Laparoscopic Colorectal Surgery
After 80

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Speakers Disclosures
Covideon- educational grant support, consultant, speakers bureau
Wolfe- consultant, speakers bureau
Stryker- consultant, speakers bureau
Glaxo Smith Kline- consultant
Zassi- consultant, honoraria
Surgiquest- Scientific Advisory Board
Adolor- speakers bureau

What is the next
Big Thing?

Challenges of Laparoscopic Colorectal Surgery

It’s hard.
Need to learn it or the surgeon will take a wrong turn
Commonly claimed “Problems” laparoscopic colorectal surgery in the elderly:

1. “Can’t do it”
2. “Takes too long”
3. “Dangerous in the elderly”
4. “Want to get my hands on things”
5. “Tissue too fragile”

“Convictions are more dangerous enemies of truth than lies.”
Friedrich Wilhelm Nietzsche

USA

150,000 new colorectal cancers/year
100,000 colon
250,000 Colectomies/year

Benign diseases
5-15% of colon resections done laparoscopically

% Colorectal Cancer Treated Laparoscopically ????
S. Korea
50%?
Always < 20%

A Comparative Evaluation of Laparoscopic-Assisted Versus Open Colectomy for Colon Cancer
COST Study Group Trial
John Marks, MD
Wynnewood, Pennsylvania

COST Study Group Surgical Participants
H. Asbun
R. Bell
D. Birch
E. Birnbaum
R. Boorse
T. Brown
B. Christensen
W. Chapman III
R. Cleary
C. Delaney
A. Ferrara
A. Fine
R. A. Forse
D. Fowler
E. Froines
J. Greif
R. Gould
R. Hartmann
G. Hoffman
G. Hubbard II
J. Hyder
R. Josloff
L. B. Katz
H. C. Kim
A. Larach
S. Lauter
D. Lihw
J. Lukaszczyk
P. Marcello
J. Marks
A. Senagore
C. Simman
J. Stauffer
E. Suddelson
J. Sutton, Jr.
L. Swanstrom
R.C. Thomas, Jr.
T. Thibault
W. T. Reilly
W. K. Ruffin
A. Toold
S. Waxner
R. Whelan
S. Wohlgemuth
T. Young-Fadok

Others: G. Schroeder, M. O’Connell, J. Weeks, L. Healy, E. Green, L. Floden
**LAPAROSCOPIC COLECTOMY TRIAL Schema**

- Pt with 1° colon ACA
- Stratify
- Randomize
- Open colectomy
- Observation (event monitoring)
- Laparoscopic-assisted colectomy

**LAPAROSCOPIC COLECTOMY COST Trial - Recovery Benefits**

- Open* n=428
- LAC n=435
- Length of stay: 20% Longer Hospitalization
- Narcotics: 33% More IV Narcotics
- Oral analgesic: 100% More analgesic requirements
- Improved Quality of Life while recovering from surgery

*in days; median values (interquartile range)

**Local Recurrence Rate**

<table>
<thead>
<tr>
<th>Years</th>
<th>Open</th>
<th>Laparoscopic</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>395</td>
<td>414</td>
</tr>
<tr>
<td>1</td>
<td>345</td>
<td>368</td>
</tr>
<tr>
<td>2</td>
<td>269</td>
<td>211</td>
</tr>
<tr>
<td>3</td>
<td>240</td>
<td>242</td>
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<tr>
<td>4</td>
<td>177</td>
<td>185</td>
</tr>
<tr>
<td>5</td>
<td>160</td>
<td>111</td>
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P=0.32

**Survival**

<table>
<thead>
<tr>
<th>Years</th>
<th>Open</th>
<th>Laparoscopic</th>
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<tbody>
<tr>
<td>0</td>
<td>392</td>
<td>414</td>
</tr>
<tr>
<td>1</td>
<td>389</td>
<td>389</td>
</tr>
<tr>
<td>2</td>
<td>320</td>
<td>340</td>
</tr>
<tr>
<td>3</td>
<td>267</td>
<td>271</td>
</tr>
<tr>
<td>4</td>
<td>201</td>
<td>206</td>
</tr>
<tr>
<td>5</td>
<td>130</td>
<td>138</td>
</tr>
</tbody>
</table>

P=0.51

**LAPAROSCOPIC COLECTOMY Barcelona Trial**

- 1993 - 1998
- 219 Patients (111 LAC)
- Randomized Comparison
- Intention to Treat Analysis

Lancet 2002; 360: 2227

**Conclusions**

There are no reasons to withhold laparoscopic colectomy to appropriately selected patients with colon cancer.

Caveat: Should always be discussed as an option
**Cancer Specific Survival**

- **p=0.02**

- **LAPAROSCOPIC COLECTOMY**
  - Barcelona Trial - Interpretation
  - Antonio Lacy, et al:
    - “LAC is more effective than OC for treatment of colon cancer in terms of morbidity, hospital stay, tumor recurrence, and cancer-related survival.”

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**Effector Phase**

- After Laparoscopy, effector cell functions are better preserved:
  - Monocyte and macrophage functions
  - Neutrophil functions
  - Natural Killer cell functions
  - Cytotoxic T cell functions

**Animal Tumor Studies**

- Tumors grow larger and are more easily established after laparotomy than laparoscopy in mice*


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**Identification of Lung Metastases**

- Anesthesia
- Laparoscopy
- Laparotomy

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**Obstacles to Lap Colon Surgery in the Elderly**

- **Cynic’s View**
- Least experienced surgeon + Most difficult operation = Poor outcome/Little enthusiasm
**Laparoscopic Colectomy**

**Contraindications**
- Rectal Cancer
- Transverse colon cancer
- Acutely obstructed/perforated cancer
- Advanced local disease (T4)
- Stage IV disease
- ASA classification IV or V
- Any concurrent or previous malignant tumor
- Associated GI diseases
- Pregnant women

**Challenges for laparoscopic surgery in the elderly**

1. Calcific vessels
2. Hypercapnia

Organize operation accordingly

**Redefining contraindications to laparoscopic colorectal resection for high-risk patients.**

*Surgeon 2008, 22:1899-1904*

Marks J, Kawun U, Hamdan W, and Marks G

<table>
<thead>
<tr>
<th>High Risk=</th>
<th>N=362</th>
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<tbody>
<tr>
<td>1. Morbidly Obese</td>
<td></td>
</tr>
<tr>
<td>2. Age &gt; 80 yo</td>
<td></td>
</tr>
<tr>
<td>3. Radiation Treatment</td>
<td></td>
</tr>
<tr>
<td>4. ASA &gt; III</td>
<td></td>
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</tbody>
</table>

**Laparoscopic Experience**

*N=903*

- # Patients ≥80 yrs = 94
- ≥ 90 yrs = 22

Represents 10.5% of our laparoscopic experience

**Elderly**

*Patients over 80 years old*

- 57 Women, 37 Men
- Mean Age = 84 (80-92)
### Relative Contraindications

<table>
<thead>
<tr>
<th>Contraindication</th>
<th>N</th>
<th>(%  )</th>
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<tbody>
<tr>
<td>N = 66 Patients*</td>
<td>66</td>
<td>(70.2%)</td>
</tr>
<tr>
<td>Previous Radiation Therapy:</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Emergent Operation:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Previous Abdominal Operation:</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Multiple Organ Resection:</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

### Primary Diagnosis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer:</td>
<td>59</td>
</tr>
<tr>
<td>Large Polyp:</td>
<td>19</td>
</tr>
<tr>
<td>Diverticulitis:</td>
<td>8</td>
</tr>
<tr>
<td>Rectal Prolapse:</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
</tbody>
</table>

### Procedures

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Anterior Resection:</td>
<td>17</td>
</tr>
<tr>
<td>Abdominoperineal Resection:</td>
<td>6</td>
</tr>
<tr>
<td>Left Colectomy:</td>
<td>12</td>
</tr>
<tr>
<td>Right Colectomy:</td>
<td></td>
</tr>
<tr>
<td>TATA</td>
<td></td>
</tr>
<tr>
<td>Diverting Stoma:</td>
<td>7</td>
</tr>
<tr>
<td>Hartmann:</td>
<td>3</td>
</tr>
<tr>
<td>Extended Right Colectomy:</td>
<td>2</td>
</tr>
<tr>
<td>Rectopexy:</td>
<td>1</td>
</tr>
</tbody>
</table>

N = 33 Pelvic procedures

### Number of Trochars

- 3: 21%
- 4: 8%
- 5: 1%
- 6: 70%

Mean EBL = 162 mL (25 – 1000)
**Ports & Incisions**

**Results**

- **Ports**
  - Mean Number = 3.4 (3-6)
  - 3: (N = 64)
  - 4: (N = 19)
  - 5: (N=7)
  - 6: (N=1)

- **Largest Incision**
  - Mean Size = 4.58 cm (0.8-9.0)

**Conversion**

**Results**

- N = 3 (3.2%)

- In 2 cases the tumors were too large
- 1 patient had hypercapnia (lap assist- splenic flexure down)

**Peri-Operative Course**

**Results**

- No Mortality
- Morbidity = 22.6% (N = 21)
  - Pneumonia N=1
  - MI N=2
  - Arrhythmia n=3
  - Anastomotic leak n=1 (1.4%)

**Peri-Operative Course**

**Results**

- 75% tolerated clears by POD #2
- 66% tolerated house diet by POD #3
- Average length of stay = 7.5 days (2-46)
  - Average length of stay* = 5.7 days (2-16)

**Conclusions**

Laparoscopic colorectal surgery can be performed safely in the elderly

Age by itself should not alter minimally invasive colorectal management decisions
Conclusions

This increasing patient population has the greatest to gain by minimally invasive surgery