Gastric and Pancreatic Cancer: What do you need to know?

Andrew McKay, MD MSc FRCSC
Introduction

- Objectives
- Role of surgery
  - Going for cure
  - Surgery for palliation
- Common problems – when to seek help
Objectives

1. To review the indications for surgery and stenting
2. To review the outcomes of surgery: survival and recurrence
3. To review the short term and long term common complications that CCPs need to be aware of
4. To review the management of complications – When to notify the surgeon?
Pancreatic Cancer – Going for Cure?

- Is surgery indicated at all?
- Does surgery cure anybody?
- Is there any benefit?
Pancreatic Cancer

- **ACTUAL 5-Year Survivors:**
  - 27% (91 of 332) at MD Anderson\(^1\)
  - 18% (62 of 357) at Mayo Clinic\(^2\)
  - 12% (75 of 618) at MSKCC\(^3\)
  - 15% (18 of 123) at Toronto\(^4\)

4. Cleary et al, JACS, 2004
Pancreatic Cancer

- Is it all selection?
- What is the natural history of the disease in patients who are candidates for surgery?
George Crile – “moment of truth”
- Abandoned Whipples in favor of palliative bypass
- 28 pts that would be candidates for resection
- Median survival 8 months

Crile, Surg Gynecol Obstet, 1970
**Validation of the 6<sup>th</sup> Edition AJCC Pancreatic Cancer Staging System**

*Report From the National Cancer Database*

**TABLE 4**


<table>
<thead>
<tr>
<th>All patients</th>
<th>No. of patients (%)</th>
<th>Observed survival</th>
<th>Median survival (mo)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1-y</td>
<td>2-y</td>
</tr>
<tr>
<td>Nonresected patients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage IA</td>
<td>3412 (4.4%)</td>
<td>29.2%</td>
<td>10.5%</td>
</tr>
<tr>
<td>Stage IB</td>
<td>4298 (5.4%)</td>
<td>26.0%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Stage IIA</td>
<td>8486 (10.1%)</td>
<td>25.0%</td>
<td>7.7%</td>
</tr>
<tr>
<td>Stage IIB</td>
<td>6570 (11.8%)</td>
<td>26.9%</td>
<td>7.7%</td>
</tr>
<tr>
<td>Stage III</td>
<td>12,981 (13.0%)</td>
<td>27.0%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Stage IV</td>
<td>64,454 (55.2%)</td>
<td>8.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Total</td>
<td>100,201</td>
<td>8.3%</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

| Pancreatectomy patients |                     |     |     |     |     |     |               |
| Stage IA               | 1886 (8.8%)         | 71.3% | 50.2% | 40.7% | 34.7% | 31.4% | 24.1        |
| Stage IB               | 2364 (11.0%)        | 67.3% | 45.4% | 35.3% | 29.6% | 27.2% | 20.6        |
| Stage IIA              | 3846 (17.9%)        | 60.7% | 34.9% | 23.8% | 18.4% | 15.7% | 15.4        |
| Stage IIB              | 7828 (36.4%)        | 52.7% | 23.8% | 14.4% | 10.2% | 7.7%  | 12.7        |
| Stage III              | 2850 (13.2%)        | 44.5% | 19.3% | 11.0% | 8.1%  | 6.8%  | 10.6        |
| Stage IV               | 2738 (12.7%)        | 19.2% | 8.4%  | 5.3% | 3.7% | 2.8%  | 4.5         |
| Total                  | 21,512              | 19.2% | 8.4%  | 5.3% | 3.7% | 2.8%  | 12.6        |

* All survival comparisons between stages are significant to $P < .0001$. 
# Validation of the 6th Edition AJCC Pancreatic Cancer Staging System

*Report From the National Cancer Database*

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* All survival comparisons between stages are significant to P < .0001.
Pancreatic Cancer

  - 413 cases pancreatic cancer

- 124 pts were stage I or II
  - 28 (23%) had surgery
  - 11 (9%) had other treatment
  - 85 (69%) had no treatment

Pancreatic Cancer

- Of the 85 early stage patients with no treatment:
  - 39% never saw a surgeon
  - Tended to be older
  - BUT did not have more comorbidity

Pancreatic Cancer

- Survey to evaluate physician attitudes
  - Most (73%) thought surgery was worthwhile
  - Tendency to overestimate mortality
  - Only 41% of family physicians felt surgery could result in cure

Figure 2 Physician estimated mortality rates associated with the surgical resection of a pancreatic tumor.
Pancreatic Cancer in Manitoba

- 30-day mortality 2.9%
- Median Survival 28 months

Pancreatic Cancer Surgery – Summary

- Surgery rarely cures
- Surgery DOES have benefit
- Major surgery – major risk
- 30-day mortality 2-3%

- Surgery is not for everybody, BUT patients should make that decision
Complications of the Tumor
Obstructive Jaundice
De novo obstruction in a bile duct that has never been instrumented is RARELY an emergency

- PAINLESS
- Cholangitis is surprisingly RARE
Obstructive Jaundice

- On the other hand, in patients with prior instrumentation of the bile duct:
  - Bile duct is colonized heavily with bacteria
  - Stasis/obstruction will quickly lead to cholangitis

- MUST refer back to ERCP endoscopist or surgeon ASAP at first sign of jaundice
Jaundice – Palliation

- Surgery
- Hepaticojejunostomy
- Often done with gastrojejunostomy (Double Bypass)
Jaundice – Palliation

- Plastic stent
- Metallic Stent
Jaundice – Palliation

- Surgery vs. Stenting?
- Unresectable at OR → Surgical
  - Upfront morbidity BUT best long-term results
- Unresectable on imaging → Stenting
  - Plastic median patency 5 mos.
  - Metal much longer
  - Often start with plastic
  - If life-expectancy long enough → change to metallic after 3-4 months
Gastric Outlet Obstruction
Gastric Outlet Obstruction

- Dehydration, electrolyte abnormalities may be emergency
- Obstruction not an emergency
Gastric Outlet Obstruction

Vs.

Duodenal Stent
Gastric Outlet Obstruction

- Both options are often disappointing
  - Longstanding obstruction and autonomic nerve involvement lead to functional disorder
- Surgery has initial morbidity but better patency and function over long-term
- Stent has little morbidity, but tend to get plugged
  - Liquid/soft diet
Gastric Outlet Obstruction

- Choice depends on life-expectancy and goals of care
- When these options begin to fail
  - Not really an emergency
  - Really time to talk about comfort care
  - TPN/feeding tubes not great palliation
Palliation – Summary

- Really just comes down to common sense
Palliation – Summary

- Surgical options and endoscopic options
- Choice really depends on functional status/life-expectancy
  - Surgery more durable, but up front morbidity
- Need to be realistic about what we are trying to achieve

- Few emergencies – EXCEPT recurrent jaundice
Complications of the Surgery

- Pancreatic Leak/Fistula

Table II. Main parameters for POPF grading

<table>
<thead>
<tr>
<th>Grade</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Well</td>
<td>Often well</td>
<td>Ill appearing/bad</td>
</tr>
<tr>
<td>Specific treatment*</td>
<td>No</td>
<td>Yes/no</td>
<td>Yes</td>
</tr>
<tr>
<td>US/CT (if obtained)</td>
<td>Negative</td>
<td>Negative/positive</td>
<td>Positive</td>
</tr>
<tr>
<td>Persistent drainage (after 3 weeks)†</td>
<td>No</td>
<td>Usually yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Reoperation</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Death related to POPF</td>
<td>No</td>
<td>No</td>
<td>Possibly yes</td>
</tr>
<tr>
<td>Signs of infection</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Sepsis</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Readmission</td>
<td>No</td>
<td>Yes/no</td>
<td>Yes/no</td>
</tr>
</tbody>
</table>

International Study Group on Pancreatic Fistula, Surgery, 2005
Complications of the Surgery
Complications of the Surgery

- Delayed Gastric Emptying
  - 20% to 50%

<table>
<thead>
<tr>
<th>DGE grade</th>
<th>Nasogastric tube required</th>
<th>Unable to tolerate solid oral intake by POD</th>
<th>Vomiting/gastric distension</th>
<th>Use of prokinetics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4-7 days or reinsertion &gt; POD 3</td>
<td>7</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>B</td>
<td>8-14 days or reinsertion &gt; POD 7</td>
<td>14</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>C</td>
<td>&gt;14 days or reinsertion &gt; POD 14</td>
<td>21</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

DGE, delayed gastric emptying; POD, postoperative day
Complications of the Surgery

- Delayed Gastric Emptying
  - Common “chronic problem” after Whipple
  - Prokinetics
    - Metoclopramide
    - Domperidone
    - Erythromycin
  - Nutritional support/supplements
Gastric Cancer – Going for Cure

- 5-year survival

- Stage IA: 71%
- Stage IB: 57%
- Stage IIA: 46%
- Stage IIB: 33%
- Stage IIIA: 20%
- Stage IIIB: 14%
- Stage IIIC: 9%
- Stage IV: 4%

American Cancer Society, SEER Data 1991 to 2000
Gastric Cancer

- MAGIC Trial (NEJM 2004)
- 5-Yr Survival 23% with surgery alone
- 5-Yr Survival 36% with surgery and periop chemo

Figure 1. Kaplan–Meier Estimates of Progression-free Survival (Panel A) and Overall Survival (Panel B).
285 patients enrolled in Dutch Gastric Cancer Trial found to have metastases at laparotomy

- Very little survival benefit – is it just selection?

Hartgrink et al, Br J Surg, 2002
Palliative Gastrectomy

- 285 patients enrolled in Dutch Gastric Cancer Trial found to have metastases at laparotomy

Hartgrink et al, Br J Surg, 2002
Palliative Gastrectomy

- Oct 31, 2013
Palliative Gastrectomy

- Feb 18, 2014
## Obstruction

- **Stent**
- **Palliative Resection**
- **Gastrojejunostomy**

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**Keranen et al, J Surg Oncol, 2013**

### TABLE III. Outcome Data of the Three Treatment Groups of Gastric Cancer

<table>
<thead>
<tr>
<th></th>
<th>ES</th>
<th>PR</th>
<th>GJ</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical success</td>
<td>44/50</td>
<td>26/26</td>
<td>17/21</td>
<td>0.057</td>
</tr>
<tr>
<td></td>
<td>(88%)</td>
<td>(100%)</td>
<td>(81%)</td>
<td></td>
</tr>
<tr>
<td>Time to free liquids</td>
<td>0 (0–4)</td>
<td>3 (2–4)</td>
<td>2 (1–9)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>(GOOSS 1), days(^a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time to soft solids</td>
<td>1 (0–7)</td>
<td>4 (3–11)</td>
<td>4 (3–10)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>(GOOSS 2), days(^a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital stay, days(^a)</td>
<td>3 (0–28)</td>
<td>9 (3–15)</td>
<td>8 (4–27)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Re-admissions</td>
<td>8 (16%)</td>
<td>3 (12%)</td>
<td>4 (19%)</td>
<td>0.770</td>
</tr>
<tr>
<td>Complications n (%)(^b)</td>
<td>13 (26%)</td>
<td>9 (35%)</td>
<td>2 (10%)</td>
<td>0.134</td>
</tr>
<tr>
<td>Re-obstruction</td>
<td>12</td>
<td>6</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Abscess</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Bleeding</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Time to complication, days(^a)</td>
<td>95 (5–304)</td>
<td>183 (10–908)</td>
<td>40 (18–61)</td>
<td>0.202</td>
</tr>
<tr>
<td>Discharge from hospital</td>
<td></td>
<td></td>
<td></td>
<td>0.001</td>
</tr>
<tr>
<td>Home</td>
<td>24</td>
<td>24</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Other hospital or hospice</td>
<td>22</td>
<td>2</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Hospital death</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Biliary obstruction during follow up (%)</td>
<td>4(8)</td>
<td>5 (19)</td>
<td>3 (14)</td>
<td>0.353</td>
</tr>
<tr>
<td>Post-procedure chemotherapy (%)</td>
<td>11 (22)</td>
<td>12 (46)</td>
<td>6 (29)</td>
<td>0.078</td>
</tr>
<tr>
<td>Symptom-free survival, days(^a)</td>
<td>43 (1–855)</td>
<td>223 (28–784)</td>
<td>121 (11–548)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Survival, days(^a)</td>
<td>50 (1–453)</td>
<td>241 (25–2,784)</td>
<td>141 (11–656)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Obstruction

- Stent (n = 72)
- GJJ (n = 41)
- Median patency 125 days vs. 282 days

No et al, GI Endosc, 2013
Bleeding

- Rarely massive
- Endoscopic techniques
- Radiation
- Angiography
- Surgery?
Palliation for Gastric Cancer

- **Summary**
  - Use common sense
  - What are we trying to achieve

- Palliative DISTAL gastrectomy – select cases
- Palliative TOTAL gastrectomy – not so sure
- Bypass vs. stent – depends of functional status and LE

- Doing nothing is hard, but may be the right thing to do
Questions??