Whoops! Peritoneal Carcinomatosis: How to deal with it?

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USA
Disclosures

• None
Summary

• Abdominal tumors that can present with peritoneal metastases
• Elective or emergency operation
• Rule of 90-10
• Identify all possible options
• Establish the severity of the peritoneal disease
• Is the data on your side?
• Logistical concerns: ALL politics are local
Emergency Surgery

• Surgery being done because of:
  1. Perforation
  2. Obstruction
  3. Bleeding

• Find peritoneal metastases. Plan:
  1. Take care of the emergency
  2. Determine burden of disease (ideally PCI)
  3. Multiple biopsies
  4. Go talk to the family
Abdominal Tumors with Peritoneal Metastases

- Appendix
- Colon
- Ovary
- Stomach
- Small Bowel
- Pancreas
- Mesothelioma
- Others
Elective Surgery

- Symptomatic patients: Judgment call. If all stars are aligned, go for it.

- Rule of 90% planning and 10% getting it done.
- Good pre-operative work up should diminish the chance of Whoops!
- Like a good tailor, measure twice…cut once.
- Consider laparoscopy in cases with no evidence of metastatic disease and high tumor markers.
Elective Surgery

• After taking all precautions: Whoops! You find PC/PM
• Pancreas: Close
• Others: Close
• Mesothelioma: Well….

• Stomach: Discuss twice
• Small Bowel: Discuss twice

• Appendix
• Colon
• Ovary
Why proceed with CRS and HIPEC?

- Which are the patients that benefit from cytoreductive surgery and HIPEC the most?

- They have in common:
  1. Low PCI
  2. Low level of aggressiveness of their tumor
  3. Complete cytoreduction
Appendix, Colon and Ovary

1. Histology
2. Burden of disease (PCI)
3. Location of disease
4. Can you achieve a complete cytoreduction?
Appendix, Colon and Ovary

- **Histology**
  Low: 1 point    High: 2 points

- **Burden of disease (PCI)**
  Low: 1 point    Moderate or High: 2 points

- **Location of disease**
  Favorable: 1 point    Unfavorable: 2 points

- **Can you achieve a complete cytoreduction?**
  Yes: 1 point    No: 2 points

4 points: Discuss Cytoreductive surgery and HIPEC
> 4 points: Biopsies and Close
• Is the data on your side?
• Colorectal Cancer
Reason for referral to PSM

Disease Progression

Pt evaluation

S.G. G.B. C.H.
G.M. J.U. S.D.
H.V. E.F.
Y.S. P.D.
T.V. E.P.
S.K. P.S.

11 with CS + BI
2 OR Expl.
1 NO candidate
# Staging Classification of Colon Cancer with Peritoneal Dissemination

**Peritoneal Surface Disease Severity Score (PSDSS)**

<table>
<thead>
<tr>
<th>Clinical</th>
<th>CT-PCI</th>
<th>Histology</th>
</tr>
</thead>
</table>
| No symptoms | PCI < 10 (Low) | G1  
G2 N- L- V- |
| 0        | 1             | 1                          |
| Mild symptoms | PCI 10-20 (Medium) | G2 N+ and/or L+ and/or V+ |
| 1        | 3             | 3                          |
| Severe symptoms | PCI > 20 (High) | G3  
Signet Ring |
| 6        | 7             | 9                          |

<table>
<thead>
<tr>
<th>Score</th>
<th>Stage</th>
<th>Proposed Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-3</td>
<td>Stage I</td>
<td>Upfront CRS/HIPEC</td>
</tr>
<tr>
<td>4-7</td>
<td>Stage II</td>
<td>Neoadjuvant X 3months then CRS/HIPEC</td>
</tr>
<tr>
<td>8-10</td>
<td>Stage III</td>
<td>Protocol</td>
</tr>
<tr>
<td>&gt;10</td>
<td>Stage IV</td>
<td>Palliative</td>
</tr>
</tbody>
</table>

![Cancer Treatment Centers of America](image)
CRS + HIPEC patients by PSDSS

n=498

<table>
<thead>
<tr>
<th>PSDSS</th>
<th>N</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>63</td>
<td>85</td>
</tr>
<tr>
<td>II</td>
<td>258</td>
<td>37</td>
</tr>
<tr>
<td>III</td>
<td>69</td>
<td>24</td>
</tr>
<tr>
<td>IV</td>
<td>108</td>
<td>18</td>
</tr>
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p < 0.001
• Epithelial Ovarian Cancer
HIPEC vs no HIPEC  
\[ n=1,465 \]

<table>
<thead>
<tr>
<th></th>
<th>HIPEC</th>
<th>No-HIPEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>1,051</td>
<td>414</td>
</tr>
<tr>
<td>Age</td>
<td>74m</td>
<td>55m</td>
</tr>
</tbody>
</table>
|          | \[ p =0.002 \]  

The graph compares the survival rates between HIPEC and No-HIPEC treatments, showing a statistically significant difference with \[ p =0.002 \].
1,051 CRS + HIPEC patients

- **Group 1**  Upfront CRS + HIPEC               66     (6%)
- **Group 2**  Neo-adjuvant therapy              169   (16%)
- **Group 3**  CRS + HIPEC at first recurrence   369   (35%)
- **Group 4**  CRS + HIPEC at some point         447   (42%)
1,051 CRS + HIPEC patients

- Time of 1\textsuperscript{st} HIPEC treatment:
  - Group 1: Upfront CRS + HIPEC
    - 66 (6\%) 115m
  - Group 2: Neo-adjuvant therapy
    - 169 (16\%) 76m
  - Group 3: CRS + HIPEC at first recurrence
    - 369 (35\%) 69m
  - Group 4: CRS + HIPEC at some point
    - 447 (42\%) 74m

\( p = 0.415 \)
### Peritoneal Surface Disease Severity Score (PSDSS) of Ovarian Cancer with Peritoneal Dissemination

<table>
<thead>
<tr>
<th>Clinical¹</th>
<th>CT- PCI²</th>
<th>Histology</th>
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<tr>
<td>No symptoms</td>
<td>PCI &lt; 10 (Low)</td>
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<td>N+ and/or L+ and/or V+</td>
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<td>Severe symptoms</td>
<td>PCI &gt; 20 (High)</td>
<td>G3 Clear cells</td>
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<td>&gt;10</td>
<td>Stage IV</td>
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¹Clinical Symptoms:
- Mild symptoms = weight loss < 10 % of body weight
  Mild abdominal pain, some ascites
- Severe symptoms = weight loss > 10 % of body weight
  Unremitting pain, bowel obstruction, symptomatic ascites

²Peritoneal Cancer Index (PCI)

By imaging (CT, PET, MRI) or Exploration (laparoscopy or evaluation at time of first operation (in synchronous peritoneal carcinomatosis)
CRS + HIPEC patients by PSDSS

n = 553

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<th>N</th>
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<tbody>
<tr>
<td>I</td>
<td>64</td>
<td>&gt;145</td>
</tr>
<tr>
<td>II</td>
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<td>86</td>
</tr>
<tr>
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<td>125</td>
<td>68</td>
</tr>
<tr>
<td>IV</td>
<td>116</td>
<td>46</td>
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p < 0.001
• Mucinous Appendiceal Neoplasms
Evaluation of a Peritoneal Surface Disease Severity Score (PSDSS) in 229 patients with mucinous appendiceal neoplasms with or without peritoneal dissemination

Jesús Esquivel, MD, FACS. Susana Sánchez García, MD

n=384 Mucinous Appendiceal neoplasms

Retrospective study (2005-2013) in St Agnes Hospital (Baltimore, MD)
## Results

<table>
<thead>
<tr>
<th>PSDSS</th>
<th>n</th>
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<tbody>
<tr>
<td>0</td>
<td>19</td>
</tr>
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<tr>
<td>II</td>
<td>59</td>
</tr>
<tr>
<td>III</td>
<td>43</td>
</tr>
<tr>
<td>IV</td>
<td>41</td>
</tr>
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</table>
Figure 1. Survival analysis in patients with CRS and HIPEC classified by PSDSS
Laparoscopy for suspected appendicitis
Diagnostic Laparoscopy
Conclusions

• From time to time, despite all efforts, you will say Whoops! I found peritoneal metastases
• Low histology, low PCI, favorable location and ability to achieve a complete cytoreduction are a must
• ALL politics continue to be local
• If you can (logistically and legally) do the CRS + HIPEC
• Consider time to definitive therapy if you close
• Need to start a Whoops! I found PM registry