“From the Back of My Car to the Cutting Edge of Endoscopy”
Forty Hospitals and a Fantastic Voyage of 49 Years

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Excerpts From a Chief of Gastroenterology to Incoming Fellows

• “What you see now is not the way endoscopy has always been.”
• “I can fire a cannon through the halls of a hospital ward and never hit a GI Fellow at 5 PM”!
EARLY CONCEPTS IN DEVELOPING ENDOSCOPY

• WHERE HAVE WE BEEN?
  – SEMI-RIGID/ SEMI-FLEXIBLE ENDOSCOPES
  – INCANDESCENT LAMPS AND MIRRORS
  – OPTICAL EYEPIECE FOR VIEWING

• NO INTERNAL SUCTION
• NO INTERNAL AIR SUPPLY
• RARE BIOPSY CAPABILITY
• NO PHOTOGRAPHIC CAPABILITY
The Beginnings

- We started with rigid or semi-rigid endoscopes with incandescent bulbs
- Could not examine esophagus because of the lateral lens system
- Endoscopes passed blindly with frequent perforations
- Diagnoses made by visual observation
- Schindler made accurate drawings of his findings and published these for others to view
- Innovators adapted these endoscopes, especially the fiberoptic Hirschowitz endoscope, with 35 mm film cameras & 16mm movie cameras
Schindler: No Photography, Illustrate a Book

Lehrbuch und Atlas der Gastroskopie

Munich 1923
Early Fiberoptic Endoscope Systems

• Video endoscopes did not exist until the 1990’s
• Our eyes were attached to the fiberscopes
  – We did use teaching adaptors
  – We could use cameras, and, later, video adaptors were attached to the eye piece
  – Until 1970 endoscopes had no internal air-water supply (had to use a hand held pump for air)
  – There was no suction so patients fasted 24 hours, then stomach pumped with Ewald tube.
  – There were no biopsy capabilities
  – In the early 1970’s, endoscopes had tip controls (Joy Stick first, ACMI)
  – We could actually examine the esophagus with a flexible endoscope
  – Finally, we could enter the duodenum peaking our interest for ERCP
  – AND WE SENT MEN TO THE MOON!
The Beginnings-Fiberoptics

Endoscopic Examination of the Stomach and Duodenal Cap with the Fiberscope

*Lancet* 1 (1961): 1075
Innovations

• Are there catheters in IR I can use?
• Call company and order catheters, pigtail formers and hole punchers
• Why not have company make dilating catheters fashioned from the Van-Andel radiology catheter and place radio-opaque markers?
• Have company make pancreatic stents and a double lumen sphincterotome
Early Limitations of Therapeutic Endoscopy

**Polypectomy**
- Circa 1970
  - Started by a surgical endoscopist, Hiromi Shinya
  - Gastroenterologists performed colonoscopy, snared the polyp, but surgeon had to push cautery pedal

**ERCP-Sphincterotomy**
- ERCP was diagnostic, performed by endoscopists
- Sphincterotomy by endoscopists often prohibited in institutions with strong surgical mandates
- “Sphincterotomy-not on my watch” spoken by many surgeons
THERAPEUTIC ENDOSCOPY:
COLONOSCOPY & ERCP @ BETH ISRAEL NEW YORK 1960’s and 70’s
THERAPEUTIC ENDOSCOPY
SPHINCTEROTOMY, 25 YEARS LATER
THERAPEUTIC ACCOMPLISHMENTS OF FIBEROPTIC AND VIDEO ENDOSCOPY

- Polypectomy
- Hemostasis
- Sphincterotomy
- Stone removal
- Lithotripsy
- Drainage of pseudocysts and necrotic collections
- EUS and FNA
- Tumor ablation, laser, PDT, APC
- Barrett’s RX
- Brachytherapy
- Capsule endoscopy
- Bariatric therapy
- Biliary and pancreatic stents
- PEG
- Enteral and luminal stents
- Balloon dilation luminal, biliary and pancreas
- Endoscopic mucosal suturing
- EMR and ESD
- Clips and loops
- Single and double balloon enteroscopy
- Notes
- POEM
Stone Removal Montage

Stones removal Series.mpg
Keep Your Eyes on the Target and the Patient
Biliary Stenting
BIODEGRADABLE STENTS
Biliary Therapy

- Jaundice-Cholestasis (differential to exclude medical causes)
- Intrahepatic versus Extrahepatic
  - Stone Disease
  - Malignancy
    - Primary-Metastatic
  - Sclerosing cholangitis
  - Other; cholangiopathy of AIDS, etc.
- PEERS-Using a small caliber scope through a T-tube tract
- Cholangioscopy-Mother-Daughter-”Baby scope”, Spy Glass-now digital
Pancreatic Therapy

- Gallstone pancreatitis
- Acute pancreatitis
- Chronic pancreatitis
- Pancreatic stone disease
- Pseudocyst drainage
- Pancreatocscopy
Origins of PEG and it’s Early Limitations

• Percutaneous Endoscopic Gastrostomy started by surgeon, Jeffrey Ponsky, who happened to perform endoscopy.
• Ponsky criticized at DDW when presented PEG data-audience member stated, “This procedure should be performed by surgeon”. Ponsky then revealed he is a surgeon.
• Endoscopists began doing PEG’s but abdominal incision had to be done by surgeon, who was always present in beginning and for several years.
DRAINAGE OF PSEUDOCYSTS AND NECROTIC COLLECTIONS
FINE NEEDLE ASPIRATION
Fine Needle Aspiration
Barrett’s Esophagus
OverStitch™ ESS used to close fistula throughout the GI track

- Post-RYGB Gastro Gastric Fistulae
- Post-PEG Tube Gastrocutaneous Fistulae
- Other locations
  - Esophageal fistulae
  - Colonic fistulae
  - Recto-vaginal fistulae
  - Bariatric treatment...
ENTRYX
Withdrawn-Complications
Endoscopic Mucosal Resection
FUTURISTIC ENDOSCOPIC GASTROJEJUNOSTOMY
Newer Concept-GI Windows Approach
Single Balloon Enteroscopy
Be Alert - Remove the Air

Whale.JPG - Shortcut.Ink
Fuse® – A Dramatic Leap Forward

**Tandem Studies**

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<th>TFV 2nd Pass</th>
<th>TER 1st Pass</th>
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TFV = Traditional Forward View  
TER = Third Eye Retroscope®  
Fuse® = Full Spectrum Endoscopy

Third Eye Retroscope is a registered trademark of Avantis Medical Systems, Inc.
Fuse® (Full Spectrum Endoscopy System)
Endoscopic Control for Weight Loss: Heliosphere Intragastric Balloon
Endoscopic Control for Weight Loss

TOGA Device: Endoluminal Vertical Gastroplasty (Satiety Inc)
FIGURE 3A: EndoBarrier™ duodenal-jejunal bypass sleeve, with anchoring barbs on the duodenal end (right). 3B: Diagram depicting a food bolus in the stomach about to pass into the EndoBarrier sleeve. 3C: The EndoBarrier sleeve allows food to pass while preventing contact with the duodenum, biliary, and pancreatic secretions. 3D: The EndoBarrier retrieval “hood,” which is designed to reduce the risk of injury to the gastrointestinal tract during removal. Pulling the proximal drawstrings collapses the anchoring system barbs into the “hood.”
Confocal Endomicroscopy
“FANTASTIC VOYAGE” REMOTE CONTROLLED ENDOSCOPY
NOTES

Natural Orifice Translumenal Endoscopic Surgery
Live Surprises

FLUKES.mpg
Thanks from the bottom of my pancreas.JPG - Shortcut.Ink