Early Laparoscopic Cholecystectomy is the Preferred Management of Acute Cholecystitis

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Introduction

- Benefits of early cholecystectomy for acute cholecystitis recognized in 1960s
- Laparoscopic techniques for acute disease described in 1990s
- Numerous studies have demonstrated advantage of early LC over other approaches
Introduction

*Early* laparoscopic cholecystectomy when compared with delayed laparoscopic cholecystectomy or percutaneous cholecystostomy results in:

- shortest length of stay
- similar rates of conversion
- similar rates of complication
Aim of Study

- Delayed LC persists despite evidence
- Is early laparoscopic cholecystectomy being done in practice?
Methods

- Retrospective
- Patients identified via ICD-9 and CPT-4 codes
- Five groups based on actual treatment
Five Groups

- **Early LC**: < 24 hrs of admission
- **Late LC**: within index admission after failed antibiotic therapy (24 hrs – 10 days)
- **Interval LC**: after index admission, following Abx alone or percutaneous cholecystostomy (2 wks – 2 yrs)
- **Abx alone**
- **Percutaneous cholecystostomy**
Study Endpoints

- Length of hospital stay
- Rate of conversion to open cholecystectomy
- Major complications
Results

Acute cholecystitis
n = 173

Antibiotics
Early LC
71 (41%)

Prolonged
Antibiotics
102 (59%)
Acute cholecystitis
n = 173

- Abx/Early LC 71
- Prolonged Antibiotics 102

Failed 45 (44%)
Resolved 57 (56%)
Acute cholecystitis
n = 173

Abx/Early LC 71

Prolonged Antibiotics 102

Failed 45 (44%)
Resolved 57 (56%)

Late LC 26 (58%)

Percutaneous cholecystostomy 19 (42%)
Acute cholecystitis
n = 173

- Early LC 71
- Antibiotics 102
  - Failed 45 (44%)
  - IV Abx 57 (56%)
- Late LC 26 (58%)
- Percutaneous cholecystostomy 19 (42%)
  - Interval LC 9 (47%)
  - Interval LC 46 (81%)

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# Patient Demographics

<table>
<thead>
<tr>
<th></th>
<th>Operative treatment</th>
<th>Non-operative treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Early LC n = 71</td>
<td>Late LC n = 26</td>
</tr>
<tr>
<td></td>
<td>Interval LC n = 55</td>
<td>Abx Alone n = 11</td>
</tr>
<tr>
<td></td>
<td>PC n = 10</td>
<td></td>
</tr>
<tr>
<td><strong>Age (±SD)</strong></td>
<td>41.2 (14.2)</td>
<td>44.1 (13.8)</td>
</tr>
<tr>
<td></td>
<td>48.4 (16.3)</td>
<td>55.8 (15.2)</td>
</tr>
<tr>
<td></td>
<td>72.6 (8.7)</td>
<td></td>
</tr>
</tbody>
</table>

PC; percutaneous cholecystostomy
## Duration of Symptoms

<table>
<thead>
<tr>
<th>Laparoscopic cholecystectomy group</th>
<th>Duration of sx (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early n=71</td>
<td>1.4 (0.5-5)</td>
</tr>
<tr>
<td>Late n=26</td>
<td>2.4 (0.5-7)</td>
</tr>
<tr>
<td>Interval n=55</td>
<td>2.3 (0.3-7)</td>
</tr>
</tbody>
</table>

\[ p = 0.002 \]
# Length of Stay

<table>
<thead>
<tr>
<th>Laparoscopic cholecystectomy group</th>
<th>Length of stay (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early</td>
<td>2.0 (1-7)</td>
</tr>
<tr>
<td>Late</td>
<td>5.4 (3-10)</td>
</tr>
<tr>
<td>Interval</td>
<td>4.9 (2-11)</td>
</tr>
</tbody>
</table>

Early n=71  
Late n=26  
Interval n=55

\[ p = 0.001 \]
## Conversion to Open Cholecystectomy

<table>
<thead>
<tr>
<th>Laparoscopic cholecystectomy group</th>
<th>Conversion to open</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early n=71</td>
<td>4 (5.6%)</td>
</tr>
<tr>
<td>Late n=26</td>
<td>3 (11.5%)</td>
</tr>
<tr>
<td>Interval n=55</td>
<td>5 (9.1%)</td>
</tr>
</tbody>
</table>

$p = 0.3807$

$p = 0.5021$
Indications:

- Relative contraindication to anesthesia
- Persistent symptoms beyond 4 days
- Resource constraints
- Surgeon discretion
## Percutaneous cholecystostomy (n = 19)

<table>
<thead>
<tr>
<th></th>
<th>Interval LC (9)</th>
<th>No further treatment (10)</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (±SD)</td>
<td>50.8 (18.2)</td>
<td>72.6 (8.7)</td>
<td>0.0032</td>
</tr>
<tr>
<td>Duration of sx (days)</td>
<td>2.7 (1-7)</td>
<td>2.4 (1-4)</td>
<td>0.7362</td>
</tr>
<tr>
<td>Length of stay (days)</td>
<td>6.6 (4-11)</td>
<td>5.9 (4-11)</td>
<td>0.6057</td>
</tr>
</tbody>
</table>
Complications

- Cystic duct leak in Interval LC group (1/55)
- No CBD injuries
- No cardiac or pulmonary events
- No deaths
Laparoscopic cholecystectomy
N=173

- Early: 71 (41%)
- Interval: 55 (32%)
- Late: 26 (15%)
- Non-operative: 21 (12%)
Discussion

Reasons for delay?

- Slow acceptance of existing evidence
- Misguided belief in “cooling off” a “hot” gallbladder
- Resource constraints
- Availability of percutaneous cholecystostomy
- Surgeon convenience
Conclusions

Actual practice does not necessarily conform to current evidence.

*Early* laparoscopic cholecystectomy should be advocated over prolonged antibiotics and/or percutaneous cholecystostomy in nearly all patients.