

Tuesday 24 June 16.00–17.00
 Poster Session 6: Basic Science: Renal Cancer/Transplantation
 Chairmen: M. Aitchison and D. Cranston

P051

Is tumour T lymphocyte infiltration related to survival in renal cancer?

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INTRODUCTION

Tumour infiltration by T cell subsets is associated with a better prognosis in certain

solid tumours, e.g. colorectal and lymphoma. However, in renal cancer a high CD8+ infiltrate has been associated with a worse prognosis [*Cancer Res* 2001; **61**: 5132–6]. We

examined the relationship between tumour infiltration by CD4+ and CD8+ lymphocytes, and survival in patients who had undergone curative surgery for renal cancer.

PATIENTS AND METHODS

Ninety patients undergoing nephrectomy for clear cell carcinoma were studied; the minimum follow-up was 16 months. Tumour sections were stained and counted for CD4+ and CD8+ lymphocytes using a point-counting technique by two observers. Tumours were grouped as <T2 (50) or >T3 (40) (UICC 1997). Survival was analysed using Cox regression models.

Results CD4+ ($P < 0.05$) but not CD8+ ($P = 0.611$) counts increased with tumour stage. Twenty-five patients died during the follow-up; on multivariate analysis increased CD4+ counts were associated with poorer survival (hazard ratio 1.024, 95% CI 1.00–1.05, $P = 0.040$) independent of stage (hazard ratio 2.68, 95% CI 1.05–6.84, $P = 0.040$).

CONCLUSION

These results indicate that the presence of a conspicuous CD4+ but not CD8+ T lymphocyte tumour infiltrate is associated with poor survival in renal cancer independent of stage. The immune response in renal cancer is complex and seems to be different from that in other solid tumours. Further investigation of this response is required.

P052

Genetic validation of haematogenous spread of disease perioperatively in RCC

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INTRODUCTION

In sporadic RCC mutations or transcriptional inactivation through hypermethylation of the Von-Hippel Lindau (VHL) gene are present in up to 60% of patients. In this study we examined such mutations in laser-capture microdissected pure samples of primary tumour. These patient-specific DNA sequences were used to track minimal residual disease in the bone marrow and plasma of patients who underwent radical nephrectomy for RCC.

fit for radical nephrectomy. Control rib marrow was obtained from patients with no history of malignant disease. Marrow was flushed from freshly resected rib specimens and grown with DMEM medium to 80% confluence. DNA was isolated from this marrow using laser-capture microdissected tumour specimens. Using the isolated DNA nested-PCR reactions of the VHL gene were carried out on all specimens. Purified PCR DNA products were sequenced. Sequenced products were compared with the VHL wild-type genome sequence.

primary tumours. Mutations were found in exon 3 in four of 18 rib bone marrows. Three of these patients had mutations circulating in the plasma 6 months after surgery. The mutations corresponded to those mutations found in the laser-capture microdissected primary tumours and were patient-specific.

PATIENTS AND METHODS

Rib segments were examined prospectively from 16 patients with localized RCC who were

RESULTS

Sixteen of 25 (64%) patients had mutations detected in laser-capture microdissected

CONCLUSION

The detection of mutations in the bone marrow perioperatively indicates haematogenous dissemination of disease. The detection of mutations in circulating plasma 6 months after surgery indicates residual disease.

P053

The natural history of untreated renal cancer in patients unsuitable for nephrectomy

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BACKGROUND

Very little is known of the growth rate and natural history of progression of renal cancers as the tumour is usually

removed in those patients who can tolerate surgery. A 'watchful waiting' approach has been proposed in the past for small (< 3 cm) homogeneous well-circumscribed tumours. However, elderly patients who

are unfit for surgery often do not have their tumours removed. We have examined such a group of patients to assess the natural history of larger tumours if untreated.

PATIENTS AND METHODS

Twenty-six patients whose tumour had not been removed, and with no evidence of metastasis at diagnosis, were identified from a database of 365 patients with renal cancer. Data were examined retrospectively for symptoms, survival and size change.

tumour size of 6.5 (2.5–12.0) cm at diagnosis; the mean follow-up was 23.5 (2–92) months. Eight patients died from unrelated illness at a median of 4 months after diagnosis. No patient developed metastasis during the follow-up. The tumour size was unchanged in most patients during the follow-up.

larger renal masses is a reasonable and safe option.

Funding: Fischer Foundation

RESULTS

The mean (range) age of the patients treated conservatively was 76.8 (56–91) years, with a

CONCLUSIONS

In elderly patients or those with severe comorbidity the conservative management of

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Laparoscopic radical nephrectomy for renal cancer: initial experiences

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INTRODUCTION

Laparoscopic radical nephrectomy for small-volume renal tumours has been adopted as the procedure of choice at several centres. The procedural technique used attempts to duplicate conventional oncosurgical technical principles in the anticipation of emulating disease-specific survival. We present a small series assessing the initial data specifically for laparoscopic surgery for localized renal cancer.

T1N0M0, six were T2N0M0 and one had T1N2M1 disease. We performed 31 hand-assisted laparoscopic (HAL) procedures, nine retroperitoneal and five transperitoneal, and collected data prospectively for several variables during and after surgery.

inpatient stay was 5 days. Histology confirmed renal cell cancer in 44 and oncocytoma in one patient. At a mean follow-up of 7 months there were no documented recurrences on imaging studies.

RESULTS

The mean operative duration was 172 min and the mean estimated blood loss 240 mL. There were no conversions. There were four major complications, three of which were caused by bleeding during or after surgery, necessitating blood transfusion; the other was adhesive intestinal obstruction requiring a later laparotomy. The median hospital

CONCLUSIONS

These preliminary results suggest that laparoscopic renal cancer surgery appears to be a viable and safe alternative to conventional open surgery for localised renal cancer.

PATIENTS AND METHODS

Data were available for 45 patients operated upon since August 2000; 38 were staged as

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Contemporary indications for open radical nephrectomy in the era of minimally invasive surgery

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OBJECTIVE

To define contemporary indications for laparoscopic and open radical nephrectomy.

PATIENTS AND METHODS

Between July 1999 and October 2002, 76 laparoscopic radical nephrectomies were

performed in a University teaching hospital for suspected RCC. During this period 28 patients underwent open surgery for the same indication. Medical records were

retrospectively reviewed to assess the indications for the procedure. A subgroup of patients requiring open conversion was analysed for potential predictors and any effect on perioperative morbidity.

RESULTS

Open radical nephrectomy was selected on the basis of tumour factors (tumour size, hilar lymphadenopathy, renal vein + inferior vena caval thrombus, bilateral tumours, lesions of uncertain origin) and patient factors

(comorbidity requiring laparotomy, obesity, portal hypertension, previous surgery). Open conversion was required in 11 of 76 (14%) laparoscopic nephrectomies. Predictors for conversion were tumour size (56 ± 21 vs 39 ± 18 mm, $P < 0.001$), tumour site ($P = 0.007$), T score ($P = 0.029$) and hilar lymphadenopathy ($P = 0.036$). Obesity ($P = 0.342$) and previous abdominal surgery ($P = 0.244$) were not predictors for open conversion. Conversion was associated with greater blood loss and longer convalescence (both $P < 0.001$).

CONCLUSIONS

Once the reference standard for treating RCC, the indications for open radical nephrectomy have developed in the era of minimally invasive surgery. Lymphadenopathy and renal vein/inferior vena caval invasion are absolute indications for open surgery. Tumour size is a relative indication but the size limit is determined individually, based on experience. Body habitus and previous abdominal surgery should not be considered contraindications to laparoscopy.

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Should we be doing more nephron-sparing surgery for RCC?

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INTRODUCTION

Over the last 25 years the incidence of small renal cell cancers (RCC) has increased, with nephron-sparing surgery (NSS) being an effective method of management. Compared with radical nephrectomy, NSS provides similar local control and 5-year survival. Unfortunately, with the advent of laparoscopic urology and associated difficulty in learning it, many patients may not be offered NSS. We studied patients who had undergone radical nephrectomy, but who may have been suitable for NSS, as a preliminary to a multicentre pilot study.

PATIENTS AND METHODS

We undertook a pilot analysis before a single-centre, multicentre study of all patients who

underwent surgery for RCC over a 5-year period (1997–2002) identifying those suitable for NSS. Data recorded included patient demographics, imaging before and after surgery, pathological TNM classification, perioperative information, adjuvant therapy (if any), recurrence, comorbidity and disease-specific survival. This information was then used to assess suitability for NSS. Forty-four patients (male : female 2.6:1, mean age 67.6 years, range 35–88) had surgical treatment for RCC during the evaluation period.

RESULTS

The mean (range) follow-up was 22 (0.8–60) months; 11 cases (pT1 RCC) were identified to be suitable for and six equivocal

for NSS. Only one patient had NSS with no postoperative complications and no recurrence after 19 months.

CONCLUSIONS

Our study clearly shows that a quarter of patients were suitable for NSS; we conclude that after cancer control NSS is paramount and thus the patient should be offered this when appropriate.

P057

The results of cytoreductive nephrectomy

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INTRODUCTION

Surgical management for RCC in patients with node-positive or metastatic disease is contentious. Two randomized trials have

documented a survival benefit from nephrectomy in metastatic disease [*Proc Am Soc Oncol* 2000; **19**: 2(A3); *Eur Urol* 2000; **37** (Suppl. 2): 55]. However, patient selection has lead clinicians to question the role of

cytoreductive nephrectomy outside a clinical trial [*BJU Int* 2002; **89**: 523–5]. We reviewed our database covering 1991–2002 to determine the outcome in this group of patients.

PATIENTS AND METHODS

In all, 224 patients (152 men) underwent nephrectomy for primary RCC (mean age 61 years, range 28–87); 55 had histologically confirmed involvement of lymph nodes and 58 metastatic disease; 35 patients had systemic treatment after surgery.

RESULTS

The overall survival for the entire cohort was 75% (95% CI 69–81%) at 2 years and 66% (58–73%) at 5 years. The overall survival of patients with N1–2M0 was 66% at 2 years and 55% at 5 years, with N0M1 was 68% and 35%, and with N1–2M1 was 32% and none, respectively.

CONCLUSION

In this series of patients who had cytoreductive nephrectomy there was a significant 2-year survival. This is in contrast to previous UK single-institution series [*BJU Int* 2002; **89**: 523–5].

P058

Laparoscopic live-donor nephrectomy: single-centre experience from a developing nation

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INTRODUCTION

Laparoscopic live-donor nephrectomy (LLDN) has been developed as an alternative to conventional donor nephrectomy and is advantageous because of reduced morbidity and convalescence. We present our experience of LLDN in a developing nation.

using Weck Endoclips. In the initial 58 cases the kidney was delivered through a 6-cm anterior subcostal flank incision. Later we modified our technique and delivered the kidney through a 5-cm iliac fossa incision. We compared the feasibility and complications of both procedures.

(bleeding in two, trocar-induced bowel injury in one). The immediate complication rate was 20%, with long-term complications in 4%. With the use of Weck Endoclips the cost was reduced considerably, from \$400 to \$290. The iliac fossa incision was aesthetically pleasing and more acceptable to patients.

PATIENTS AND METHODS

From January 2000 to December 2002, 138 LLDN were performed, 58 using an EndoGI stapler and the other 80 as cost-effective laparoscopic donor nephrectomies (CELDN)

RESULTS

The mean age, operative duration, warm ischaemia time, blood loss, analgesic requirements, pain score and hospital stay were comparable in both groups. Re-exploration was required in three cases

CONCLUSIONS

CELDN is very relevant in the context of a developing nation, as it provides all the benefits of laparoscopic surgery at reduced cost and with better cosmesis.

P059

Comparison of laparoscopic and open donor renal transplants: ischaemia-reperfusion injury in live transplants

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INTRODUCTION

Renal transplants using living donors are accepted as the ideal, with minimal allograft injury at procurement, preservation and implantation. The use of laparoscopic donor nephrectomy is associated with raised intra-abdominal pressure and a potentially longer primary warm ischaemic time. The aim of the

study was to evaluate the ischaemia-reperfusion injury in the perioperative period, comparing kidneys from laparoscopic and open donor nephrectomy.

MATERIALS AND METHODS

During renal transplantation (using living donors), central venous blood samples were

taken in perioperatively (before and after revascularization at regular intervals up to 40 min). Samples were assessed for free radicals (electron-spin resonance), free-radical scavenging capacity (total anti-oxidants, spectrophotometric assay), markers of cellular injury (alanine aminopeptidase Ala-AP, lactate dehydrogenase, LDH, lactate) and duration before stable renal function.

RESULTS

Variable	Laparoscopic	Open	P*
Transplants, n	7	4	
Primary WIT, min	4.2	1.8	< 0.05
Maximum:			
free radicals (AU)	54.7	43.4	NS
antioxidants (TE)	0.613	0.997	NS
Tissue injury markers:			
Ala-AP, nmol/h/mL	730	484.5	NS
LDH, IU/L	354.6	249.3	NS
Lactate, mmol/L	1.12	1.11	NS
Days to stable creatinine	6	6.4	NS
Stable creatinine clearance, mL/min	60.5	87.1	NS

*Mann-Whitney U-test; WIT, warm ischaemia time.

CONCLUSION

Although the primary warm ischaemic time was longer in laparoscopic donor nephrectomies, it was associated with a mildly increased injury response in live transplants of laparoscopic vs open donor nephrectomies, but not significantly. In addition the 'stable state' creatinine clearance (Cockcroft-Gaunt) was a little poorer in the laparoscopic group, although again not significantly.

P060

Management strategies of ureteric stricture in renal transplant patients

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INTRODUCTION

Management strategies for ureteric stricture among renal transplant recipients were reviewed. Three methods of treatment were adopted which included serial stent change, open reconstruction and Acucise™ endoureterotomy.

PATIENTS AND METHODS

From a database, 35 patients were identified with ureteric stricture between 1990 and 2000, during which 1029 transplants were performed; the records of 26 were available. Ureteric anastomosis was by the Lich extravascular approach in 24 and by transuretero-ureterostomy in two. All of the transplants after 1991 had a transplant stent placed (23). The demographic characteristics of the patients were:

RESULTS

All the patients were initially managed by percutaneous nephrostomy drainage and antegrade stenting. The most common site of narrowing was the lower ureter (ureteroneocystostomy). For serial ureteric stenting, the mean (range) number of stents used for each patient was 8.6 (1–33) and the mean duration for which the stents were needed was 32.2 (2–132) months. None of the patients had complications from anaesthesia or the procedure. One patient had a candidal UTI with chronic graft dysfunction. For reconstruction/re-implantation, four patients had ureteric reimplantation, one a Boari flap and one an ileal conduit. The mean follow-up was 4 years. One patient had superficial wound dehiscence and one is currently managed with serial stent change after failed reimplantation. Of the four patients treated

by Acucise endoureterotomy, three had a mean follow-up of 6 years; all are stent free with good drainage and stable renal function. One patient died from lymphoma shortly after endoureterotomy. There were no complications in this group.

CONCLUSIONS

Ureteric strictures after renal transplantation can be managed by various approaches. Short strictures can be treated with Acucise balloon incision. For recurrent strictures after Acucise or long segment stenosis, open reconstruction is the preferred option. Serial stenting can be useful in patients unsuitable for major open reconstruction.

Procedure	Serial stents	Open reconstruction	Acucise incision
No. patients	16	6	4
Mean age, years	40 (13–68)	48 (29–68)	34.7 (28–49)
Interval between transplant and diagnosis, months	37.7 (2–240)	3 (0.4–6)	62.5 (2–132)