Ablation of larger and recurrent tumors

Thomas D. Atwell
KCA Chicago 2014
“Clinical T1b tumors are difficult to adequately treat with thermal ablation, and the risks of local recurrence and complications are high in this patient population”
Why not ablation?
## RFA and Size

Larger tumors have decreased chance of successful RFA

<table>
<thead>
<tr>
<th>Size</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;3cm</td>
<td>60-86%</td>
</tr>
<tr>
<td>3cm</td>
<td>100%</td>
</tr>
</tbody>
</table>

References:
- Takaki et al. Radiology 2013
- Zagoria et al. AJR 2007
- Varkaris et al. J Urol 2005
- Gervais et al. AJR 2004
Long-Term Oncologic Outcomes After Radiofrequency Ablation for T1 Renal Cell Carcinoma

Sarah P. Psutka, Adam S. Feldman, W. Scott McDougal, Francis J. McGovern, Peter Mueller, Debra A. Gervais

Eur Urol 2013; 63:486
RFA T1 tumors

Long-Term Oncologic Outcomes After Radiofrequency Ablation for T1 Renal Cell Carcinoma

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Eur Urol 2013; 63:486

143 T1a

42 T1b

Median f/u 6.5 yrs
1998-2008

8 (5.6%)

6 (4.2%)

100%

Residual Disease

Local Recurrence

5 yr CSS

8 (19.1%)

6 (14.3%)

97.3%
Is MW Better?

<table>
<thead>
<tr>
<th>MW Experience</th>
<th>Size</th>
<th>Success</th>
</tr>
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<tr>
<td>Yu et al.</td>
<td>&gt;4cm</td>
<td>7/8 (88%)</td>
</tr>
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</table>

Radiology 2012. 263:900

c/o Fred Lee
When considering heat-based ablation of larger renal masses, repeat ablation ("touch-up") may be necessary\textsuperscript{1} → primary vs. secondary effectiveness
Cryoablation of T1b Tumors
Synergy of cryoprobes
# Cryoablation of Large Tumors

<table>
<thead>
<tr>
<th>Size</th>
<th>Cx</th>
<th>f/u</th>
<th>RFS</th>
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<tr>
<td>≥ 3cm</td>
<td>3%</td>
<td>9 mo</td>
<td>100% (26/26)</td>
</tr>
<tr>
<td>Lehman et al</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J Endourol 2008; 24:1255</td>
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<tr>
<td>≥ 3cm</td>
<td>62%</td>
<td>9 mo</td>
<td>95% (20/21)</td>
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Cryoablation of Large Tumors

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“…tumor size and number of probes used were not significantly associated with tumor recurrence.”

Blute ML, et al. BJU Int 2013
Case

72 y/o Jehovah’s witness and incidental 6.0cm renal cell carcinoma
Case

72 y/o Jehovah’s witness and incidental 6.0cm renal cell carcinoma

2006

Cryo
Case

72 y/o Jehovah’s witness and incidental 6.0cm renal cell carcinoma
Comparison of Partial Nephrectomy and Percutaneous Ablation for cT1 Renal Masses

R. Houston Thompson\textsuperscript{a,*}, Tom Atwell\textsuperscript{b}, Grant Schmit\textsuperscript{b}, Christine M. Lohse\textsuperscript{c}, A. Nicholas Kurup\textsuperscript{b}, Adam Weisbrod\textsuperscript{b}, Sarah P. Psutka\textsuperscript{a}, Suzanne B. Stewart\textsuperscript{a}, Matthew R. Callstrom\textsuperscript{b}, John C. Cheville\textsuperscript{d}, Stephen A. Boorjian\textsuperscript{a}, Bradley C. Leibovich\textsuperscript{a}

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<tr>
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<th>PN</th>
<th>Perc Cryo</th>
</tr>
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<tbody>
<tr>
<td>Mean f/u</td>
<td>4.4 yrs</td>
<td>1.9 yrs</td>
</tr>
<tr>
<td>RFS @ 3yrs (# at risk)</td>
<td>96% (229)</td>
<td>97% (13)</td>
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</table>

\(p=0.81\)
T1b Cryoablation

Probes

Perc24, IceEdge
T1b Cryoablation

Probes

Perc24, IceEdge
2cm spacing
T1b Cryoablation

Probes
Perc24, IceEdge
2 cm spacing
short – long probes
T1b Cryoablation

Expect bleeding

Bleeding in process
Please wait for system to purge

Once the Bleed valve is silent
press the ‘OFF’ key to continue.
T1b Cryoablation

Expect bleeding

Associated with
nephrometry score
tumor size
# probes
central location

Blute ML, et al. BJU Int 2013; Atwell et al. JVIR 2013
## Perc Cryo Update

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AJR 2007; 188:1195 | 
| ≥ 3cm  | 62%  | 9 mo  | 95% (20/21)      |
| Atwell et al  
J Endourol 2008; 24:1255 | 
| T1b RCC | 15%  | 24 mo | 97% (35/36) |
Cryoablation of Recurrent Tumors

- Recurrence after PN is rare (<5%)
- Completion nephrectomy undesirable
- Repeat PN technically challenging
  - 20-50% periop complications
  - 12% renal loss

Cryoablation of Recurrent Tumors

- Probe placement based on imaging
- No mobilization or control of vascular pedicle
- Less bleeding due to more scarring?
Cryoablation of Recurrent Tumors

Hegg et al. J Urol 2013; 189:1243
Cryo ipsilat kidney following PN
48 pts with 68 tumors
9% LR post cryo at median 19mo
Complications in 6%
Recurrent RCC

- 45 y/o male with congenital solitary kidney
- PN for 2/4 ccRCC 5 years earlier
- Now 5cm recurrence at PN site
- Cr 1.3, GFR 60
NED @ 63mo
Cr 1.7, GFR 43
Thank you
Large Tumor

81 y/o male with renal transplant in 1966

RLQ pain → 9.7cm pRCC

Cr 2.4
Case

1 yr later, Cr 2.4 → 3.3
# Perc Cryo Update

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<tr>
<td>Moynagh et al</td>
<td>T2a</td>
<td>17%</td>
<td>14 mo</td>
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