Diagnosis and Management of Barrett's Esophagus: An Updated ACG Guideline

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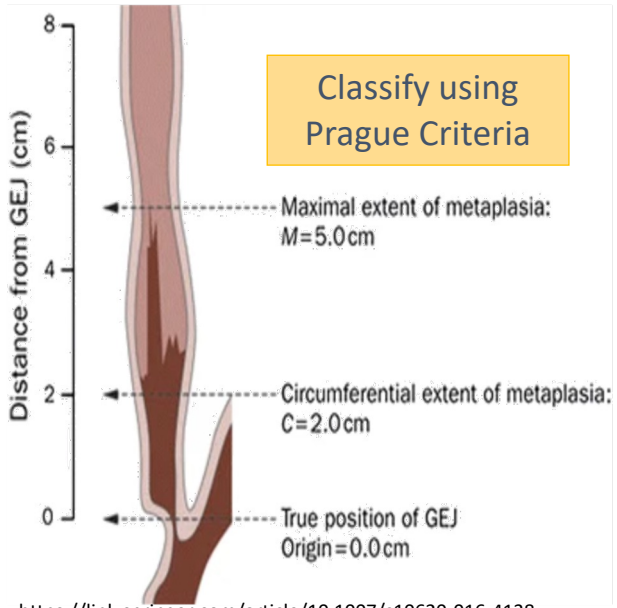
Background

- Barrett's esophagus (BE) = metaplastic change from squamous epithelium to columnar epithelium in the distal esophagus due to GERD
  - 5-12% of patients with GERD have BE
- BE is the **only known precursor** lesion to esophageal adenocarcinoma (EAC)
  - Diagnosis of EAC after symptom onset has poor survival (<20% at 5 years)
  - Screening & surveillance to identify early and treat endoscopically is key

Diagnosis

- Diagnosis= ≥1 cm length of columnar mucosa with **intestinal metaplasia** (IM)
- Do not biopsy:
  - Normal-appearing Z line
  - < 1cm displaced irregular Z line
    - <1 cm= low reliability of Prague criteria & low risk of progression
- Yield of IM ↑ with **↑ # of biopsies** & ↑ **length of the BE segment**
- All IM with dysplasia ➔ **confirmed by 2nd pathologist** with GI expertise



https://link.springer.com/article/10.1007/s10620-016-4138-x

Screening

Candidates for Screening

- **Chronic GERD** + **≥3 additional risk factors**
  - Male
  - Age >50 years old
  - White race
  - Tobacco smoking
  - Obesity
  - 1st degree male relative with BE or EAC

If initial screen negative → no repeat
If LA grade B esophagitis or higher → repeat EGD in 8-12 weeks to assess healing and r/o BE

Screening Modalities

- **Endoscopy** = gold standard BUT invasive & expensive
- Alternative: Swallowable Capsule Device + Biomarker
- Other developing screening modalities:
  - Unsedated transnasal endoscopy
  - Exhaled volatile organic compounds
  - Risk prediction scores

Surveillance

- **White light endoscopy** + **chromoendoscopy** (electronic OR vital dyes) to better identify irregular mucosa or vascular pattern
- **Structured biopsy protocol** to ↓ detection bias
- **Length** + **degree of dysplasia** = determines surveillance intervals

Cannot recommend (insufficient evidence): wide-area transepithelial sampling with computer-assisted 3-dimensional analysis (WATS-3D) or predictive tools/ biomarkers

Shaheen NJ, Falk GW, Iyer PG, Souza RF, Yadlapati RH, Sauer BG, Wani S. Diagnosis and Management of Barrett's Esophagus: An Updated ACG Guideline. Am J Gastroenterol. 2022 Apr 1;117(4):559-587.

Screening & Surveillance

Salmon-colored mucosa extending proximally from the GEJ on endoscopy

- <1 cm salmon-colored mucosa OR Irregular Z-line OR Regular Z-line → No biopsy
- ≥1 cm salmon-colored mucosa → **Biopsy**
  - **≥8 endoscopic biopsies** should be obtained
  - If only 1-2 cm segment or tongues and 8 biopsies not possible:
    - ≥4 biopsies per cm of circumferential BE
    - ≥1 biopsy per cm of tongue
  - If **>4 cm segment**, then follow **Seattle protocol** = biopsy visible lesions + 4 quadrant biopsies of every 2 cm starting 1 cm above the gastroesophageal junction (GEJ)

Negative for IM → Repeat endoscopy with biopsy in 1-2 years

Intestinal Metaplasia

- Non-dysplastic BE (NDBE)
  - **<3 cm BE segment** → Repeat surveillance EGD in 5 years
  - **≥3 cm BE segment** → Repeat surveillance EGD in 3 years
- Indefinite for Dysplasia (IND) → Confirm by 2nd pathologist with GI expertise → PPI BID + Repeat EGD with biopsy within 6 months
  - NBDE or LGD → Follow that algorithm
  - IND → EGD annually
- LGD HGD Early EAC → Confirm by 2nd pathologist with GI expertise → Treatment
  - For LGD, can consider surveillance → At 6 months & 12months after diagnosis, then annually

**Consider cessation of surveillance if no longer a candidate for EET (Endoscopic Eradication Therapy) or life expectancy <5 years

10 step approach to endoscopic exam of BE

Approach	Rationale
Identify esophageal landmarks: diaphragmatic hiatus, GEJ, squamocolumnar junction	Critical for further examinations
Consider distal attachment cap (especially if prior dysplasia)	Facilitate visualization
Clean mucosa well (water jet and careful suction)	Remove mucus or debris and limit mucosal trauma
Use insufflation & deflation	Fine adjustments can help detect subtle changes
Spend adequate time inspecting the Barrett's segment & gastric cardia on retroflexion	Increases dysplasia detection
Examine with chromoendoscopy	Enhances mucosa pattern and surface vasculature
Use Prague classification- circumferential and maximal length	Standardized reporting system
Use Paris classification- describe superficial neoplasia	Standardized reporting system
Use Seattle protocol with partially deflated esophagus to sample Barrett's segment	Increases dysplasia detection

Quality indicators for screening and surveillance

1. Documentation of landmarks + extent of BE
2. Not obtaining biopsies in the setting of normal-appearing junction
3. Sampling using Seattle protocol
4. Performing surveillance endoscopy in patients with NDBE no sooner than 3-5 years

Medical Treatment

- **PPI therapy** (at least once daily) if no allergy or contraindication
- No evidence for aspirin (ASA) with PPI therapy → no significant difference in cancer related outcomes
  - Patients with BE also likely on ASA for cardio protection due to risk factors
- **DO NOT use antireflux surgery** as antineoplastic measure in BE → no change in progression to neoplasia risk compared to standard PPI therapy

Endoscopic Eradication Therapy (EET)

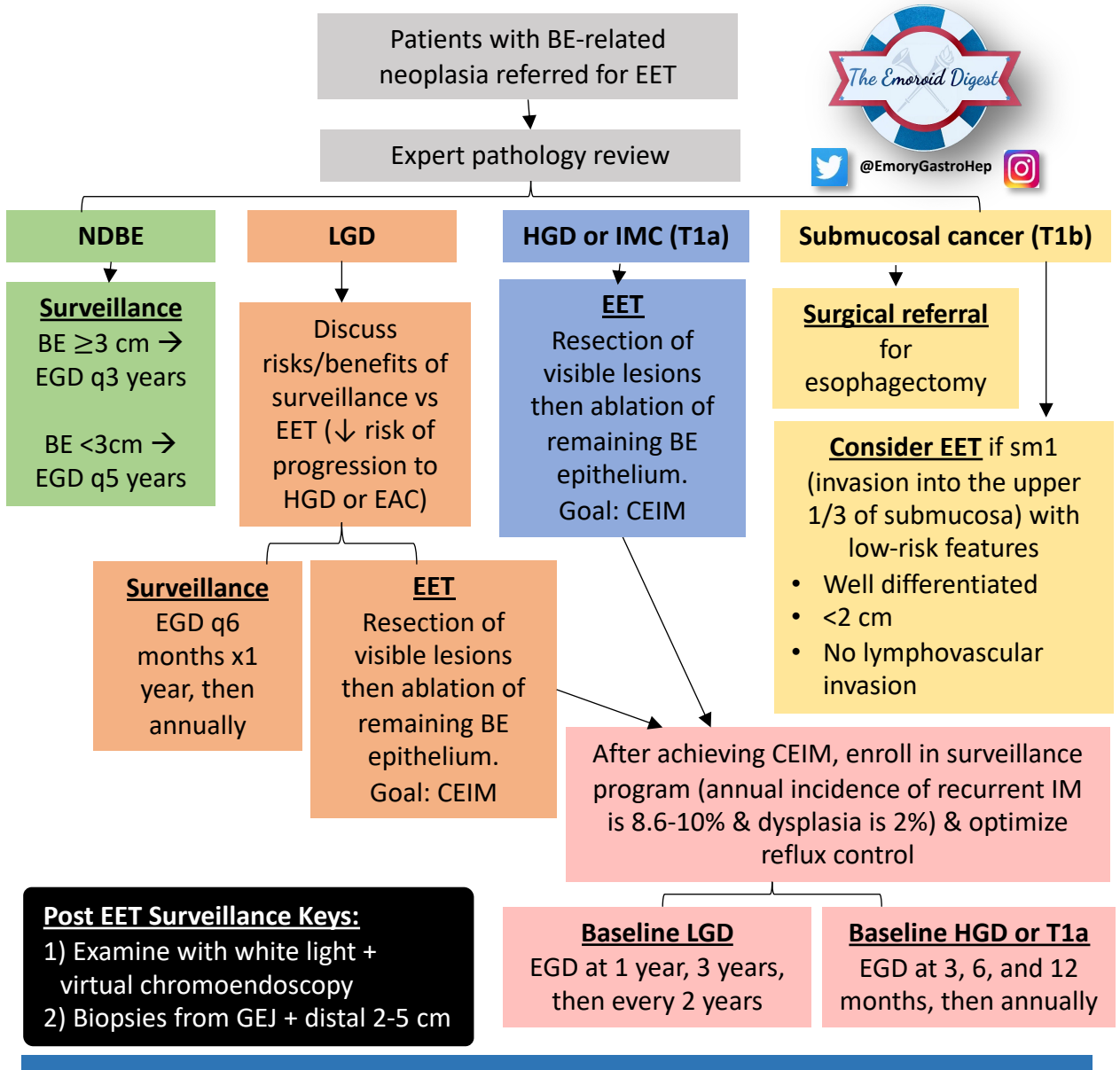
- Esophagectomy has 2% mortality & ↑ morbidity compared to EET
- **Goal of EET** = complete eradication of IM **(CEIM)** → defined as 1-2 surveillance endoscopies w/o visible BE or IM on biopsies
- Endoscopic resection of any visible lesions, THEN ablative therapy

Step 1: **Endoscopic resection (ER) of any visible lesions**

- Cap-assisted vs multiband endomucosal resection (EMR)
  - Bigger sample for accurate tumor staging & prognostication
- Endoscopic submucosal dissection (ESD)
  - Reserved for en bloc resection of larger lesions, submucosal invasion or post-ablation lesions

Step 2: Ablative therapy

- **Radiofrequency ablation (RFA)** → thermal ablation
  - Achieve CEIM in 3 sessions
  - Adverse events (AEs): esophageal stricture (4.2-7%) & perforation (0.4-0.9%)
- **Endoscopic cryotherapy** (spray vs balloon) → rapid freeze + slow thaw
  - Alternative modality in patients unresponsive to RFA
  - Adverse events: esophageal stricture (9-12%)



Quality indicators for EET in dysplastic BE

- The rate of confirmation by GI pathologist prior to EET
- Rate at which CEN (complete eradiation of neoplasia) and CEIM is achieved by 18 mo in patients with dysplasia or IMC
- The rate at which AEs are being tracked and documented post EET