The Umbilicus: A Window into the Abdominal Cavity

George W. Holcomb, III, M.D., MBA
Surgeon-in-Chief/Senior Vice-President

Children’s Mercy Hospital
Kansas City, Missouri
The Umbilicus

- Umbilical vascular access
- Omphalocele
- Umbilical hernia
The Umbilicus

- Small omphalocele and omphalomesenteric duct
• Omphalomesenteric Duct
The Umbilicus

- One of several port sites for laparoscopy
The Umbilicus

Single Port Laparoscopy

• **SILS**™

• **SSULS (Kansas City)**
  • Single Site Umbilical Laparoscopic Surgery

• **SIPES (Alabama)**
  • Single Incision Pediatric Endoscopic Surgery
SSULS Appendectomy
SSULS Appendectomy
SSULS Cholecystectomy
# SSULS vs 4-Port Lap. Cholecystectomy

**Table 1 – Patient Characteristics at Operation**

<table>
<thead>
<tr>
<th></th>
<th>Single Incision (N=30)</th>
<th>4-Port (N=30)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)</td>
<td>14.0 +/- 3.2</td>
<td>13.3 +/- 3.3</td>
<td>0.39</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>55.0 +/- 19.4</td>
<td>59.7 +/- 24.0</td>
<td>0.40</td>
</tr>
<tr>
<td>Gender (% male)</td>
<td>20%</td>
<td>20%</td>
<td>0.99</td>
</tr>
<tr>
<td>Gallstones (% present)</td>
<td>50%</td>
<td>56.7%</td>
<td>0.70</td>
</tr>
</tbody>
</table>

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SSULS vs 4-Port Lap. Cholecystectomy

Table 2 – Operative Data

<table>
<thead>
<tr>
<th></th>
<th>Single Incision (N=30)</th>
<th>4-Port (N=30)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative Time (mins)</td>
<td>68.6 +/- 22.1</td>
<td>56.1 +/- 22.1</td>
<td>0.03</td>
</tr>
<tr>
<td>Surgical Difficulty</td>
<td>2.7 +/- 1.0</td>
<td>1.9 +/- 0.8</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Table 3 – Outcome Data

<table>
<thead>
<tr>
<th></th>
<th>Single Incision (N=30)</th>
<th>4-Port (N=30)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to Initial Diet (Hours)</td>
<td>3.8 +/- 4.7</td>
<td>5.2 +/- 9.2</td>
<td>0.41</td>
</tr>
<tr>
<td>Time to Full Diet (Hours)</td>
<td>6.3 +/- 5.8</td>
<td>7.2 +/- 9.7</td>
<td>0.66</td>
</tr>
<tr>
<td>Postoperative Length of Stay (days)</td>
<td>1.01 +/- 0.54</td>
<td>0.90 +/- 0.12</td>
<td>0.28</td>
</tr>
<tr>
<td>Total Doses of Analgesics</td>
<td>16.4 +/- 17.8</td>
<td>10.1 +/- 4.3</td>
<td>0.06</td>
</tr>
<tr>
<td>Hospital Charges ($)</td>
<td>29.7K +/- 27.3K</td>
<td>20.6K +/- 6.9K</td>
<td>0.08</td>
</tr>
</tbody>
</table>

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Table 4 – Convalescence After Discharge

<table>
<thead>
<tr>
<th></th>
<th>Single Incision</th>
<th>3-Port</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days of Prescribed Analgesics</td>
<td>3.5 +/- 3.2</td>
<td>3.6 +/- 3.8</td>
<td>0.96</td>
</tr>
<tr>
<td>Doses of Prescribed Analgesics</td>
<td>7.0 +/- 5.9</td>
<td>3.0 +/- 2.5</td>
<td>0.23</td>
</tr>
<tr>
<td>Days to Full Activity</td>
<td>6.1 +/- 3.1</td>
<td>6.0 +/- 4.7</td>
<td>0.96</td>
</tr>
<tr>
<td>Days to Return to School</td>
<td>4.8 +/- 1.9</td>
<td>4.5 +/- 4.2</td>
<td>0.88</td>
</tr>
</tbody>
</table>

APSA 2012
The Umbilicus

Site of Exteriorization of Meckel’s
The Umbilicus

Site of Exteriorization of Enteric Duplication Cyst
Laparoscopy for Possible Traumatic Bowel Injury
Laparoscopy for Intestinal Perforation

- Patient hemodynamically stable
- Allows directed open incision (if necessary)
- Intestine can be exteriorized via umbilicus for extra-corporeal resection/repair
Laparoscopic – Assisted Ileocecectomy for Crohn’s Disease
Laparoscopic Biopsy in Hirschsprung’s Patients
Newborn Exploration for Intestinal Atresia
Newborn Exploration for Intestinal Atresia
Laparoscopic Porto-or Hepaticoenterostomy

Extracorporeal Roux-en-Y anastomosis via umbilicus
The versatility of the transumbilical approach for laparotomy in infants
Essam A. Elhalaby, Hussam S. Hassan, Mohamed S. Hashish and Amel A. Hashish

Background/purpose Although the transumbilical approach became very popular for pyloromyotony, it has not been widely used in other procedures in children. The aim of this work was to evaluate the safety and the versatility of this approach for laparotomy in infants.

Patients and methods All hemodynamically stable neonates and infants with gastrointestinal surgical problems or pelvic or abdominal cystic masses were considered candidates for this approach. The umbilicus was incised nearly circumferentially, and the peritoneum was entered in the midline in a cephalic or caudal direction depending on the site of the lesion. The bowel or the mass was delivered outside the peritoneal cavity, and the procedure was completed in the standard open manner. Complications included: complications of strangled inguinal hernia (n=3), and complications in ventriculoperitoneal shunts (n=1). Their age ranged from 1 day to 22 months. The operating time ranged from 30 to 120 min. Three patients required transverse extension of the wound. Two (1.4%) patients developed dehiscence of the wound that required wound closure. Five (3.5%) patients had superficial periumbilical cellulitis and wound infections, and one patient had suture reaction treated conservatively. Late complications (adhesive intestinal obstruction) occurred in three (2%) patients. Parents were very satisfied with the final cosmetic outcome.

Conclusion The transumbilical approach is both a feasible and a safe approach for a broad spectrum of surgical problems in the pediatric age group.
Summary

• The umbilicus is the site of several conditions, but it is also the window for entry into the abdominal cavity.

• Remember, the umbilicus has many other uses outside of being a port site for traditional laparoscopy.
QUESTIONS

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