Oley 2009
Complicated Enteral Access Update

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Topics

- PEG in patient with abdominal surgery
- Low Profile Device
- External bolster placement post-PEG
- No oral access PEG
- PEG tract infection
- PEG tract tumor seeding
- Small bowel access
- PEG/J vs DPEJ
- Small Bowel Decompression
Previous Abdominal Surgery and PEG Placement, Any Risk?
Previous Abdominal Surgery and PEG Placement

- 42 patients in surgical ICU
- Recent or past abdominal surgery
- 75 ICU patients with no abdominal surgery
- PEG placed
- Pre-procedural antibiotics

Guzzo et al: Am Surgeon, 2005
## Previous Abdominal Surgery and PEG Placement

<table>
<thead>
<tr>
<th>Complications</th>
<th>Old</th>
<th>New</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound Infection</td>
<td>15%</td>
<td>18%</td>
<td>17.3% ns</td>
</tr>
<tr>
<td>Dislodgement</td>
<td>5%</td>
<td>6.7%</td>
<td>9%</td>
</tr>
</tbody>
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- Guzzo et al: Am Surgeon, 2005
Cosmetic Advantages Low-Profile Device
Introducer PEG
Initial Placement Low-Profile Device
Introducer Kit
PEG Placement and the External Bolster Placement

Tight

Direct Apposition

1-2 cm Away

Does it Matter?
Tissue Compression

- Increased tissue tension
- Ischemia
- Reduced blood flow
- Reduced oxygen/nutrient delivery
Ying or Yang

Direct Apposition

Loose
External Bolster Placement and Tract Healing in Humans

- **48 patients** at PEG, external bolster at avg 4.6 cm tract length (TIGHT)
- **67 patients** at PEG, external bolster Avg 11.6 cm tract length (LOOSE)
- Followed for complications:
  - **11/48** (tight): cellulitis, fasciitis, myositis, drainage, bleeding
  - **1/67** (loose) with any of the above

- Chung et al; Endoscopy, 1990
What if Oral Access for Endoscopy is Impossible or Contraindicated
Unsedated Transnasal Endoscopy

- 155 PEGs placed in 2 years
- 12 patients oral endoscopy impossible
- Slim scope used (160/5.9 mm)
- Nasal endoscopy
- 16 fr PEG placed

Vitale et al; Endoscopy, 2003
Unsedated Transnasal Endoscopy

- 12/12 successful
- Average procedure time 15 minutes
- No immediate or 30 day complications
- No nasal bleeding

- Vitale et al; Endoscopy, 2003
Oral PEG Placement

- Are there problems:
  - Tumor seeding of abdominal wall from head and neck cancer
  - Abdominal wall infection
Head and Neck Cancer
Complication

Abdominal Wall Tumor
Do We Need to Protect the PEG Tube?
PEG and Abdominal Wall Infection
Overtube for PEG Protection

- 73 patients
- 37 PEG placed through an overtube
- 36 PEG without an overtube
- All received pre-procedural antibiotics
- Mean combined PEG wound scores
  - 0 – 8 based on erythema, exudate, fever

Maetani et al; Gastrointest Endosc 2005
Overtube for PEG Protection

P < .0001

Day of the Week
Small Intestine. Can we get there?
The duodenum is a short structure
PEG/J – Tapered Tip J-Tube

Time of Placement – 26 minutes 40 seconds
100% success rate in one endoscopic setting

J-Tube position:
(12) – Ligament of Treitz
(13) – 4th portion of the duodenum

100% began feeding within 24 hours

DeLegge: World Congress, 1994
Direct PEJ (DPEJ)

Modification of a PEG Procedure for Jejunal Access
- Any PEG can be placed (14-28fr)
- PEJ Placement Distal to Ligament of Treitz

Attempted in 150 Patients
- 78 s/p surgery (gastrectomy, esophagectomy, whipple)

Indications
- Gastric Outlet Obstruction
- Aspiration

Shihe et al: Gastrointest Endosc, 1996
DPEJ

Success Rate (39/44) – 88%
Failures – Cannot access jejunum – 4.5%
Cannot transilluminate – 6.8%

Complications (22.6%)
- Tube dysfunction (clogging) – 11.3%
- Jejunal pressure ulcer – 4.5%
- Local wound infection – 6.8% (Antibiotics)
- No complications requiring surgery

DPEJ Retrospective

- **Proposed Mechanism of Complications**

  - Tight application of external bolster
  - Adhesions – volvulus
  - Necrosis
  - Persistent fistula
DPEJ vs PEG/J Prospective Study

- 40 patients
- Randomized to DPEJ vs PEG/J
- Primary endpoint was re-intervention
- Followed for 6 months
  - Gastroparesis - 20.5%
  - Chronic pancreatitis – 59%
  - Risk of Aspiration – 20.5%
DPEJ vs PEG/J Prospective Study

- **Successful Placement**
  - DPEJ – 84.2%  \( p = \text{NS} \)
  - PEG/J – 90%

- **Time to Removal**
  - DPEJ – 57.5 days  \( p = \text{NS} \)
  - PEG/J – 51.5 days

- **Adverse Events moderate/serious**

DPEJ vs PEG/J Prospective Study

Small Bowel Obstruction and DPEJ
What can we do?
Small Bowel Obstruction and DPEJ

- 5 patients with malignant abdominal cancer and obstruction
  - 3/5 had a Bilroth II
  - 2 had a total gastrectomy
- Subsequent development of small bowel obstruction (metastatic lesions)
- DPEJ for bowel obstruction
- Piccini et al; Support Care Cancer, 2005
Small Bowel Obstruction and DPEJ

- 5/5 DPEJ’s successful
- 3 required US guidance secondary to poor transillumination
- 1 peristomal infection
- Average output 400 cc/day
- Survival 34-157 days

Piccini et al; Support Care Cancer, 2005
Conclusion

- PEG safe following abdominal surgery
- Singles step low profile
- Looser bolster is better
- The nose is an access for PEG
- The sheath PEG may be useful
- Small bowel access is obtainable
- DPEJ vs PEG?
- Small bowel decompression obtainable