Cholecystectomy Vs Cholecystostomy tube in the management of acute cholecystitis

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Cholecystitis

- Inflammation of the gall bladder
  - Calculus
  - Acalculus
Incidence

- By the age of 60
  - Women - 22.4%
  - Men - 11.5%
Historical data

• Gall stones found in ancient Egyptian mummies
• Physician who suggested operative treatment for stone disease
• 1859 - Surgeon could fix the fundus to the anterior abd wall through a small incision
• 1868 – Bobbs performed cholecystotomy with great success.
• 1882 – Langenbuch - removal of the gall bladder
Diagnostic criteria for acute cholecystitis – TG13

A. Local signs of inflammation
Murphy’s sign, RUQ mass/pain/tenderness

B. Systemic signs of inflammation
fever, elevated CRP, Abnormal WBC

C. Imaging findings
- imaging findings characteristic of acute cholecystitis

Suspected diagnosis
1. One item in A and one item in B are positive

Definite Diagnosis
One item in A + one item in B + C
Severity assessment criteria for acute cholecystitis

• **Severe (Grade III)** — Acute cholecystitis is accompanied by any one organ dysfunction — CVS, CNS, RS, Renal, Hepatic, Haematological.

• **Moderate (Grade II)** - $\uparrow$WBC or palpable tender mass or $>72$hrs or marked local inflammation

• **Mild (Grade I)** — does not meet the criteria of Grade II and III.
  - No organ dysfunction and only mild inflammatory changes
TG07 – Severity assessment of acute cholecystitis

- Management of acute cholangitis and acute cholecystitis
- Sensitivity to diagnostic criteria for acute cholecystitis – 92.1%
- Specificity – 93.3%
- Revised in 2013 as TG13 with improved accuracy from 92.7 to 94%
Cholecystostomy tube
Cholecystogram
Cholecystostomy

- Critically ill patients
- Poor or non operative candidates
- Elderly patients
- ASA III or IV
- Anticoagulants – Dabigatran and Clopidogrel
- Pregnancy (Case report)
Older patients

- Cholecystectomy is the treatment of choice
- Conversion to open is higher
- Increase post operative mortality and morbidity rates
- Longer hospital stays
- Higher complications rates
- May be due to associated diseases and delay in diagnosis
Cholecystostomy

• Aim is to decrease the morbidity and mortality (0 – 38%) rates
• Recurrence of AC rate is up to 40% after removal
• Overall 38% undergo elective cholecystectomy
Figure Legend:
Figure 3. Age- and Charlson comorbidity index score–adjusted survival distribution function in the percutaneous cholecystostomy and cholecystectomy groups.
Clinical outcomes of a percutaneous cholecystostomy for acute cholecystitis: a multicentre analysis

Pandanaboyana Sanjay, Devender Mittapalli, Aseel Marioud, Richard D White, Rishi Ram & Afshin Alijani

Upper GI & HPB Unit, Department of Radiology, Ninewells Hospital and Medical School, Dundee, UK, and

HPB Unit, Auckland City Hospital, Auckland, New Zealand
Overall outcomes after a percutaneous cholecystostomy (PC)

Total patients who underwent PC (n = 53)

ASA I & II (n = 4)
- Index cholecystectomy (n = 4)
- In-hospital mortality (n = 0)
- Re-admission (n = 0)
- 1-year mortality

ASA III & IV (n = 49)
- In-hospital mortality (n = 12)

ASA III & IV (n = 37)

Cholecystectomy (n = 14)
- Index (n = 0)
- Interval (n = 14)

No cholecystectomy (n = 23)
- Laparoscopic (2/14, 14.3%)
- Lap to open (12/14, 85.7%)

Readmissions (13/23, 46.5%)

Repeat PC (7/13, 53.8%)
Antibiotics (6/13, 46.2%)

In-hospital mortality, n = 12
Further mortality within 1 year, n = 8
Overall 1-year mortality 20/53 (37.7%)
<table>
<thead>
<tr>
<th>Calculus</th>
<th>ALL</th>
<th>Cholecystectomy</th>
<th>Cholecystostomy</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>3018 (1.2%)</td>
<td>2,593 (1.1%)</td>
<td>425 (11.5%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>All Cx</td>
<td>21,038 (8.5%)</td>
<td>20,886 (8.5%)</td>
<td>152 (4.1%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>GB/GI Cx</td>
<td>9214 (3.7%)</td>
<td>9,167 (3.8%)</td>
<td>47 (1.3%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Length of stay</td>
<td>5.2</td>
<td>5.1</td>
<td>12.7</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Total charges $</td>
<td>38,179</td>
<td>37,481</td>
<td>84,976</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Acalculus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Death</td>
<td>2,036 (3.5%)</td>
<td>1,423 (2.6%)</td>
<td>613 (14.2%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>All Cx</td>
<td>5,933 (10.1%)</td>
<td>5,636 (10.4%)</td>
<td>297 (6.9%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>GB/GI Cx</td>
<td>2,603 (4.5%)</td>
<td>2,523 (4.7%)</td>
<td>80 (1.9%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Length of stay</td>
<td>7.3</td>
<td>6.7</td>
<td>14.9</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Total Charges</td>
<td>53,974</td>
<td>49,787</td>
<td>106,846</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Complications of cholecystostomy

0 – 12.5%

- Biliary tree injury – bile leak
- Bleeding
- Abdominal abscess
- Wound infection
- Biliary peritonitis
- Pneumothorax/pneumobilia
- Enterocutaneous fistula
Cholecystectomy

- Preferred treatment for acute cholecystitis
  - Calculus/acalculus
  - Open/ laparoscopic

Acute cholecystectomy Outcome is better than delayed
Shortens hospital stay
Reduces the number of readmissions
Decreases the conversion rates
Optimum surgical treatment according to grade of severity

- Mild (grade I) – early laparoscopic cholecystectomy
- Moderate (grade II) – Early cholecystectomy. If there is severe inflammation early GB drainage is indicated.
- Severe (Grade III) – urgent management of organ dysfunction and early drainage and/or cholecystectomy
Conclusion

• Acute cholecystectomy – treatment of choice

• Cholecystostomy
  – useful in selected high risk and very old patients.
  – In very ill patients with absolute surgical contraindications
THANK YOU
Figure Legend:

Figure 2. Outcomes in patients who underwent cholecystectomy (CCY) only. All deaths are reported within 30 days of surgery. AC indicates acute cholecystitis.
Figure Legend:

Figure 1. Outcomes in patients who underwent percutaneous cholecystostomy (PC). AC indicates acute cholecystitis; CCY, cholecystectomy.