Surgical Treatment of Colorectal Cancer

What’s new and what’s not

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CCNS Forum
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Colorectal Cancer Facts

• Second most common cancer
• Second most common cancer causing death
• Exciting progress
  – Screening and prevention
  – Chemotherapy
• Mainstay of potentially curative treatment
  – SURGERY
Principles of Surgery in Primary Colorectal Cancer

• Remove
  – the primary tumour with a margin of normal bowel
  – surrounding lymph nodes
Anatomy

- Ascending colon
- Transverse colon
- Descending colon
- Cecum
- Hepatic flexure
- Splenic flexure
- Sigmoid colon
- Inf. mes. a.
- Aorta
- Rectum
- Small intestine
- Right
- Left
Left Colon Cancer

- Ascending colon
- Hepatic flexure
- Transverse colon
- Splenic flexure
- Descending colon
- Cecum
- Small intestine
- Inf. mes. a.
- Sigmoid colon
- Rectum
Rectal Cancer

- Ascending colon
- Hepatic flexure
- Transverse colon
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- Descending colon
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RIGHT

LEFT
Rectal Cancer – “Low Tumour”
Importance of Surgery

- Treatment of cancer
- Relief of symptoms
- Staging
TNM classification, definition of T (primary tumor)

- Tis: Mucosa
- T1: Muscularis mucosa
- T2: Submucosa
- T3: Muscularis propria
- T4: Subserosa

Extension to an adjacent organ
TNM classification, definition of N (nodes) and M (metastases)

Regional lymph nodes (N)

NX  Regional nodes cannot be assessed
N0  No regional lymph node metastases
N1  Metastasis in 1 to 3 regional lymph nodes
N2  Metastasis in 4 or more regional lymph nodes

Distant metastases (M)

MX  Distant metastasis cannot be assessed
M0  No distant metastasis
M1  Distant metastasis
## TNM Stage

<table>
<thead>
<tr>
<th>AJCC/ UICC</th>
<th>Dukes*</th>
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<tbody>
<tr>
<td>Stage 0</td>
<td>Tis N0 M0 —</td>
</tr>
<tr>
<td>Stage I</td>
<td>T1 N0 M0 A</td>
</tr>
<tr>
<td></td>
<td>T2 N0 M0 —</td>
</tr>
<tr>
<td>Stage II</td>
<td>T3 N0 M0 B</td>
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<tr>
<td></td>
<td>T4 N0 M0 —</td>
</tr>
<tr>
<td>Stage III</td>
<td>Any T N1 M0 C</td>
</tr>
<tr>
<td></td>
<td>Any T N2 M0 —</td>
</tr>
<tr>
<td>Stage IV</td>
<td>Any T Any N M1 —</td>
</tr>
</tbody>
</table>

Why Staging?

• Treatment strategies often dependant on stage

• Strong prognostic factor
  – For patient
  – Critical for clinical/translational research
## Stage and Prognosis

<table>
<thead>
<tr>
<th>Disease Stage at Time of Diagnosis</th>
<th>5 yr. surv</th>
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<tbody>
<tr>
<td>Stage I 15%</td>
<td>&gt;95%</td>
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<tr>
<td>Stage II 20%–30%</td>
<td>80%</td>
</tr>
<tr>
<td>Stage III 30%–40%</td>
<td>50-60%</td>
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<tr>
<td>Stage IV 20%–25%</td>
<td>&lt;5%</td>
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</tbody>
</table>
What’s New in Surgery for Primary Colorectal Cancer?

• Use of laparoscopy

• Importance of “Total Mesorectal Excision” for rectal cancer

• More aggressive surgery for metastatic disease
Laparoscopic Colorectal Surgery

- Same operation
- Smaller incisions
- ? As good as open surgery for cancer outcomes?
- ? Benefit over open surgery in terms of complications/recovery?
Laparoscopic vs. Open Surgery
Colon Cancer

- 8 randomized trials
- Equally effective cancer treatment
- Operative mortality/complications the same
- Laparoscopic:
  - Longer time in OR, more expensive
  - Shorter length of stay in hospital (by $\approx 1$ day)
  - Modest decreased pain, narcotic use
  - Overall quality of life same
Laparoscopic vs. Open Surgery
Remaining Questions

• What about rectal cancer?
• Will “real world” results be the same
• Are long-term outcomes better? e.g. hernias, bowel obstructions
• How do we decide/implement/monitor?
This is the Problem!

“The surgeon passes his right hand down into the hollow of the sacrum to free the rectum by blunt finger dissection”

Zollinger and Zollinger
Atlas of Surgical Operations
7th Ed. 1993
Total Mesorectal Excision

- With attention to this technique, local recurrence rates should be < 10%
- Still a role for radiation therapy, even with “good surgery”
- Questions
  - How do we ensure it is done?
  - Component of experience/training/volume of the surgeon
More Aggressive Surgery for Metastatic Colorectal Cancer

- Liver treatment
  - Resection
  - Ablation
- Lung Resection
- Surgery for Carcinomatosis
  - peritonectomy with intraoperative hyperthermic chemoperfusion

Patient selection is critical!
Summary

• Surgery is critical part of colorectal cancer therapy and its use is *increasing*
  – Most basic principles remain
• What the surgeon does technically is of paramount importance
  – For cancer
  – For function