Third Space Endoscopy

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Third Space Endoscopy

GI lumen (1st Space)

Peritoneal Cavity (2nd Space)

Submucosa (3rd Space)

Tunneling

Mucosa

Sub Mucosa

Muscle
Third-space endoscopy

Disease: Achalasia cardia → E-POEM
Disease: Refractory gastroparesis → G-POEM
Disease: Zenker diverticulum → Z-POEM
Disease: Subepithelial tumor → STER
Disease: Esophageal stricture → POETRE
E-POEM
Achalasia - 2008

Submucosal Injection
A. Mucosal incision
B. Submucosal dissection (Tunneling)
C, D. Myotomy
E. Mucosal Closure
Achalasia
Chicago Classification

Type I achalasia
Impaired LES relaxation
Absent peristalsis
Normal esophageal pressure

Type II achalasia
Impaired LES relaxation
Absent peristalsis
Increased pan-esophageal pressure

Type III achalasia
Impaired LES relaxation
Absent peristalsis
Distal esophageal spastic contractions
Treatment Selection (POEM/LHM/PD)

- Patient Characteristics
- Patient’s Preference
- Possible Complications
- Doctor’s & Center’s Expertise
Achalasia III

- \text{POEM} = \text{LHM} > \text{PD}

- \text{POEM} > \text{LHM} \quad \text{Expert Opinion}

93\% \quad 71\%
Achalasia I/II → POEM - LHM - PD → Comparable
Consult Patient Before POEM ➡️ Up to 57% GERD!
Failed initial therapy ➔ POEM or LHM or PD (for any procedure)
# Myotomy Technique

<table>
<thead>
<tr>
<th>Location</th>
<th>Anterior (1-2o’clock)</th>
<th>Posterior (5-6o’clock)</th>
<th>Comparable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>↑ Bleeding Harder</td>
<td>↑ GERD</td>
<td></td>
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<tr>
<td>Thickness</td>
<td>Full</td>
<td>Partial(circular)</td>
<td>Partial</td>
</tr>
<tr>
<td></td>
<td>↑ Perforation Faster</td>
<td>Hard to Differentiate (specially GEJ)</td>
<td>LES Full</td>
</tr>
<tr>
<td>Length (2-3 cm cardia)</td>
<td>Long (6 - 11 cm)</td>
<td>Short (5 - 6 cm)</td>
<td></td>
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<tr>
<td></td>
<td>↑ GERD</td>
<td>Faster</td>
<td>Comparable</td>
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<tr>
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<td>Comparabe</td>
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<td>(Achalasia I/II) Short (III) Spastic segment</td>
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</table>
Medically refractory gastroparesis (proven)

Success 61%, Failure

1- Not only pyloric dysfunction
   - ↓ Gastric accommodation
   - Antroduodenal dyscoordination
   - Vagal injury

2- Symptoms overlap FD & ↑ Placebo effect
Technique

1. **Entry**
   - No data ➔ Most posterior wall/greater curvature

2. **Tunnel**
   - ≥3cm ➔ secure covering by mucosa

3. **Myotomy**
   - 2-3cm (up to pyloric muscle termination in duodenal bulb)

4. **Mucosal closure**
   - suturing ➔ clips
G-POEM Video
Symptomatic ZD

- Surgery
- Rigid esophagoscopy
- Flexible endoscopy (Flexible endoscopic diverticulotomy (FED), Z-POEM)
Z-POEM Technique

1. Mucosal incision: Proximal/At septum (for tortuous septum & easier clips closure)
2. Submucosal dissection: on both septum sides
3. Myotomy: Complete septum
4. Mucosal closure
Z-POEM Video
SEL (Sub-epithelial lesions) Ex. GISTs & NETs

**STER** easier closing & ↓ perforation & complete resection 98%

**Preferred:**
1. Straight tunnel (middle-lower esophagus, GEJ, stomach cardia)
2. Size <3-4 cm
STER Video
Third Space Endoscopy - References

- Oxford and Sun Yat-sen - Third Space Endoscopy - 2023
- ECGE - guideline: Endoscopic management of gastrointestinal motility disorders - 2020
- ACG - guideline: Diagnosis and Management of Achalasia - 2020
- ASGE - guideline on the management of achalasia - 2020
- SAGES - Guidelines for the Use of POEM for the Treatment of Achalasia - 2021
- UpToDate - Per Oral Endoscopic Myotomy - 2023
- The Journey from ESD to TSE - Showa University Koto Toyosu Hospital-Japan - 2023
- ASGE - guideline on ESD for the management of early esophageal and gastric cancers - 2023
- AGA - Clinical Practice Update on G-POEM for Gastroparesis - 2023
- ASGE - guideline for endoscopic full-thickness resection and STER - 2019
- Comparison of Z-POEM with standard FES for Zenker’s diverticulum - 2023
- And Others …