Complications of Feeding
Jejunostomies

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ES 1961241

- 85 y.o. female nursing home resident.

- Past Medical Hx – Afib, HTN, CVA

- Admitted for 2nd acute embolic CVA with residual left hemiparesis and aphasia.

- Referred to the GI service for PEG placement for enteral nutrition.
The patient suffered a gastric perforation during this procedure and a surgery consult was called.

- **WBC** – 8.85
- **H/H** – 12.3/38
- **Plt** – 264
- **Na** – 145, **K** – 3.5, **Cl** – 106, **bicarb** – 23,
- **BUN/ Cr** – 22/0.63
- **7.485/36.5/122/98/28/3.8**
X-ray
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- HOD # 10 - Taken to OR for exploratory laparotomy, gastric wedge resection, and feeding jejunostomy placement.

- HOD # 11/ POD #1 - Intubated, Normotensive with a normal heart rate. Adequate urine output.

- POD # 2 - Jejunostomy feeds were started.
• POD#6 –
  • The patient became oliguric with a WBC 13. She was also hypotensive requiring pressor support.
  
  • Broad spectrum antibiotics were started. CVP and arterial line were placed for monitoring
  
  • Abdominal exam revealed a soft, distended abdomen.
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- POD#6 –
  - Na – 146, K – 4.7, Cl – 115, Bicarb – 18, Glc – 79
  - BUN/ Cr – 46/ 1.71
  - 7.232/ 38/ 110/ 97%/ 15.9/ -10.5

- Emergent abdomen/ pelvis CT-scan ............
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- POD#6 –
  - Taken emergently to the OR for exploratory laparotomy which revealed a displaced jejunostomy tube.
  - Previous jejunostomy site was closed in a two-layered fashion.
  - Enteral feeds noted throughout abdomen.
  - Copious irrigation
  - New feeding jejunostomy was placed distal to the old site.
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- HOD # 21/ POD# 1 - WBC - 10, decreasing pressor support. Good urine output.

- HOD#35 - Tracheotomy for respiratory dependence

- HOD #50 - Discharged to nursing home facility.
Discussion

- Options for post-op enteral feeding
- Techniques for jejunostomy insertion.
- Complications
- Is a jejunostomy a safe method?
Options for post-op enteral feeding

- Nasogastric tube

- Gastrostomy.
  - PEG (percutaneous endoscopic gastrostomy).
  - Open.
    - Stamm
    - Janeway

- Jejunostomy.
  - Bush in 1858.
Surgical Jejunostomy in Aspiration Risk Patients


- All were at risk for aspiration pneumonia.

- All jejunostomies were performed by a single surgeon using a uniform technique.

- Major end-point was aspiration pneumonia.
**Surgical Jejunostomy in Aspiration Risk Patients**


**TABLE 2. Indications for Long-Term Enteral Feeding in 100 Patients**

<table>
<thead>
<tr>
<th>Indication</th>
<th>No. of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aphagia due to obtundation</td>
<td>28</td>
</tr>
<tr>
<td>Oropharyngeal dysmotility</td>
<td>25</td>
</tr>
<tr>
<td>Aphagia due to inability to feed self</td>
<td>15</td>
</tr>
<tr>
<td>Oropharyngeal obstruction</td>
<td>10</td>
</tr>
<tr>
<td>Esophageal obstruction or inflammation</td>
<td>9</td>
</tr>
<tr>
<td>Gastric outlet obstruction</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Surgical Jejunostomy in Aspiration Risk Patients

- Analysis of this retrospective review reported an 8% incidence of postoperative aspiration pneumonia.

- Compared to previously reported 23 to 40% incidence of aspiration pneumonia associated with percutaneous gastrostomy tubes.¹⁻²

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Techniques for jejunalostomy insertion

- Laparotomy
  - Longitudinal Witzel

- Transverse Witzel

- Needle catheter

- Percutaneous endoscopy gastrojejunalostomy placement

- Laparoscopy
Witzel Jejunostomy
Witzel Jejunostomy
Witzel Jejunostomy
Witzel Jejunostomy
Witzel Jejunostomy
Witzel Jejunostomy
Witzel Jejunostomy
Witzel Jejunostomy
Witzel Jejunostomy
Witzel Jejunostomy
Needle Jejunostomy
Needle Jejunostomy
Complications

- Mechanical
  - Intestinal occlusion
  - Intraperitoneal leakage
  - Local abscess collection
  - Intestinal necrosis
Table 1. Complications of jejunostomy.

<table>
<thead>
<tr>
<th>Jejunostomy type</th>
<th>Cases (no.)</th>
<th>Complications (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longitudinal Witzel [1]</td>
<td>523</td>
<td>2.1</td>
</tr>
<tr>
<td>Transverse Witzel [35]</td>
<td>30</td>
<td>6.6</td>
</tr>
<tr>
<td>Roux-en-Y [36]</td>
<td>34</td>
<td>21.0</td>
</tr>
<tr>
<td>Needle catheter [28]</td>
<td>2022</td>
<td>1.5</td>
</tr>
<tr>
<td>DPEJ [32]</td>
<td>150</td>
<td>12.0</td>
</tr>
</tbody>
</table>

DPEJ: direct percutaneous endoscopic jejunostomy.

Complications II

- Infectious
  - Aspiration Pneumonia

- Gastrointestinal
  - Abdominal distention
  - Diarrhea
  - Constipation
Is a jejunostomy a safe method?

Complications of Needle Catheter Jejunostomy in 2,022 Consecutive Applications.


- All jejunostomies were inserted by a staff physician using a similar commercially available kit.
Complications of Needle Catheter Jejunostomy in 2,022 Consecutive Applications.

### TABLE II

<table>
<thead>
<tr>
<th>Setting (Definition)</th>
<th>All Laparotomies'</th>
<th>NCJ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjunctive† (at time of laparotomy for other reason)</td>
<td>1,813</td>
<td></td>
</tr>
<tr>
<td>Complex upper-abdominal operation</td>
<td>857</td>
<td></td>
</tr>
<tr>
<td>Pancreatic</td>
<td>262</td>
<td>149 (57)</td>
</tr>
<tr>
<td>Gastric</td>
<td>1,415</td>
<td>554 (39)</td>
</tr>
<tr>
<td>Esophageal</td>
<td>492</td>
<td>138 (28)</td>
</tr>
<tr>
<td>Hepatic</td>
<td>186</td>
<td>16 (9)</td>
</tr>
<tr>
<td>Cancer therapy</td>
<td>646</td>
<td></td>
</tr>
<tr>
<td>Multisystem trauma</td>
<td>325</td>
<td></td>
</tr>
<tr>
<td>Preexisting malnutrition</td>
<td>391</td>
<td></td>
</tr>
<tr>
<td>Remedial (at repeat operation for complications)</td>
<td>117</td>
<td></td>
</tr>
<tr>
<td>Primary (operation only for feeding access)</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>Preliminary (preoperative repletion, total parental nutrition impossible)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

*Total laparotomies performed during this interval.
†A total of 406 patients had multiple adjunctive indications.
Complications of Needle Catheter Jejunostomy in 2,022 Consecutive Applications.

![Table III: Complications Related to Needle Catheter Jejunostomy](image)

*Two repeat operations involved 2 complications.*

- Concluded that jejunostomies are a safe and effective means of providing nutritional support.

- Emphasis on the mechanical aspects and radiological confirmation.
Conclusion

- Post- pyloric feeding is advantageous in patients with a high risk of aspiration.

- A feeding jejunostomy can be considered safe and effective routes for enteral feeding

- While a safe approach, a feeding jejunostomy, as with all invasive procedures, is not risk free.
References

- Surgical Jejunostomy in Aspiration Risk Patients
- http://www.vesalius.com/