Umbilical Access in Laparoscopic Surgery in Infants less than 3 months: Single Institution Retrospective Review

James Fraser  
*Children's Mercy Hospital*

Kayla B. Briggs  
*Children's Mercy Hospital*

Wendy Jo Svetanoff  
*Children's Mercy Hospital*

Rebecca M. Rentea  
*Children's Mercy Hospital*

Pablo Aguayo  
*Children's Mercy Hospital*

See next page for additional authors

Follow this and additional works at: [https://scholarlyexchange.childrensmercy.org/presentations](https://scholarlyexchange.childrensmercy.org/presentations)

Part of the Pediatrics Commons, and the Surgery Commons

**Recommended Citation**

Fraser, James; Briggs, Kayla B.; Svetanoff, Wendy Jo; Rentea, Rebecca M.; Aguayo, Pablo; Juang, David; Fraser, Jason D.; Snyder, Charles L.; Hendrickson, Richard J.; St Peter, Shawn D.; and Oyetunji, Tolulope A., "Umbilical Access in Laparoscopic Surgery in Infants less than 3 months: Single Institution Retrospective Review" (2021). *Presentations*. 49.  
[https://scholarlyexchange.childrensmercy.org/presentations/49](https://scholarlyexchange.childrensmercy.org/presentations/49)

This Presentation is brought to you for free and open access by SHARE @ Children's Mercy. It has been accepted for inclusion in Presentations by an authorized administrator of SHARE @ Children's Mercy. For more information, please contact hlsteel@cmh.edu.
Umbilical Access in Laparoscopic Surgery in Infants less than 3 months: A Single Institution Retrospective Review

James A. Fraser MD
Pediatric Surgery Research Fellow

Kayla B. Briggs MD, Wendy Jo Svetanoff MD MPH, Rebecca M. Rentea MD MS, Pablo Aguayo MD, David Juang MD,
Jason D. Fraser MD, Charles L. Snyder MD, Richard J. Hendrickson MD, Shawn D. St. Peter MD, Tolulope Oyetunji MD MPH

Children’s Mercy Kansas City
No disclosures
Background

• Umbilical access in laparoscopic surgery has been cited as a factor for increased complications in low-birth-weight infants and those less than three months old

• Neonatal transitional circulation poses a unique risk
Background

- A 2020 study addressed complications related to umbilical access for infants less than 3 months of age
  - 10.6% of pediatric surgeons surveyed described complications related to direct umbilical access
  - Carbon dioxide (CO₂) embolism was cited as the most common complication (53%)
Methods

Single-institution Retrospective review 2016 - 2019

All patients <3 months of age who underwent laparoscopic pyloromyotomy or laparoscopic inguinal hernia repair

Demographics, operative reports, anesthesia records, and postoperative documentation were reviewed for complications related to umbilical access
Technique
### Results

<table>
<thead>
<tr>
<th></th>
<th>All cases (n = 365)</th>
<th>Pyloromyotomy (n = 246)</th>
<th>Inguinal Hernia (n = 119)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age at operation (weeks)</strong></td>
<td>5.9 [4.3, 8.8]</td>
<td>5.1 [4.0, 6.6]</td>
<td>9.6 [7.3, 11.5]</td>
</tr>
<tr>
<td><strong>EGA at birth (weeks)</strong></td>
<td>38 [36, 40]</td>
<td>36 [38, 40]</td>
<td>36 [33, 39]</td>
</tr>
<tr>
<td><strong>Weight (kg)</strong></td>
<td>3.9 [3.4, 4.6]</td>
<td>3.8 [3.4, 4.3]</td>
<td>4.2 [3.4, 4.9]</td>
</tr>
<tr>
<td><strong>Complications</strong></td>
<td>9 (2.5%)</td>
<td>Umbilical SSI (1)</td>
<td>Bowel Injury (1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bradycardia/hypotension (2)</td>
<td>Umbilical SSI (4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Umbilical hernia (1)</td>
</tr>
</tbody>
</table>
Conclusion

• Although concern for umbilical vessel injury, cannulation, and CO₂ embolism exists, these complications are more likely related to the operative procedure, insufflation, and factors associated with laparoscopy, and likely not umbilical access technique.
Thank you