Advances and Innovation in Endoscopic Oncology and Multidisciplinary GI Cancer care 2024

Luminal Cancer Ablation

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Chair of Endoscopic Oncology

American Society of Gastroenterology Special Interest Group

Disclosures

- Consultant for Medtronic, Olympus, Pentax, and Steris Endoscopy and Microtech.
- Receives Royalties from Microtech Endoscopy
- Other Financial Relationship (Occasional Educational Support) with Boston Scientific.

This presentation and/or comments will be free of any bias toward or promotion of the above referenced companies or their product(s) and/or other business interests.

This presentation and/or comments will provide a balanced, non-promotional, and evidence-based approach to all diagnostic, therapeutic and/or research related content.

This presentation has been peer-reviewed and no conflicts were noted.

Cultural Linguistic Competency (CLC) & Implicit Bias (IB)

STATE LAW:

The California legislature has passed Assembly Bill (AB) 1195, which states that as of July 1, 2006, all Category 1 CME activities that relate to patient care must include a cultural diversity/linguistics component. It has also passed AB 241, which states that as of January 1, 2022, all continuing education courses for a physician and surgeon **must** contain curriculum that includes specified instruction in the understanding of implicit bias in medical treatment.

The cultural and linguistic competency (CLC) and implicit bias (IB) definitions reiterate how patients' diverse backgrounds may impact their access to care.

EXEMPTION:

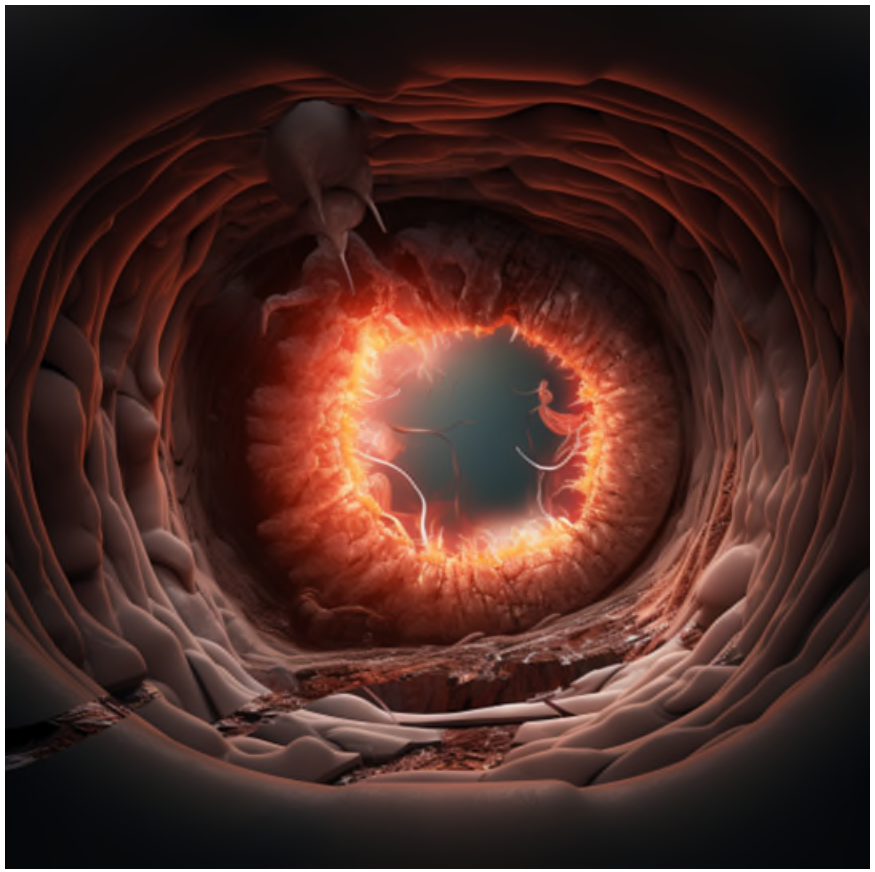
Business and Professions Code 2190.1 exempts activities which are dedicated solely to research or other issues that do not contain a direct patient care component.

The following CLC & IB components will be addressed in this presentation:

- *Discussion of the importance of cultural sensitivity in obtaining procedural consent.*
- *Discussion of how endoscopy overcomes some of the implicit bias we have towards obese patients.*

Luminal Endoscopic Ablation

- From Latin ablātiōn: to remove or carry away
- Medical ablation:
  - Removal of a body part or the destruction of its function
- Multiple forms of ablation:
  - Surgical, Chemical, Physical (heat and cold), etc…



Luminal Endoscopic Ablation

- Drivers:
  - Nature of the GI tract
  - Trends in cancer treatment
  - Technological innovation

GI tract is a masterpiece of art

Quality of Life 15 Years After Esophageal Cancer Surgery

HRQL aspects	Background population	15-year cancer survivors	HRQL differences
	Mean scores with 95%CI	Mean scores with 95%CI	Adjusted MSDs with 95% CI
EORTC QLQ – OES18			
Disease – specific symptom scales			
Dysphagia	0.7 (0.5–0.8)	18.4 (10.6–26.1)	17.7 (10.0 to 25.4)[b]
Reflux	6.5 (5.6–7.1)	32.7 (24.8–40.6)	26.4 (18.3 to 39.4)[a]
Eating difficulties	2.1 (1.8–2.3)	18.4 (13.4–23.4)	16.4 (11.3 to 21.4)[b]
Oesophageal pain	3.7 (3.1–4.3)	16.9 (10.6–23.2)	13.1 (6.7 to 19.6)[b]
Disease-specific items			
Trouble swallowing saliva	1.3 (0.9–1.7)	15.4 (7.7–23.1)	14.1 (6.5 to 21.7)[b]
Choking	4.4 (3.7–5.1)	12.1 (6.4–18.0)	7.8 (1.9 to 13.6)
Dry mouth	12.5 (10.9–14.2)	30.8 (22.4–39.2)	18.2 (9.8 to 26.6)[b]

Schandl A, Cheng Z, Johar A, Lagergren P. Health-related quality of life 15 years after oesophageal surgery: a prospective nationwide cohort study. J Cancer Surviv. 2023 Jun;17(3):815-825.

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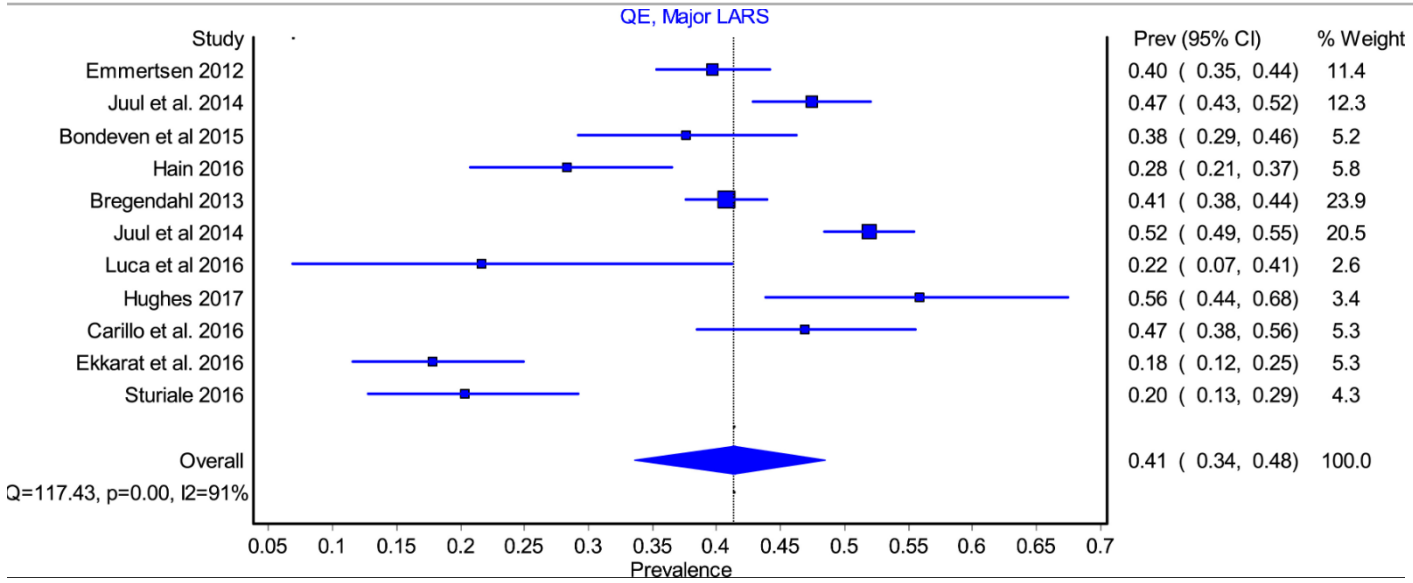
Quality of Life 15 Years After Rectal Cancer Surgery

LARS: 46% of patients even after 14 years

Table 4. Meta-analysis results of LARS score prevalence.

	Major LARS	Minor LARS	No LARS
Prevalence	41%	24%	35%



Croese AD, Lonie JM, Trollope AF, Vangaveti VN, Ho YH. A meta-analysis of the prevalence of Low Anterior Resection Syndrome and systematic review of risk factors. Int J Surg. 2018 Aug;56:234-241

Chen TY et al. Bowel function 14 years after preoperative short-course radiotherapy and total mesorectal excision for rectal cancer: report of a multicenter randomized trial. Clin Colorectal Cancer. 2015 Jun;14(2):106-14. doi: 10.1016/j.clcc.2014.12.007. Epub 2014 Dec 31. PMID: 25677122.

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Quality of Life 5-15 Years Post-Thyroidectomy for Thyroid Carcinoma

One-way ANOVA test for the differences in patient symptoms or problems according to surgical procedure (n=206)

ANOVA, analysis of variance

Hemithyroidectomy (n=26)	Thyroidectomy (n=179)	Subtotal thyroidectomy (n=1)	F-test	p-Value
1.53 ± 0.44	1.57 ± 0.48	1.12 ± 0.01	0.525	0.593

Long-term quality of life and aesthetic outcomes after breast conserving surgery in patients with breast cancer

Conclusion: The majority of the patients have acceptable QoL after BCS during long-term follow-up.

Alyousef MY, Ghandour MK, Al-Mohawes M, Alnwaisir M, Islam T, Al Qahtani K. Long-Term Quality of Life (5-15 Years Post-Thyroidectomy) of Thyroid Carcinoma Patients in Two Tertiary Care Hospitals. Cureus. 2022 Feb 8;14(2):e22005

Zwakman M, Tan A, Boersma C, Klinkenbijl JHG, Noorda EM, de Jong TR, Francken AB. Long-term quality of life and aesthetic outcomes after breast conserving surgery in patients with breast cancer. Eur J Surg Oncol. 2022 Aug;48(8):1692-1698.

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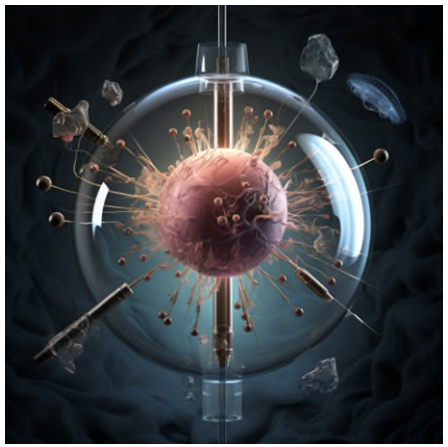
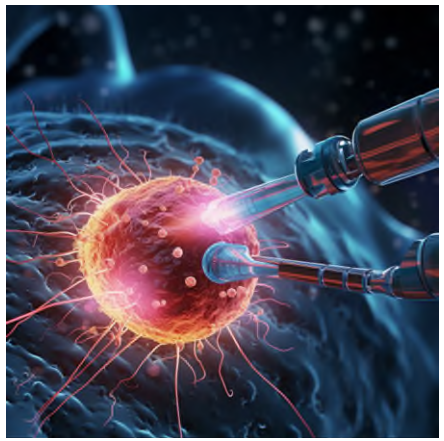
Surgical Oncology in a Century

Radical surgery



Multimodality therapy with less extensive surgery

Minimally invasive surgery



Organ preservation

Commision on cancer website. Aaron D. Bleznak, MD, MBA, FACS. A Century of Surgical Oncology. https://coc100.facs.org/a-century-of-surgical-oncology/?_gl=1*mhk9eb*_ga*MTg0ODM3NDc5My4xNjk0MzA0OTY2*_ga_KBB21NPQBH*MTY5NDM3MDYwMC4zLjAuMTY5NDM3MDcwMi4wLjAuMA..*_ga_6C8S73MC87*MTY5NDM3MDYwMC4yLjAuMTY5NDM3MDYwMC4wLjAuMA..&

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GI malignancy Spectrum and Trends

Early disease

resection:

- esophageal
- gastric
- Colorectal

?? Ablation ??

Locally advanced

Neoadjuvant Rx then resection

?? Ablation ??

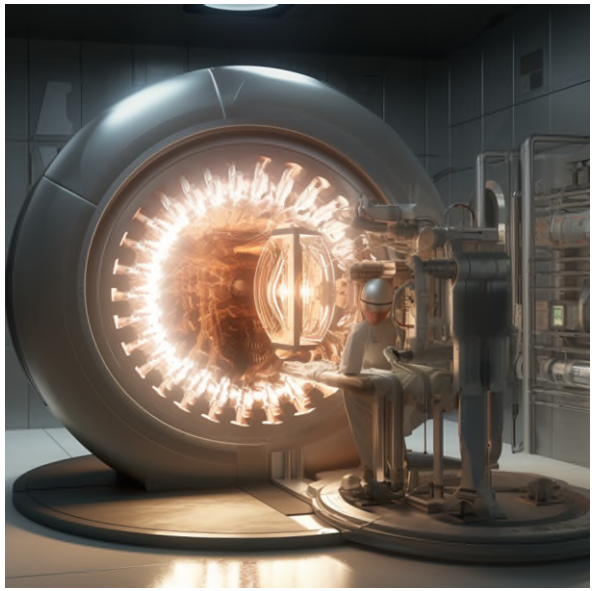
Advanced disease

Palliation:

- Esophageal obstruction
- Gastric outlet obstruction
- Colonic obstruction
- Biliary obstruction

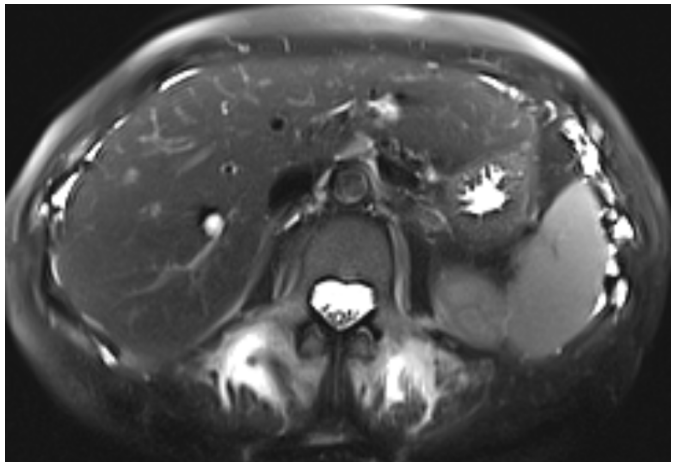
?? Ablation ??

Technological Innovation often precedes Clinical Innovation



NMR
discovered in
1938

Isidor Rabi
Nobel prize
1948



MRI in
clinical care
1980

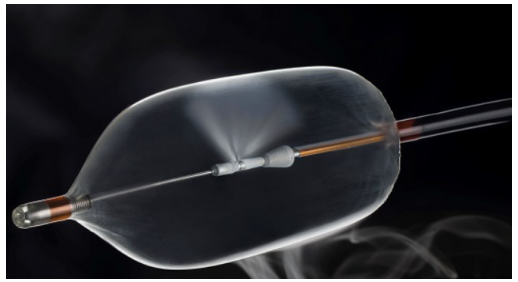
Technological Innovation often precedes Clinical Innovation

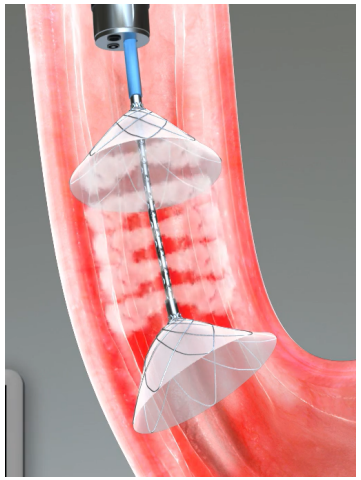
DNA sequencing 1977

NextGen sequencing 1980s

Genomics and precision medicine today

Some of the Ablative modalities

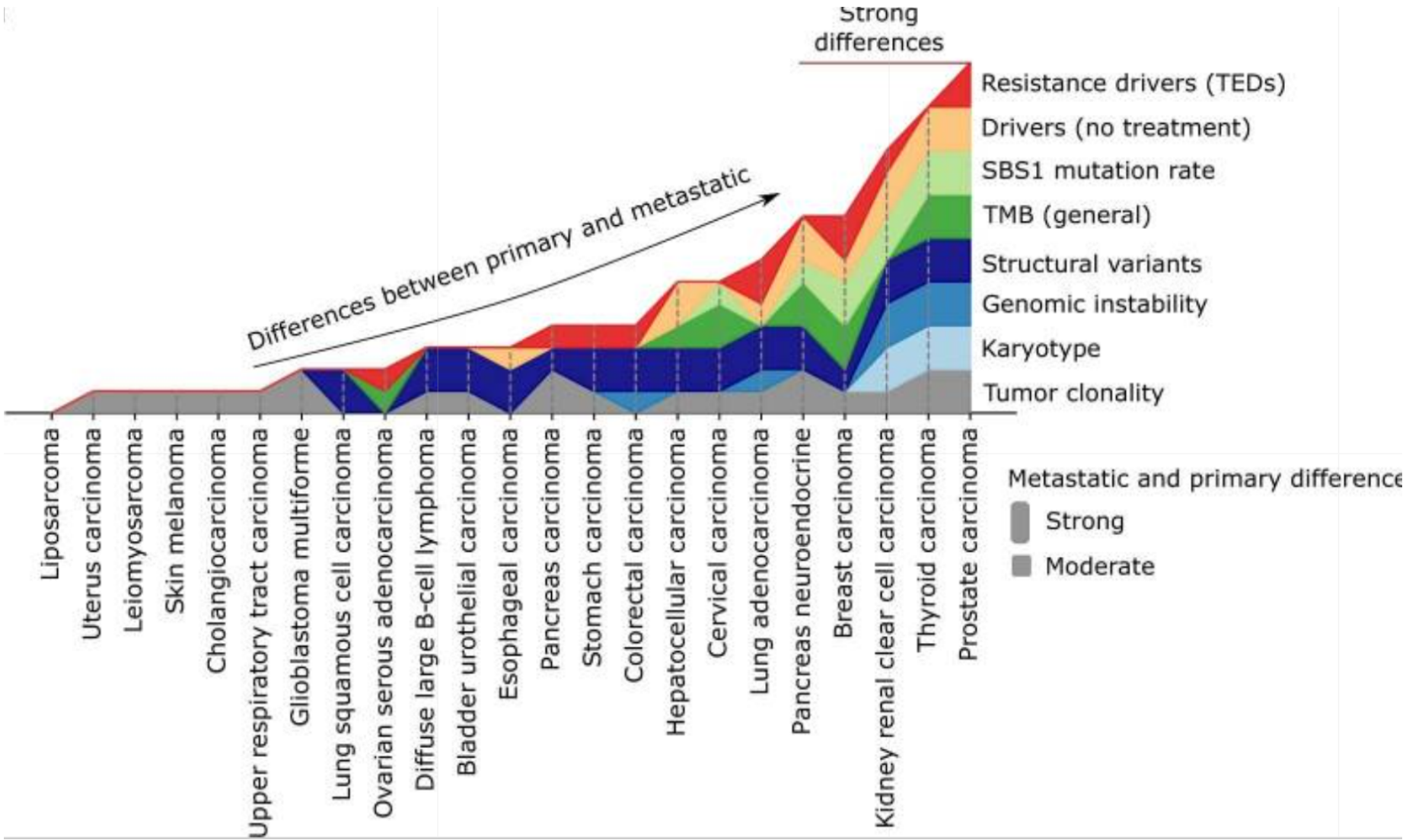




Pan-cancer whole-genome comparison of primary and metastatic solid tumors

- 7,000 uniformly reprocessed WGS samples from patients with primary untreated and metastatic treated tumors.
- 23 cancer types
- The magnitude of genomic differences between primary and metastatic tumors was highly cancer-type specific

Martínez-Jiménez F, Movasati A, Brunner SR, Nguyen L, Priestley P, Cuppen E, Van Hoeck A. Pan-cancer whole-genome comparison of primary and metastatic solid tumours. Nature. 2023 Jun;618(7964):333-341



Martínez-Jiménez F, Movasati A, Brunner SR, Nguyen L, Priestley P, Cuppen E, Van Hoeck A. Pan-cancer whole-genome comparison of primary and metastatic solid tumours. Nature. 2023 Jun;618(7964):333-341

Primary cancer vs metastasis

- Metastatic tumors showed an overall increase in clonality compared with their primary tumor counterparts
- Pancreatic, esophageal and colorectal had especially high increase in clonality
- Clonality was higher for distant mets compared to local lymph nodes (not seen in lung or melanoma)
- larger fraction of patients with therapeutically actionable variants in the metastatic cohort compared to primary

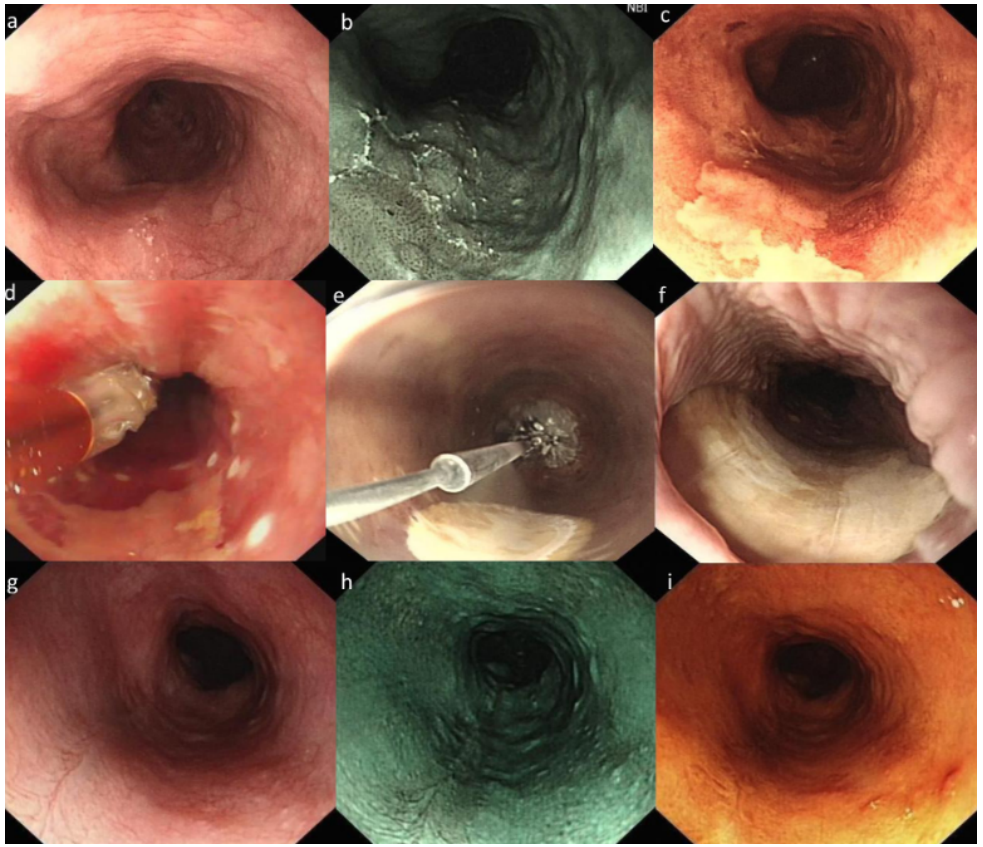
Martínez-Jiménez F, Movasati A, Brunner SR, Nguyen L, Priestley P, Cuppen E, Van Hoeck A. Pan-cancer whole-genome comparison of primary and metastatic solid tumours. Nature. 2023 Jun;618(7964):333-341

Ablation

- For early neoplasia
- For residual/recurrent after neoadjuvant in non-surgical candidates
- For palliation
- For immune modulation ?
- Future perspective

Cancer ablation for early neoplasia

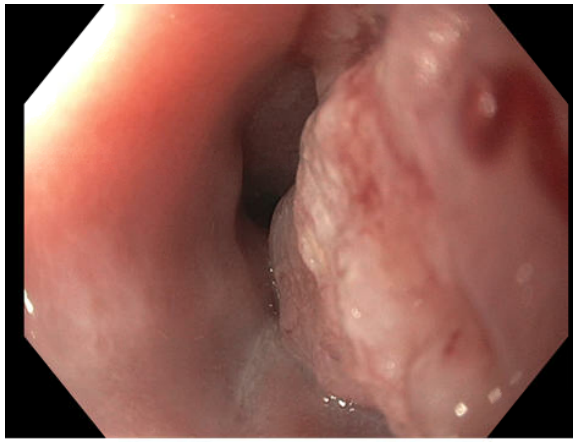
- 80 Chinese patients with esophageal squamous cell neoplasia (precursor of ESC)
- 70/78 patients (90%) had a complete endoscopic resolution at 3 months
- The complete response rate at 12 months was 76/80 (95%) by intention-to-treat (ITT) analysis and 76/78 (97%) by per protocol (PP) analysis

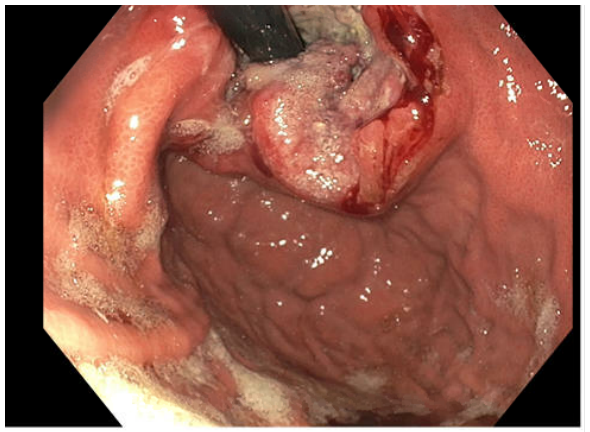


Ke Y, et al. Prospective study of endoscopic focal cryoballoon ablation for esophageal squamous cell neoplasia in China. Gastrointest Endosc. 2019 Aug;90(2):204-212.

Ablation for esophageal cancer

- 61 y o with dysphagia and weight loss in April 2019
- EGD GEJ (45) mass (42-48cm)
- Biopsy poorly differentiated adenocarcinoma
- T3N1M0



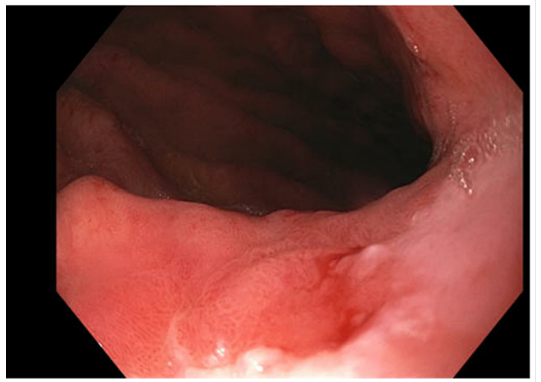


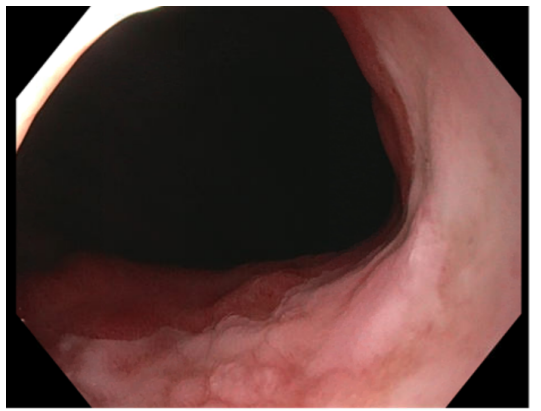
Case: Post-Chemoradiation residual disease

- Weekly Carboplatin and Taxol with 50.4 Gy radiation

- Follow up:
  - 6 weeks post treatment (may 2019)
  - PET-CT negative
  - EGD minimal ulceration with negative biopsies

- 8 months post treatment (Dec 2019)
  - CT negative
  - EGD more nodularity
  - Positive biopsies for poorly differentiated adeno

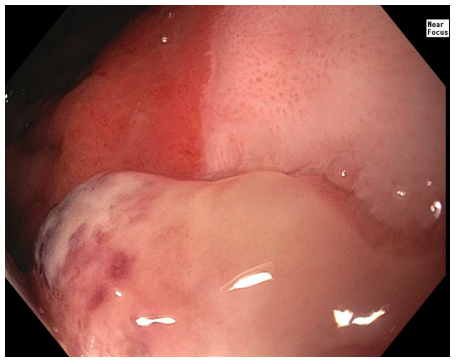


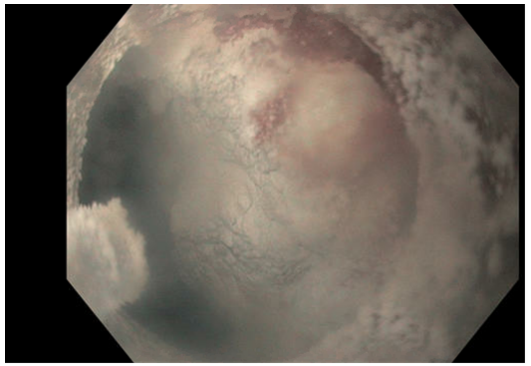


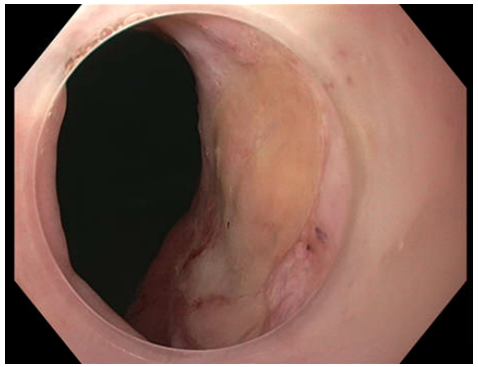
Case: Post-Chemoradiation residual disease

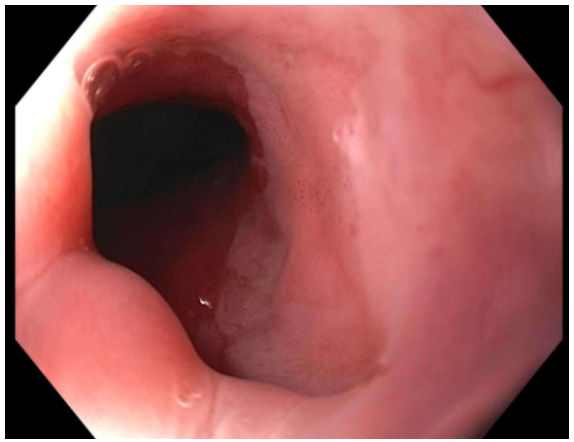
- Treatment:
  - Declined surgery
  - NCCN guidelines-> best supportive care
  - 2 cryo sessions 1 month apart (2x30sec)

- Recurrence of 3.5 years and agreed to surgery



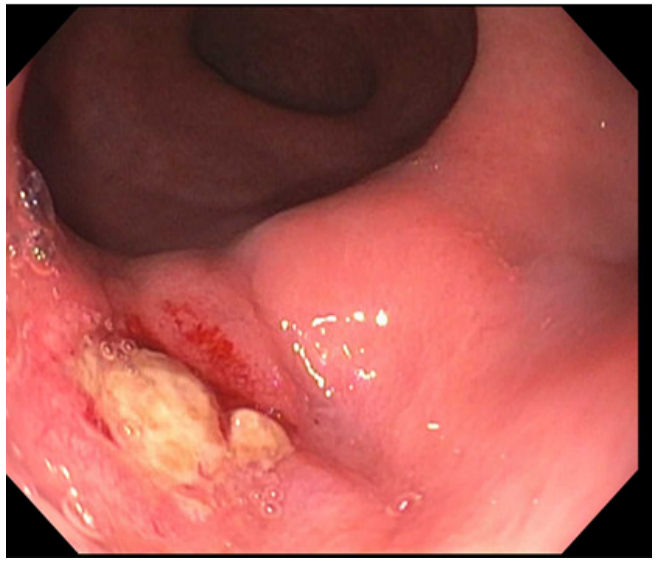


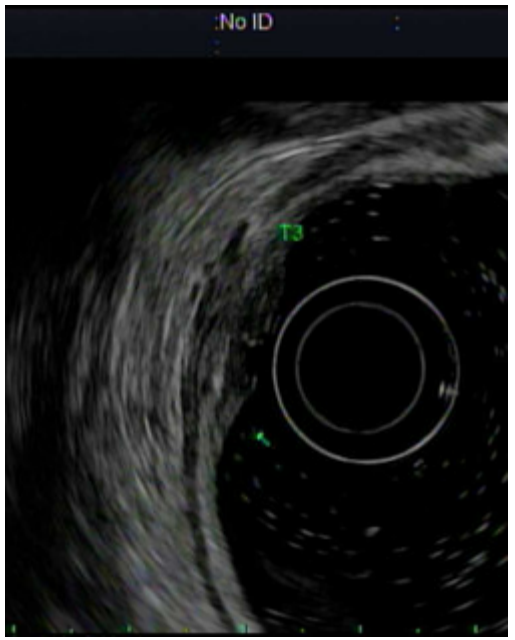


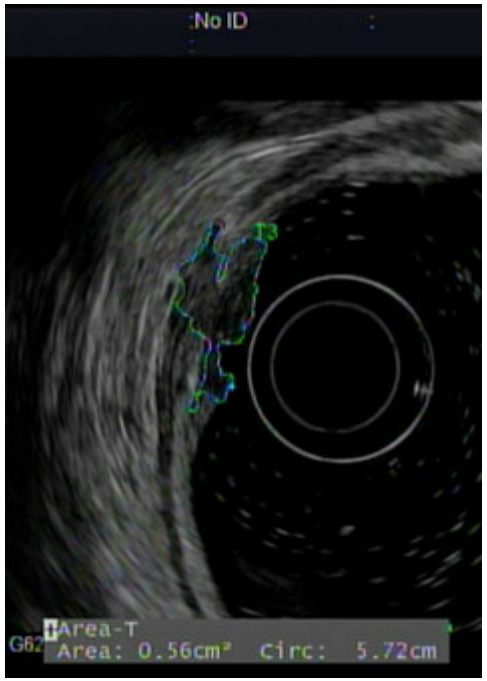


Ablation for rectal cancer in non-surgical candidates

- 57 y o m presented with change in bowel habits 2 years ago
- Colonoscopy 2cm mass
- Invasive adenocarcinoma, moderately differentiated, No LVI, MSS
- MRI T3, N0
- Received TNT with CCR
- Monitored for 6 months with recurrence locally

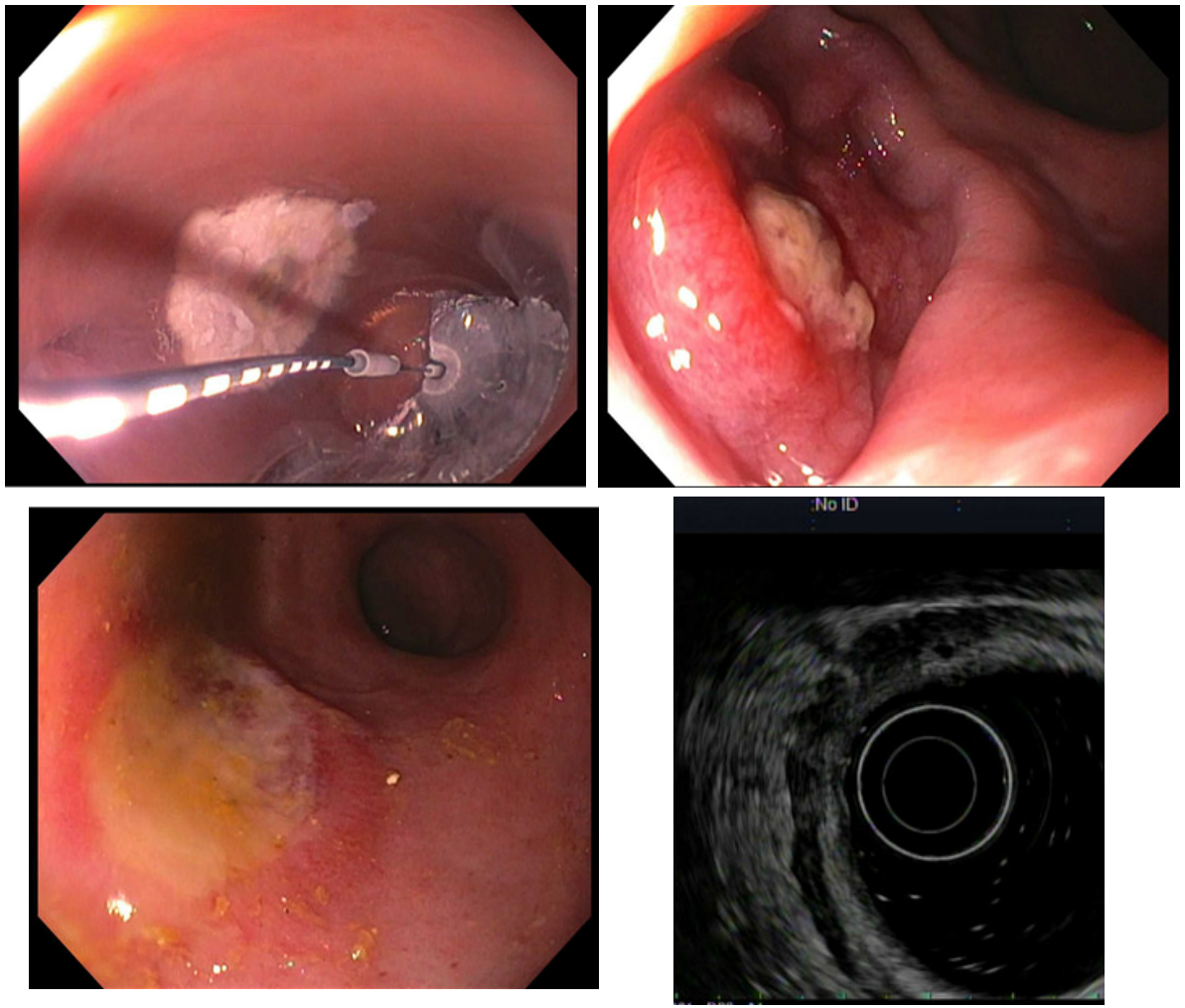






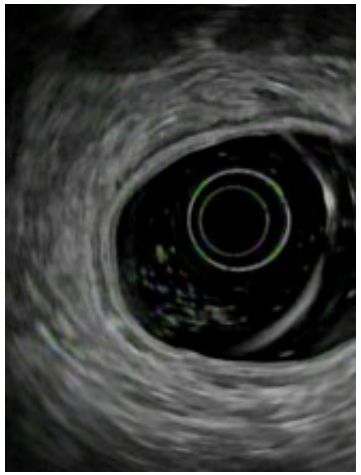
Ablation for rectal cancer in non-surgical candidates

- Declined surgery
- Elected cryotherapy
- Treated with 4 sessions, 3 weeks apart
- EUS suggestive of transmural injury



Ablation for rectal cancer in non-surgical candidates

- 9 month later
- CCR
- MRI, EUS and biopsies negative
- In surveillance now

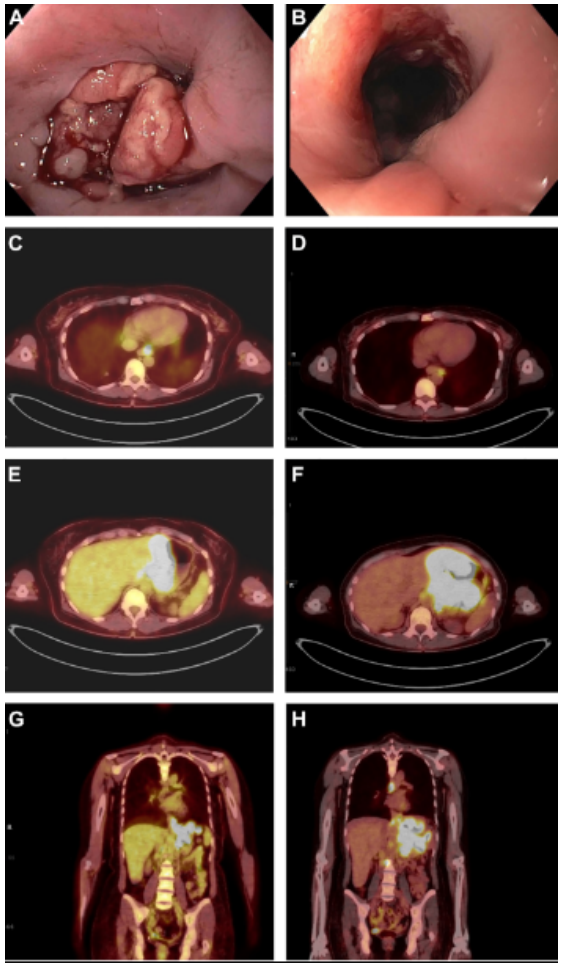


Cancer Ablation for palliation

- Esophageal adeno 1/3 present at a stage where palliation is the focus
- Optimal dysphagia palliation is center and expertise dependent
- NCCN recommends action for severe symptoms and weighting risk and benefit in mild to moderate symptoms
- Stents have been the mainstay of endoscopic treatment
- Stents over 90% effective with immediate relief
- Stent adverse events as high as 40% with mixed impact on quality of life

Cancer Ablation for palliation

- Prospective multicenter single arm palliation for esophageal cancer patients receiving systemic Rx
- 55 patients received 175 cryotherapy procedures
- After a mean of 3.3 Rx: mean dysphagia improved from 1.9 to 1.3 (P = 0.004)
- After a mean of 3.2 cryotherapy sessions, mean QoL improved from 34.9 at baseline to 29.0 (P < 0.001)
- Patients receiving more intensive cryotherapy (≥ 2 treatments within 3 weeks) showed a significantly greater improvement in dysphagia compared with those not receiving intensive therapy (1.2 vs. 0.2 points; P = 0.003)
- Median overall survival was 16.4 months.



Kachaamy Tet al. A prospective multicenter study to evaluate the impact of cryotherapy on dysphagia and quality of life in patients with inoperable esophageal cancer. Endoscopy. 2023 Jul 25.

Youssef Y. Soliman MD , Madappa Kundranda MD, PhD , Toufic Kachaamy MD. Endoscopic Palliative Therapies for Esophageal Cancer.. Gastrointestinal Endoscopy Clinics of North America. 7 September 2023

Endoscopic Cancer Ablation

- A discipline in Its infancy with a lot of potential
- Drivers are:
  - **Fast paced technological innovation**
  - **Desire for organ preservation and more focus on quality of life**
  - **Advancement in cancer treatment making systemic therapy more effective**
  - **Possible difference between mets and primary**

Thank you

Questions?