Tips and Tricks for Open Partial Nephrectomy

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Cleveland Clinic
Principles of Open Partial Nephrectomy

- Adequate preoperative planning
- Control of renal vessels
- Prevention of ischemic injury
- Excision with margin of normal parenchyma
- Repair of collecting system and intrarenal vessels
- Closure of the renal parenchyma
51 yo female
Atrophic right kidney
Cr 0.9
Split function 61% left/39% right
76 yo WM with hematuria
Cr 1.2
50 yo Physician from Uruguay
s/p Rt nephrectomy 2002
T2NoMo 13cm Clear cell RCC
NED since
Current smoker
Serum Cr 1.27
Multiple Tumors
Complex vascular anatomy

Multiple renal arteries and veins
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Prevention of AKI in PN

- Hydration
- Cold ischemia
- Minimization of WIT
- Administration of Mannitol
- Administration of Lasix
# Predictors of New Onset Stage IV CKD

## Warm Ischemia Time < 25 minutes

<table>
<thead>
<tr>
<th>Factor</th>
<th>Univariate</th>
<th></th>
<th>Multivariate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>HR</td>
<td>P value</td>
<td>HR</td>
</tr>
<tr>
<td>Warm ischemia time (5 min increase)</td>
<td>1.33</td>
<td>&lt; .001</td>
<td>1.15</td>
<td>0.14</td>
</tr>
<tr>
<td>Percent kidney preserved (5% increase)</td>
<td>0.79</td>
<td>&lt; .001</td>
<td>0.83</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Preoperative GFR (5-unit increase)</td>
<td>0.78</td>
<td>&lt; .001</td>
<td>0.78</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

Campbell et al, Urology (in press)
Current Research

- **Diagnostics:**
  - Prognostic indicator studies
  - Kidney injury biomarker studies

- **Surgical Innovation:**
  - Titrateable flow clamp development

- **Pharmaceutical development:**
  - Vasodilator drug studies
  - Anti-inflammatory drug studies
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Lung hyperinflation

Positive venous pressure

Vein
Renal pelvis
Artery
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The Survival Imperative for Partial Nephrectomy

Cancer Specific Survival

Overall Survival by Post-op eGFR

Weight et al, J Urol 183:1317, 2010