SBRT for lung metastases: Case report

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12th European International Kidney Cancer Symposium 21-22 April 2017
Case report

- 71 years old man
- Smoker
- DM

- 2005
  - Right radical nephrectomy
  - Histology: clear cell, Fuhrman grade 3
Case report

• March 2014
  • Chest pain
  • CT scan
    • Pulmonary nodules
Renal cell carcinoma and lung metastases

- Lungs are the most common sites of metastases in RCC patients
- ~15% Only lung metastases
Management only-lung metastases from RCC

- **Active Surveillance**

The length of active surveillance was associated with:

1) **Site of metastases** (1 vs 2 vs more than two; p=0.0239),
2) **Location of the metastases** (lung only vs other organs only vs both; p=0.0280),

Management only-lung metastases from RCC

- Active Surveillance
- Local treatment

Choueiri & Motzer, NEJM 2017
Management only-lung metastases from RCC

- Active Surveillance
- Local treatment
  - Surgery

Overall

Alt et al. Cancer 2011

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Management only-lung metastases from RCC

- Active Surveillance
- Local treatment
  - Surgery

Only lung metastases

Alt et al. Cancer 2011

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Management only-lung metastases from RCC

• Active Surveillance
• Local treatment
  • Surgery

The resection of oligometastases is supported by Level C evidence


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Management only-lung metastases from RCC

- Active Surveillance
- Local treatment
  - Surgery
  - RFA/SBRT
SBRT

• Renal-cell carcinoma is considered to be a radioresistant tumor

• However…high fraction dose, stereotactic body radiotherapy seems to be relevant
Management lung metastases from RCC

- Active Surveillance
- Local treatment
  - Surgery
  - RFA/SBRT
- Systemic therapy
Renal cell carcinoma and lung metastases

• Lungs are the most common sites of metastases in RCC patients

• 15% Only lung metastases

• 45% lung metastases +
Management lung metastases from RCC

Only lung metastases

- Active Surveillance
- Local treatment
  - Surgery
  - RFA/SBRT
- Systemic therapy

Lung metastases and other mets

- Active Surveillance
- Local treatment
  - Surgery
  - RFA/SBRT
- Systemic therapy

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Case Report

• March 2014. Pazopanib
Case Report

March 2014

January 2015

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Case Report

March 2014

January 2015

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Case Report

March 2014

January 2015

12th European International Kidney Cancer Symposium 21-22 April 2017
Case report

• May 2015

Stop treatment due to toxicity
Case report

• June 2015
Case report

• Re-start treatment

• Second line therapy

• Local treatment
Case report

• Re-start treatment

• Second line therapy

• Local treatment
Concept

• Oligometastatic disease
SBRT is generally safe and feasible.

Many single-center retrospective case series of highly selected patients demonstrateSBRT is generally safe and feasible.

But whether it should be done and when should be done is no longer whether it can be done.
Studies of oligometastasis from renal-cell carcinoma with high-dose and high-dose-per-fraction radiotherapy

<table>
<thead>
<tr>
<th></th>
<th>Patients (n)</th>
<th>Lesions (n)</th>
<th>Study design</th>
<th>Treated sites</th>
<th>Follow-up (months)</th>
<th>Dose and fractionation</th>
<th>Local control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wersäll et al., 2005</td>
<td>50</td>
<td>162</td>
<td>Retrospective</td>
<td>Lung, lymph node, kidney, adrenal, liver, spleen, bone, thoracic wall, pancreas</td>
<td>37</td>
<td>4 times 8-10 Gy; 2-3 times 15 Gy</td>
<td>90% (CR)</td>
</tr>
<tr>
<td>Svedman et al., 2006</td>
<td>25</td>
<td>82</td>
<td>Prospective phase 2</td>
<td>Lung, lymph node, adrenal, thoracic wall, spleen</td>
<td>52</td>
<td>4 times 8-10 Gy; 2-3 times 15 Gy</td>
<td>79% (CR)</td>
</tr>
<tr>
<td>Teh et al., 2007</td>
<td>14</td>
<td>23</td>
<td>Retrospective</td>
<td>Bone, lung, lymph node, abdominal wall</td>
<td>9</td>
<td>24-40 Gy in 3-6 fractions</td>
<td>87% (CR)</td>
</tr>
<tr>
<td>Stinaver et al., 2011</td>
<td>13</td>
<td>25</td>
<td>Retrospective</td>
<td>Lung, liver, bone</td>
<td>28</td>
<td>5 times 8-10 Gy; 3 times 14-20 Gy</td>
<td>88% at 1.5 yr</td>
</tr>
<tr>
<td>Zelefsky et al., 2012</td>
<td>58</td>
<td>105</td>
<td>Retrospective</td>
<td>Bone, lymph node</td>
<td>12</td>
<td>Once 18-24 Gy; 3 times 8-10 Gy; 5 times 4-12 Gy; 24-37.5 Gy in more than five fractions</td>
<td>44% at 3-0 year</td>
</tr>
<tr>
<td>Ranck et al., 2012</td>
<td>18</td>
<td>39</td>
<td>Retrospective</td>
<td>Bone, lymph node, lung, kidney, adrenal, liver, soft tissue</td>
<td>16</td>
<td>3 times 8-16 Gy; 10 times 4-5 Gy</td>
<td>91% at 2-0 yr</td>
</tr>
</tbody>
</table>

CR = crude rate. * Stipulates the uncertainty that the one grade 5 toxicity was due to stereotactic body radiotherapy in this series.

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Concept

• Oligometastatic disease

• Oligoproggression disease?
Case report

- June 2015
• Oct 2015

TKI was restarted
Patient continues on his 1\textsuperscript{st} line

- Feb 2017
Evidence

• Clinical trials
Stereotactic Body Radiation Therapy in Treating Patients With Metastatic or Recurrent Kidney Cancer

• PRIMARY OBJECTIVES:
  • To establish that patients can be treated with 5-fraction stereotactic body radiation therapy (SBRT) to all sites of metastatic disease with a low (< 16%) rate of severe (grade 4) toxicity.

NCT02542202
Evidence

• Clinical trials

• Guidelines
• No general guidelines can be given
Guidelines Recommendations

Metastasectomy and other local treatment strategies including:
✓ Whole brain radiotherapy (WBRT)
✓ Conventional radiotherapy
✓ Stereotactic radiosurgery (SRS)
✓ Stereotactic body radiotherapy (SBRT)
✓ Cyberknife radiotherapy
✓ Hypofractionated radiotherapy

Can be considered and carried out for selected patients after multidisciplinary review.
Conclusions

• Patient has been on 1L nearly 3 years
• SBRT is a feasible and may help to control oligometastatic progression within the lungs
• Prospective randomized trials are needed (or not)
Acknowledgements

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