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

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

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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 CO$_2$ 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