CS Combine Meeting

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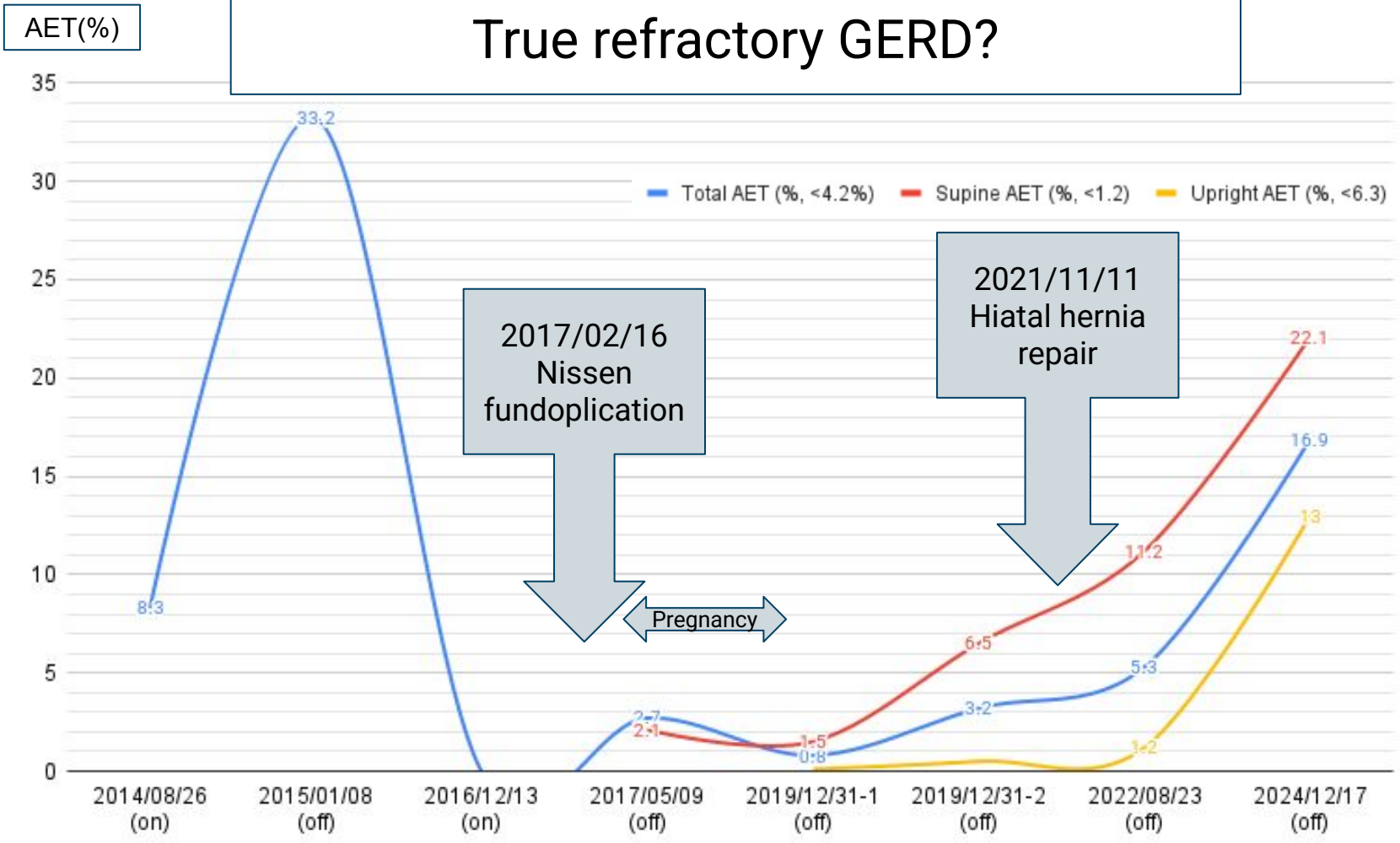
March 28, 2025

46 y/o female

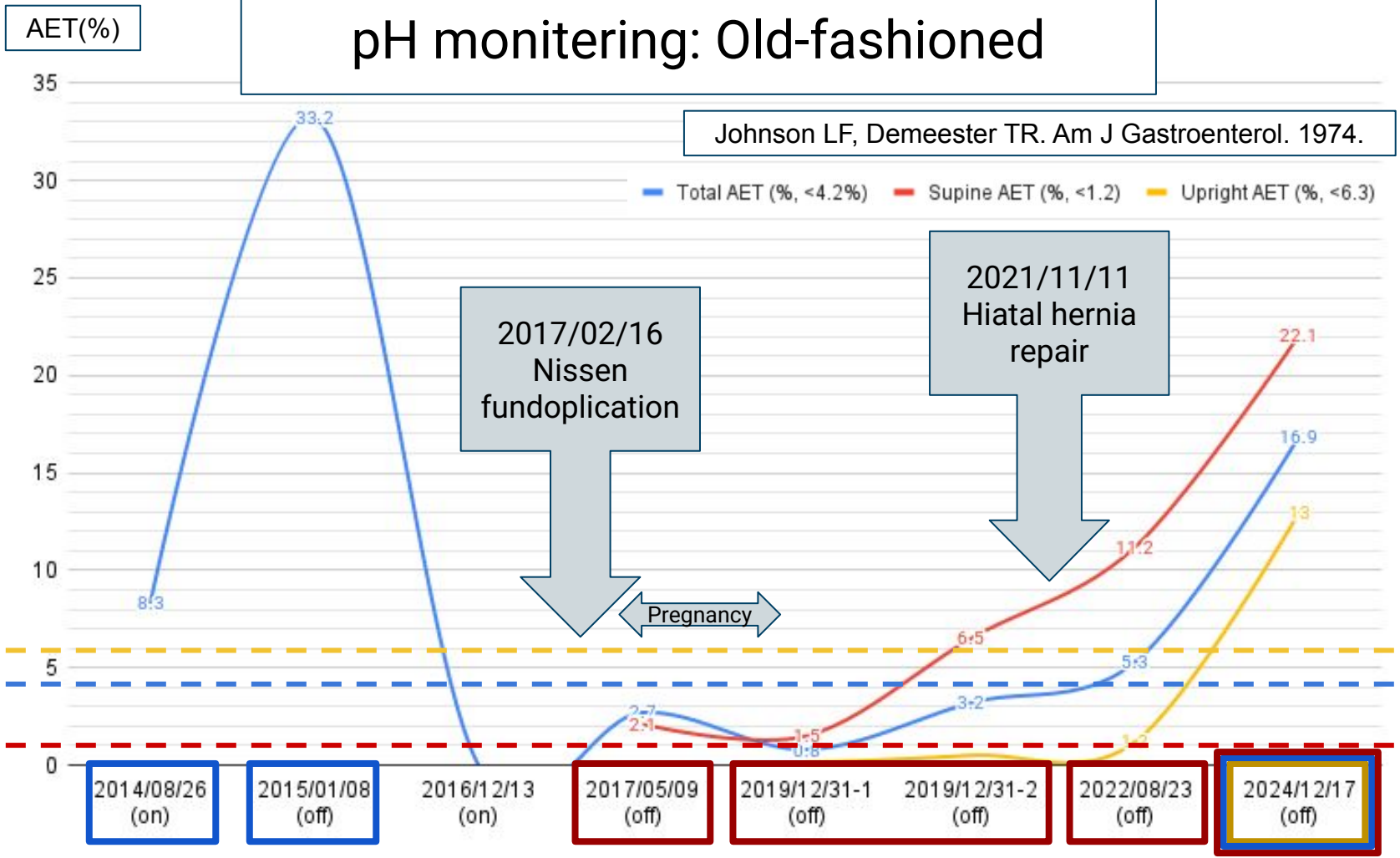
2014/8/6 The patient has had acid regurgitation and chest tightness for 10 years, worse when lying down. Symptoms include heartburn, dyspepsia, and burning throat, especially at night.

- Currently on esomeprazole, mosapride, and zopiclone with partial relief. GERD was diagnosed by upper endoscopy at CMUH.
- No history of alcohol use or smoking. No other significant medical conditions reported.

True refractory GERD?



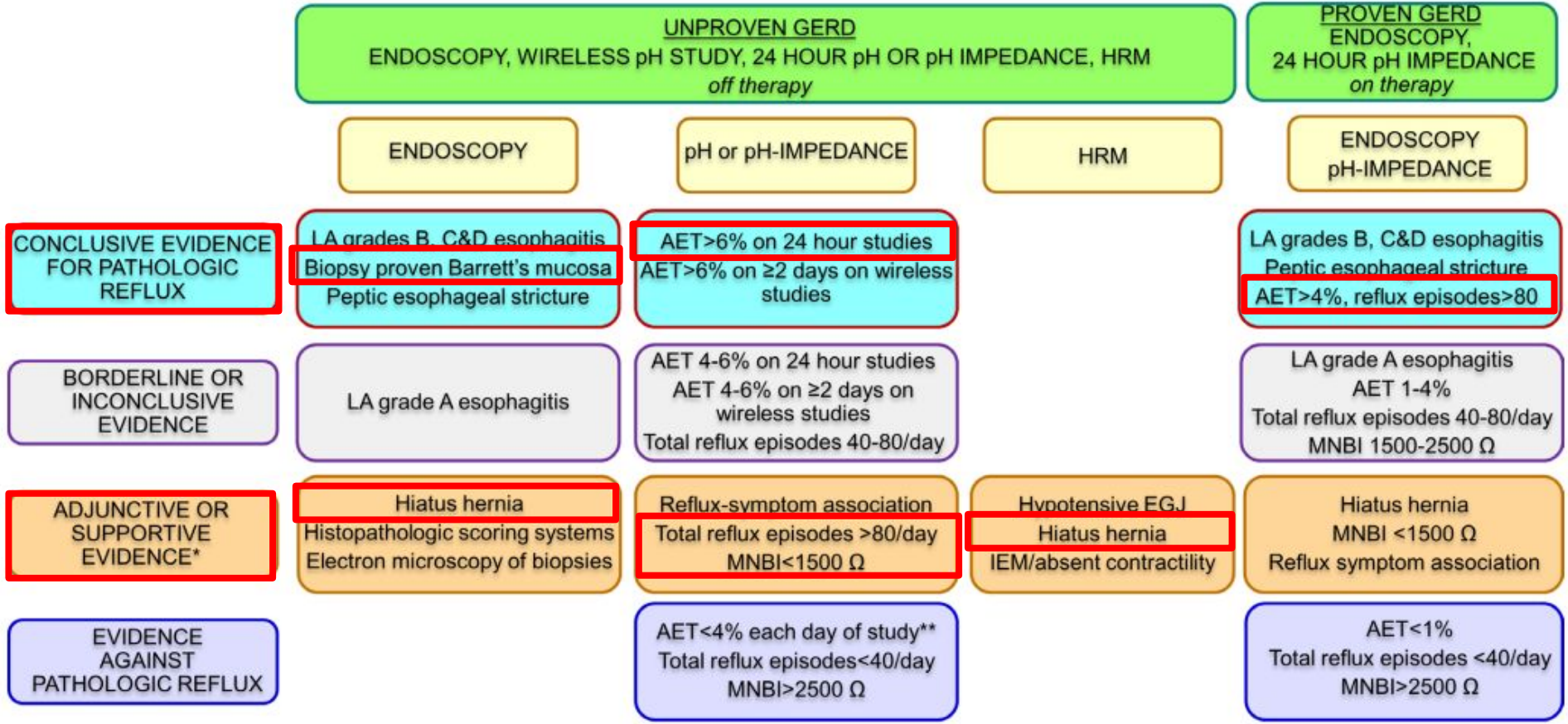
pH monitering: Old-fashioned



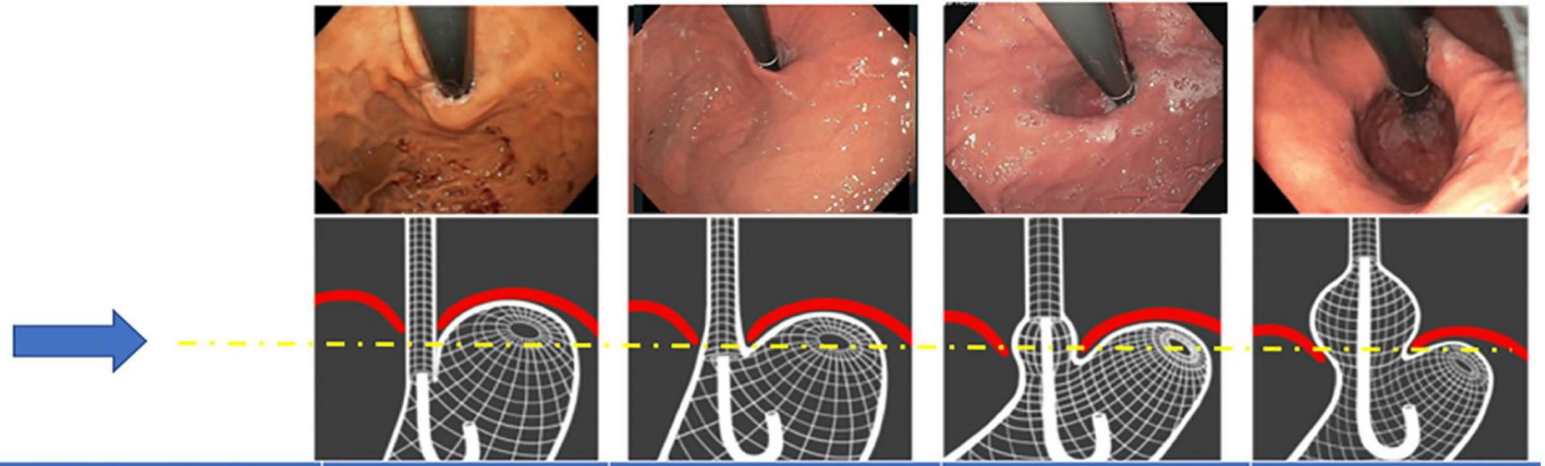
AET(%)

35

pH monitering: Updated Lyon consensus 2.0



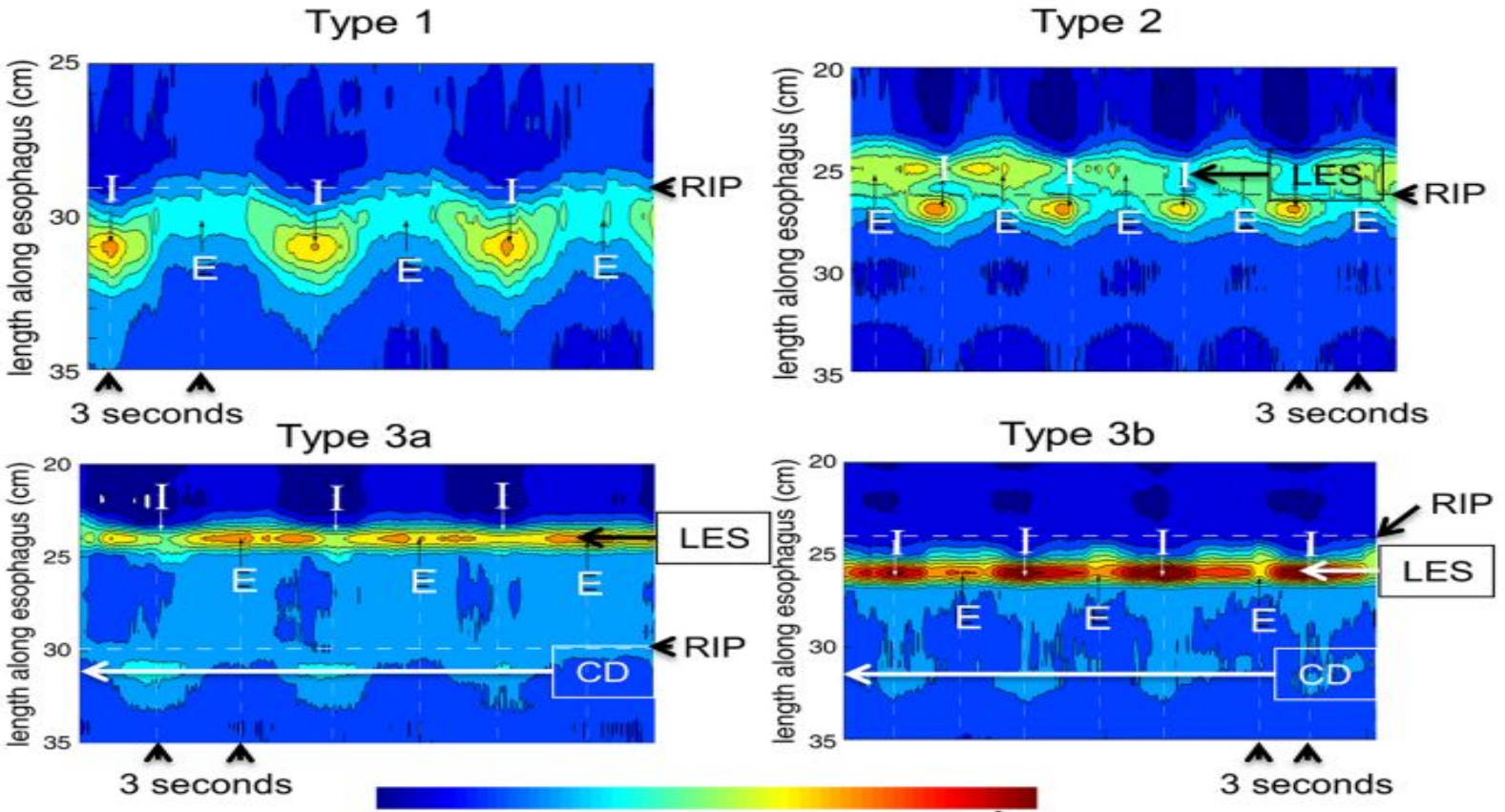
Hiatal hernia: Endoscopy



AFS Hiatus Grade	1	2	3	4
Hiatal axial Length, cm (L)	None (0 cm)	None (0 cm)	0-2 cm	>2 cm
Hiatal aperture, cm (D)	Snug to scope 1 cm	Loose 1-2 cm	Open 2-3 cm	Wide open >3 cm
Flap valve (F)	Present, full lip with Omega shape (F+)	Absent, thinning & flattening valve lip (F-)	Absent (F-)	Absent (F-)
LDF components	L0, D1, F+	L0, D1-2, F-	L0-2, D2-3, F-	L>2, D>3, F-

Nguyen, et al. Foregut. 2022.

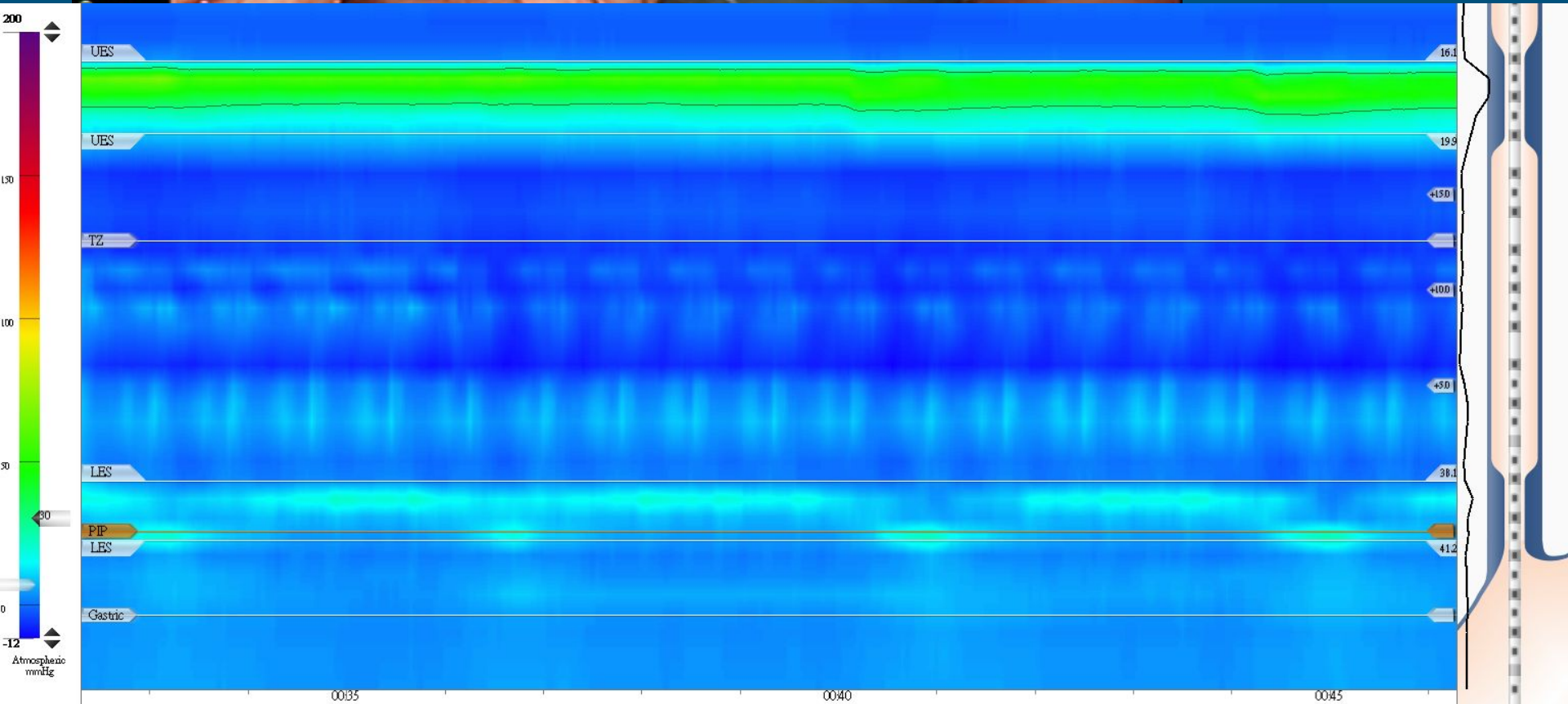
Hiatal hernia: HRIM



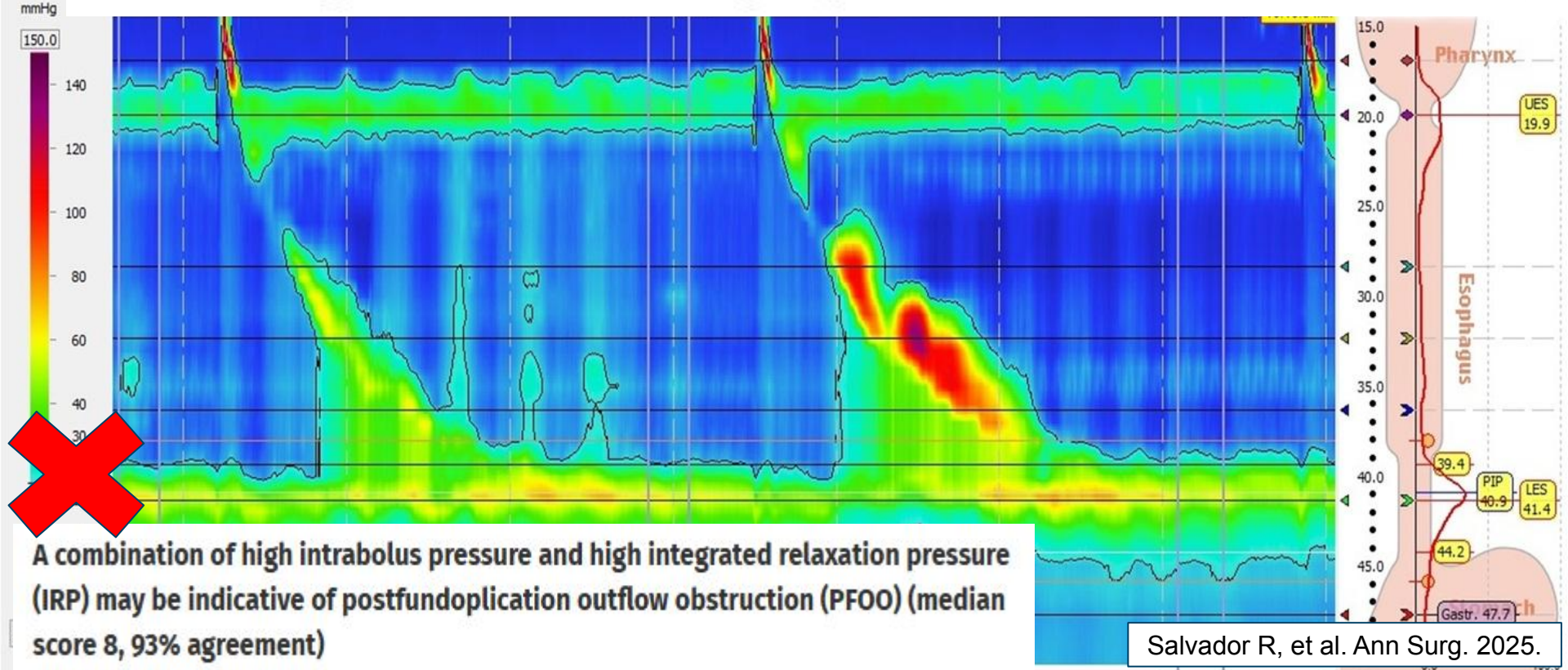
Gyawali CP, Kahrilas PJ, Savarino E, et al. Gut. 2018.

2016/12/13: HRIM

Type 2 (LES 39cm / Crura 41cm)



The Role of High-Resolution Manometry Before and Following Antireflux Surgery: The Padova Consensus



A combination of high intrabolus pressure and high integrated relaxation pressure (IRP) may be indicative of postfundoplication outflow obstruction (PFOO) (median score 8, 93% agreement)

Salvador R, et al. Ann Surg. 2025.

2017/4~2018/1 Pregnancy with symptoms

Since 4 months of pregnancy, the patient had chest tightness and nausea. Symptoms improved after starting PPI.

- No GERD symptoms after delivery.

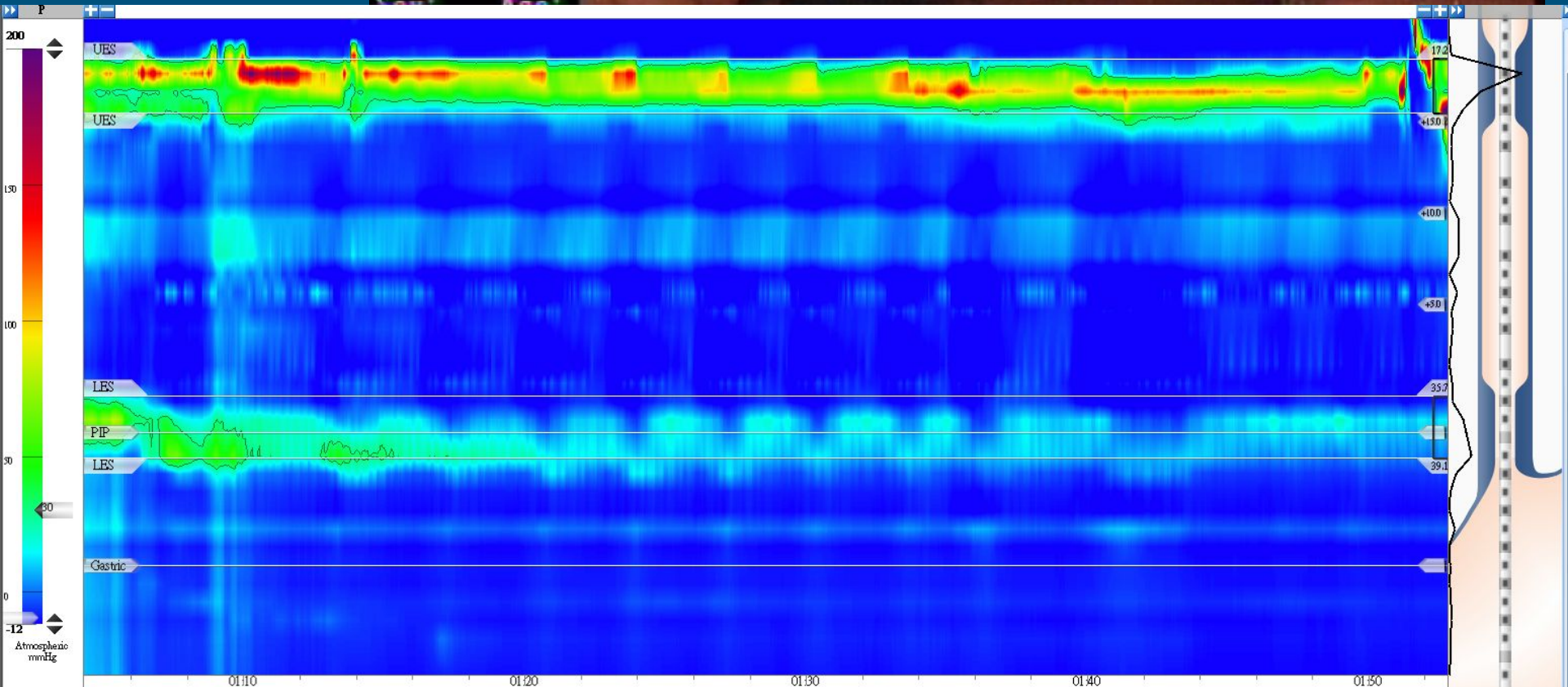
2019/3 Post-fundoplication (2 years)

The patient had nocturnal cough, chest tightness, and acidic vomiting.

- After 9 months, she was inability to lie down and had intermittent cough, with weight gain (58kg -> 69 kg).

2019/12/31: HRIM

Type 3a (LES 38cm / Crura 43cm)



(16)手術日期及方法(包括手術發現)	1101111 Ureteroscopy & removal of ureteral stone -with SONO/EHL Laparoscopic adhesionolysis Repair of diaphragmatic hernia trans-abdominal

Night cough and he
weekly (symptoms

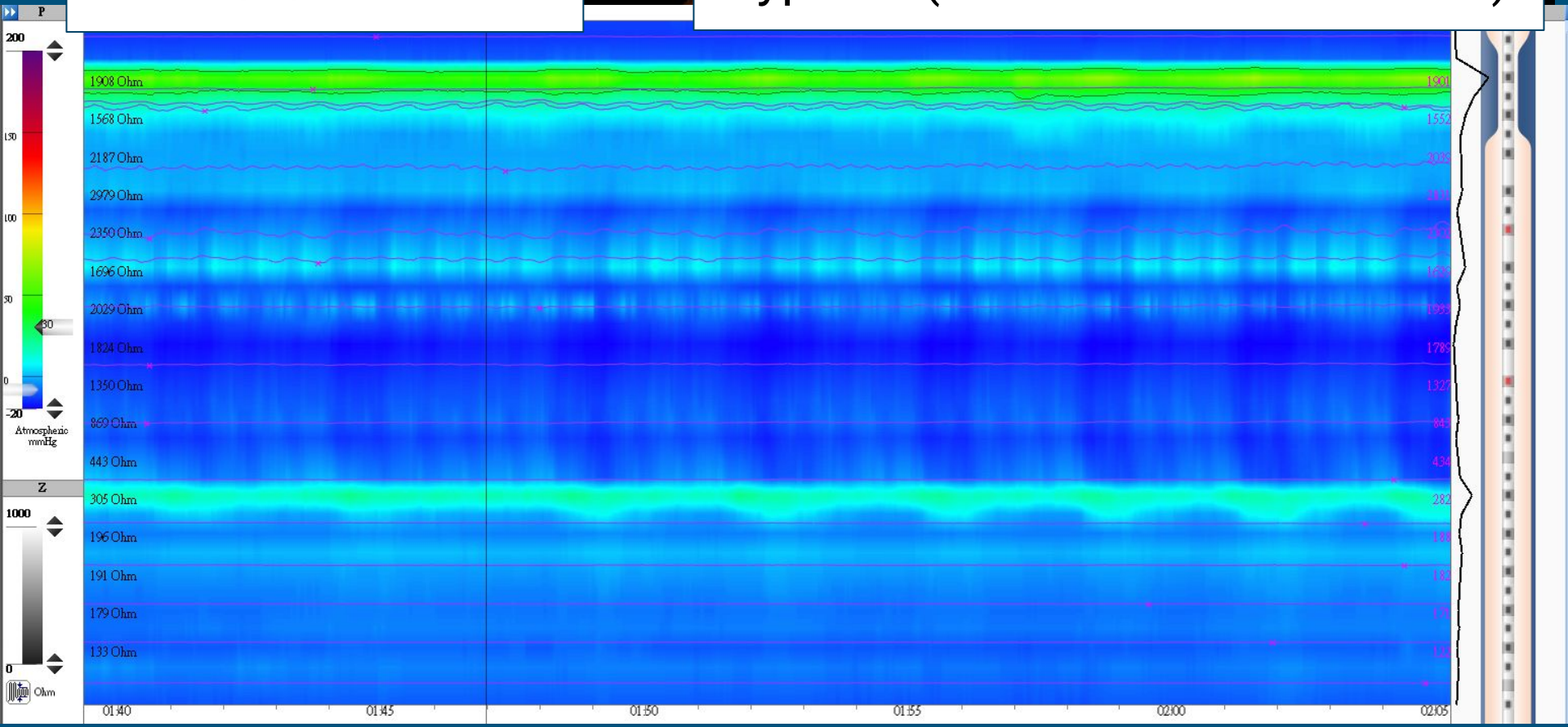
- Weight decrea

On 2021/11, she vi

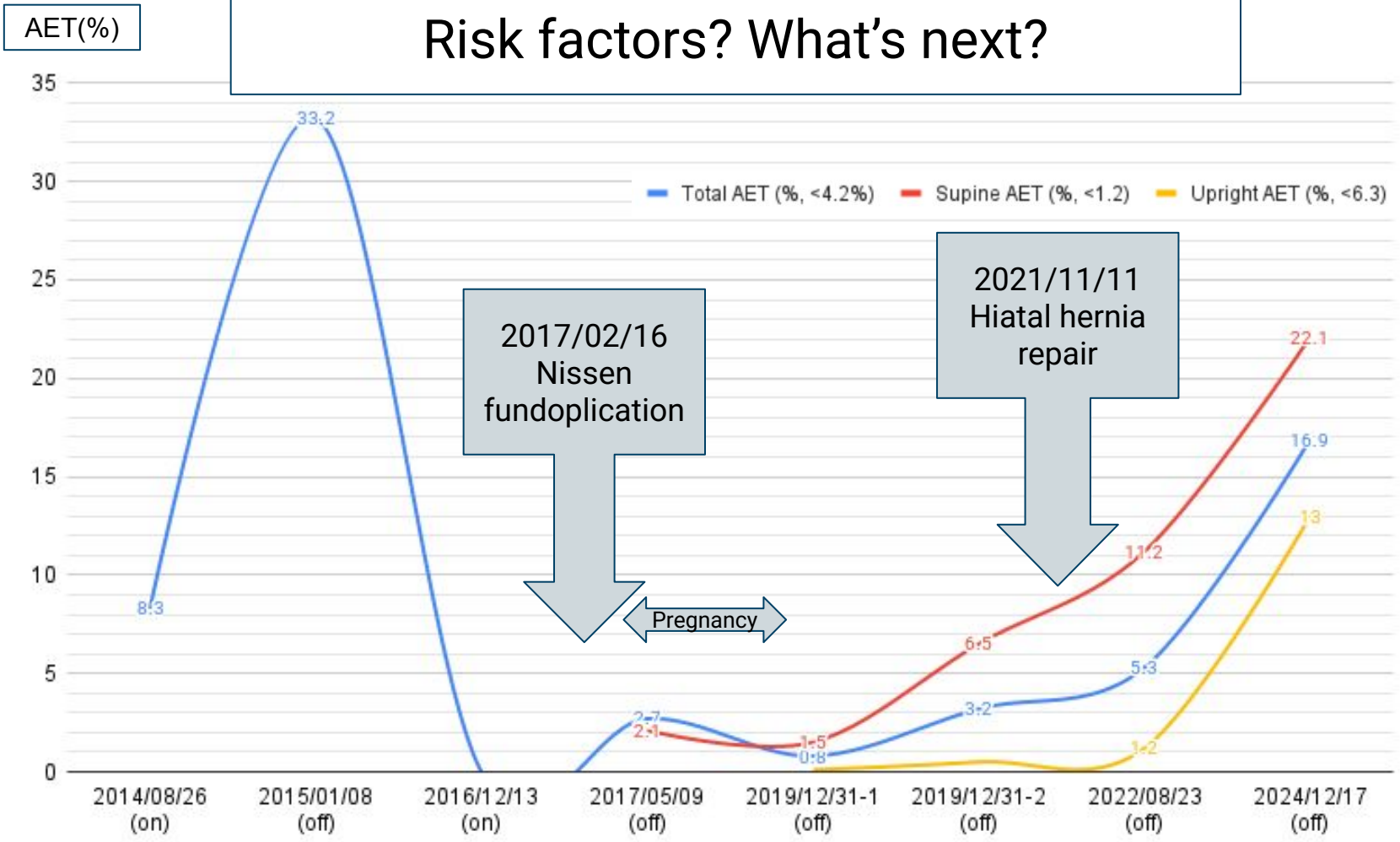
- Chest CT: relap
- s/p further her

2022/8/23: HRIM

Type 3a (LES 40cm / Crura 43cm)



Risk factors? What's next?



Success predictor?
26/174 (14.9%) redo within 11 years

	N (%)	Success rate *N* (%)	*P* value	OR
BMI				
$< 35\ kg/m^2$	83 (92)	65 (78)	0.036	4.81
$\geq 35\ kg/m^2$	7 (8)	3 (43)		
Complete/ partial response ARM	96 (79)	74 (77)	0.035	2.64
No response ARM	25 (21)	14 (56)		
No psychiatric history	20 (18)	71 (76)	0.064	2.53
Psychiatric history	94 (82)	11 (55)		
Typical symptoms	123 (81)	104 (85)	<0.01	7.75

Morgenthal CB, Lin E, Shane MD. Surg Endosc. 2007.

Nature of BMI?
124 failure cases within 5 years

	<30 (n=62, 50 %)	30–35 (n=38, 30.6 %)	>35 (n=24, 19.4 %)
Fundoplication			
Intact	25 (40.3 %)	10 (26.3 %)*	4 (16.7 %)*
Slipped	21 (33.9 %)	15 (39.5 %)	9 (37.5 %)
Disrupted	12 (19.4 %)	10 (26.3 %)	10 (41.7 %)*
Twisted	4 (6.5 %)	3 (7.9 %)	1 (4.2 %)
Recurrent hiatal hernia (%)	40 (65.6 %)**	35 (92.1 %)*	20 (83.3 %)
Recurrent hiatal hernia size (cm), mean	2.15	2.95	2.26
Failed fundoplication and hiatal hernia	29 (46.8 %)**	27 (71.1 %)*	17 (70.8 %)*

*p<0.05, compared with BMI <30; **p<0.05, compared with BMI 30–35 + BMI >35

Akimoto S, Nandipati KC, Kapoor H, et al. J Gastrointest Surg. 2015.

Supine AET matter?
11/177 (6.2%) redo within 6 years (6-22 months)

	Surgical reintervention ($n = 11$)*	No surgical reintervention ($n = 166$)*	Odds ratio†
Demographics			
Age (years)‡	44·4 (33·6–56·0)	43·0 (33·1–53·0)	1·01 (0·96, 1·06)
Sex (M)	8 (73)	102 (61·4)	1·67 (0·43, 6·54)
Body mass index (kg/m^2)‡	26·0 (25·0–28·0)	26·1 (23·9–29·4)	0·96 (0·81, 1·13)
Upper gastrointestinal endoscopy			
Hiatal hernia size (cm)‡	3·5 (1·8–5·0)	3·0 (2·0–5·0)	0·96 (0·69, 1·32)
Oesophagitis	6 (55)	88 of 153 (57·5)	1·13 (0·33, 3·86)
Mean LOS pressure (kPa)‡	0·6 (0·4–1·4)	1·0 (0·6–1·7)	0·58 (0·24, 1·39)
Oesophageal peristalsis‡			
Peristaltic contractions (%)	90 (80–100)	100 (90–100)	0·99 (0·96, 1·02)
Distal contraction amplitude (kPa)	7·1 (5·3–10·6)	7·6 (5·6–12·0)	0·99 (0·85, 1·14)
Oesophageal acid exposure (% time)‡			
Upright	13·7 (8·6–20·7)	12·8 (8·9–19·4)	0·99 (0·92, 1·06)
Supine	22·2 (3·2–46·1)	5·7 (1·1–15·3)	1·05 (1·01, 1·08)
Total	19·7 (7·3–24·0)	11·4 (7·6–16·1)	1·05 (0·99, 1·10)

Broeders JA, Roks DJ, Draaisma WA, et al. Br J Surg. 2011.

Ideas from more cases?
430/9462 (4.5%) redo with 8.3 average follow

- Redo fundoplication (81%):
  - 35 patients (8.1%) underwent two or more revisional procedures.
  - Average at 2.5 years.
- Factors associated with revisional surgery:
  - Female gender (OR 1.56, p = 0.0001)
  - Chronic pulmonary disease (OR 1.40, p = 0.0044)

Obeid NR, Altieri MS, Yang J, et al. Surg Endosc. 2018.

Repair only reasonable?

- Cruroplasty only (26 patients) vs. Cruroplasty + fundoplication (47 patients)
- Comparable in short term outcome
  - 1.64 years (mean follow-up)
  - Recurrence rate 11% (cruroplasty only) vs. 12% (full revision, p-value 1.00)

Nguyen R, Dunn CP, Putnam L, et al. Surg Endosc. 2021.

QA & Feedbacks

- Conservative medical treatment?
- Redo Anti-reflux surgery?
  - Hiatal hernia repair
  - Fundoplication (Dor, Toupet or Nissen)
  - Roux-en-Y gastric bypass
- Extra consideration?
  - Anatomy issue
  - Devices or Techinical issue