Small, Deep, and Tough

A Unique US Cancer Center FTRD Experience

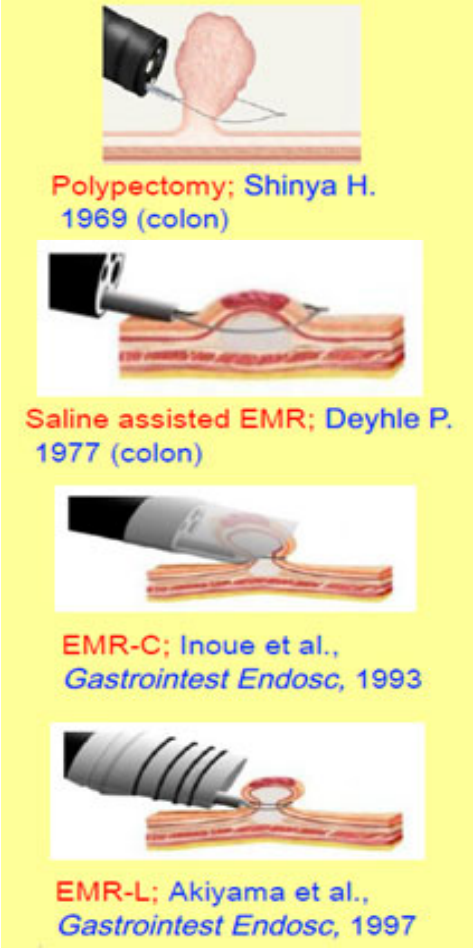
Phillip S. Ge, MD, FASGE

Associate Professor, Advanced Endoscopy
Department of Gastroenterology, Hepatology and Nutrition
The University of Texas MD Anderson Cancer Center

November 26, 2024

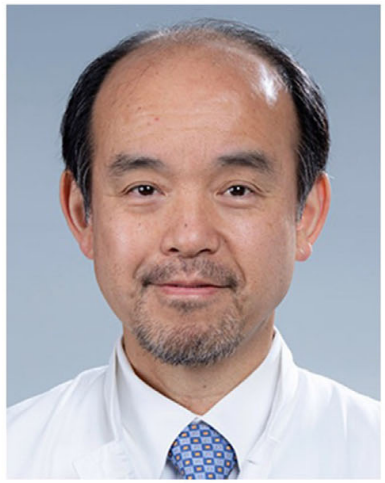
Celebrating the History of Endoscopic Resection

- **1969, USA – Snare polypectomy**
- **1977, Germany – Saline-assisted EMR**
- **1993, Japan – Cap-assisted EMR**
- **1997, Japan – Band-assisted EMR**



Endoscopic Submucosal Dissection (ESD)
Early 2000s, Japan



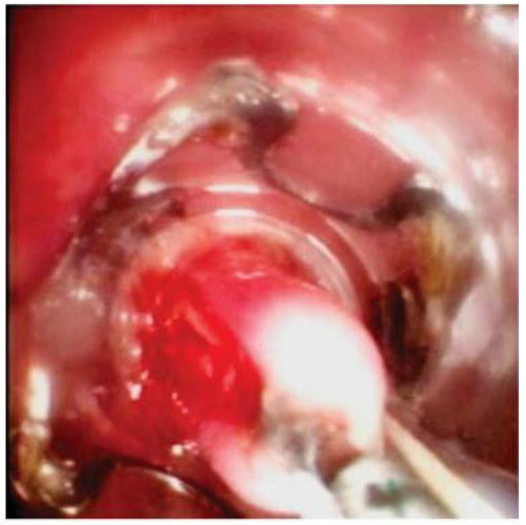
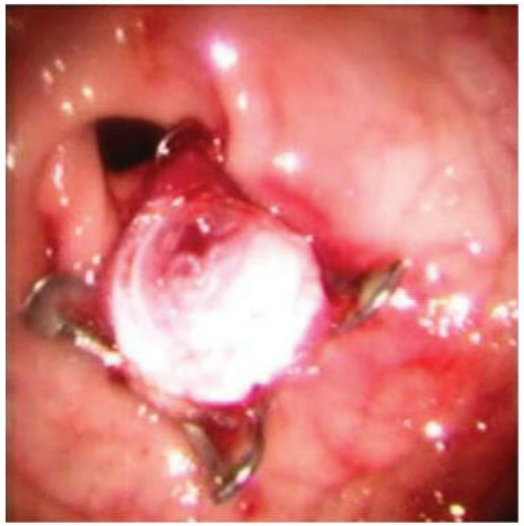





Aihara H, Ge PS. *iGIE* 2024

Endoscopic Full Thickness Resection (EFTR) 2011, Germany – Happy Birthday FTRD!

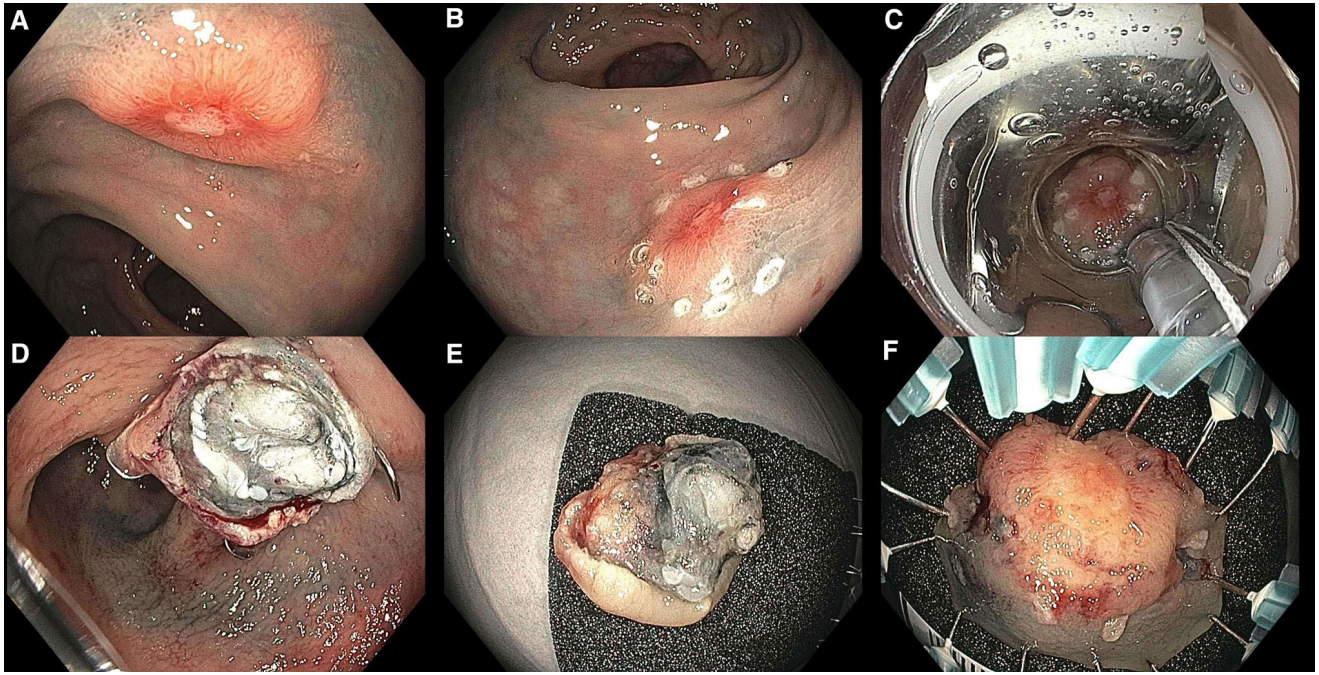


Schurr MO et al. *Minim Invasive Ther Allied Technol* 2011

The University of Texas MD Anderson Cancer Center, Houston, TX, USA

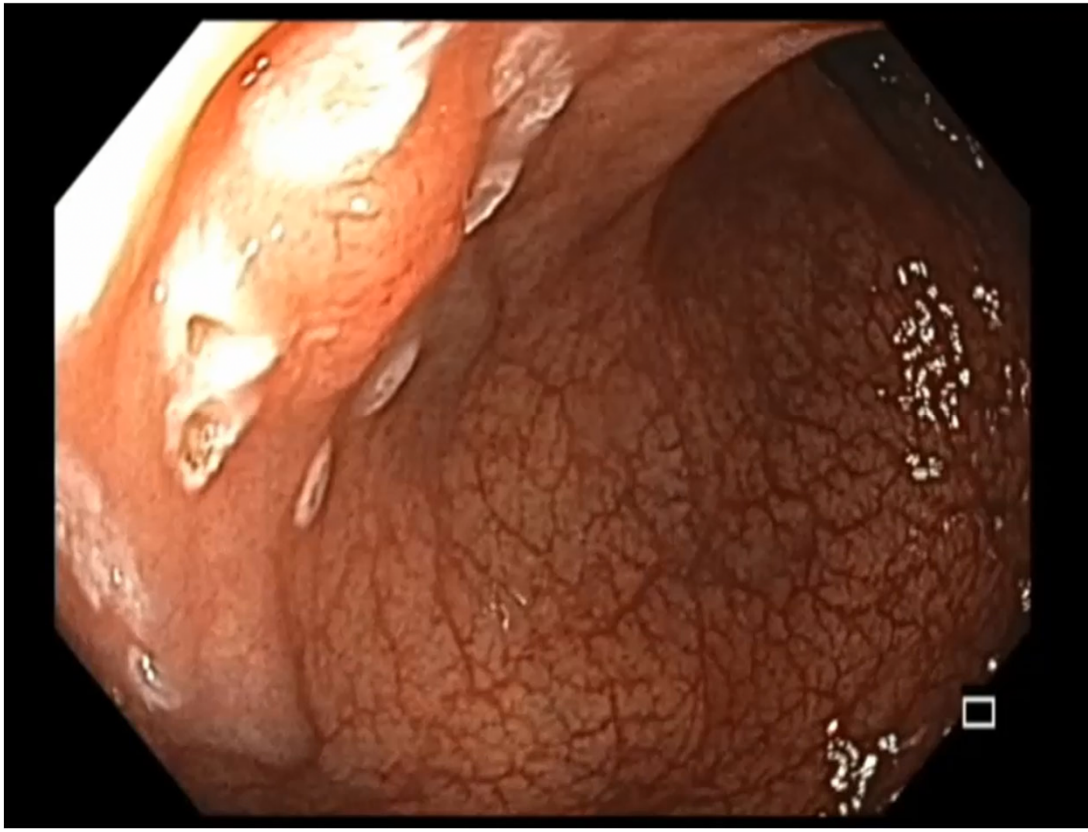
- High volume well-established endoscopic resection practice
  - EMR program 2009-present (GS Raju)
  - ESD program 2018-present (Phillip Ge)
  - **FTRD program 2020-present** (Phillip Ge and Emmanuel Coronel)



Ge PS, et al. *Dig Dis Sci 2022*

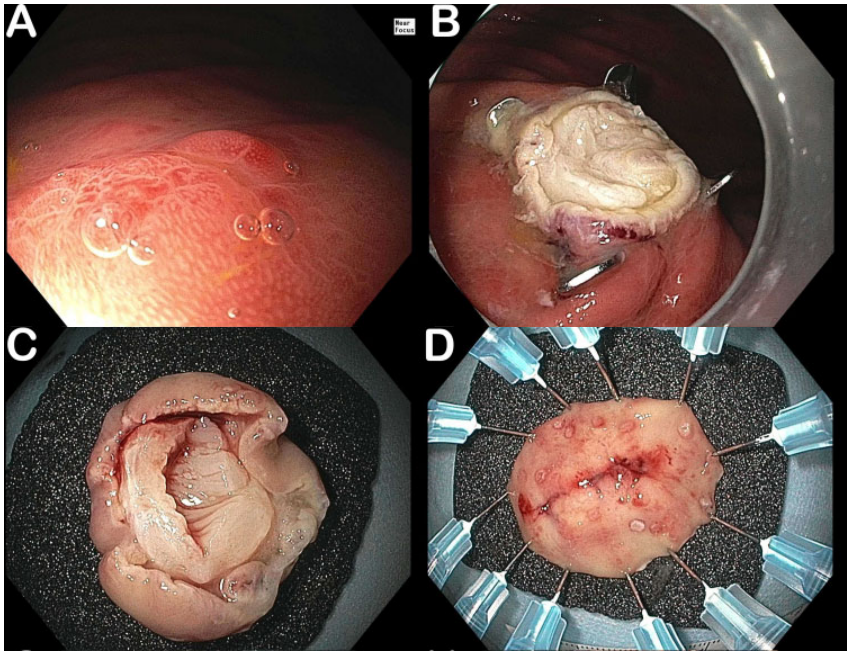
The MD Anderson FTRD Experience

- Primary or salvage resection of impossible polyps not amenable to EMR or ESD
  - Hybrid techniques of EMR+EFTR or ESD+EFTR of central fibrosis
- Resection of malignant scars
  - Incomplete resection of malignant polyps
  - Incomplete resection of neuroendocrine tumors
- Primary resection of subepithelial lesions
  - Neuroendocrine tumors
  - Small GISTs



The MD Anderson FTRD Experience

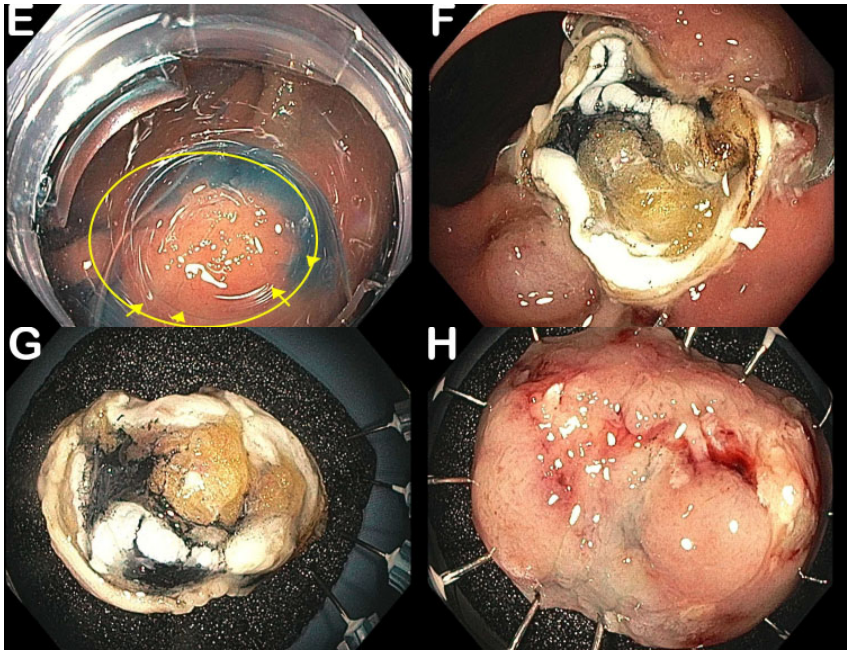
- **191 cases from 8/2020-11/2024 – highest volume in USA**
  - 38 gastric
  - 23 duodenal
  - 130 colorectal (68.1%)
- Technical success 93%
  - 8 cases were aborted
- Complete resection 74%
- Median procedure time 11 min



Coronel E, Ge PS, et al, *DDW 2024*

The MD Anderson FTRD Experience

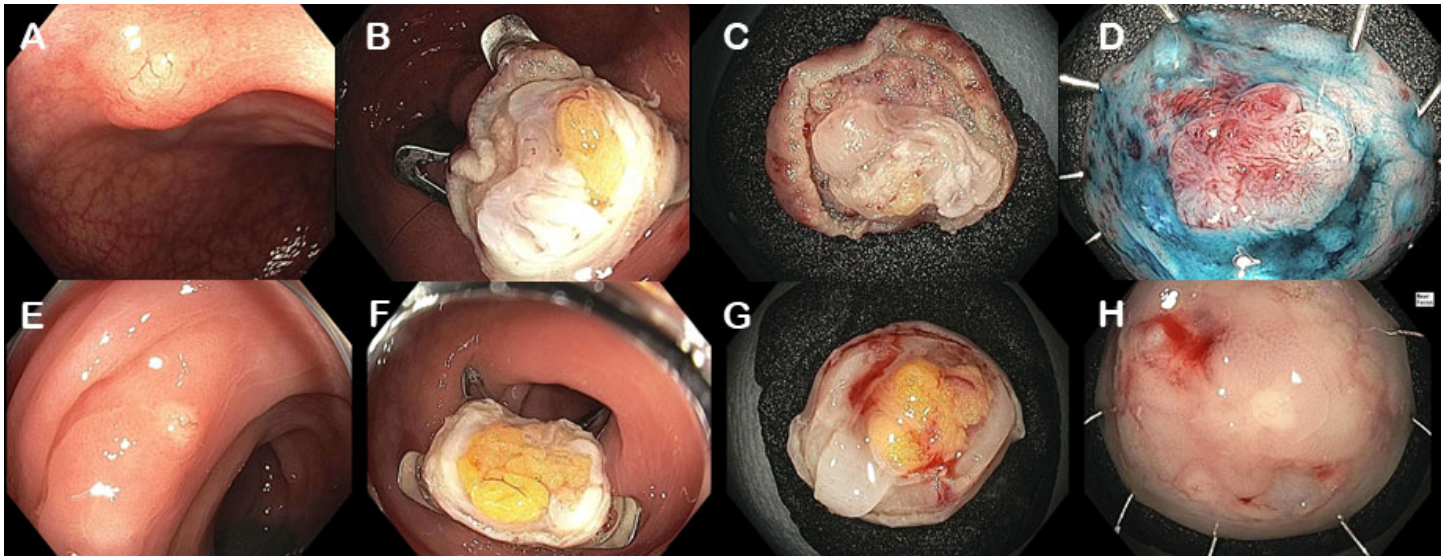
- 15 adverse events – 7.8%
  - 2 delayed perforations – temporary colostomy
  - 4 delayed bleed – direct to endoscopy
  - Localized pain (4), thermal injury (1), pyloric obstruction (1), ampullectomy (1), FTRD clip impaction (1), prolonged recovery (1)
- 6 hospitalizations – 3.1%
  - Delayed perforation (2), bleeding (1), tenesmus, delayed recovery, pyloric obstruction



Coronel E, Ge PS, et al, *DDW 2024*

Resection of Malignant Scars

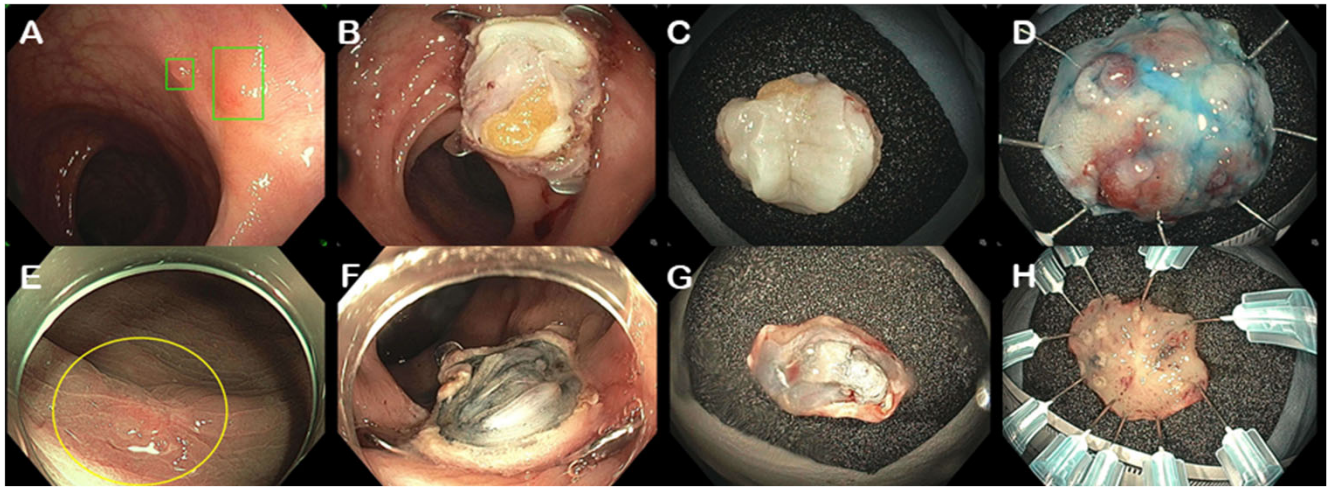
- EFTR allows formal T-staging in selected circumstances
  - Piecemeal/incomplete resection of malignant colorectal polyps
  - Piecemeal/incomplete resection of NETs



Ge PS, et al. *DDW 2022*

Resection of Malignant Scars

- **Our results (MD Anderson, USA)**
- 48 staging colorectal EFTR cases
  - 5/30 residual adenocarcinoma
    - 4 with high-risk features
    - 2 underwent surgery
  - 5/18 residual NET
    - 2 with high-risk features
  - 38 cases with no residual tumor (establish formal pT_1 staging)



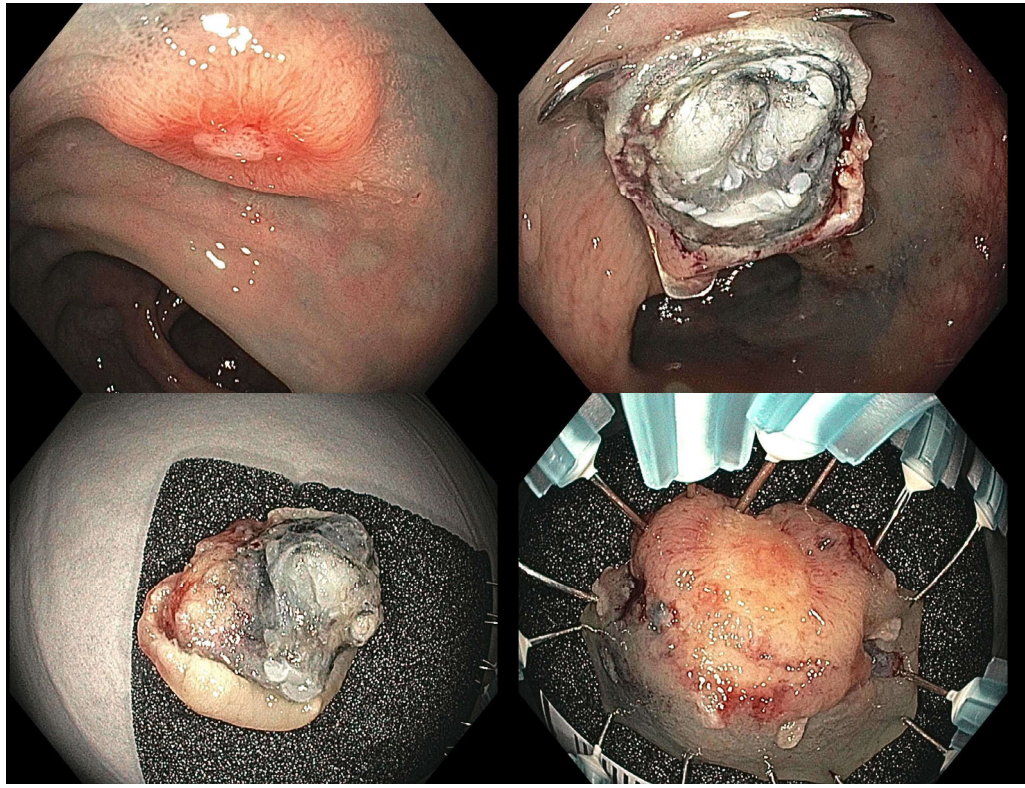
Coronel E, Ge PS, et al. *DDW 2023*

EFTR Impacts Tumor Staging

- **CAVEAT – this MUST be done with multidisciplinary approval**
  - Surgery is standard of care for malignant polyps
    - Local resection is not.
  - EFTR is only appropriate in:
    - Patients who are poor surgical candidates
    - Patients whose benefit >> risk in undergoing organ-sparing approach (i.e. rectal)
    - **Patients who YOU will be following**

FTRD for Neuroendocrine Tumors

- NETs are predominantly subepithelial
- Originate in lamina propria
  - Bottom of mucosal layer
  - Easily grows downwards into submucosa
- Poorly suited for EMR and ESD
  - Positive vertical margins
  - Therefore well suited for EFTR

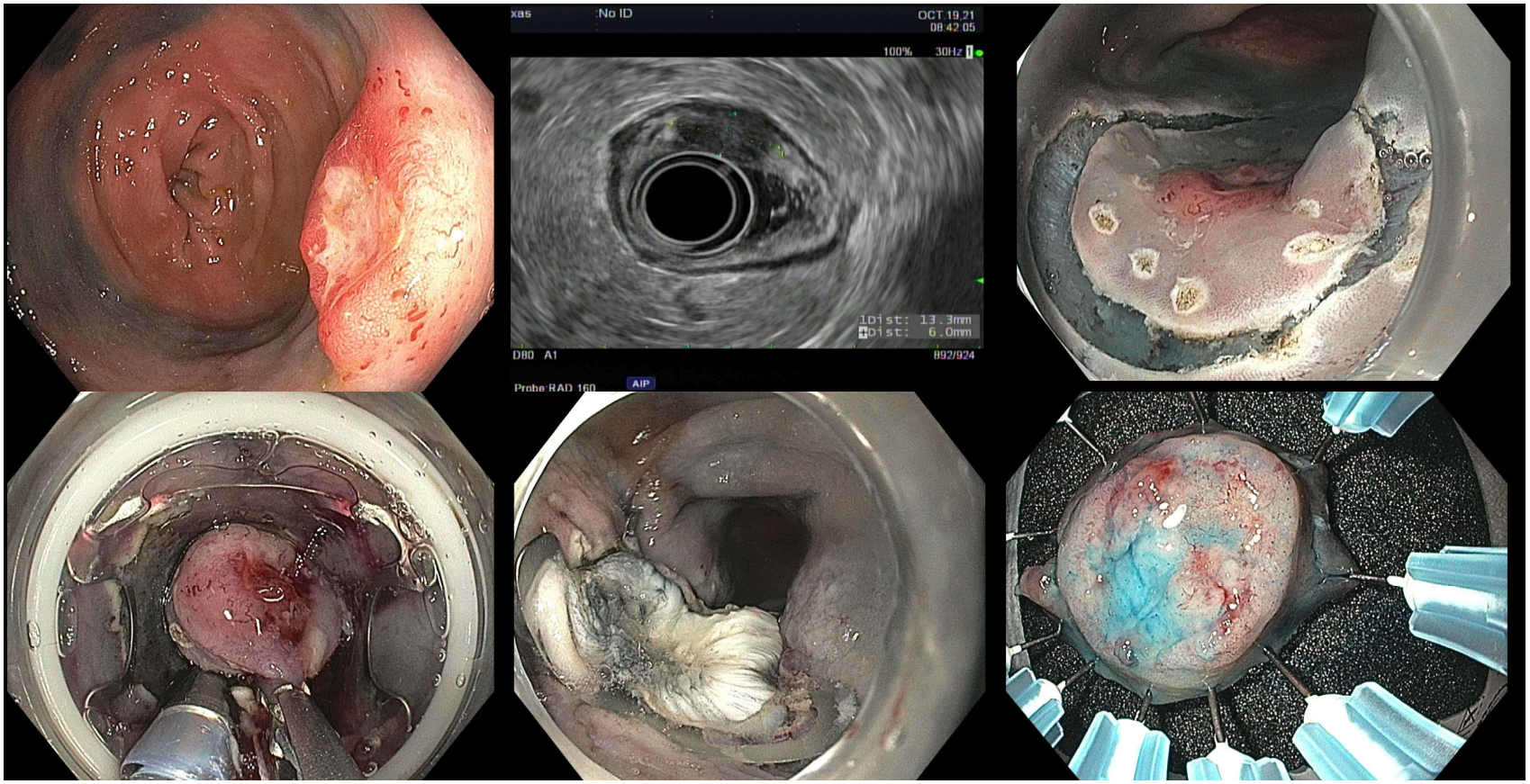


FTRD Impacts NET Staging

- 56 GI tract NETs
  - 22 gastric, 10 duodenal, 24 colorectal
- **26.8% changed histopathology**
  - 8.9% resulted in up-grading (G1→G2)
  - 17.9% resulted in up-staging (cT1→pT2/T3)
- **New finding of +LVI in 17.9%**
- **New finding of +PNI in 7.1%**
- 3 patients went to surgery due to these findings → **2 found to have LN metastasis**

Ge PS, Coronel E, et al. *DDW 2023*

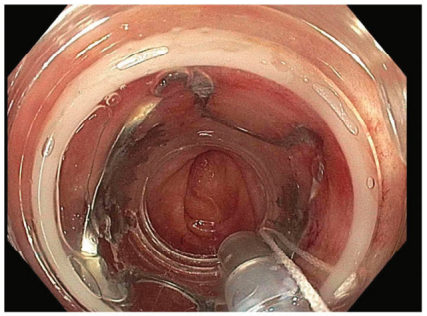
FTRD in Hard Mode



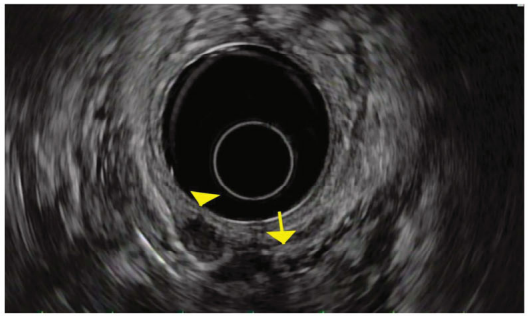
- 50 y.o. morbidly obese male
- “2 cm” NET at rectosigmoid junction → **clinical staging cT1 N0 vs cT2 N0**
- ESD to release edges, then EFTR of the NET
- Complete resection achieved
- **Path: pT3 NET, +LVI, +PNI**
- Additional surgery: residual NET along subserosal surface, +2/33 LN
- **Final staging: pT3 N1**

Troubleshooting

A

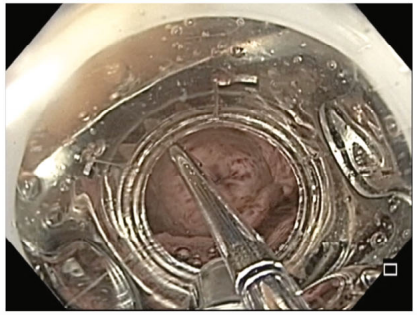


B

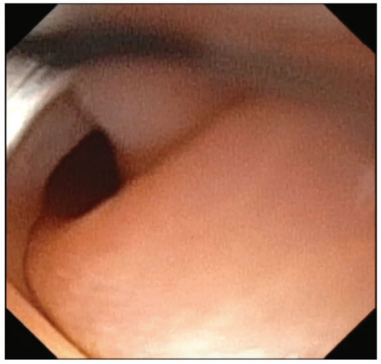


C

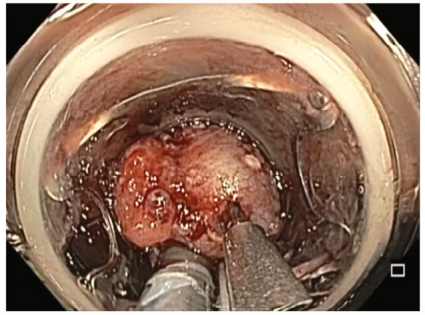
D



E



F



Kumar S, Ge PS, et al. *VideoGIE 2022*

Planning for Success – The "Mini Time-Out"

- Initiated **before** lesion is grasped
- Part 1 – equipment check
  - Patient is grounded
  - Electrosurgical unit settings are appropriate
  - Active cord plugged into snare
  - Foot pedal is at endoscopist's preferred location
- Part 2 – clarify roles
  - Assistant #1 – snare
  - Assistant #2 – grasper
  - Assistant #3 – challenging cases
    - 2nd MD or advanced fellow

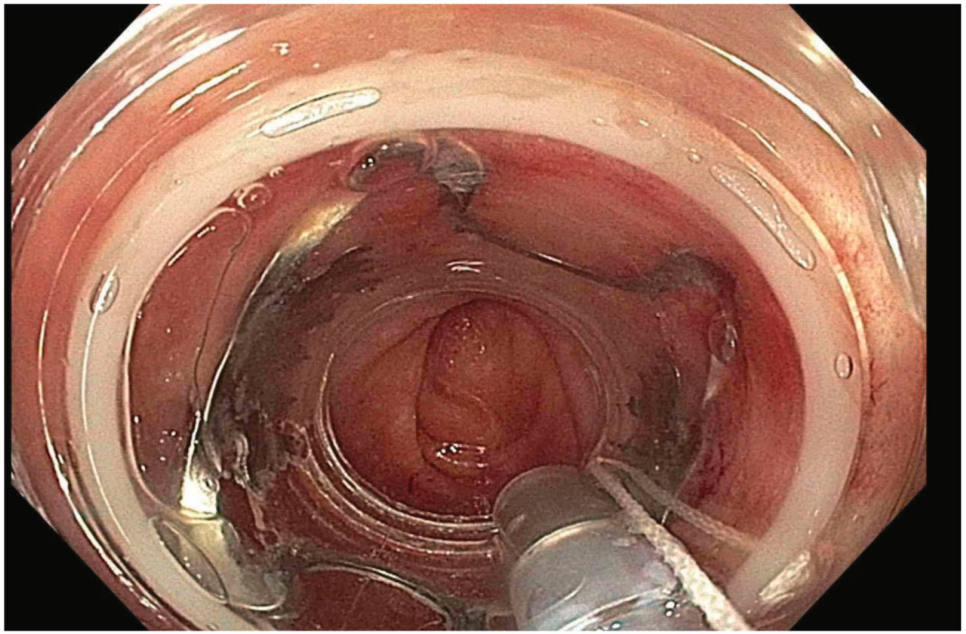
Kumar S, Ge PS, et al. *VideoGIE 2022*

A. Inability to Reach Lesion

Kumar S, Ge PS, et al. *VideoGIE 2022*

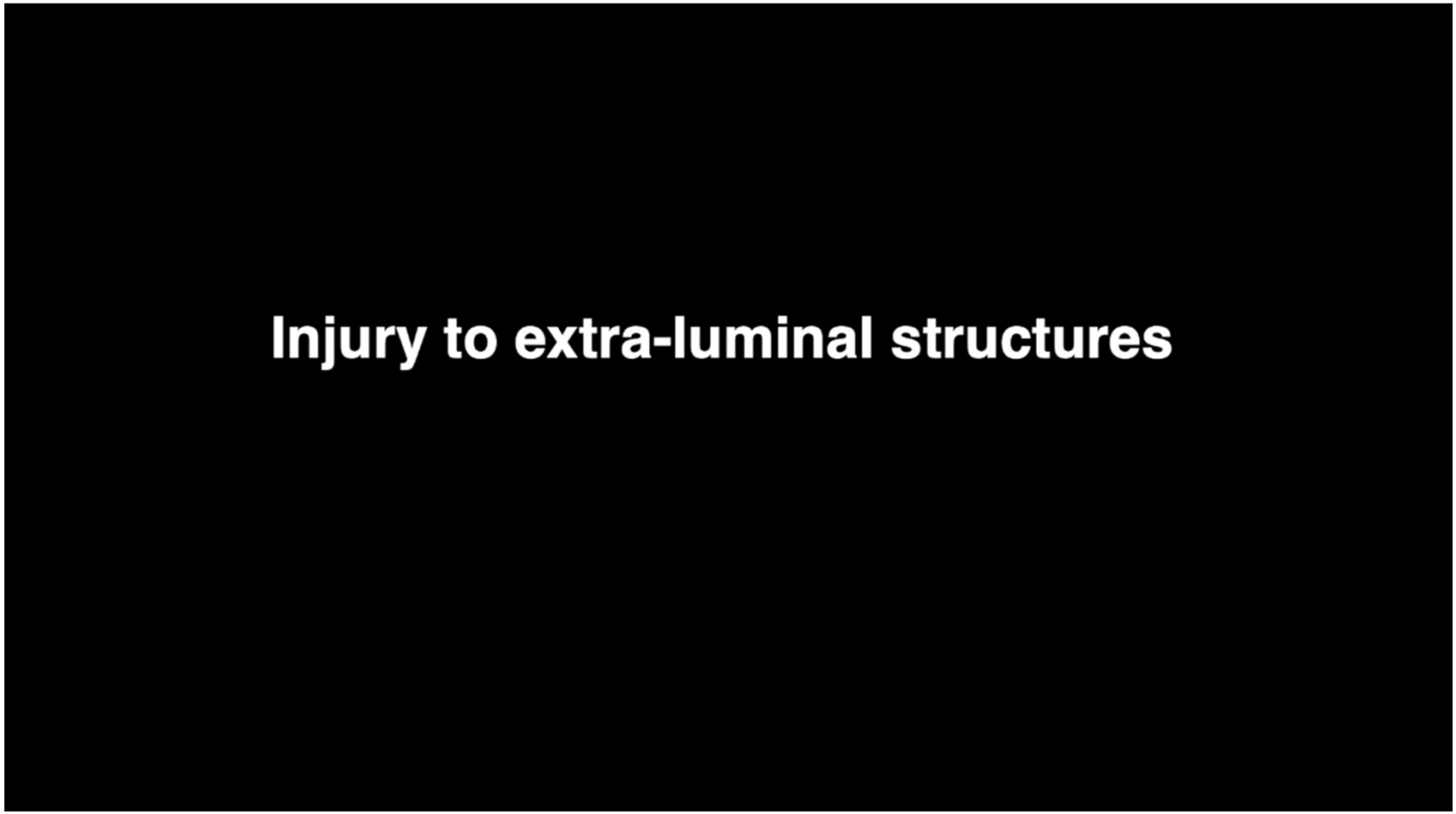
A. Inability to Reach Lesion

- Ensure cap is well-seated
- Try switching to gFTRD set
- Abdominal pressure
- Change patient position
- Lead with a balloon dilator
- Water immersion technique
- Don’t push your luck!



Kumar S, Ge PS, et al. *VideoGIE 2022*

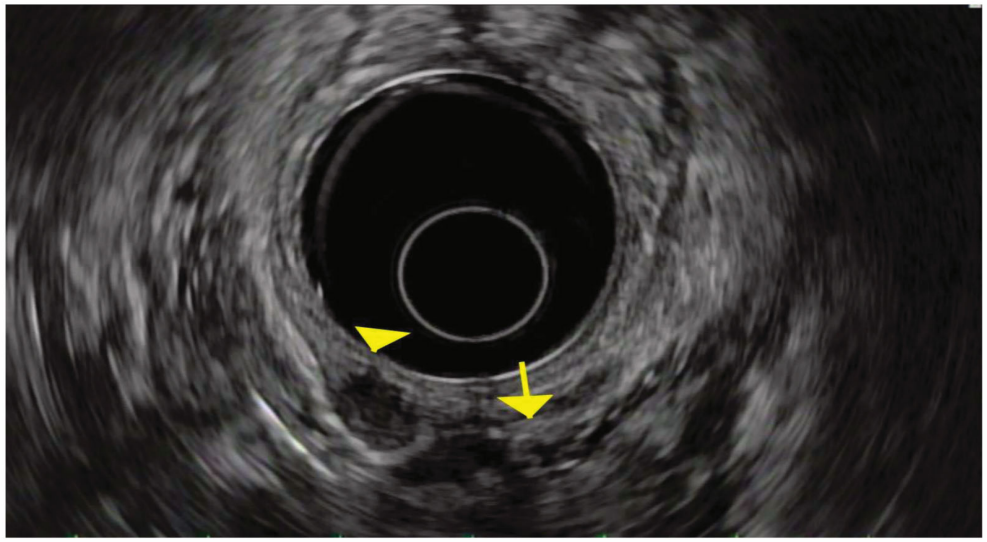
B. Beware Extraluminal Structures



Kumar S, Ge PS, et al. *VideoGIE 2022*

B. Beware Extraluminal Structures

- **Fear the anterior rectum in female patients**
- Perform an EUS in rectal cases
- Pelvic exam – can you palpate the lesion?
- Not just limited to rectal FTRD cases
  - Small bowel, ureters, bile ducts, etc.



Kumar S, Ge PS, et al. *VideoGIE 2022*

C. Avoiding Anal Trauma

Kumar S, Ge PS, et al. *VideoGIE 2022*

C. Avoiding Anal Trauma

- Lubricate copiously
- 2% lidocaine jelly to anus
- Warn every patient

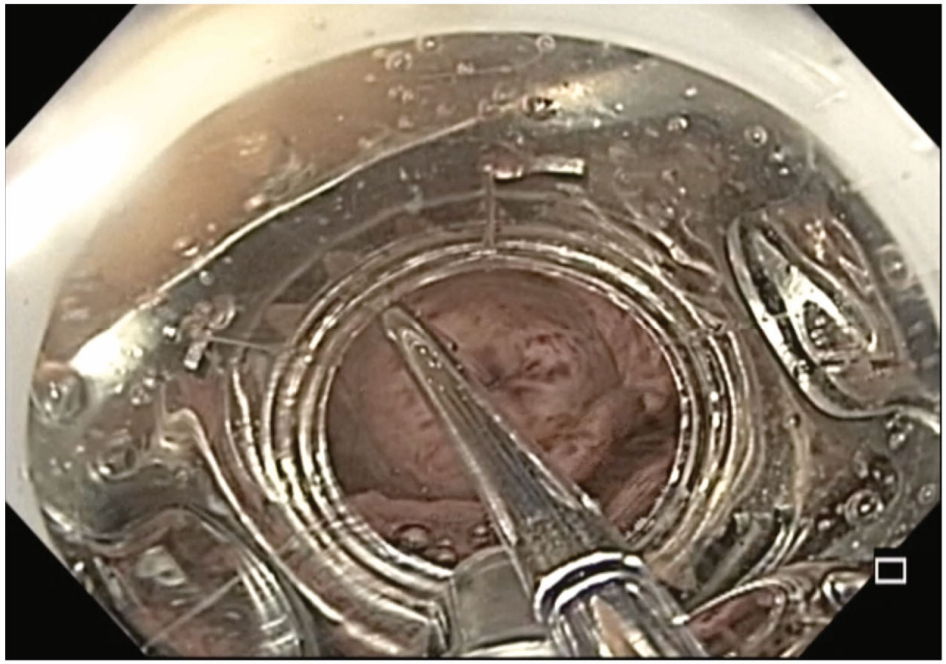
Kumar S, Ge PS, et al. *VideoGIE 2022*

D. Anal Stenosis

Kumar S, Ge PS, et al. *VideoGIE 2022*

D. Anal Stenosis

- Lead with a 20 mm balloon (similar to gFTRD)
- 2% lidocaine jelly to anus



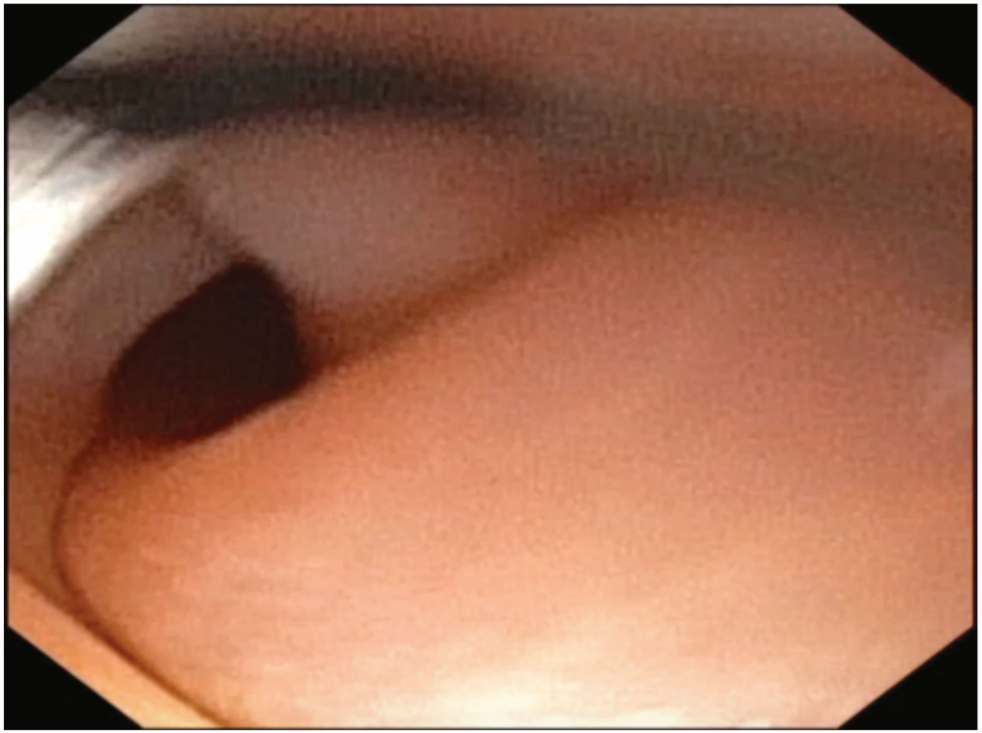
Kumar S, Ge PS, et al. *VideoGIE 2022*

E. Luminal Edema Post-Resection

Kumar S, Ge PS, et al. *VideoGIE 2022*

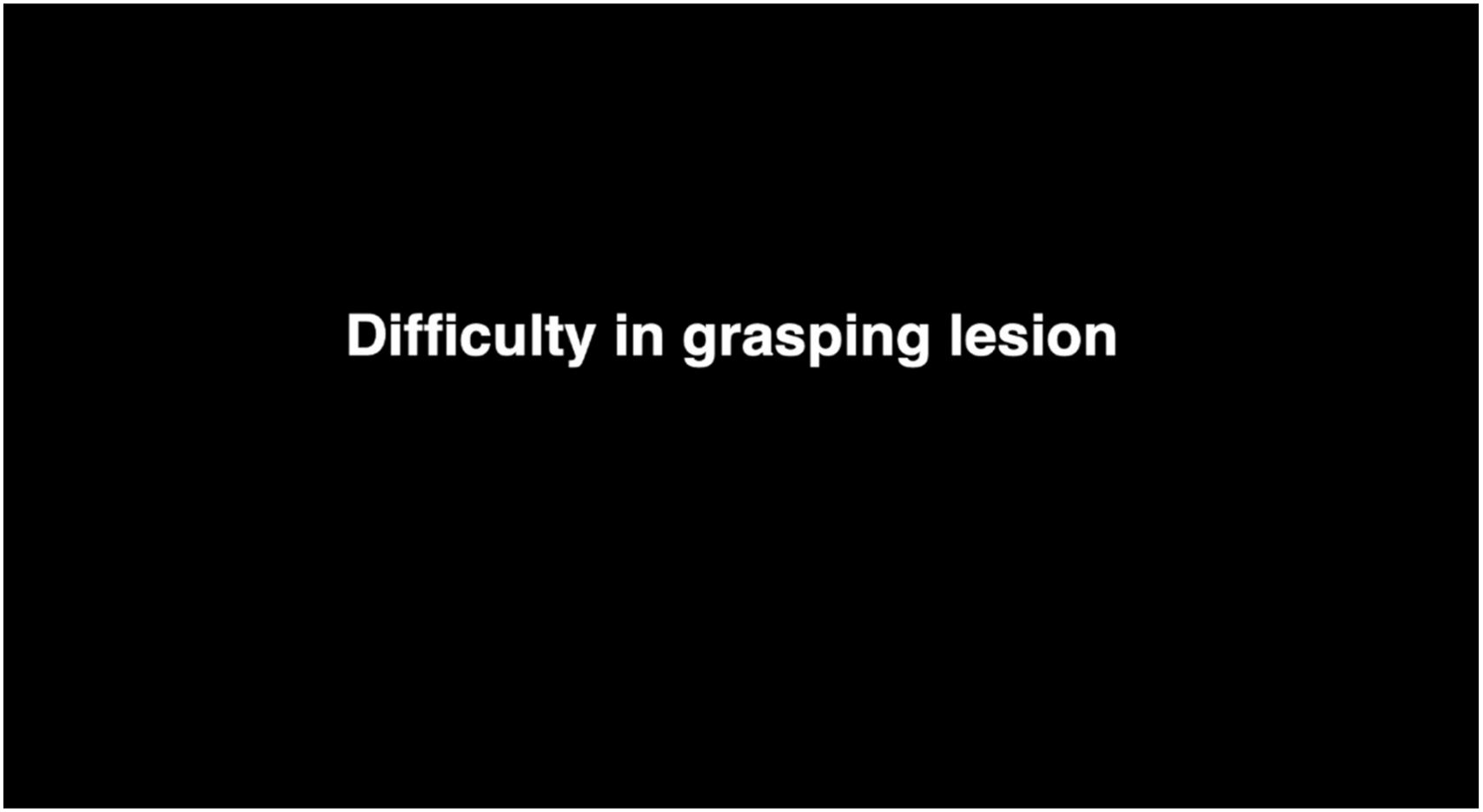
E. Luminal Edema Post-Resection

- Make every attempt to identify the lumen after FTRD
- Switch to smaller scope
- If you cannot find lumen, consider observing patient and very slowly advancing diet



Kumar S, Ge PS, et al. *VideoGIE 2022*

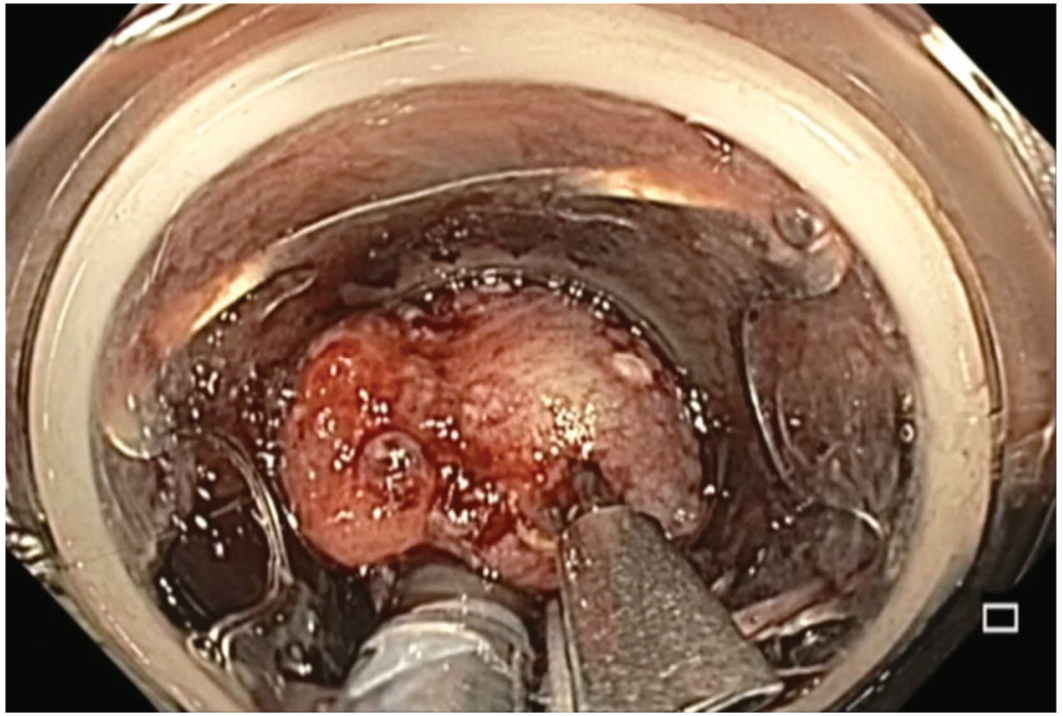
F. Inability to Grasp Lesion



Kumar S, Ge PS, et al. *VideoGIE 2022*

F. Inability to Grasp Lesion

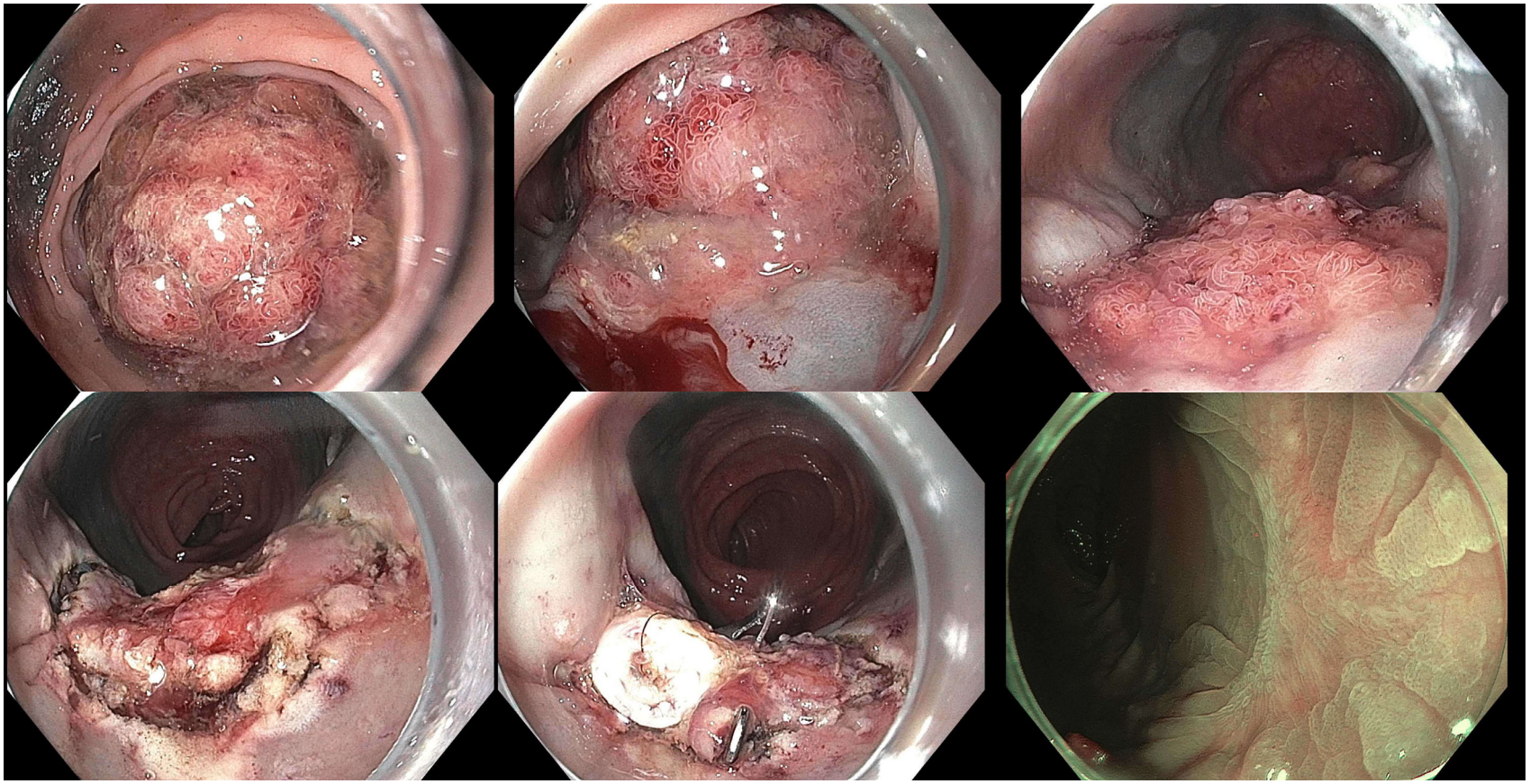
- Grasp base or bottom edge of lesion
- Pull slowly but consistently
- 2nd endoscopist to help hold scope or deploy FTRD clip
- OTSC Anchor device
- Tissue helix (Apollo)
- **Suction is ABSOLUTE LAST resort**



Kumar S, Ge PS, et al. *VideoGIE 2022*

Summary

Putting it All Together: The Impossible Resection



- 60 y.o. morbidly obese male
- Not surgical candidate
- Massive rectosigmoid polyp
- Impossible ESD
- Piecemeal EMR of the top
- ESD of the base
- EFTR of the fibrotic core
- Complete resection achieved
- No cancer **(!!)** on pathology
- No recurrence **(!!)** at 2 years

Ge PS et al, DDW Lecture Presentation 2023

My General Approach

- Polyps < 10-15 mm in size → **cold snare polypectomy**
- Polyps 20-40 mm in size → **EMR**
- Polyps > 40 mm in size → **ESD or hybrid ESD**
- Polyps with high risk for malignancy → **ESD**

- Sick patients (aka hurry up) → **EMR**

- Difficult/fibrotic polyps → **precut EMR, ESD, FTRD**

- Resection of malignant scars (aka leftovers) → **FTRD**

- Subepithelial lesions → **FTRD**

Conclusions

- **We finally have a mature endoscopic resection toolkit in 2024**
  - Surgery should no longer be indicated for benign lesions
    - Sometimes, the patient is simply not a candidate for surgery
  - EMR, ESD, and EFTR are complementary parts of the same toolkit
    - Each has their strengths and weaknesses
    - Exposed EFTR is not standard of care → I prefer a safer FTRD approach
  - **FTRD is an underrated useful component of the resection toolkit**
    - Salvage for impossible EMR/ESD cases
    - Resection of malignant scars (**mandatory** multidisciplinary discussion)
    - Resection of subepithelial lesions

Thank You

Phillip S. Ge, MD, FASGE / Advanced Endoscopy – PSGe@mdanderson.org