Advances in Colorectal Surgery

- Improve perioperative management
  - Bowel Preparation
  - Early Refeeding
  - Early mobilization

Minimally Invasive Surgery
- Colon cancer
- Rectal cancer
- Robots and NOTES

Metastatic Disease
- Changing paradigm of surgery for Stage IV Disease

Financial Relationships
No Disclosures

Quality Standards
Quality Standards 2009

Figure from www.bandaidcolonsurgery.com
Perioperative Management is Changing

Traditional Care
- Mechanical Preparation
- Drains / NG
- Intermittent Narcotics
- Forced starvation
- Immobilization
- ++ IV fluid

Care 2009 (7)
- No benefit to preparation
- No drains / no NG
- “Caine” based epidural
- Early Refeeding
- Early Mobilization
- Minimize IV fluids

Fast Track Surgery

- Enhanced Recovery
- Popularized in Denmark by Henrik Kehlet
- Multimodal rehabilitation
- Primary goal – reduction in postoperative ileus
  - Analgesia
  - Mobilization
  - Chewing gum
  - μ opioid antagonist

Fast Track Surgery

- Results in a dramatic decreased LOS
  - 3 days LOS
  - No change in surgical morbidity or mortality
- Improved functional result < 30 days
  - Less pain, less fatigue
  - Improved pulmonary function
  - Maintenance of lean body mass
- UK reduced average LOS from 7 to 3 days
  - Tolerated diet 28 hours sooner
- Results elsewhere less dramatic
  - 4-3 mean LOS at Cleveland Clinic
  - May depend on expectations

Fast Track Surgery 2009?

- Evaluation of care in 1,082 patients1 undergoing CRS in 6 countries
  - >85% had bowel preparation
  - 40% had NG in the US
  - 3-4 days prior to tolerating clear fluids
- Average LOS from 2002-2006 in academic US centers = 11 days 2

Laparoscopic Colorectal Surgery

- 1991 First lap colectomy performed
- 2002 – 11% of surgeons had performed more than 20 lap colon resections
- 2004 – only 6.5% of colon resections performed laparoscopically
- Almost 80% cholecystectomies performed laparoscopically

Morbidity

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<tr>
<th>Study</th>
<th>Lap %</th>
<th>Open %</th>
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<td>ALCCaS</td>
<td>37.8%</td>
<td>45.3%</td>
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<tr>
<td>COLOR</td>
<td>21% (%)</td>
<td>20% (2%)</td>
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<tr>
<td>CLASiCC</td>
<td>10% (4%)</td>
<td>10% (4%)</td>
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<tr>
<td>COST</td>
<td>23% (1%)</td>
<td>21% (&lt;1%)</td>
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<tr>
<td>Leung</td>
<td>20% (2.5%)</td>
<td>22.5% (2%)</td>
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<tr>
<td>Tang</td>
<td>20%</td>
<td>13.6%</td>
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<tr>
<td>Braga</td>
<td>21% (1%)</td>
<td>38% (0%)</td>
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<tr>
<td>Lacy</td>
<td>1% (1%)</td>
<td>26% (3%)</td>
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Length of OR

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Pain

- Leung - visual analogue scale on Day 1
  - Significantly higher rating in open group
  - 5.4 vs 4.6, p = 0.003
- Cost (449 patients)
  - No difference in Pain Distress Scale measured at 2 days, 2 weeks and 2 months postoperatively
- Cost, Color, Leung - all demonstrate decreased use of opiates

Other Effects

- Adequacy of Resection
  - 7 trials including 4,311 cancer patients
  - No difference in number of nodes
  - 6/7 trials - no difference in resection margins
    - ALCCaS
      - No difference in specimen length or margins for left sided resection
      - Shorter distal margin in right sided resection
      - <5cm in 19% of laparoscopic arm vs. 8% of open arm (p=0.002)
  - Hewett 2008; 248: 728-38
Long-term Outcomes

- 5 trials (Lacy, Leung, COST, CLASSICC, COLOR) reporting long-term results
  - No difference in 3 year survival
  - Lacy - trend to better survival in lap for Stage III
- Lacy study - reported survival benefit of laparoscopic approach at 95 months
  - Cancer survival better in lap group
  - Effect limited to stage III disease only
  - Single institution, 219 patients randomized
  - Results vary from all other studies


Laparoscopy for Rectal Cancer

- Single center series demonstrate the approach is feasible
  - CLASSIC Trial – 381 patients with rectal cancer
  - 34% laparoscopic cases converted to open
  - Higher rate of TME in laparoscopic group

But

- Higher rate of positive CRM in laparoscopic anterior resection group 12% vs 4% p=0.19
- Long-term, no difference in local recurrence
- Trend towards worse sexual function in laparoscopic group
  - No significant difference long term


But What About….

- Robotic Surgery
  - No defined role in colorectal surgery
  - Device is currently cumbersome
  - Technology is improving

- NOTES
  - Natural Orifice Transluminal Endoscopic Surgery
  - Currently no defined role whatsoever

Laparoscopy for Rectal Cancer

- Evaluation in RCT necessary!!!
  - With adequate power
  - Ongoing - COLOR–21
  - ACOSOG Z6051 now activated


Surgery for Stage IV Disease

- Should we operate?
- If so, when should we operate?
- If so, who should go first?

Surgery for Stage IV

- 66% of people with stage IV CRC underwent surgery from 1988 – 2000
  - Much higher than rate of chemotherapy during this time period
  - No information about symptoms
- More frequent in young patients and right-sided tumors
- 30-day mortality in the elderly = 9%

Temple JCO 2004; 22:3475-84
**Curative Treatment**

- Surgical resection is only opportunity for cure
  - Also prolongs survival
  - Hepatic and pulmonary
- Essential that patients are surgically evaluated to determine if resection for cure is possible
- Reevaluation essential for those potentially resectable with tumor shrinkage

**Should we Operate for Palliation?**

- Treatment of Symptoms
- Prevention of complications
- Treatment of bulky disease
- Current standard of care But
- Delay of therapy
- Morbidity and Mortality

**Surgery for Palliation**

- Case-series have demonstrated safety of a selective approach to surgery for patients with Stage IV disease
- Most patients selected for non-operative approach will not require surgery
- If surgery required, usually for obstruction
- Difficult to determine systematically how patients were selected

**NSABP C-10**

- A Phase II Trial of FOLFOX6 + Bevacizumab for Patients with Unresectable Stage IV Colon Cancer and a Synchronous Asymptomatic Primary Tumor
  - Primary Outcome – major morbidity related to primary tumor – requiring surgery or resulting in death
  - Event rate greater than 25% would favor surgery
  - Target enrollment = 90 patients

**Bevacizumab and Unresected Primary**

- First BEAT trial – cohort study of patients receiving bevacizumab for metastatic crc
  - 1,914 patients, 13% with unresected primary
  - Overall rate of GI perforation = 2%
  - In patients with intact primary = 3.1%
  - Similar findings in the BRiTE cohort study
- Need for surgery when on treatment
  - 13% risk of wound complications when on therapy vs. 3% when withheld
  - Withhold bevacizumab 30-60 days before surgery

**Quality of Care**

*The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.*

Institute of Medicine
Quality of Care

Current Endorsed Standards

Colon and rectal cancer
Patient received postoperative chemotherapy within 9 months of diagnosis of rectal cancer
Patient received pelvic radiation therapy for rectal cancer within 6 months
Patient received adjuvant chemotherapy for colon cancer within 4 months of diagnosis
Patient had 12 or more lymph nodes removed and examined for colon or rectal cancer

Desch JCO 2008; 26:3631

Standards?

- No meaningful standards adopted for colorectal cancer surgery that are useful for measurement or accountability
- Node number does not assess any critical component of rectal cancer surgery
- More pathology than surgery

Future Standards?

- Oncologic & Functional outcomes
  - Requires many cases for meaningful data
- Pathological audit and feedback
  - Pathological expertise
- Centers of Excellence

Advances in Colorectal Surgery

- Better perioperative care
- Reduced morbidity of surgery
- Avoid surgery in some
- Evolution of approach to patients with Stage IV disease
- Quality 2009?