How Safe is Laparoscopic Radical Nephrectomy in T3 RCC?

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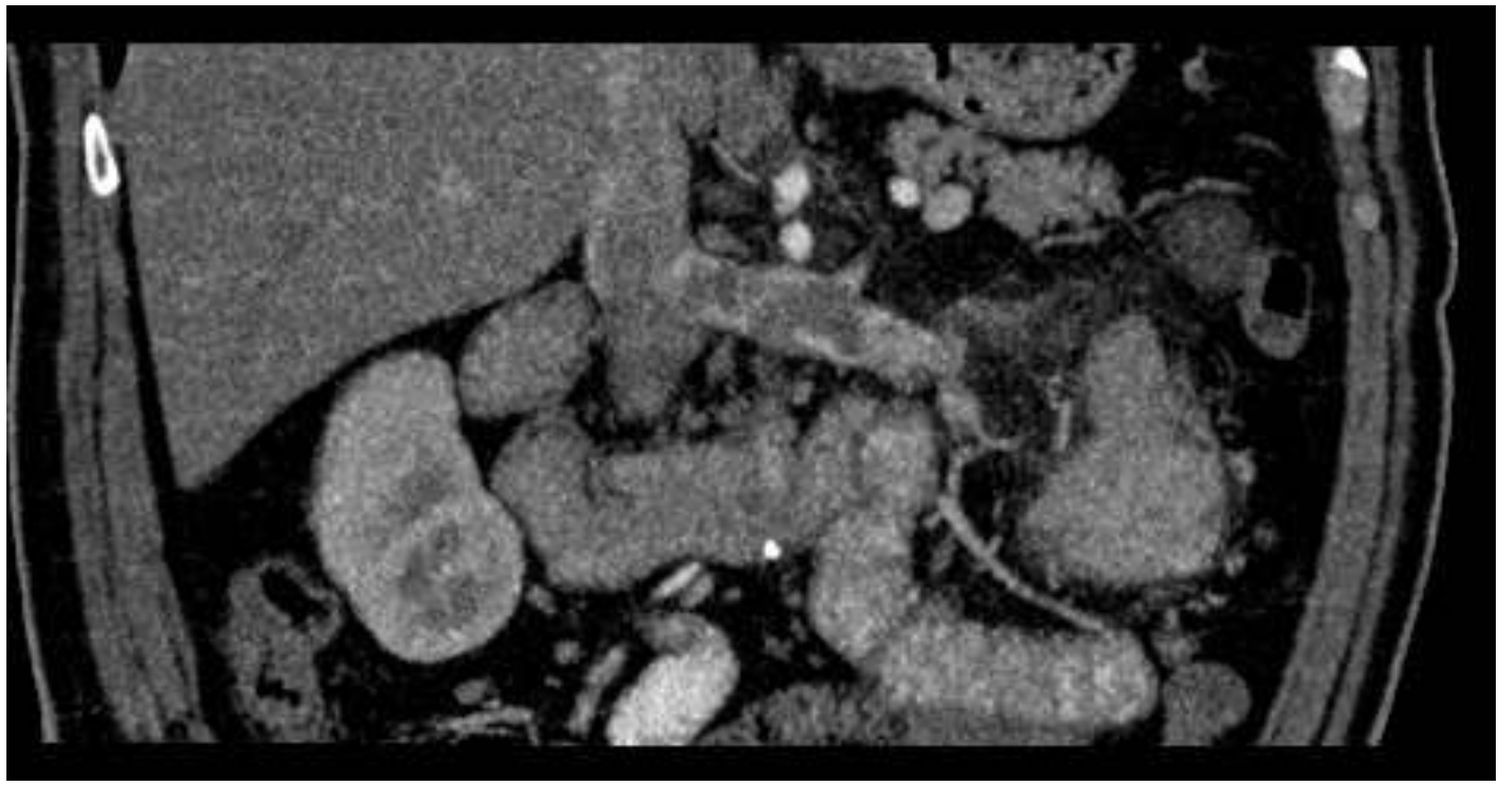
How Safe is Laparoscopic Radical Nephrectomy in T3 RCC?

- TNM
- Safety
  - Surgical
  - Oncological



	4th edition, 1987	5th edition, 1997	6th edition, 2002	7th edition, 2010
T1	Organ confined, ≤2.5 cm	Organ confined, ≤7 cm	NA	NA
T1a	Not defined	Not defined	Organ confined, ≤4 cm	Organ confined, ≤4 cm
T1b	Not defined	Not defined	Organ confined, 4–7 cm	Organ confined, 4–7 cm
T2	Organ confined, >2.5 cm	Organ confined, >7 cm	Organ confined, >7 cm	NA
T2a	Not defined	Not defined	Not defined	Organ confined, 7–10 cm
T2b	Not defined	Not defined	Not defined	Organ confined, >10 cm
T3a	Perinephric tissue or contiguous into adrenal gland	Perinephric tissue or contiguous into adrenal gland	Perinephric tissue, renal sinus, or contiguous into adrenal gland	Perinephric tissue, renal sinus, or renal vein
T3b	Renal vein	Renal vein or vena cava below diaphragm	Renal vein or vena cava below diaphragm	Vena cava below the diaphragm
T3c	Vena cava below diaphragm	Vena cava above diaphragm	Vena cava above diaphragm	Vena cava above diaphragm or into wall of vena cava at any level
T4	Beyond Gerota's fascia or vena cava above diaphragm	Beyond Gerota's fascia	Beyond Gerota's fascia	Beyond Gerota's fascia or directly into adrenal gland

NA = not applicable.

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How Safe is Laparoscopic Radical Nephrectomy in T3 RCC?

- cT3 vs pT3
- T3 (92) & T4 (2)
- 80% pT3 upstaged from cT2
- only 21% patients cT3
- most pT3 due to segmental renal vein invasion

BJUI

The operative safety and oncological outcomes of laparoscopic nephrectomy for T3 renal cell cancer

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Study Type – Therapy (case series)
Level of Evidence – 4

What's known on the subject? and What does the study add?
Laparoscopic radical nephrectomy is a well established treatment for localized RCC, where nephron-sparing approaches are not appropriate. As surgeon and departmental experience grow more extensive tumours will be tackled laparoscopically. However, little is known about the operative safety and oncological outcomes of the laparoscopic approach for locally advanced RCC.

The present study describes the largest reported cohort of patients receiving laparoscopic radical nephrectomy for locally advanced RCC. In the context of suitably experienced personnel in an established centre, we have established that this approach is safe from operative, postoperative and oncological standpoints, with comparable data to existing open series.

OBJECTIVE

- To determine the operative, postoperative and oncological outcomes of laparoscopic radical nephrectomy (LRN) for locally advanced renal cell cancer (RCC), which, as surgeon and departmental experience increases, is being performed more often.

PATIENTS AND METHODS

- In total, 94 consecutive patients receiving LRN for pathologically confirmed T3 or T4 RCC at a tertiary referral centre between March 2002 and May 2010 were analyzed.
- Preoperative, operative, tumour and postoperative characteristics were evaluated together with recurrence and outcome data.
- Survival was estimated using the Kaplan–Meier method. Cox's proportional hazards model was used for multivariate analysis.

RESULTS

- In total, 77 patients had LRN with curative intent and 17 patients had LRN with cytoreductive intent.
- There were six LRNs (6.4%) that were converted to open procedures.
- Overall, there were two (2.1%) Clavien grade IIIa complications, one (1.1%) grade IVa complication and one (1.1%) postoperative death.
- Overall median follow-up was 17.4 months. In total, 22 (28.6%) patients receiving curative LRN developed a recurrence after a median of 13.9 months. 12 (54.5%) patients developed distant metastases, five (22.7%) patients had local recurrences and three (13.6%) patients had monoscelonic spread. Median predicted progression free survival was 48.4 months in patients undergoing LRN with curative intent. Median predicted overall survival was 65.6 months after curative LRN and 15.7 months after cytoreductive LRN.
- Multivariate analysis did not reveal any variables influencing recurrence or survival.

CONCLUSIONS

- In the context of suitably experienced personnel in an established centre, LRN for locally advanced RCC is safe from an operative and oncological standpoint.
- Patients clinically staged as T3 RCC must still be selected carefully for LRN in a multidisciplinary setting.

KEYWORDS

cytoreductive nephrectomy, laparoscopic radical nephrectomy, locally advanced, oncological outcome, operative safety, renal cell carcinoma

INTRODUCTION

Extirpative surgery is the only curative treatment for RCC. Where partial nephrectomy is not amenable or suitable, it is now well established that laparoscopic radical nephrectomy (LRN) represents a first-line treatment for localized RCC [1]. There is substantial evidence showing that the operative, postoperative and oncological outcomes of LRN for T2 RCC are at least equivalent to those for open nephrectomy [2–4]. As experience with LRN grows, case selection has expanded to include more complex cases, which means that carefully

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	BAUS All	All	Post 2010 RCC	pT3	cT3
Op Time (Median)	150 min	85 min	80 min	90 min	90 min
LOS (Median)	4 days	3 days	3 days	5 days	
Transfusion Rate	5.5%	1.4%	2.7%	2.5%	
Conversion Rate	4.8%	2.5%	1.7%	2.5%	
Mortality	0.6%	0.7%	0.7%	1.2%	
		n=801	n=288	n=78	n=16

BAUS Nephrectomy Audit

	n=	Conversion (n)	Complication (%)	Blood Loss (mL)	LOS
Mayo Clinic	14	1	7	-	-
Johns Hopkins	37	1	14	200	3
Canada	41	0	9.7	100	4
Beijing	15	0	-	150	5
Leeds	16	0	11	65	5
BAUS	28	0	14.3	305	5.5

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J Endo 28(3) 312-7; 28(7) 819-24
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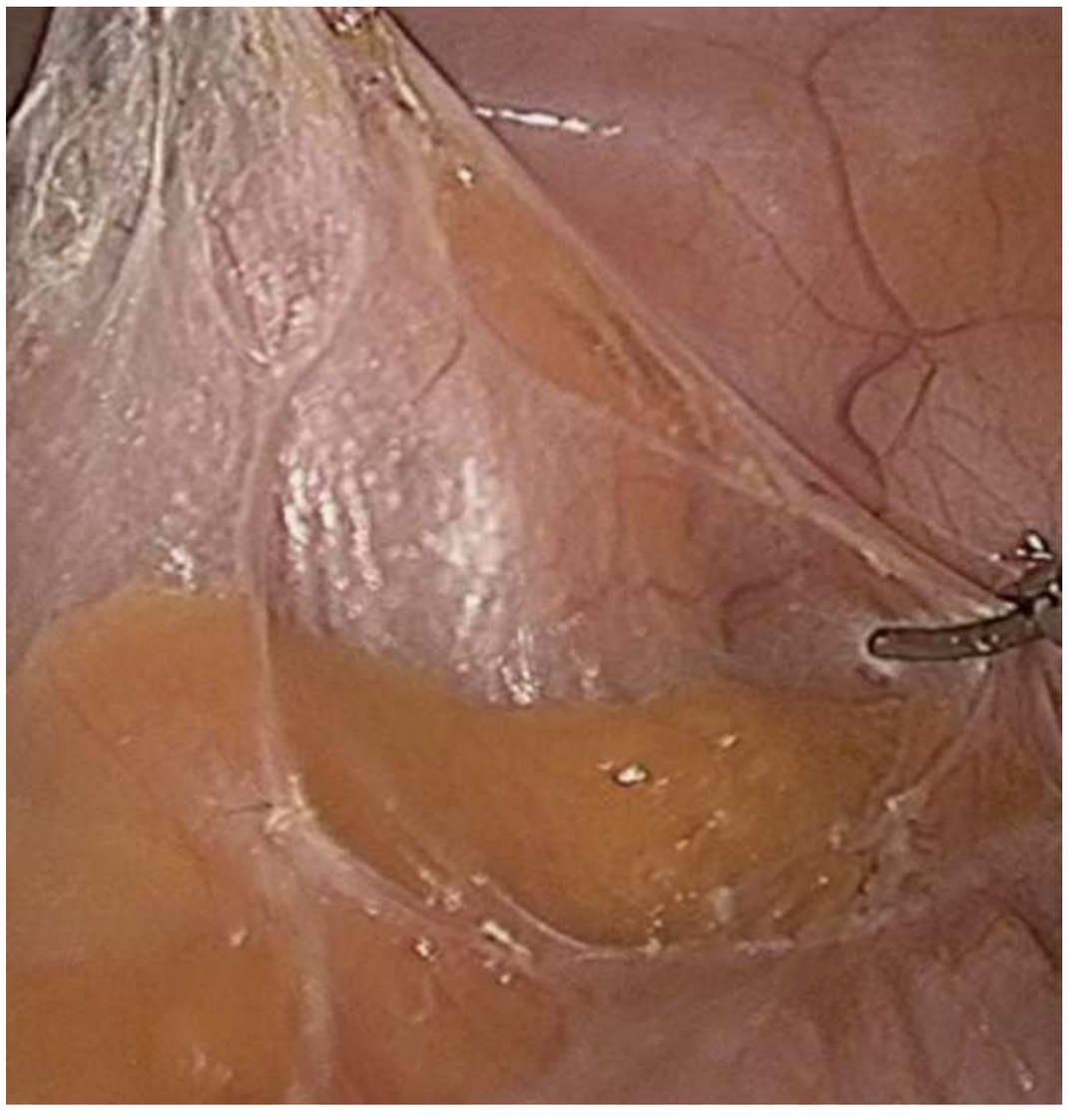
How Safe is Laparoscopic Radical Nephrectomy in T3 RCC?

Surgical Safety

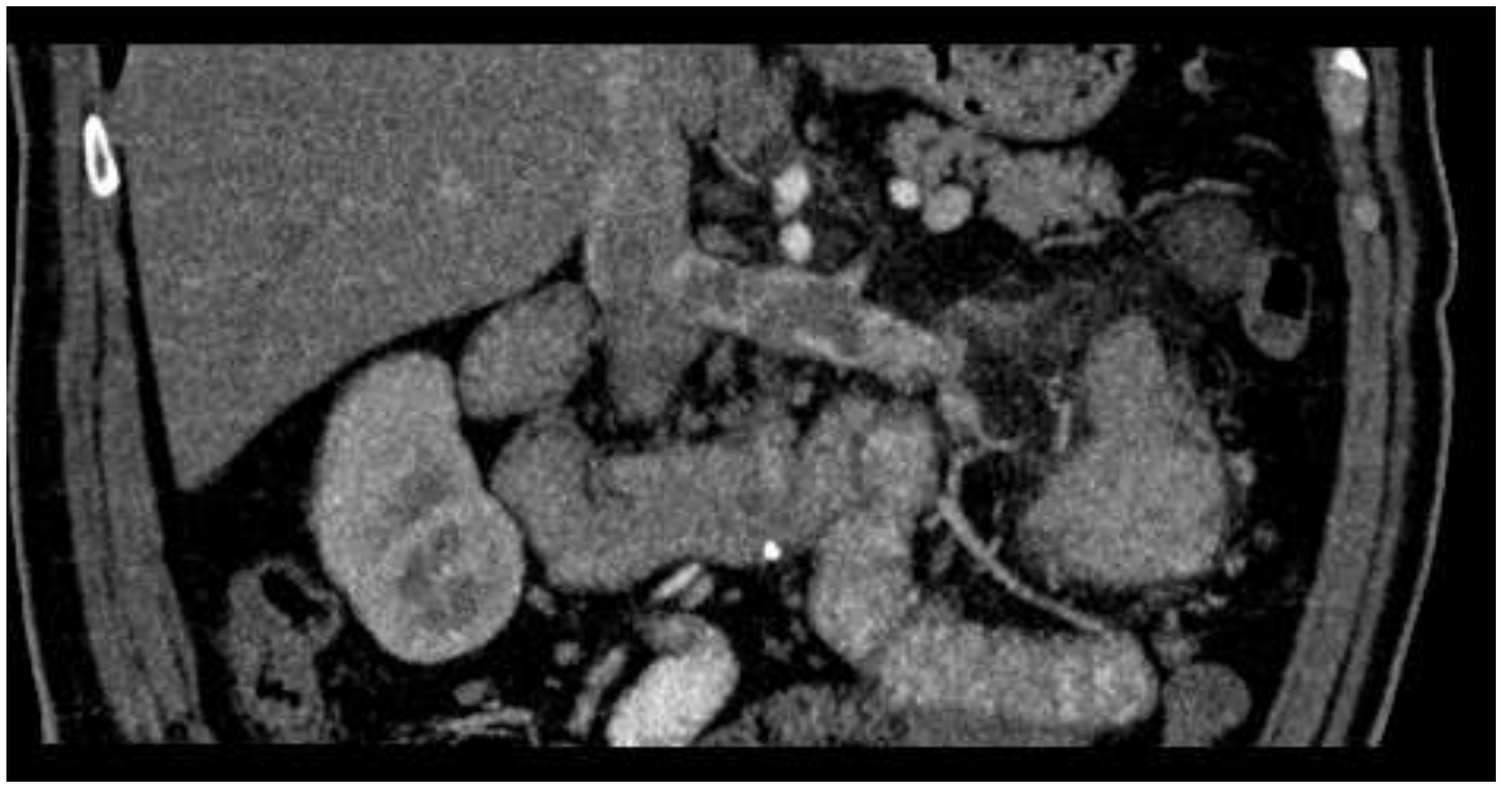
- LRN Safe
  - Less blood loss
  - Lower intra-operative complication rate
  - Reduced hospital stay
- Patient & tumour factors should be considered
- Surgeons experience should be taken in to consideration



How Safe is Laparoscopic Radical Nephrectomy in T3 RCC?

Oncological Safety

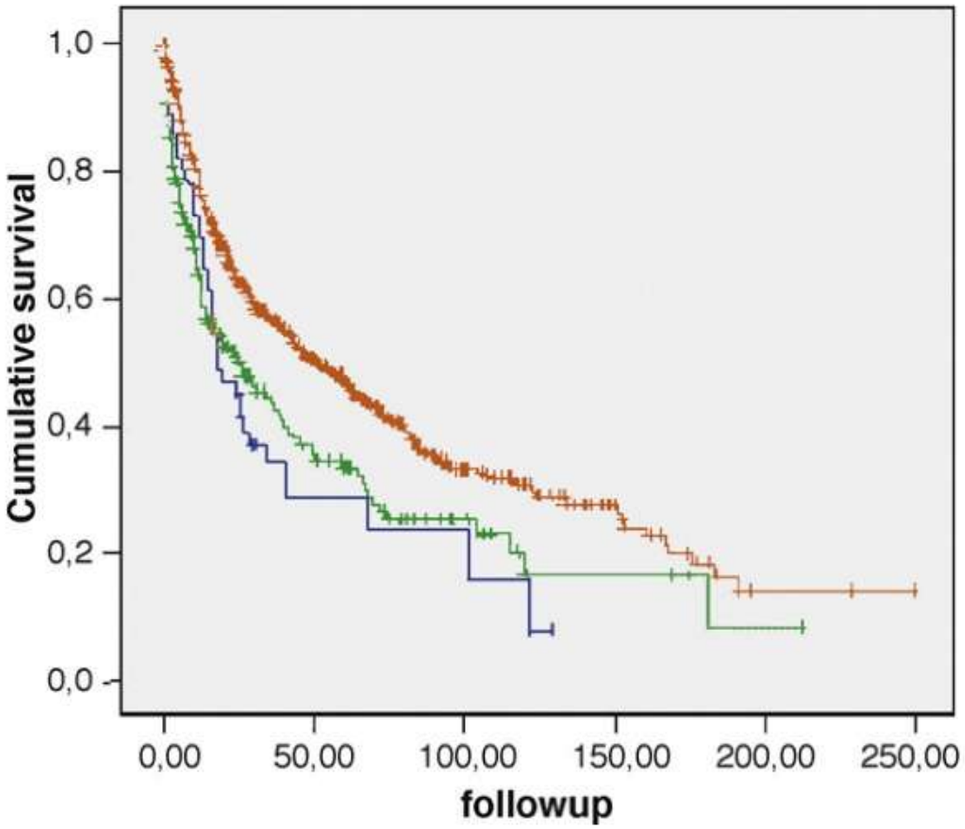
- Margins
- Survival



Oncological Safety

1192 patients 1982-2003

- Renal Vein Invasion 52 mo
- IVC below diaphragm 25 mo
- IVC above diaphragm 18 mo



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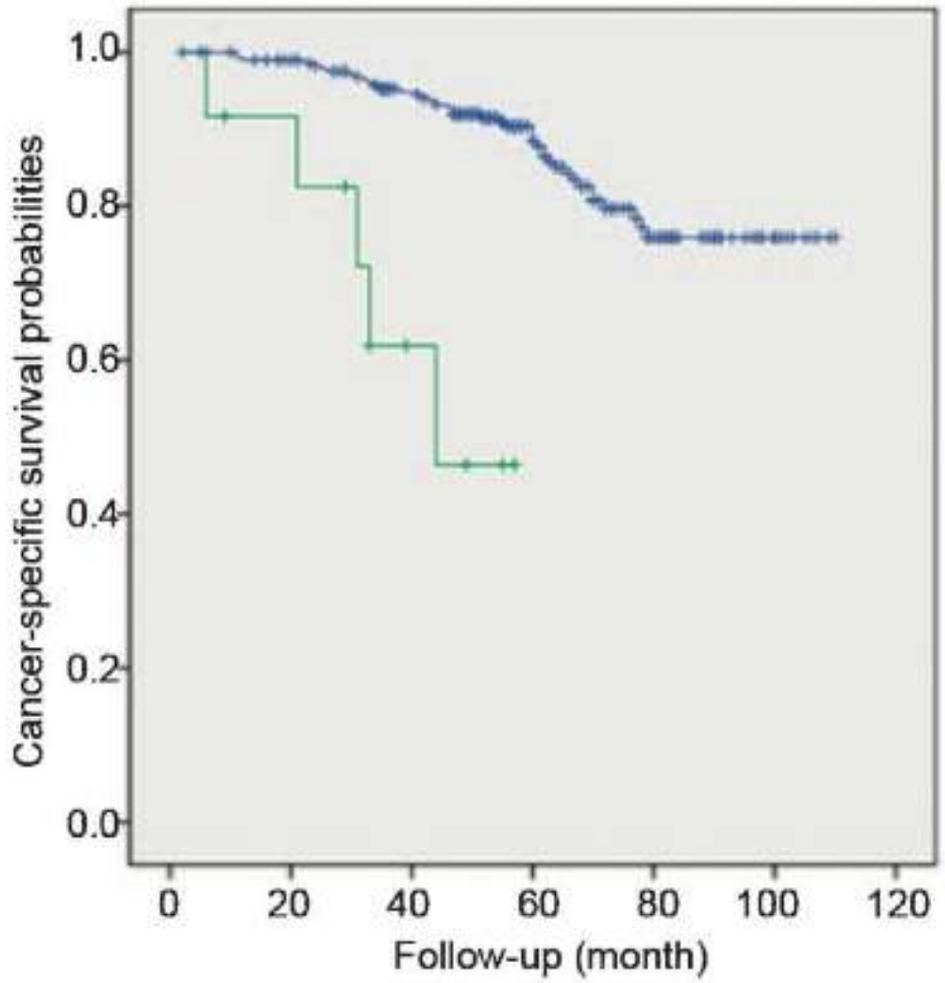
Oncological Safety

313 patients 2010-2011

- T3a 288 pt
- T3b 12 pt



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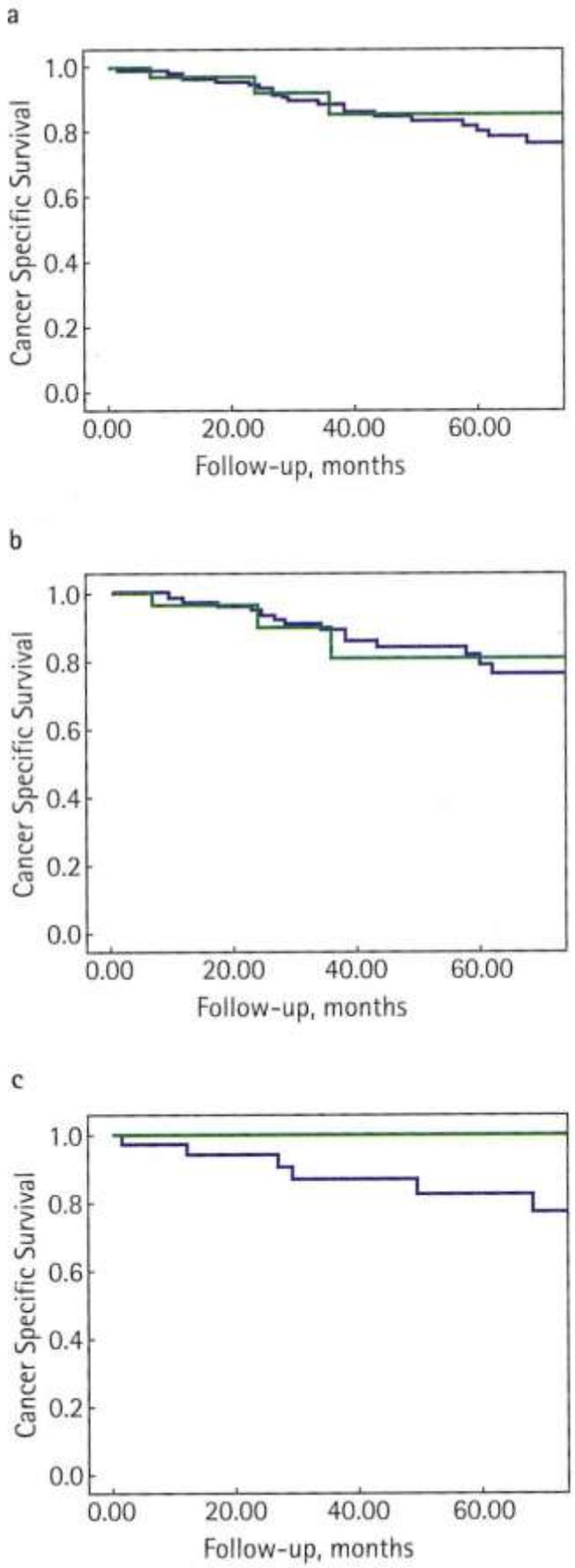
Oncological Safety

1003 patients pT3

- 65 Lap
- 938 Open

- Matched pairs 44:135
- Open longer FU



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Oncology Outcomes

Oncological Safety

252 patients pT3a/b

- Matched pairs 25:25
- Lap CSS 91.3 mo
- Open CSS 88.7 mo

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ORIGINAL ARTICLE

Matched pair analysis of laparoscopic versus open radical nephrectomy for the treatment of T3 renal cell carcinoma

A. Laird · K. C. C. Choy · H. Delaney · M. L. Cutress · K. M. O'Connor · D. A. Tolley · S. A. McNeill · G. D. Stewart · A. C. P. Riddick

cT3a - Laparoscopic Surgery Standard of Care

- Limited to Experienced Lap Surgeons in High Volume Centres
  - Planes
  - Venous Anatomy
  - Vascular Control
- Submission to National Audit - Mandatory