

Case discussion

台中榮總 胃腸科

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王江00 17735F, 68 y/o F

- 2018/12/20 (CS OPD): chronic cough and burning sensation for 2 years, s/p LMD EGD proved hiatal hernia
 - arranged Chest CT and Chest with Barium



王江00 17735F, 68 y/o F

- 2019/01/16 (GI OPD): Chronic cough for months, especially when lying down.
 - Heartburn sensation (+) despite regular PPI use for one month
 - Dysphagia (-); BWL (+, from 48 to 42 kg in two years)

處方名稱	天數	劑量	單位	頻次	途徑
10mg Singulair tab	7	1	TAB	HS	PO
Acetylcysteine tab 	7	1	TAB	QN	PO
Avamys nasal spray	7	4	PUF	QD	NA
XyzaL tab 5mg	7	1	TAB	QD	PO

'D for

王江OO 17735F, 68 y/o F

- 2019/01/17 (CM OPD): r/o bronchial asthma
 - arrange Pulmonary Function Test, with asthma inhaler adjustment

CONCLUSION :

Severely obstructive ventilatory impairment.

《 塞性通氣障礙 》

以上結果為吸藥前測試

Positive bronchodilator response.

《 氣管擴張反應 》

《 重度阻

《 陽性

處方名稱	天數	劑量	單位	頻次	途徑
Foster inh 120dose	28	2	PUF	BID	INH
Ventolin inhaler	28	2	PUF	TIDPR	IH

PULMONARY LABORATORY

F-V LOOP

SPIROMETRY (BTPS)

		PRE-RX			POST-RX		
		PRED	ACTUAL	%PRED	ACTUAL	%PRED	%CHG
FVC	LITERS	2.27	1.71	75	1.91	84	12
FEV1	LITERS	1.83	0.55	30	0.66	36	19
FEV1/FVC	%	N/A	32		35		
FEF25-75%	L/SEC	1.96	0.15	8	0.18	9	21
FEF25%	L/SEC	4.60	0.40	9	0.52	11	29
FEF50%	L/SEC	2.71	0.17	6	0.21	8	27
FEF75%	L/SEC	0.68	0.08	12	0.07	11	-7

王江OO 17735F, 68 y/o F

- 2019/02/20 (GI OPD): delay motility testing due to severe obstructive lung disease
- 2019/03/06 (IMRH OPD): for skin eruption in both palms, s/p I.M. steroid injection
- 2019/03/20 (GI OPD): BA is most likely, given a dramatic improvement of cough after steroid use

處方名稱	天數	劑量	單位	頻次	途徑
Methasone inj 5mg 	1	5	MG	STAT	IM
Metholone tab 16mg 	14	1	TAB	QD	PO

IMRH survey, 2019/02/21

ANA

申請序號： A3357049 檢驗項目： ANA (blood)

原始報告：<http://fs01.vghtc.gov.tw/lis/ANA/20190222/8000518177.pdf>

ANA result : Negative

Titer :

Nucleoplasm :

Nucleolus :

Cytoplasm :

Chromatin :

Mitotic cell :

參考值： Positive : \geq 1:160

SSA, SSB Ab

申請序號： A3357051 檢驗項目： SSA, SSB Ab

SSA Ab : Negative , < 0.3 EliA U/ml

SSB Ab : Negative , < 0.3 EliA U/ml

參考值： Negative : < 7 EliA U/ml
Equivocal : 7-10 EliA U/ml
Positive : > 10 EliA U/ml

C3 (blood), C4 (blood)

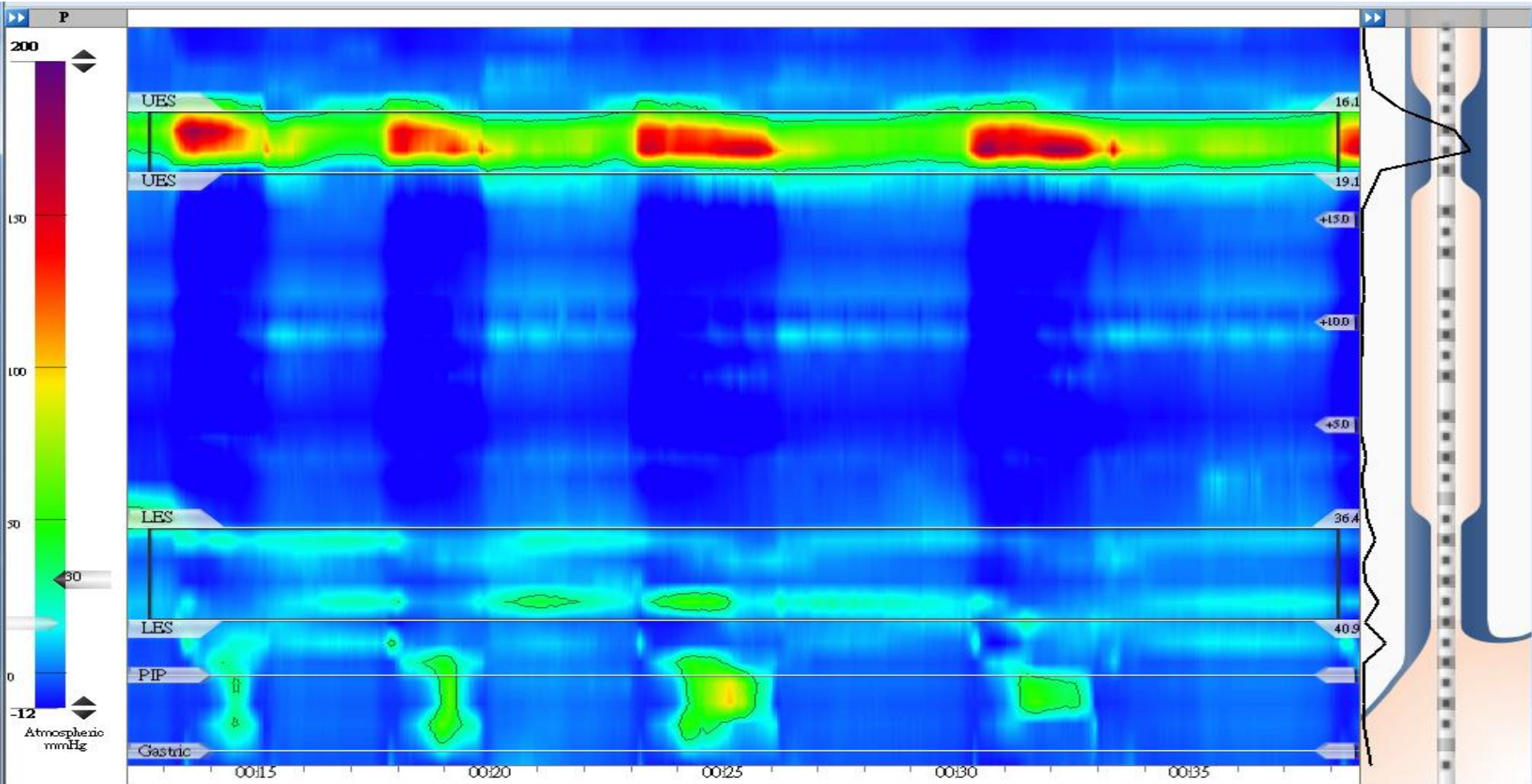
申請序號： A3357050 檢驗項目： C3 (blood),C4 (blood)

C3 (blood) : 122.8 mg/dl (C3 : 87-200 mg/dl)

C4 (blood) : 22.1 mg/dl (C4: 19 - 52 mg/dl)

參考值： C3 : 87- 200 mg/dl
 C4 : 19- 52 mg/dl

HRIM, 2019/05/16



Resting pressure [1]

Show in table

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Select next

UES

Upper border	16.1	cm
Lower border	19.1	cm
Length	3.0	cm
Resting (5th)	57	mmHg
Resting (mean)	103	mmHg

LES

Upper border	36.4	cm
Lower border	40.9	cm
Length	4.5	cm
Resting (5th)	8	mmHg
Resting (mean)	22	mmHg
Resting (min)	-9	mmHg
Hiatal hernia length	2.7	cm

Esophagus

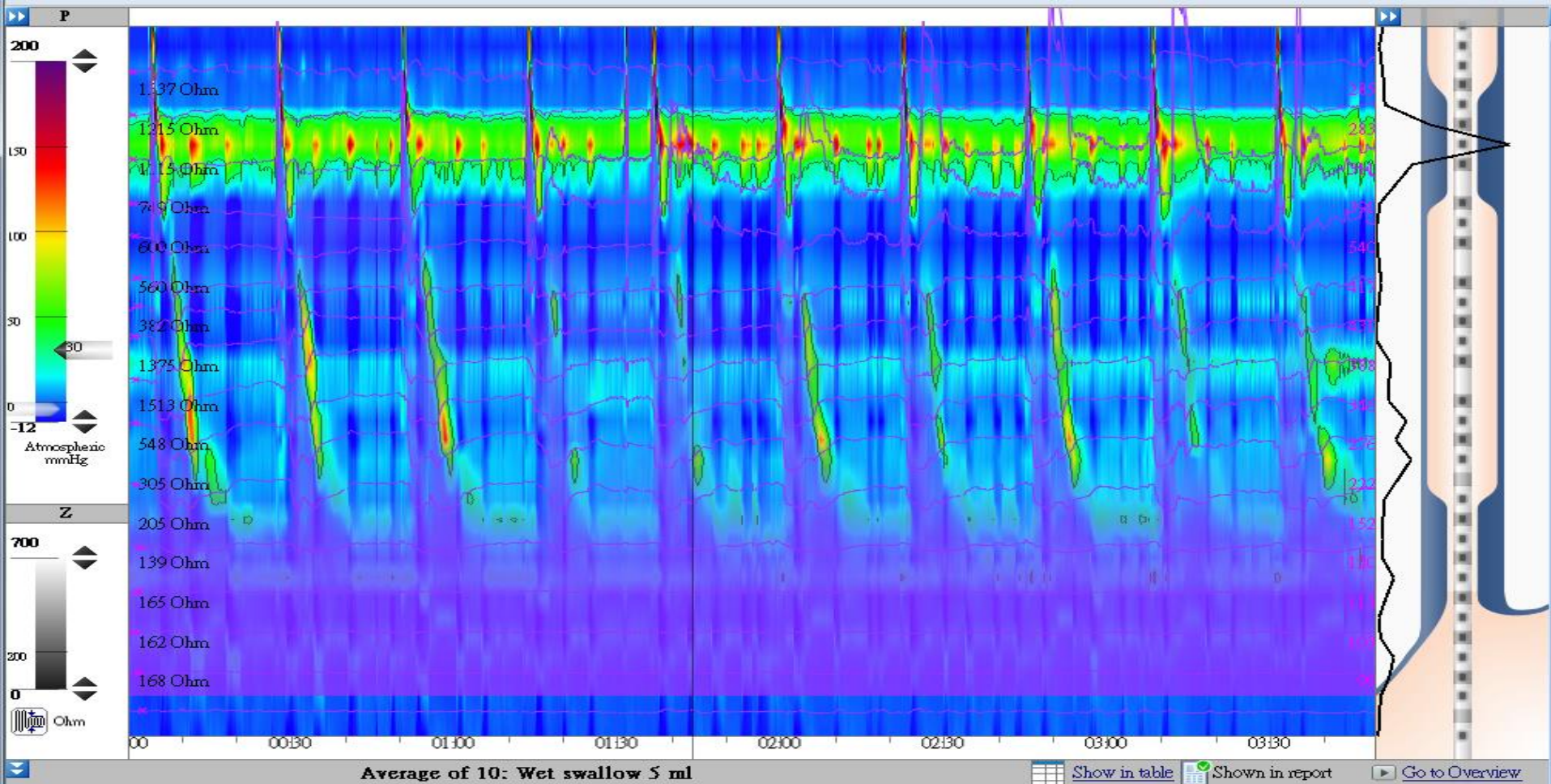
Select next

Scoring

Hiatal hernia	是*
UES resting pressure	Normal*
LES resting pressure	Normal*

阻抗

HRIM, 2019/05/16



UES	
Upper border	16.1 cm
Lower border	20.2 cm
Length	4.1 cm
IRP 0.2 s	21 mmHg
IRP 0.4 s	28 mmHg
IRP 0.6 s	37 mmHg
IRP 0.8 s	44 mmHg

LES	
Upper border	36.5 cm
Lower border	40.7 cm
Length	4.2 cm
Median IRP4	11.04 mmHg
IRP 4 s	11 mmHg

Esophagus	
DCI	542 mmHg.s.cm
DCIa	33 mmHg.s
Peristaltic breaks	3.6 cm
Distal Latency	7.7 s
Largest break	2.4 cm
DCI Exp.	544 mmHg.s.cm

阻抗	
Bolus transit	Undefined

Classification	
LES Obstruction3	<input type="checkbox"/> 否*
Chicago classification3	<input checked="" type="checkbox"/> Normal*
LES Obstruction	<input type="checkbox"/> 否*
Bolus transit	Undefined

Manometry, 2019/05/16

HEIGHT: 151	WEIGHT: 43	VALUE	NORMAL RANGE
RESTING PRESSURE OF LES		16	10-40MMHG
LOCATION OF LES		36.5	
LENGTH OF LES		4	2.4-5.5CM
INCOMPLETE RELAXATION OF LES		<5	~90% OR RESIDUAL PRESSURE>5
AMPLITUDE		45	13CM: 70(+/-)32MMHG
		58	8CM: 90(+/-)41MMHG
		78	3CM:109(+/-)45MMHG
MORPHOLOGY(DOUBLE OR TRIPLE PEAKS)		1	
PROLONGED DURATION OF PERISTALTIC WAVE		<6	>6SEC
SIMULTANEOUS PERISTALSIS		0	<10%
NON-TRANSMITTED PERISTALSIS		0	<20%
NOTES: HRIM C.Cv3.0:40% Ineffective contraction, 60% Normal contraction. IRP:11.04, DCI:542 r/oType III(a) Hiatal hernia:LES and CD separated 2.8-3.0cm			
IMPRESSION: Normal esophageal motility profile.			






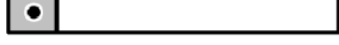
24hr-pH (off PPI), 2019/05/16



24hr-pH (off PPI), 2019/05/16

DeMeester score: 6.19 (14.72 is upper limit of 95.0 percentile of normal)

Adult scoring graphs

Score component	Patient	Normal			
Total reflux time (Total)	2.2	< 4.3		20	Total %
Total reflux time (Upright)	3.0	< 6.3		20	Upright %
Total reflux time (Supine)	0.8	< 1.3		20	Supine %
Nr of reflux periods	22.0	< 50.2		100	in 24 hours
Nr of long reflux periods > 5 min.	0.0	< 3.2		20	in 24 hours
Longest reflux	4.8	< 9.3		60	min

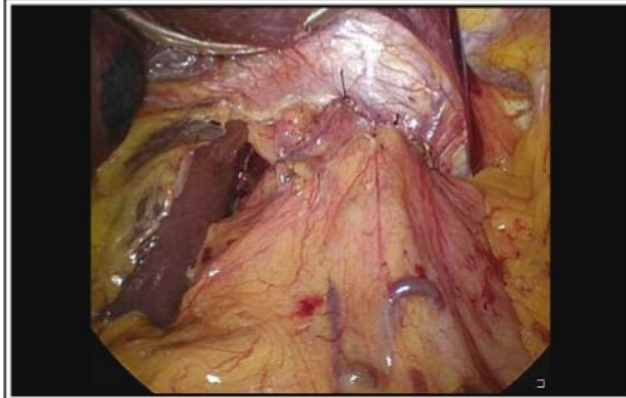
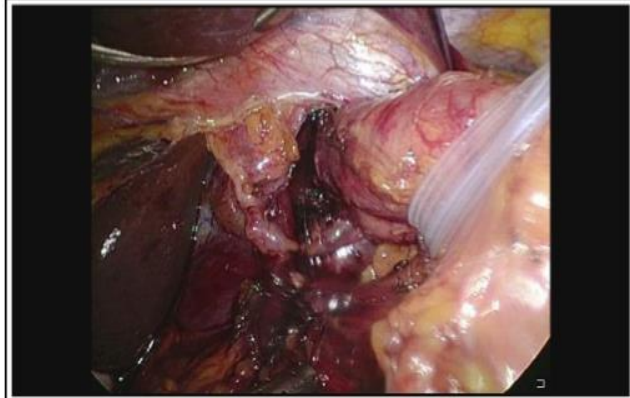
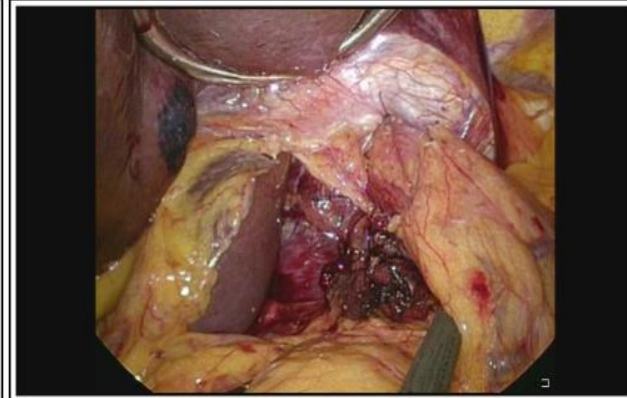
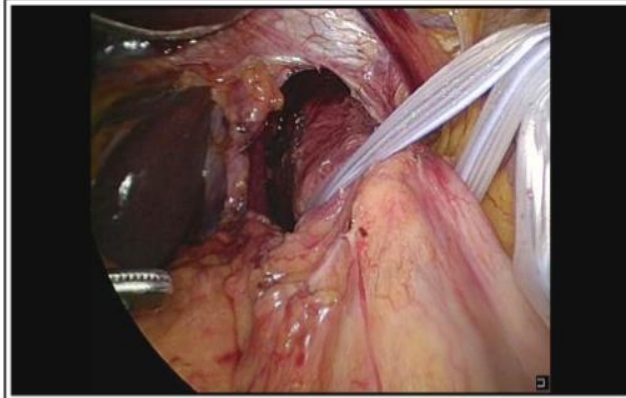
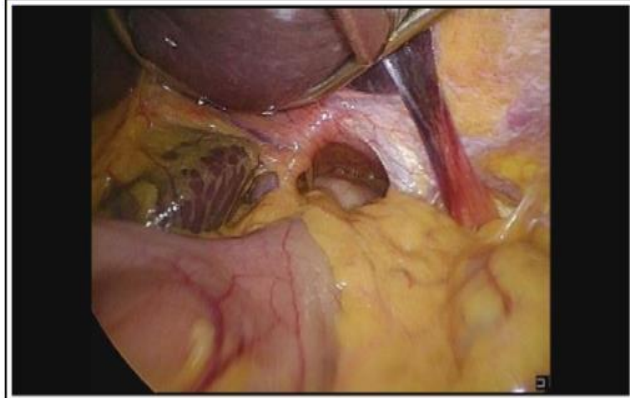
FRACTION TIME OF PH < 4.0 = 2.2 % (NORMAL 4.0 ~ 4.5 %)

DEMEOSTER SCORE = 10.65 (NORMAL 14 ~ 15)

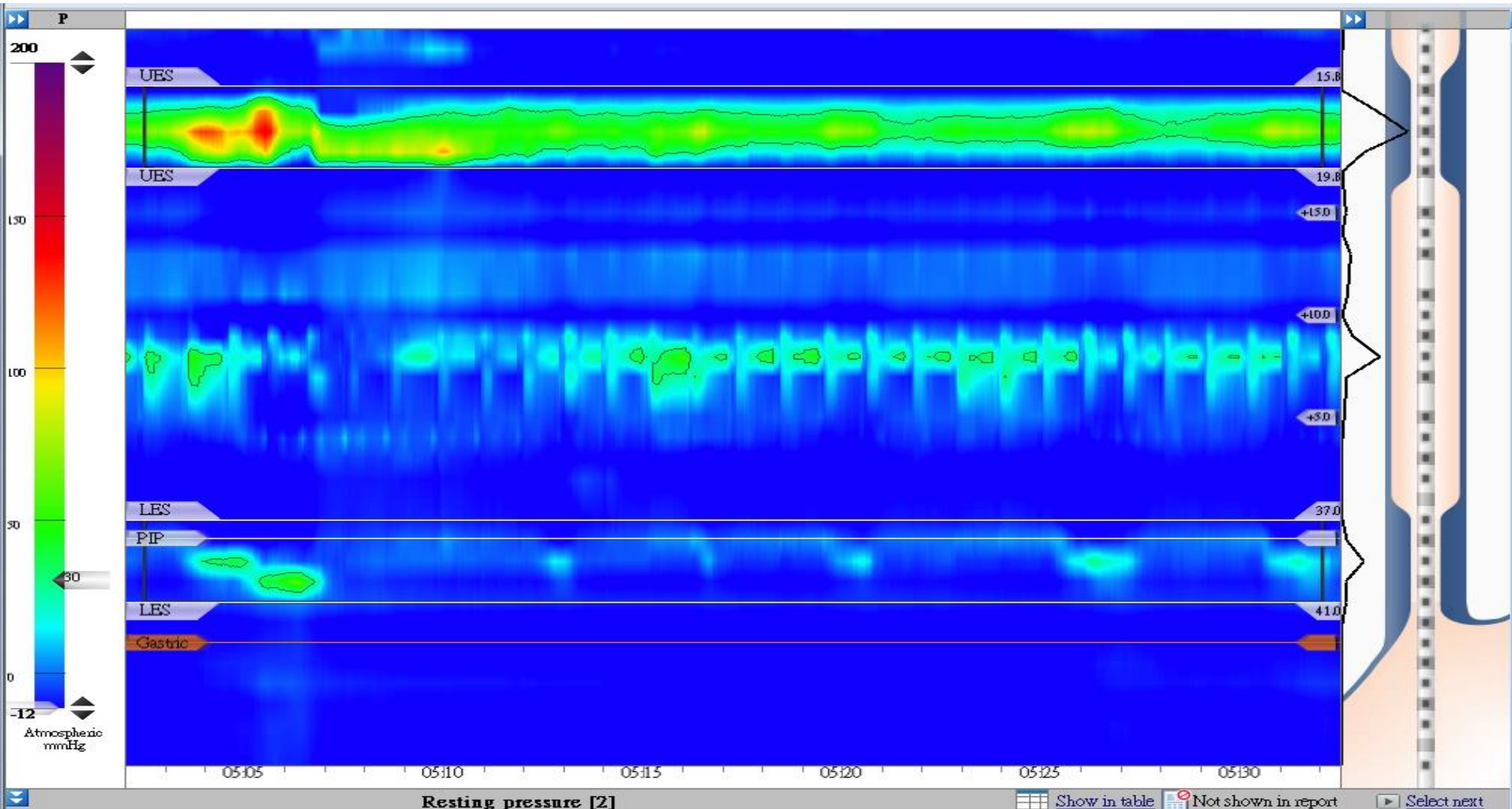
THIS IS A PH TEST WITH 2 PH SENSORS LOCATED AT PROXIMAL AND DISTAL ESOPHAGUS, RESPECTIVELY, WHILE THE PATIENT WAS OFF PPI DURING THE STUDY.

SHE REPORTED NO SYMPTOM DURING THE RECORDING PERIOD. SUGGESTING A **LOW POSSIBILITY OF GERD-RELATED COUGH.**

Laparoscopic fundoplication, 2019/08/16



HRIM (post OP), 2019/12/03



Resting pressure [2]

Show in table

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Select next

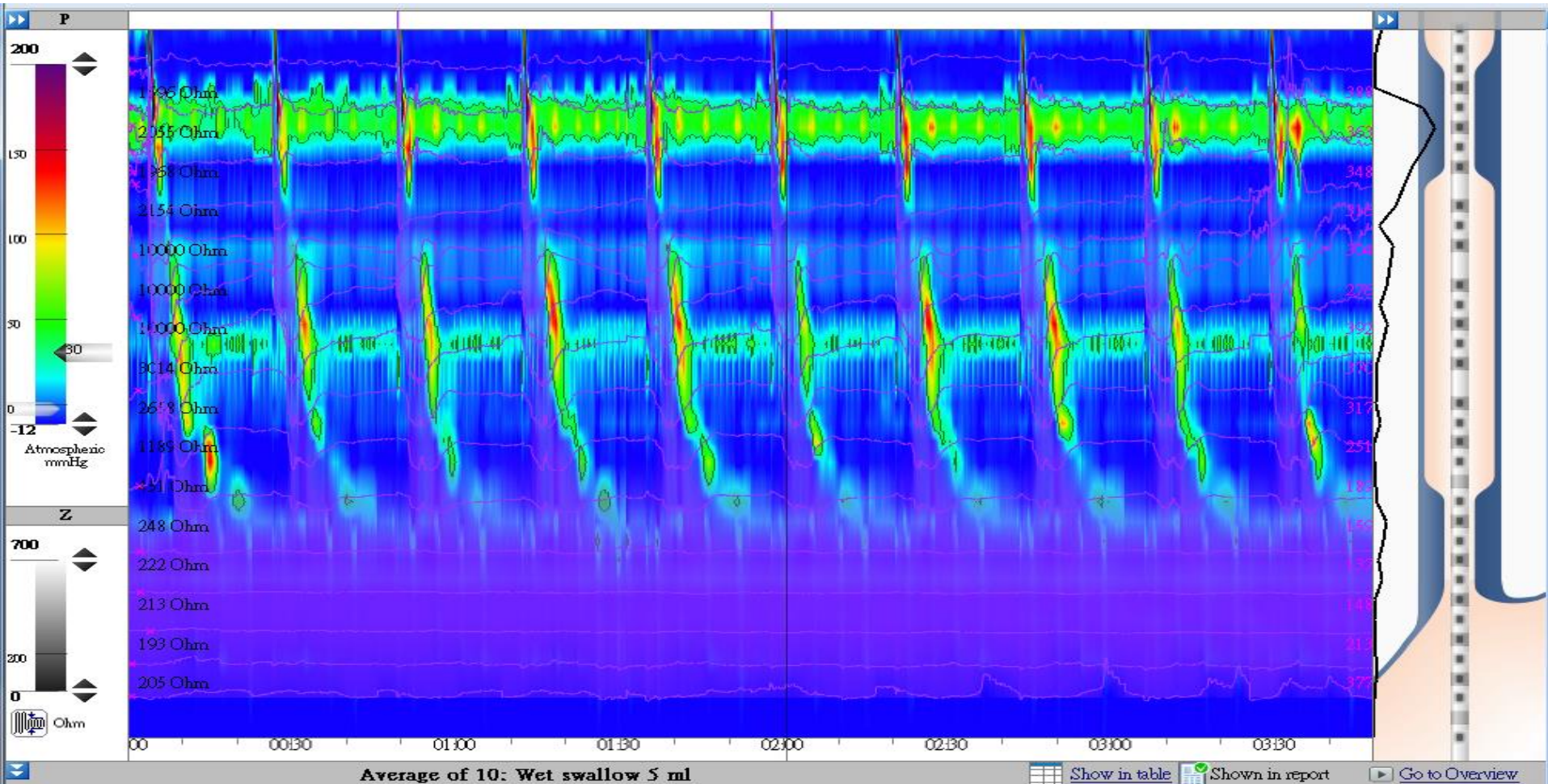
UES	
Upper border	15.8 cm
Lower border	19.8 cm
Length	4.0 cm
Resting (5th)	39 mmHg
Resting (mean)	67 mmHg
Resting (min)	24 mmHg

阻抗

LES	
Upper border	37.0 cm
Lower border	41.0 cm
Length	4.0 cm
Resting (5th)	11 mmHg
Resting (mean)	21 mmHg
Resting (min)	9 mmHg

Esophagus	
Scoring	
Hiatal hernia	<input type="checkbox"/> 否*
UES resting pressure	<input type="checkbox"/> Normal*
LES resting pressure	<input type="checkbox"/> Normal*

HRIM (post OP), 2019/12/03



UES		
Upper border	15.5	cm
Lower border	19.8	cm
Length	4.3	cm
IRP 0.2 s	22	mmHg
IRP 0.4 s	32	mmHg
IRP 0.6 s	37	mmHg
IRP 0.8 s	41	mmHg
阻抗		
Bolus transit	Undefined	

LES		
Upper border	36.5	cm
Lower border	41.0	cm
Length	4.4	cm
Median IRP4	12.08	mmHg
IRP 4 s	12	mmHg

Esophagus		
DCI	967	mmHg.s.cm
DCIa	58	mmHg.s
Peristaltic breaks	3.2	cm
Distal Latency	7.2	s
Largest break	2.2	cm
DCI Exp.	967	mmHg.s.cm
Classification		
LES Obstruction3	<input type="checkbox"/>	否*
Chicago classification3	<input checked="" type="checkbox"/>	Normal*
LES Obstruction	<input type="checkbox"/>	否*
Bolus transit	Undefined	

Manometry (post OP), 2019/12/03

HEIGHT: 149	WEIGHT: 42	VALUE	NORMAL RANGE
RESTING PRESSURE OF LES		20	10-40MMHG
LOCATION OF LES		37	
LENGTH OF LES		4	2.4-5.5CM
INCOMPLETE RELAXATION OF LES		<5	~90% OR RESIDUAL PRESSURE>5
AMPLITUDE		15	13CM: 70(+/-)32MMHG
		99	8CM: 90(+/-)41MMHG
		52	3CM:109(+/-)45MMHG
MORPHOLOGY(DOUBLE OR TRIPLE PEAKS)		1	
PROLONGED DURATION OF PERISTALTIC WAVE	<6		>6SEC
SIMULTANEOUS PERISTALSIS	0		<10%
NON-TRANSMITTED PERISTALSIS	0		<20%
NOTES:	HRIM C.Cv3.0:100% NORMAL CONTRACTION.IRP:12.08,DCI:967,DL:7.2.Post Fundoplication.		

IMPRESSION: Normal esophageal motility profile.

24hr-pH (off PPI, post OP), 2019/12/03

DeMeester score: 59.82 (14.72 is upper limit of 95.0 percentile of normal)

Adult scoring graphs

Score component	Patient	Normal	Graph	Score	Label
Total reflux time (Total)	13.5	< 4.3		20	Total %
Total reflux time (Upright)	19.8	< 6.3		20	Upright %
Total reflux time (Supine)	8.4	< 1.3		20	Supine %
Nr of reflux periods	209.6	< 50.2		100	in 24 hours
Nr of long reflux periods > 5 min.	11.3	< 3.2		20	in 24 hours
Longest reflux	53.0	< 9.3		60	min

FRACTION TIME OF PH < 4.0 = -- % (NORMAL 4.0 ~ 4.5 %)

DEMEOSTER SCORE = -- (NORMAL 14 ~ 15)

THIS IS A PH TEST WITH 2 PH SENSORS (10CM APART), LOCATED AT DISTAL ESOPHAGUS 5 CM ABOVE EGJ (32 CM) AND MIDDLE ESOPHAGUS, RESPECTIVELY, WHILE THE PATIENT WAS OFF PPI DURING THE STUDY. HE REPORTED NO SYMPTOM DURING THE RECORDING PERIOD. THIS WAS AN INCOMPLETE STUDY DUE TO THE PH PROBE WAS BROKEN (THE PH SENSOR POST CALIBRATION FAILURE).

Patient reported outcome (PRO)

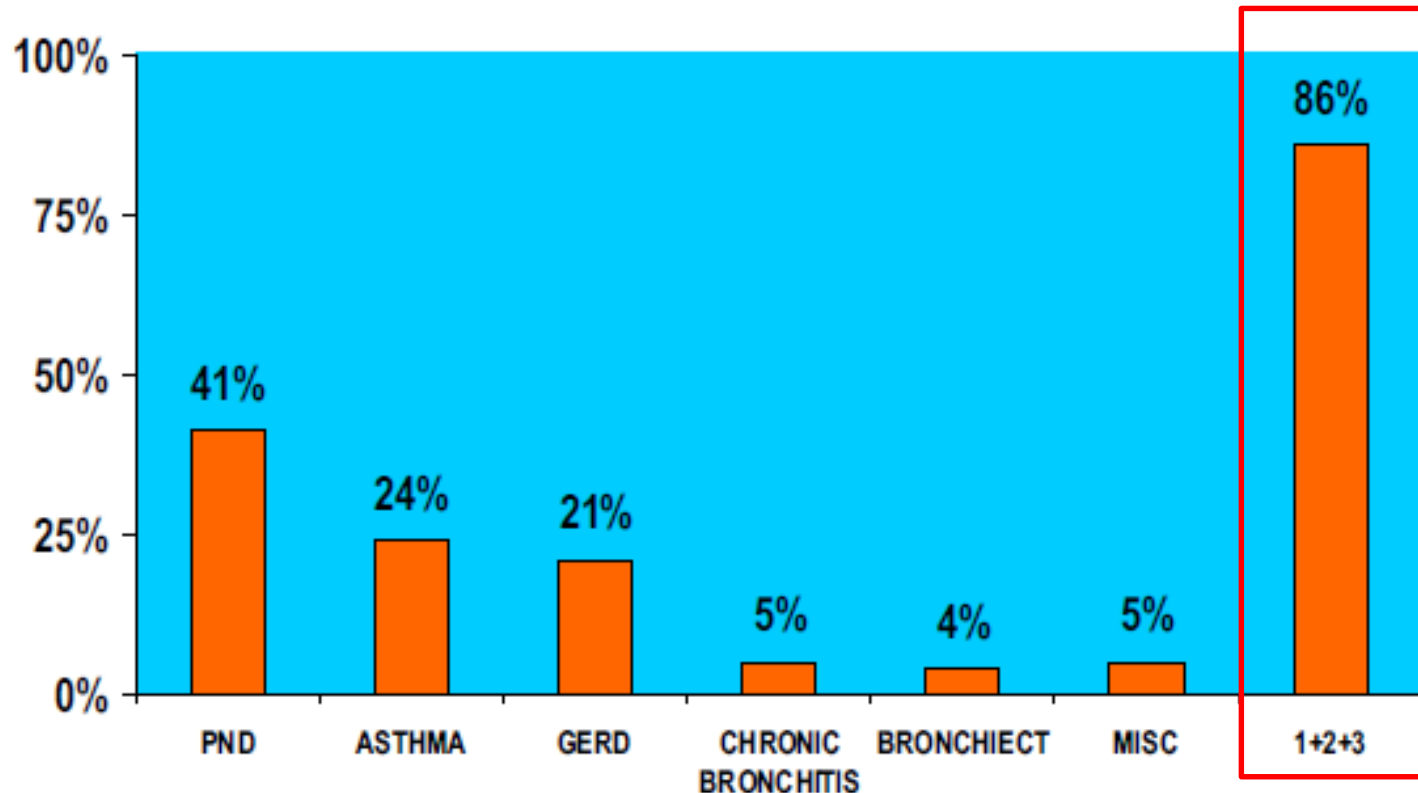
- The Reflux Symptom Index (**RSI**)
- Reflux Disease Questionnaire (**RDQ**)
- The **GERDyzer**

2019/3/6
Methasone inj

2019/8/16
胃折疊術

	108 1/17	108 1/24	108 2/18	108 3/18	108 4/17	108 5/16	108 5/23	108 12/3	112 8/2
用藥	Singulair, Acetylcysteine, Avamys nasal spray, XyzaL	Singulair, Takepron	Singulair, Takepron	Singulair, Takepron	Singulair, Crestor	Singulair, Crestor	Singulair, Takepron, Crestor	Singulair	
RSI 總分 (0-45分)	28	31	32	24	25	26	21	13	3
RDQ 總分 (0-40分)	9	12	29	9	15	2	10	2	0
GERDyzer 總分 (0-70分)	51.3	56.5	61.3	29.9	33.3	47	23.5	7	0

Common Causes of Chronic Cough and Multiple Causes May Exist in a Patient



Irwin 2006 Chest

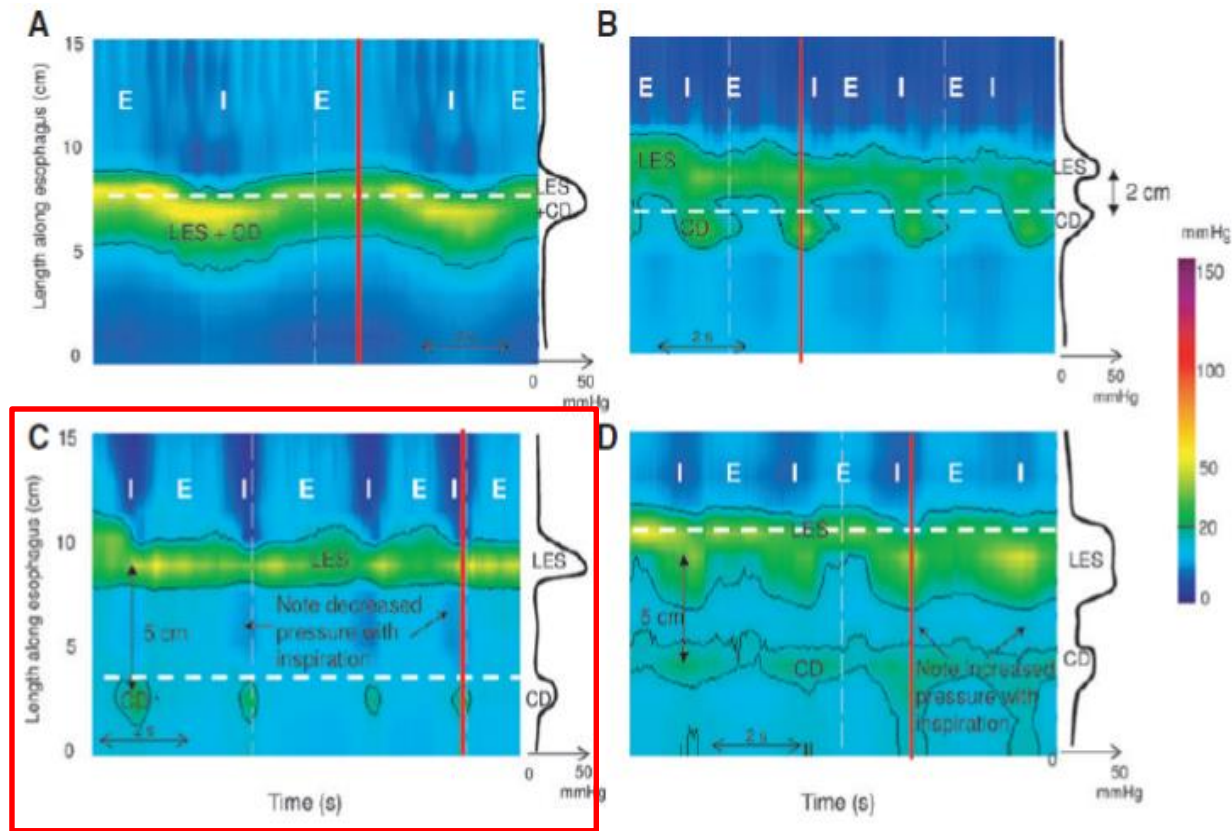


Figure 4 Esophagogastric junction (EGJ) morphology subtypes. For each panel, the instantaneous spatial pressure variation plot corresponding to the red line on the pressure topography plot is illustrated by the black line to the right. The two main EGJ components are the LES and CD, which cannot be independently quantified when they are superimposed as with a type I EGJ (A). The respiratory inversion point (RIP), shown by the white horizontal dashed line, lies near the proximal margin of the EGJ. During inspiration (I) EGJ pressure increases, whereas it decreases during expiration (E). Type II EGJ pressure morphology is illustrated in B. Note the two peaks on the instantaneous spatial pressure variation plot; the nadir pressure between the peaks is greater than the intra gastric pressure. The RIP is at the level of the CD. C and D correspond to type III EGJ pressure morphology defined as the presence of two peaks of the instantaneous spatial pressure variation plot with the nadir pressure between the peaks equal to or less than intragastric pressure. The RIP is at the CD with type IIIa (C) whereas it is at the level of the LES in IIIb (D).

ALIMENTARY TRACT

Association Between Response to Acid-Suppression Therapy and Efficacy of Antireflux Surgery in Patients With Extraesophageal Reflux



Joseph T. Krill,^{*} Rishi D. Naik,^{*} Tina Higginbotham,^{*} James C. Slaughter,[‡]
Michael D. Holzman,[§] David O. Francis,^{||} C. Gaelyn Garrett,^{||} and Michael F. Vaezi^{*}

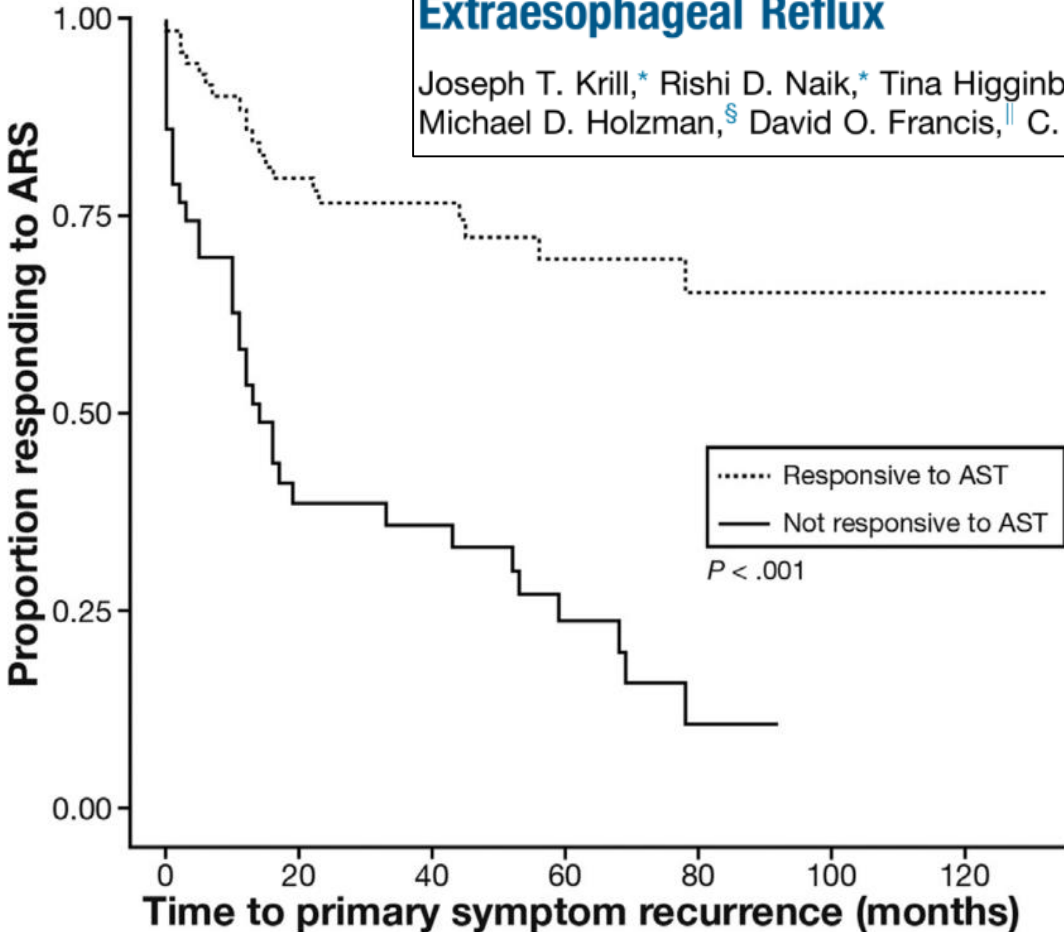


Figure 3. Time to primary symptom recurrence by preoperative response to AST.

Key message from our case

- **Chronic cough** can be a combination of **multiple causes**
 - BA, PNH, GERD
- **GERD** diagnosis should be confirmed in multiple aspects
 - typical / atypical symptoms, high dose PPI responsiveness, AET
- **Anatomical factors** should be evaluated in early phase
 - risk of malignancy, hiatal hernia
- **Motility** survey can provide promising diagnostic support in specific cases
- **Surgical prognosis** should be carefully discussed in Acid-Suppression Therapy (AST) non-responsive patients

Thank you for listening