Mulders PF, Belldegrun AS.

Department of Urology, University of California Los Angeles, Los Angeles, California 90095-1738, USA.

Abstract

PURPOSE: We compared cancer specific survival of patients undergoing partial and radical nephrectomies for T1N0M0 renal tumors according to tumor size in a large multicenter series. **MATERIALS AND METHODS:** A retrospective analysis of 1454 patients undergoing partial or radical nephrectomy for T1N0M0 renal tumors from 7 international academic centers was performed. Data were obtained for each patient including TNM stage (determined according to the 2002 TNM criteria), tumor size, type of surgery (partial versus radical nephrectomy) and cancer specific survival. Recurrence events were recorded when available. **RESULTS:** Partial and radical nephrectomies were performed in 379 (26.1%) and 1075 (73.9%) cases, respectively. Mean followup +/- SD was 62.5 +/- 51.8 months. Recurrence data were available on 544 patients. There were no significant differences in local or distant recurrence rates between patients undergoing partial or radical nephrectomy for either T1a ($p = 0.6$) or T1b tumors ($p = 0.5$). For patients with T1a tumors, there was no significant difference in the rate of cancer specific deaths between the partial (314) and radical (499) nephrectomy groups (2.2% versus 2.6%, respectively, $p = 0.8$). For patients with T1b tumors there was also no significant difference in the rate of cancer specific deaths between patients undergoing partial (65) and patients undergoing radical (576) nephrectomy (6.2% versus 9%, respectively, $p = 0.6$). **CONCLUSIONS:** Partial nephrectomy is becoming the gold standard for renal tumors less than 4 cm but this treatment is much more controversial for larger T1 tumors. This large multicenter study suggests that it is safe to expand the indications of partial nephrectomy to include patients with T1N0M0 tumors up to 7 cm. However, careful patient selection remains necessary.

PMID: 15126781 [PubMed - indexed for MEDLINE]

Impact factor: 3.952

Publication Types, MeSH Terms

Publication Types:

Multicenter Study

Carcinoma, Renal Cell"[Mesh] AND "Nephrectomy"[Mesh] AND radical nephrectomy AND nephron-sparing surgery) AND T1b

Results: 3

- [The expanding role of partial nephrectomy: a critical analysis of indications, results, and complications.](#)
 1. Touijer K, Jacqmin D, Kavoussi LR, Montorsi F, Patard JJ, Rogers CG, Russo P, Uzzo RG, Van Poppel H. Eur Urol. 2010 Feb;57(2):214-22. Epub 2009 Oct 20. Review. PMID: 19853988 [PubMed - indexed for MEDLINE]
[Related citations](#)
- [\[Reassessment of T classification system cutoff value for renal cell carcinoma\]](#)
 2. Obara T, Matsuura S, Inoue T, Kumazawa T, Abe A, Horikawa Y, Togashi H, Yuasa T, Tsuchiya N, Satoh S, Sato K, Habuchi T. Nippon Hinyokika Gakkai Zasshi. 2007 Jul;98(5):671-6. Japanese. PMID: 17682445 [PubMed - indexed for MEDLINE]
[Related citations](#)
- [Open partial nephrectomy for the treatment of renal cell carcinoma.](#)
 3. Shuch B, Lam JS, Beldegrun AS. Curr Urol Rep. 2006 Jan;7(1):31-8. Review. PMID: 16480666 [PubMed - indexed for MEDLINE]
[Related citations](#)



Carcinoma, Renal Cell"[Mesh] AND "Nephrectomy"[Mesh]) AND radical nephrectomy) AND) AND nephron-sparing surgery)) AND T1bN0M0

Urology. 2010 Feb;75(2):271-5. Epub 2009 Dec 4.

Nephron-sparing surgery is equally effective to radical nephrectomy for T1BN0M0 renal cell carcinoma: a population-based assessment.

Crépel M, Jeldres C, Perrotte P, Capitanio U, Isbarn H, Shariat SF, Liberman D, Sun M, Lughezzani G, Arjane P, Widmer H, Graefen M, Montorsi F, Patard JJ, Karakiewicz PI.

Cancer Prognostics and Health Outcomes Unit, University of Montreal, Montreal, Quebec, Canada.

Comment in:

Urology. 2010 Feb;75(2):275-6; author reply 276.

Abstract

OBJECTIVES: To test the effect of nephron-sparing surgery (NSS) vs radical nephrectomy (RN) on cancer-specific mortality (CSM) in patients with T1bN0M0 renal cell carcinoma (RCC) in a population-based cohort. To date, only few series from tertiary care centers supported the use of NSS for T1bN0M0 (range 4-7 cm) RCC. METHODS: The Surveillance, Epidemiology, and End Results database allowed us to identify 275 NSS (5.3%) and 4866 RN (94.7%) patients treated for T1bN0M0 RCC between 1988 and 2004. Analyses matched for age, year of surgery, tumor size, and Fuhrman grade addressed the effect of nephrectomy type (NSS vs RN) on CSM. RESULTS: Five years after surgery, the surviving proportions of NSS and RN patients matched for age, tumor size, and year of surgery were respectively 91.4 and 95.3% and 90.1 and 93.8% in the cohort, where additional matching for Fuhrman grade was performed. Neither of the matched analyses resulted in statistically significant CSM difference ($P = .1$ and $.4$) between NSS and RN. Similarly, competing-risks regression analyses based on both matching schemes also failed to reveal statistically significant CSM differences ($P = .3$ and $.3$). CONCLUSIONS: Our study represents the largest and the only population-based analysis of cancer control efficacy of NSS vs RN in T1bN0M0 RCC. It indicates that NSS does provide equivalent cancer control relative to RN. In consequence, based on cancer control equivalence, NSS should be given equal consideration to RN in patients with T1bN0M0 lesions. Crown Copyright 2010. Published by Elsevier Inc. All rights reserved.

PMID: 19962740 [PubMed - indexed for MEDLINE]

☰ Publication Types, MeSH Terms

Publication Types:

Comparative Study

Research Support, Non-U.S. Gov't

Impact factor: 2.242

Summary of search results

- UpToDate → 2, review
- Cochrane → 1, review
- Pubmed → 1, comparative study ; 3, review ; 2, multicenter study ; 1, case series



Nephron-sparing Surgery Is Equally Effective to Radical Nephrectomy for T1BNOMO Renal Cell Carcinoma: A Population-based Assessment

Maxime Crépel, Claudio Jeldres, Paul Perrotte, Umberto Capitanio, Hendrik Isbarn, Shahrokh F. Shariat, Daniel Liberman, Maxine Sun, Giovanni Lughezzani, Philippe Arjane, Hugues Widmer, Markus Graefen, Francesco Montorsi, Jean-Jacques Patard, and Pierre I. Karakiewicz

Comparative study

Population-based cohort study

Grade 2C

Impact factor: 2.242

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0090-4295/10/\$34.00
doi:10.1016/j.urology.2009.04.098

OBJECTIVES

- To test the effect of nephron-sparing surgery (NSS) vs radical nephrectomy (RN) on cancerspecific mortality (CSM) in patients with T1bN0M0 renal cell carcinoma (RCC) in a population-based cohort.
- To date, only few series from tertiary care centers supported the use of NSS for T1bN0M0 (range 4-7 cm) RCC.



METHODS

- The Surveillance, Epidemiology, and End Results database allowed us to identify 275 NSS (5.3%) and 4866 RN (94.7%) patients treated for T1bN0M0 RCC between 1988 and 2004.
- Analyses matched for age, year of surgery, tumor size, and Fuhrman grade addressed the effect of nephrectomy type (NSS vs RN) on CSM.



RESULTS

- Five years after surgery, the surviving proportions of NSS and RN patients matched for age, tumor size, and year of surgery were respectively 91.4 and 95.3% and 90.1 and 93.8% in the cohort, where additional matching for Fuhrman grade was performed.
- Neither of the matched analyses resulted in statistically significant CSM difference (P .1 and .4) between NSS and RN.
- Similarly, competing-risks regression analyses based on both matching schemes also failed to reveal statistically significant CSM differences (P .3 and .3).

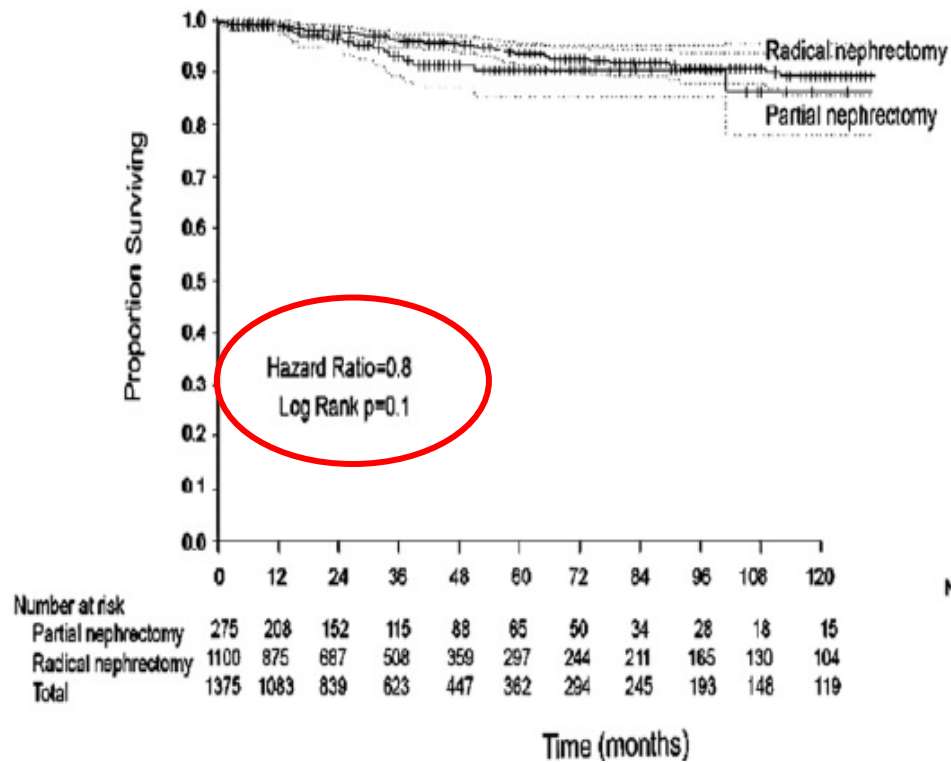


Table 1. Clinical characteristics of the population matched for age, tumor size, and year of surgery (n = 1375) and of the population matched for age, tumor size, year of surgery, and Fuhrman grade (n = 799)

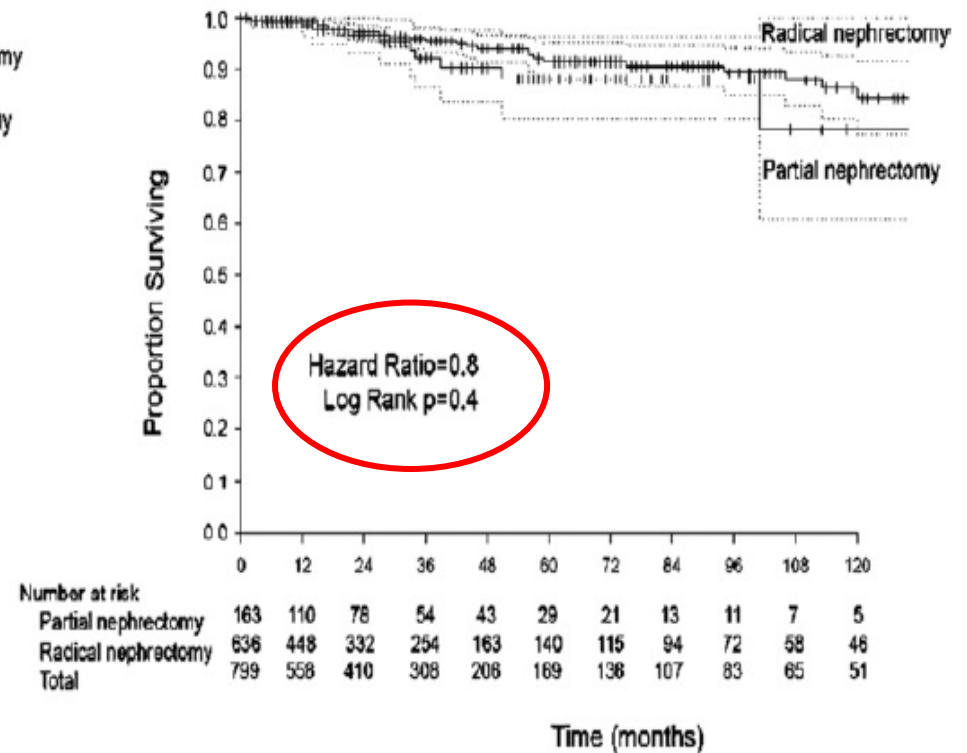
	Population Matched for Age, Tumor Size, and Year of Surgery (n = 1375)		Population Matched for Age, Tumor Size, Year of Surgery, and Fuhrman Grade (n = 799)	
	Partial Nephrectomy (%)	Radial Nephrectomy (%)	Partial Nephrectomy (%)	Radial Nephrectomy (%)
Total	275	1100	163	636
Age (y): mean (range)	60.5 (25-87)	60.5 (20-92)	61 (25-84)	61 (30-92)
Gender				
Male	175 (63.6)	667 (60.6)	99 (60.7)	383 (60.2)
Female	100 (36.4)	433 (39.4)	64 (39.3)	253 (39.8)
Tumor size (in cm)				
Mean (median)	5.2 (5.0)	5.2 (5.0)	5.2 (5.0)	5.2 (5.0)
Histologic subtype				
Clear cell	214 (77.8)	1001 (91.0)	131 (80.4)	592 (93.0)
Papillary	46 (16.7)	60 (5.5)	23 (14.1)	29 (4.6)
Chromophobe	11 (4.0)	24 (2.2)	7 (4.3)	10 (1.6)
Unclassified	4 (1.5)	15 (1.4)	2 (1.2)	5 (0.8)
Fuhrman grade				
I	41 (14.9%)	156 (14.2)	41 (25.2)	155 (24.4)
II	83 (30.2)	361 (32.8)	83 (50.9)	332 (52.2)
III	37 (13.5)	145 (13.2)	37 (22.7)	145 (22.8)
IV	2 (0.7)	20 (1.8)	2 (1.2)	4 (0.6)
Unknown	112 (40.7)	418 (38.0)	0	0
Follow-up (mon), mean (median)	40.7 (29)	46.7 (33.5)	34.0 (23)	39.4 (26.5)
Follow-up in censored patients (who did not die of RCC): mean (median)	41.5 (30)	46.9 (33)	34.0 (22)	39.5 (26)
Year of surgery				
1988-1990	11 (4.0)	44 (4.0)	4 (2.5)	16 (2.5)
1991-2000	96 (34.9)	384 (34.9)	49 (30.1)	196 (30.8)
2001-2004	168 (61.1)	672 (61.1)	110 (67.4)	424 (66.7)

Data are stratified according to nephrectomy type (partial nephrectomy vs radical nephrectomy).

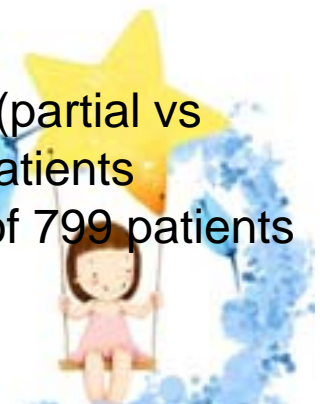
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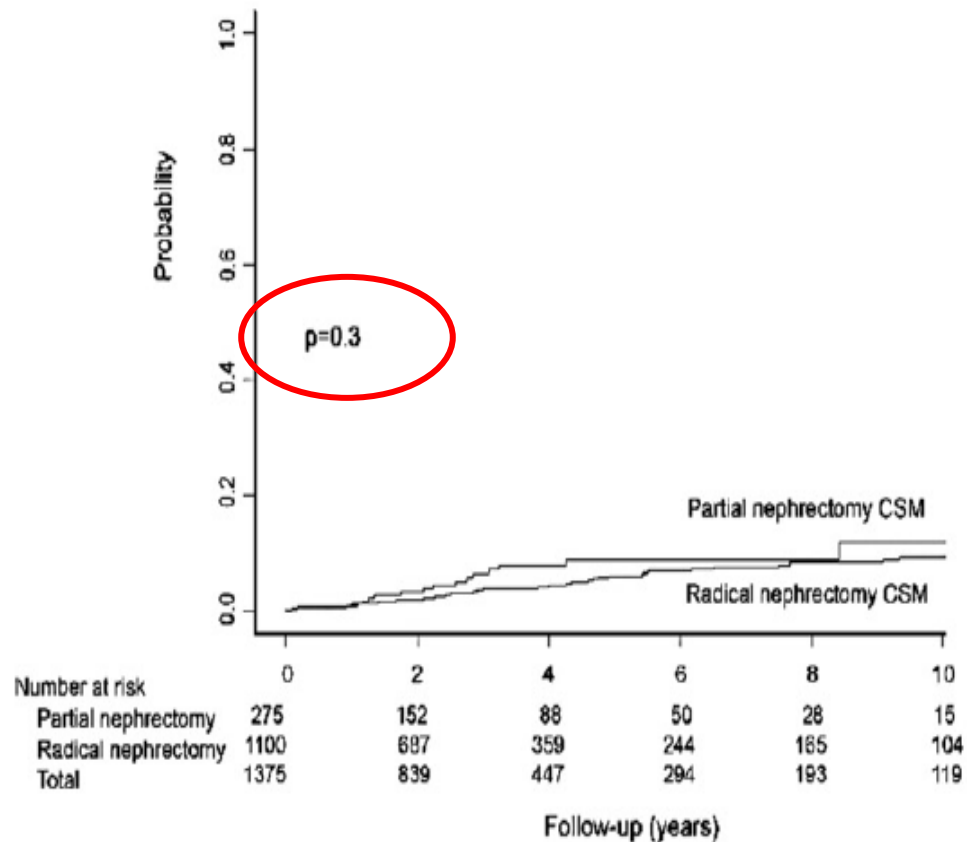
B



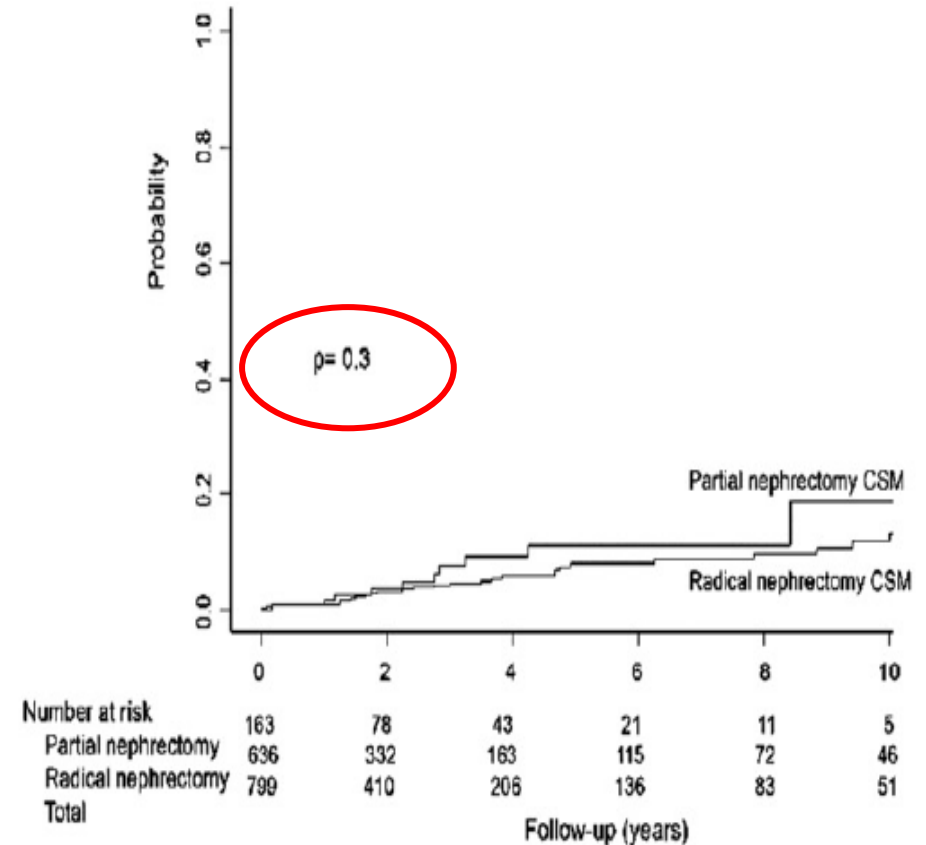
- Kaplan-Meier survival plots depict the univariable effects of surgery type (partial vs radical nephrectomy) on cancer-specific mortality in a population of 1375 patients matched for year of surgery, age, and tumor size (A) and in a population of 799 patients matched for year of surgery, age, tumor size, and Fuhrman grade (B).



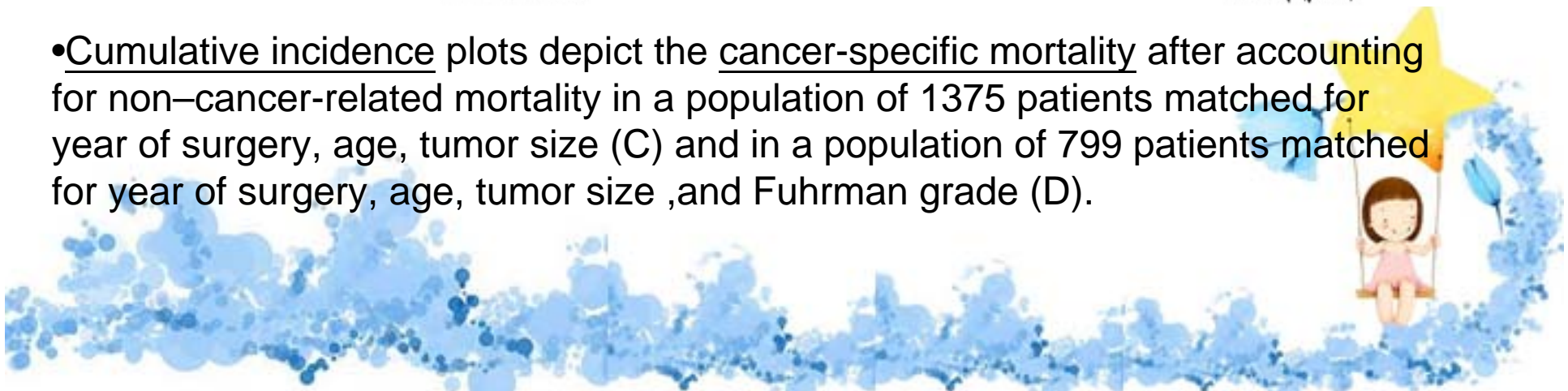
C



D



- Cumulative incidence plots depict the cancer-specific mortality after accounting for non-cancer-related mortality in a population of 1375 patients matched for year of surgery, age, tumor size (C) and in a population of 799 patients matched for year of surgery, age, tumor size, and Fuhrman grade (D).



CONCLUSIONS

- Our study represents the largest and the only population-based analysis of cancer control efficacy of NSS vs RN in T1bN0M0 RCC.
- It indicates that NSS does provide equivalent cancer control relative to RN.
- In consequence, based on cancer control equivalence, NSS should be given equal consideration to RN in patients with T1bN0M0 lesions.



Is the trial valid? What are the results? Will the results help locally?	Yes
1. Did the study ask a clearly-focused question?	Yes
2. Was this a randomized controlled trial (RCT) and was it appropriately so?	No
3. Were participants appropriately allocated to intervention and control groups ?	Yes
4. Were participants, staff and study personnel 'blind' to participants' study group?	No



6. Were the participants in all groups followed up and data collected in the same way?	Yes
7. Did the study have enough participants to minimise the play of chance?	Yes
8. How are the results presented and what is the main result? → survival curves and hazards : PN had the same cancer control rate to RN	
9. How precise are these results? → HR: 0.8, P=0.3	
10. Were all important outcomes considered so the results can be applied?	Yes



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Collaborative Review – Kidney Cancer

The Expanding Role of Partial Nephrectomy: A Critical Analysis of Indications, Results, and Complications

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Jean Jacques Patard^e, Craig G. Rogers^f, Paul Russo^a, Robert G. Uzzo^g, Hendrik Van Poppel^h*

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Impact factor: 6.512

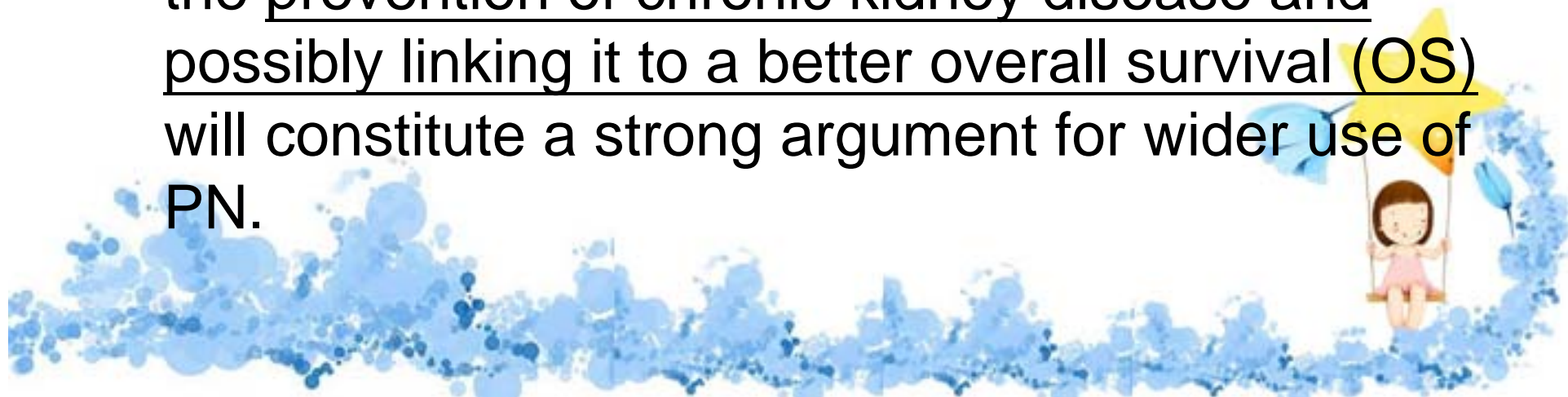
Review article

Grade 2C



Context

- The gained expertise in the surgical technique of partial nephrectomy (PN) with excellent oncologic outcome and reduced morbidity has contributed to more frequent use of PN in many centres of reference, and the recent evidence favouring PN over radical nephrectomy (RN) in the prevention of chronic kidney disease and possibly linking it to a better overall survival (OS) will constitute a strong argument for wider use of PN.



Objective

- To objectively analyse the advantages of PN over RN and to evaluate the risk–benefit ratio of expanding the indications of PN T1b renal cortical tumours.



Evidence acquisition

- Literature searches on English-language publications were performed using the National Library of Medicine database. The queries included the keywords partial nephrectomy and nephron sparing surgery.
- Eight hundred four references were scrutinised, and 175 publications were identified and reviewed. Sixty-nine articles were selected for this review.
- These references formed the basis for this analysis and were selected based on their relevance and the importance of their content.



Evidence synthesis

- The use of PN has been steadily increasing, particularly in tertiary care centres.
- This trend is now strengthened by evidence supporting the role of PN in reducing the risk of chronic kidney disease in patients with renal masses 4 cm.
- A wider use of PN for larger tumours, granted technical feasibility, is supported by the preliminary evidence, suggesting an OS advantage favouring PN over RN.



Partial nephrectomy versus radical nephrectomy: impact on overall survival

- In a large retrospective study based on information from the SEER-linked Medicare database on 10886 patients (>65 yr of age) who underwent either PN (7%) or RN (93%) for kidney cancer, Miller et al compared the frequency of cardiovascular morbidity after PN and RN.
- To control for secular trends in the indications with regards to PN, the authors did subset analyses based on the period of treatment between the years 2000 and 2002; no association was observed between treatment and postoperative cardiovascular morbidity.



- In a population-based cohort of 7769 patients matched for age, tumour size, and year of surgery, RN was associated with a 1.23-fold increase in overall mortality than PN ($p = 0.001$).
- The 5- and 10-yr survival rate of PN versus RN was, respectively, 89.3% versus 84.4% and 71.3% versus 68.2%, resulting in an absolute survival difference of 4.9% and 3.1%.
- In a competing risk analysis adjusting for patient age and tumour characteristics, RN was associated with a higher rate of non-cancer-related mortality.
- Although adjusting for tumour size, neither analysis adjusted for the imperative versus elective indication of PN; the latter may favour PN further with regards to OS



- In summary, there is compelling evidence to support the advantage of PN over RN in reducing the risk of chronic kidney disease and promoting the awareness of the importance of kidney preservation.
- Limitations : 1.older patients are more likely to receive RN than younger and healthier patients. 2. surgeon preoperatively and dissuaded him or her from using PN



Partial nephrectomy for renal tumours >4 cm: oncologic safety and morbidity profile

- [Patard et al](#) used data from seven centres in Europe and the United States to compare the specific survivals after PN (379) and RN (1075).
- In 544 patients with available recurrence data (37.4%), there were no significant differences in local or distant recurrence for PN or RN for T1a (0.8% and 2.4% vs 0.6% and 4.6%, respectively; $p = 0.6$) and T1b tumours (3.6% and 7.1% vs 2.3% and 15.6%, respectively; $p = 0.5$).



- In the patients with tumours >4 cm with comparable characteristics, the disease-specific survival (DSS) between PN and RN was not significantly different (p = 0.8), although patients with T1b tumours had a slightly higher recurrence-free rate, suggesting the impact of patients selection



- **Becker et al** described their experience with elective PN for malignant renal cortical tumours >4 cm.
- Of the carefully selected 69 patients with peripherally located tumours, 55 (79.7%) had clear-cell pathology, the mean pathologic tumour size was 5.3 cm (range: 4.1–10 cm), and four patients (5.8%) experienced disease recurrence at a median follow-up of 5.8 yr.
- Several other studies have confirmed that elective PN in carefully selected patients can achieve oncologic outcomes equivalent to RN in the treatment of T1b renal cancers (Table 1).



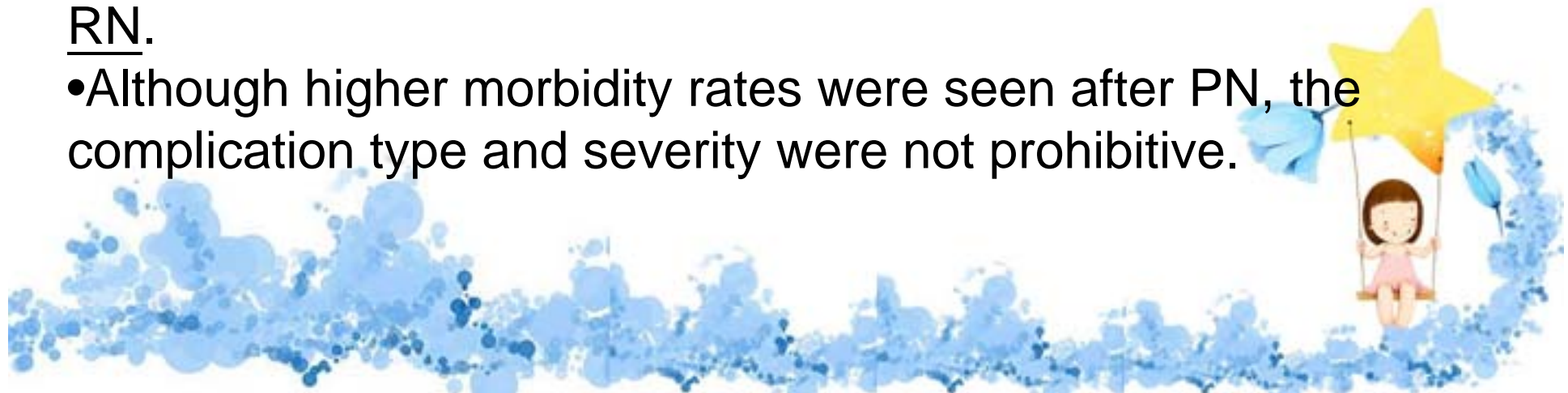
Table 1 – Summary of partial nephrectomy results

Authors	Study period	Single vs multi-institution	Laparoscopic vs open	Patients, <i>n</i>	Clear-cell histology, %	Fuhrman grade ≥ 3 , %	Mean tumour size, cm	Mean follow-up, mo	Local recurrence, %	DSS, %
Antonelli et al [54]	1983–2007?	Single	Open	52	80.8	25	–	54.3	1.9	93
Becker et al [42]	1975–2004	Single	Open	69	79.7	7.2	5.3	71	0	100
Dash et al [55]	1998–2004	Single	Open	45	100	20	4.8	21*	–	–
Leibovich et al [56]	1970–2000	Single	Open	91	63.7	25	4.9	106	5.5	98.3
Pahemik et al [57]	1979–2006	Single	Open	102	71.6	10.8	5.0	56.4	1	95.8
Patard et al [58]	1984–2005	Multi	Open	247^	–	28.7	–	36	1.3	–
Patard et al [52]	1984–2001	Multi	Open	65	–	10.9	5.3	62.5	3.6	93.8
Peycelon et al [59]	1980–2005	Single	Open	61^^	77.1	24.6	5.6	70.7*	9.84	81
Simmons et al [60]	1999–2005	Single	Lap	31**	55	33	6	–	–	–
Joniau et al [69]	1997–2005	Single	Open	67	55.2	53.7	4.5*	40.2*	4	99

DSS = disease-specific survival.
 * Median.
 ^ Data available on a subset of this number.
 ^^ 16 tumours were >7 cm.
 ** 31 out of 58 patients had a diagnosis of cancer.

• In the carefully selected patients with tumours >4 cm, PN obtained equivalent oncologic outcome to that achieved after RN.

• Although higher morbidity rates were seen after PN, the complication type and severity were not prohibitive.



- In summary, the indications of PN are expanding to larger and more complex tumours.
- The oncologic outcome after surgery for larger tumours is often not determined by the local tumour control but rather by undiscovered metastatic disease.
- Therefore, PN seems defensible when technically feasible and is oncologically safe even for larger tumours.



Conclusions

- The available evidence supports elective PN as the standard surgical treatment for renal cortical tumours 4 cm.
- For larger tumours, PN has demonstrated feasibility and oncologic safety in the carefully selected patient population studied.



Is the trial valid? What are the results? Will the results help locally?	Yes
1. Did the study ask a clearly-focused question?	Yes
2. Was this a randomized controlled trial (RCT) and was it appropriately so?	No
3. Were participants appropriately allocated to intervention and control groups ?	Yes
4. Were participants, staff and study personnel 'blind' to participants' study group?	No



6. Were the participants in all groups followed up and data collected in the same way?	Yes
7. Did the study have enough participants to minimise the play of chance?	Yes
8. How are the results presented and what is the main result? → DSS, oncology outcome : PN had the same DSS, oncology outcome to RN	
9. How precise are these results? → P=0.8	
10. Were all important outcomes considered so the results can be applied?	Yes



Summary

Study	Results	Level of Evidence
Crépel M, Urology. 2010	PN had the equivalent cancer control relative to RN	2C
Touijer K, Eur Urol. 2010 Review.	PN had the same DSS, oncology outcome to RN	2C



Conclusion

- For T1bN0M0 RCC, PN has the equivalent cancer control relative to RN in selective patient.



Apply to our patient

- 目前沒有RCT的報告，只有outcome review articles
- 最大的試驗報告是針對5141個病人做的
- 大多數的報告都顯示在T1b的病人中，PN和RN的癌症控制率相當
- 對於腎功能不好者可優先考慮PR
- PR技術層面及術後併發症較RN為高，故要和病人及家屬討論清楚



Discussion

- Implication of future research
 - case-control study, double blind
 - economic





Thank You