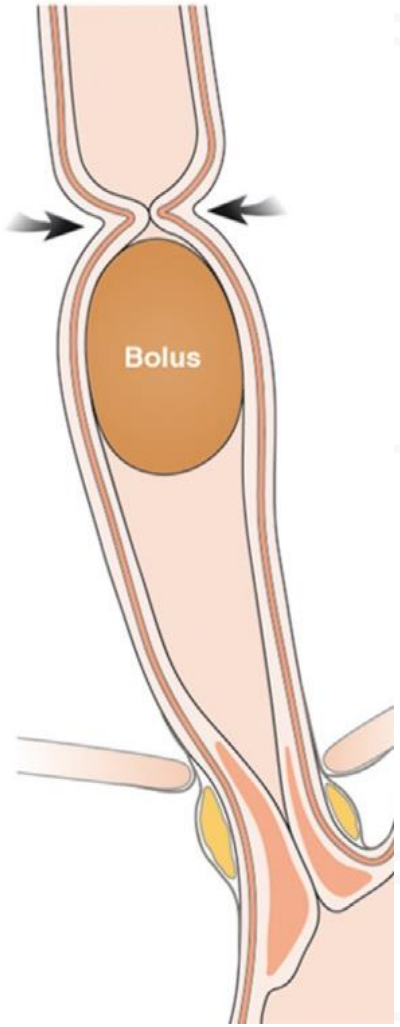
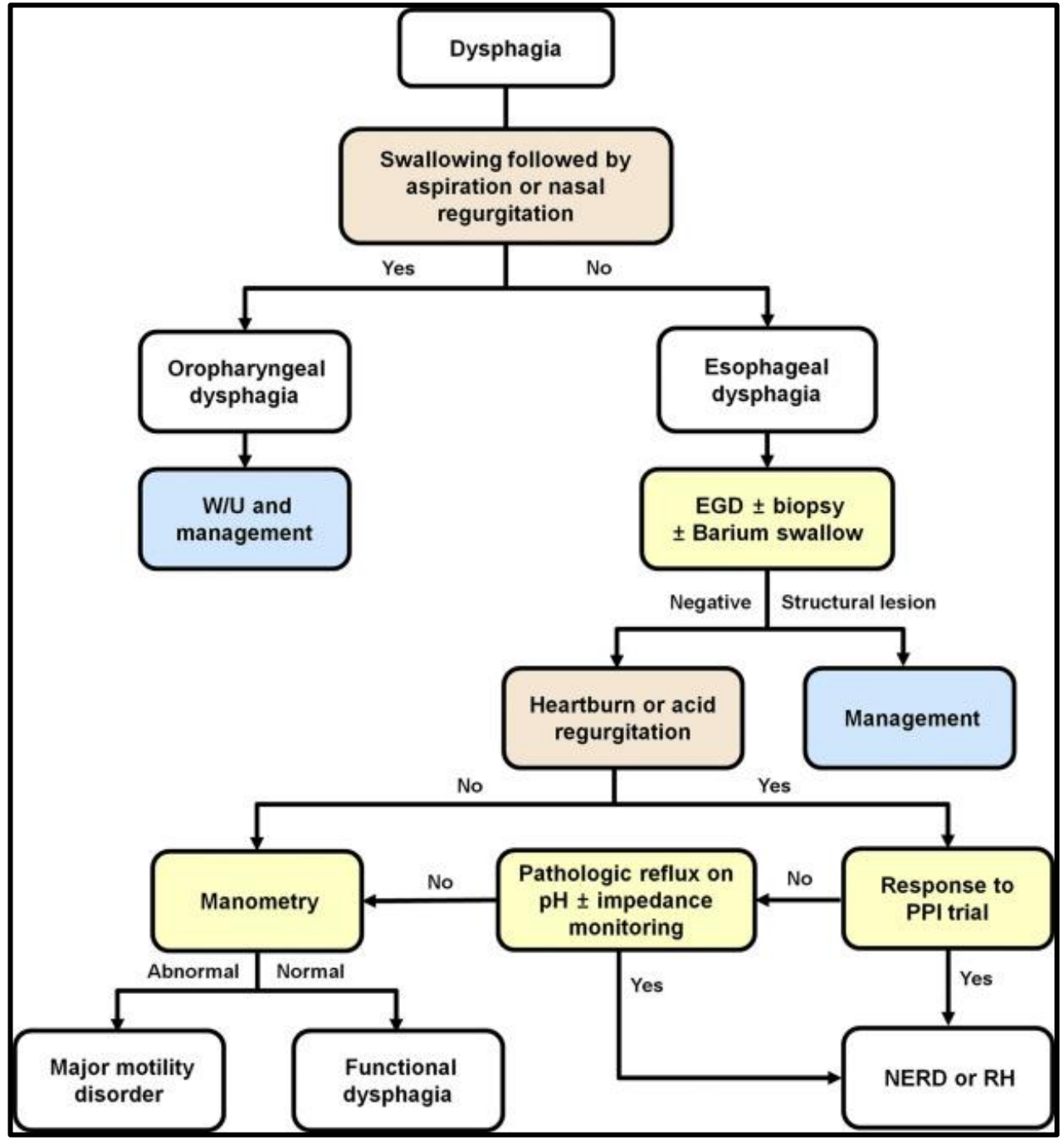
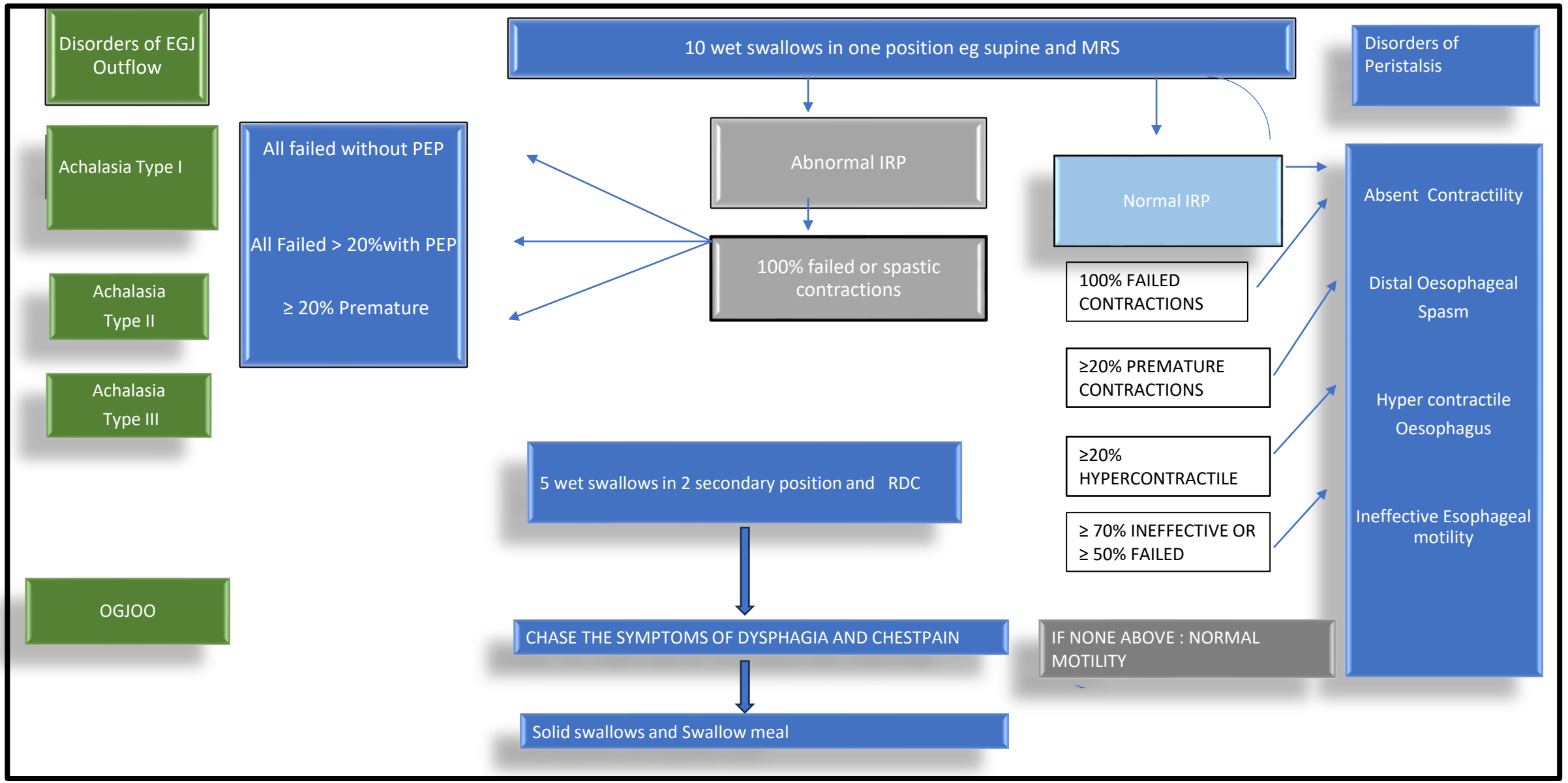


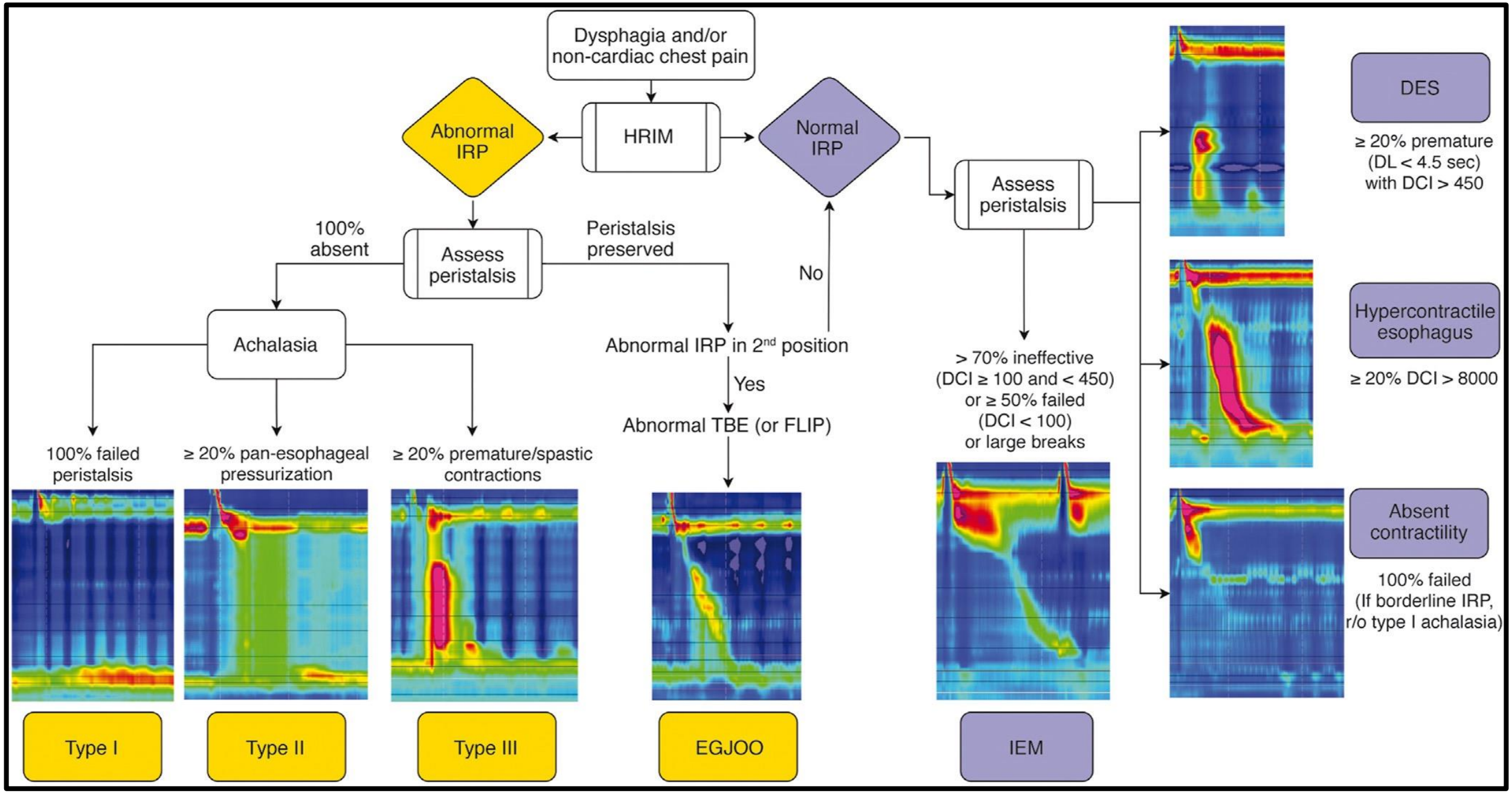
G-ECHO
26th FEBRUARY 2024

DYSPHAGIA CASE STUDIES


Dysphagia
Swallowing followed by aspiration or nasal regurgitation
Yes
No
Oropharyngeal dysphagia
Esophageal dysphagia
W/U and management
EGD ± biopsy ± Barium swallow
Negative
Structural lesion
Heartburn or acid regurgitation
Management
No
Yes
Manometry
No
Pathologic reflux on pH ± impedance monitoring
No
Response to PPI trial
Abnormal
Normal
Yes
Yes
Major motility disorder
Functional dysphagia
NERD or RH

CHICAGO CLASSIFICATION v 4.0 : Protocol and analysis algorithm



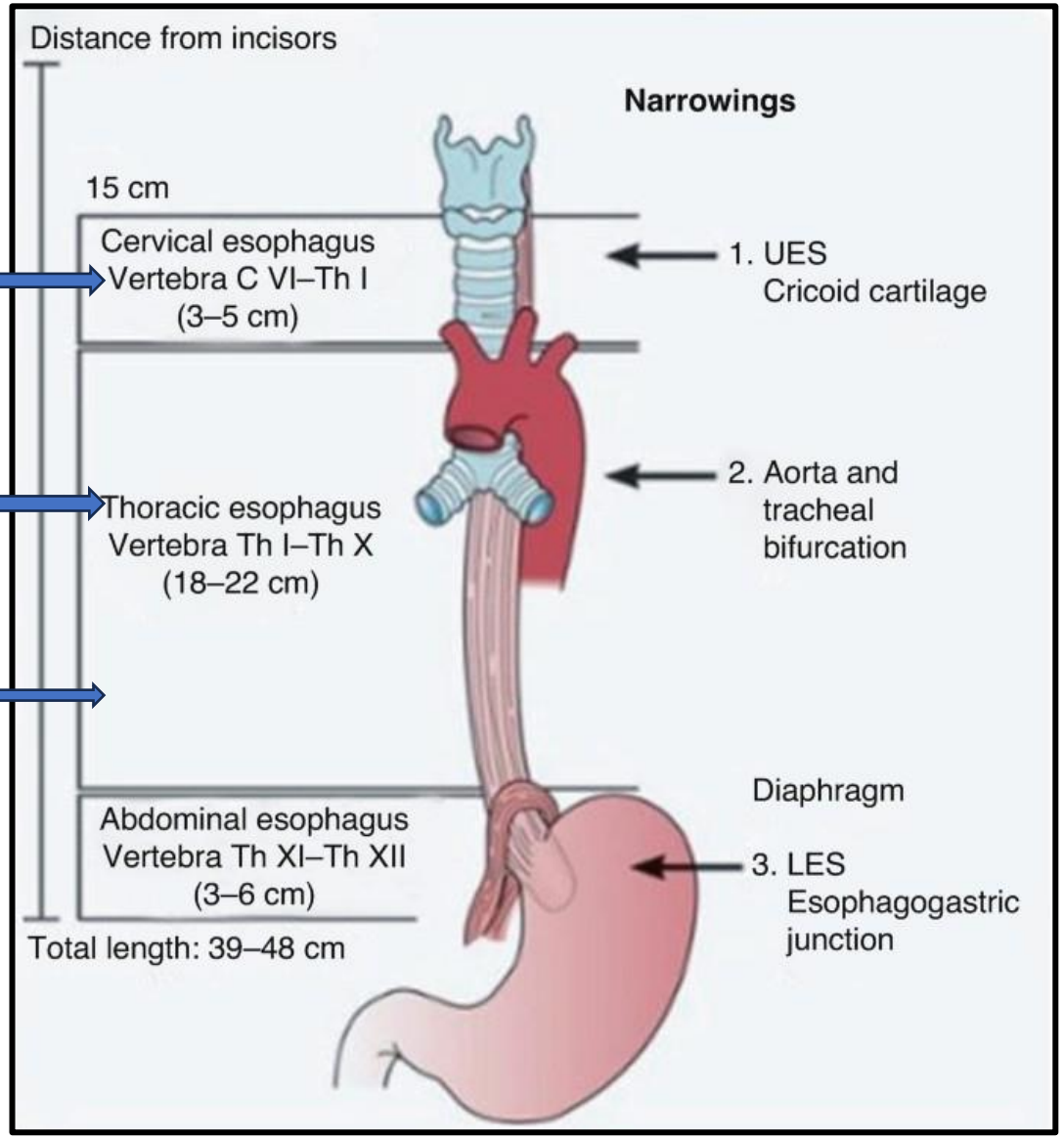

Dysphagia and/or non-cardiac chest pain
HRIM
Abnormal IRP
Normal IRP
100% absent
Assess peristalsis
Peristalsis preserved
Achalasia
Abnormal IRP in 2nd position
No
Yes
Abnormal TBE (or FLIP)
Assess peristalsis
100% failed peristalsis
≥ 20% pan-esophageal pressurization
≥ 20% premature/spastic contractions
> 70% ineffective (DCI ≥ 100 and < 450) or ≥ 50% failed (DCI < 100) or large breaks
DES
≥ 20% premature (DL < 4.5 sec) with DCI > 450
Hypercontractile esophagus
≥ 20% DCI > 8000
Absent contractility
100% failed (If borderline IRP, r/o type I achalasia)
Type I
Type II
Type III
EGJOO
IEM

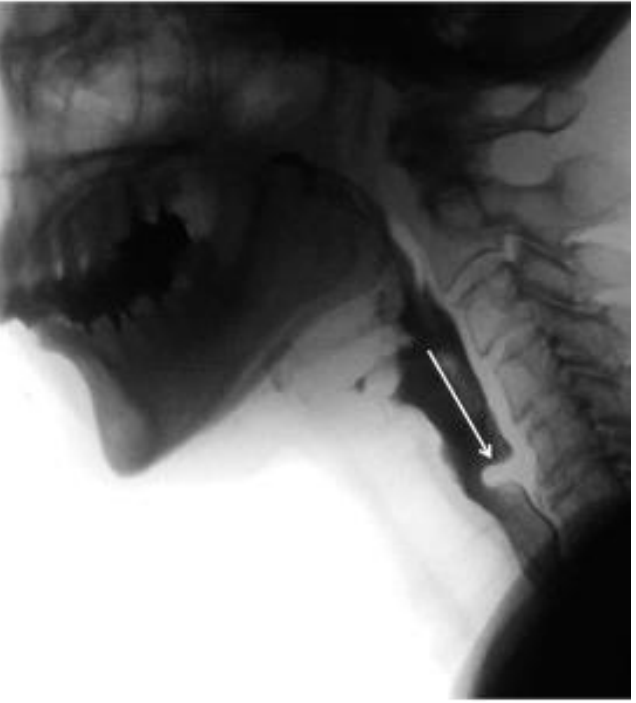
DYSPHAGIA SYMPTOM

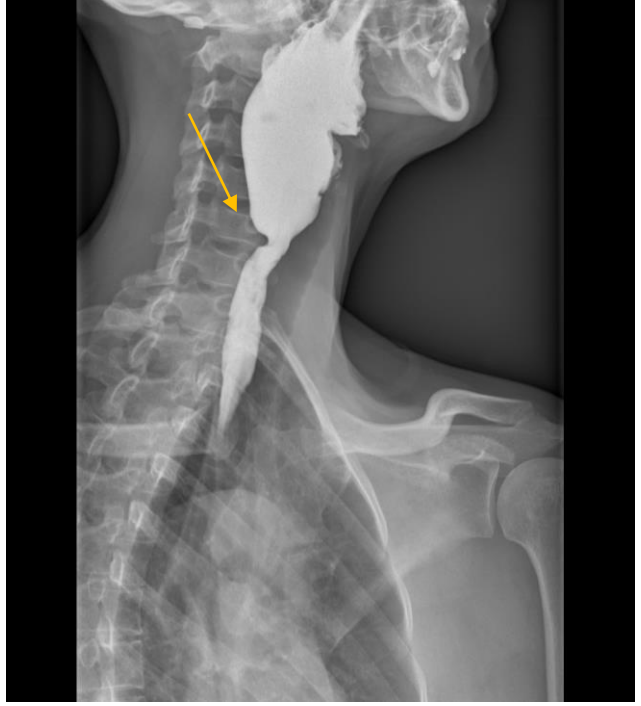
PROXIMAL

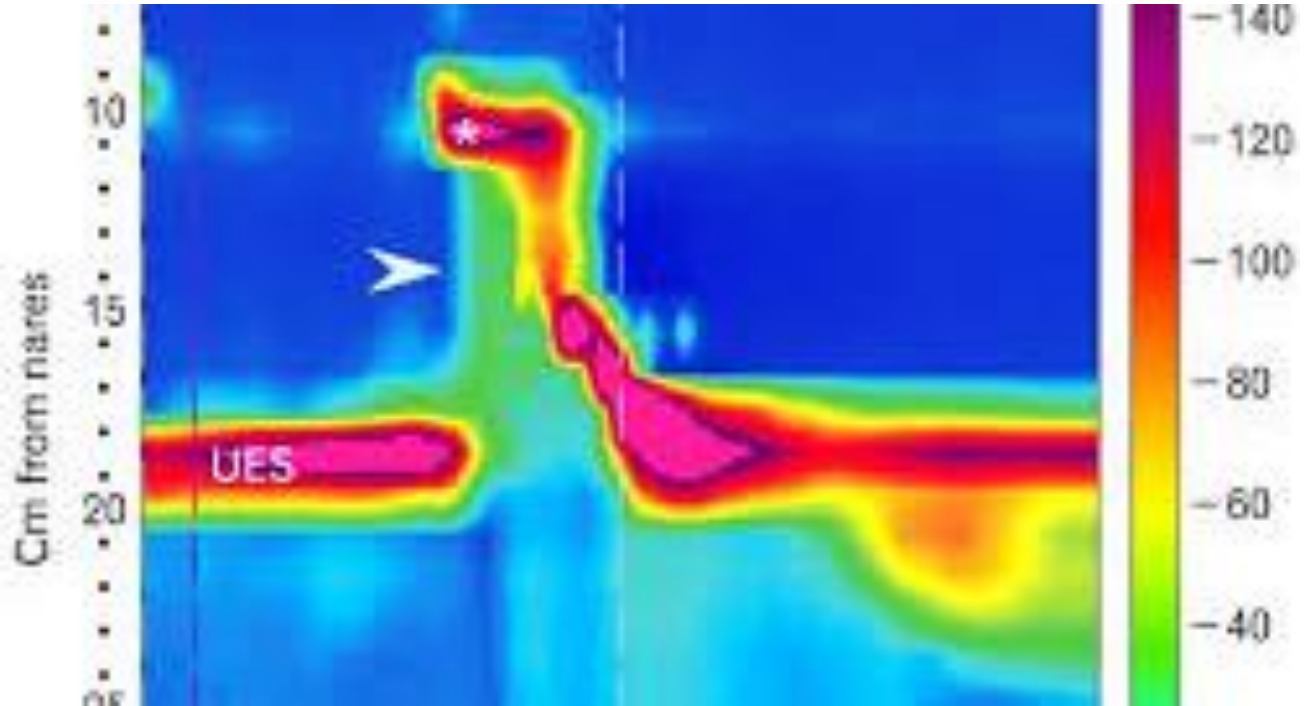
MID

DISTAL









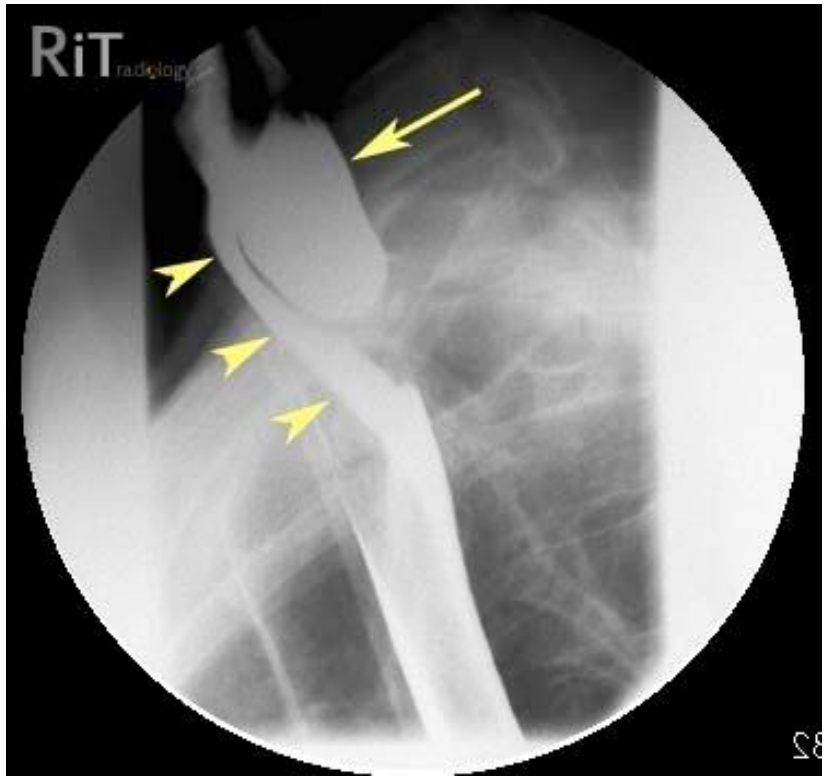
- **The patient points to the very proximal part of the oesophagus,when complaining of difficulty in swallowing**

- **What do you think this could be?**

- **Crico-Pharyngeal Bar**
- **Or also called?**
- **What symptoms do the patients also complain of ?**

- **Choke or cough sensation on drinking water**
- **Crico-pharyngeal achalasia**

And this? Can also present with proximal oesophageal dysphagia
And what other symptom can the patient present with?



- **Zenker’s diverticulum**
- **Regurgitation of undigested food**

CASE I

- **Young Caucasian male presented with intermittent dysphagia**
- **What should you ask this patient**

If he has intermittent bolus obstruction of solid foods and had to be admitted to ER ?

Food allergies

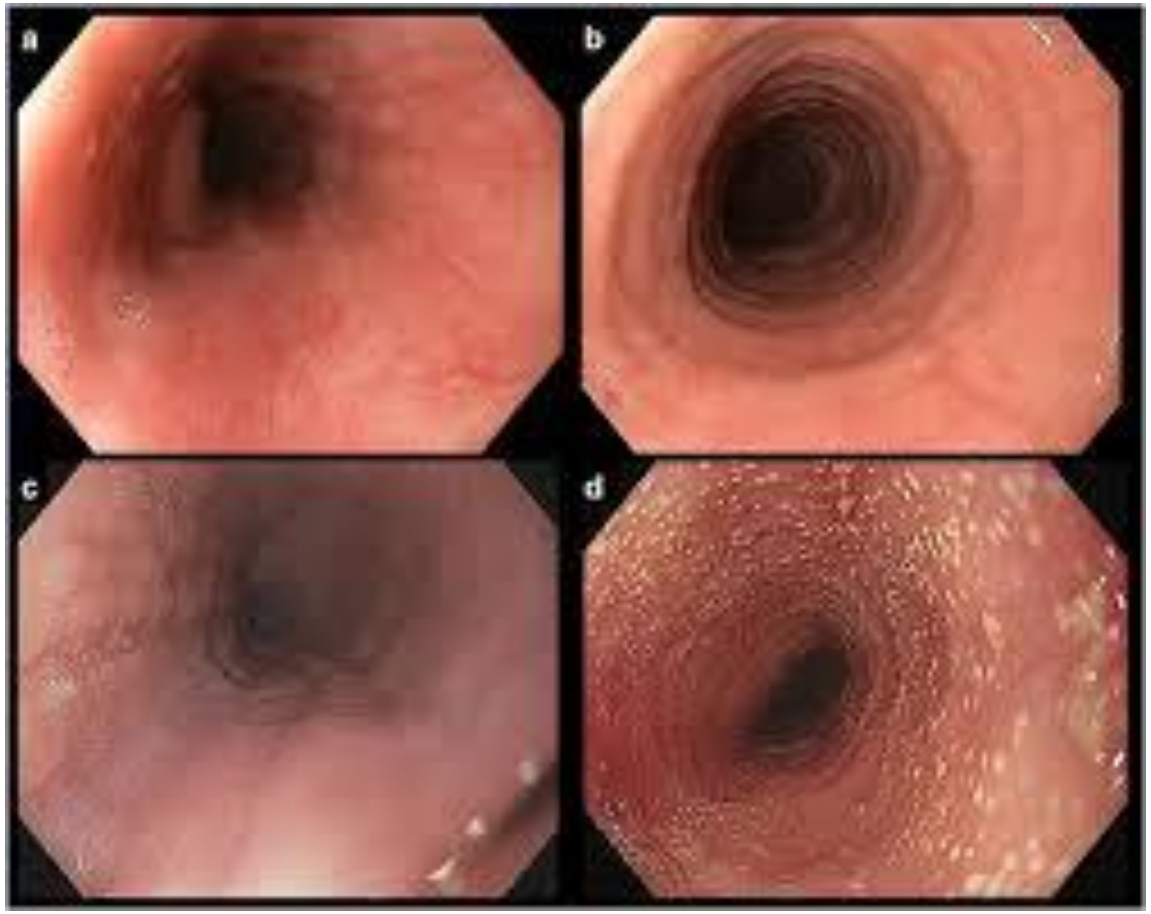
What condition are you thinking of ?

What would your next procedure be ?

- **EoE**
- **Upper Endoscopy**

ENDOSCOPY FINDINGS:

Describe them

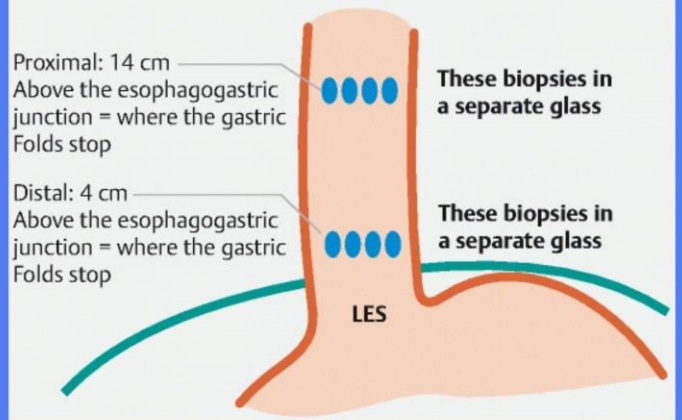


And if the upper gastroscopy findings were normal what should you do.

Always Take biopsies

Where and how many

Biopsy protocol for **all** patients with DYSPHAGIA **regardless** of a macroscopic normal mucosa.
REMEMBER 4 – 14 – 4
Take 4 biopsies 14 cm and 4 cm above the esophago-gastric junction.
15 % will have eosinophilic esophagitis regardless of other comorbidity.



This strategy is the result of the consensus meeting for the endoscopy leaders in the North Danish Region September 2011. For details see the regional guideline on eosinophilic esophagitis. Questions: _____ email: _____

image via https://www.thieme-connect.com/products/ejournals/html/10.1055/a-1206-0852

ENDOCOLLAB

Approach to treatment of EoE?

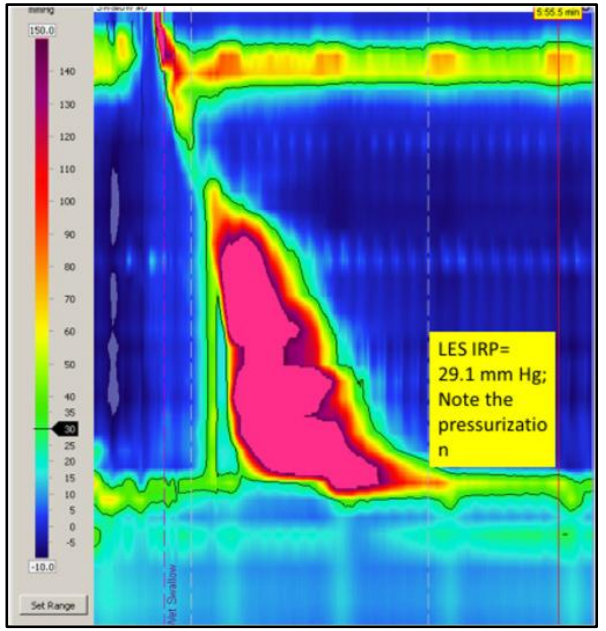
Budesonide slurry commenced (1mg/2ml Budesonide nebule mixed with sweetener twice daily)

Budesonide and fluticasone as inhaler or in viscous substance like honey

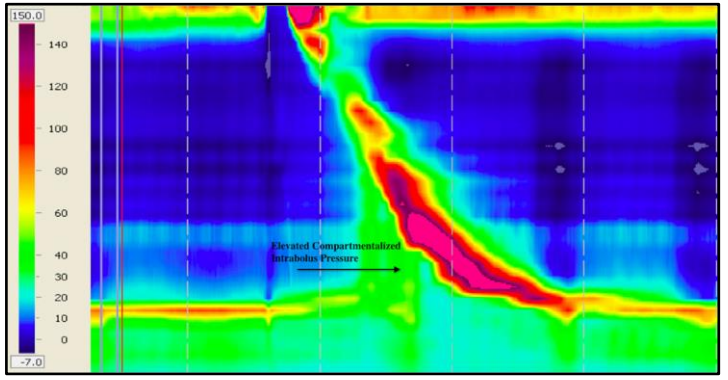
What Stages of EoE can one find?

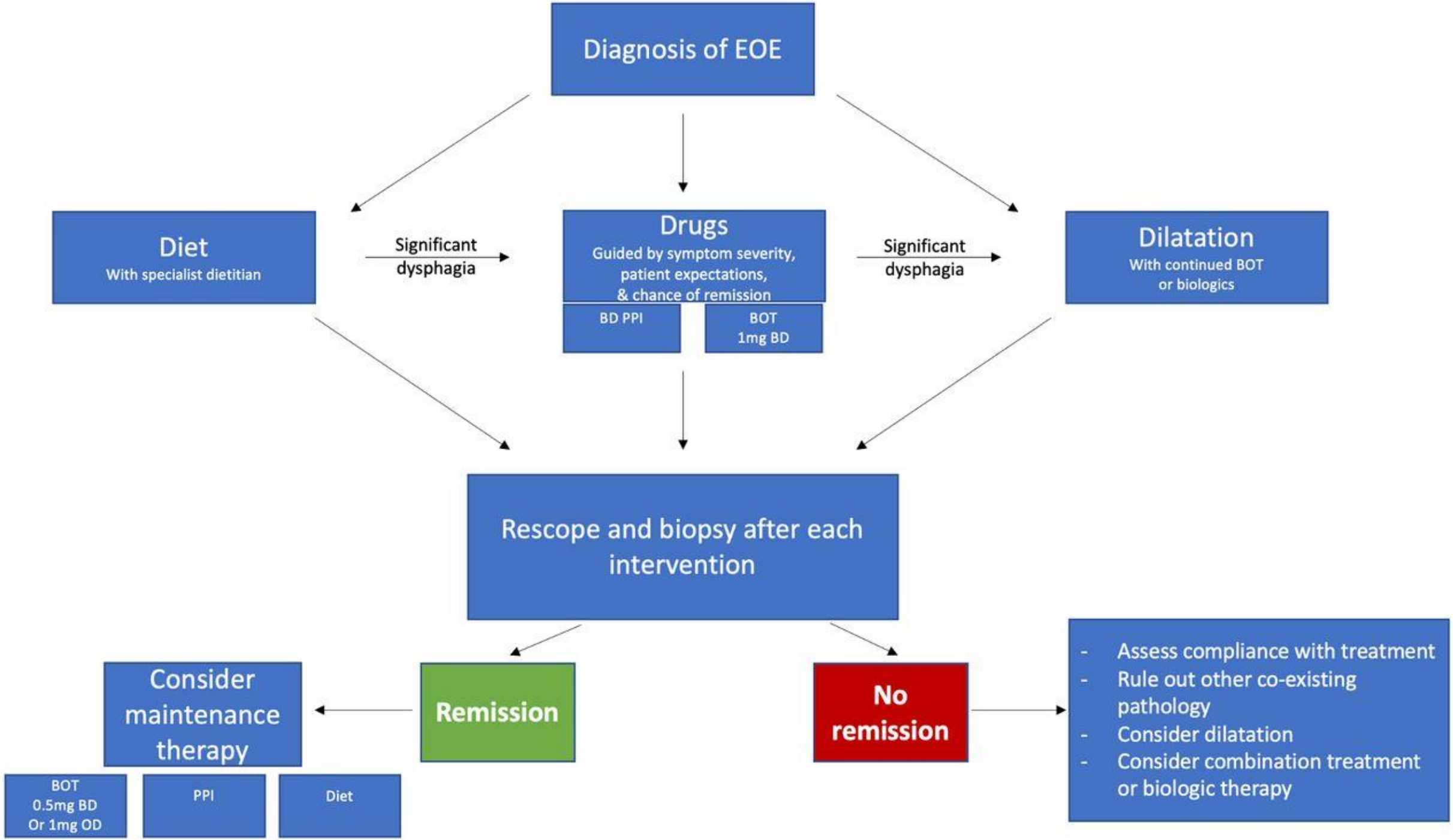
What could be found on HRM

EoE with inflammation can present as an OGJOO



EoE with fibrosis can present with Compartmentalized pressurization

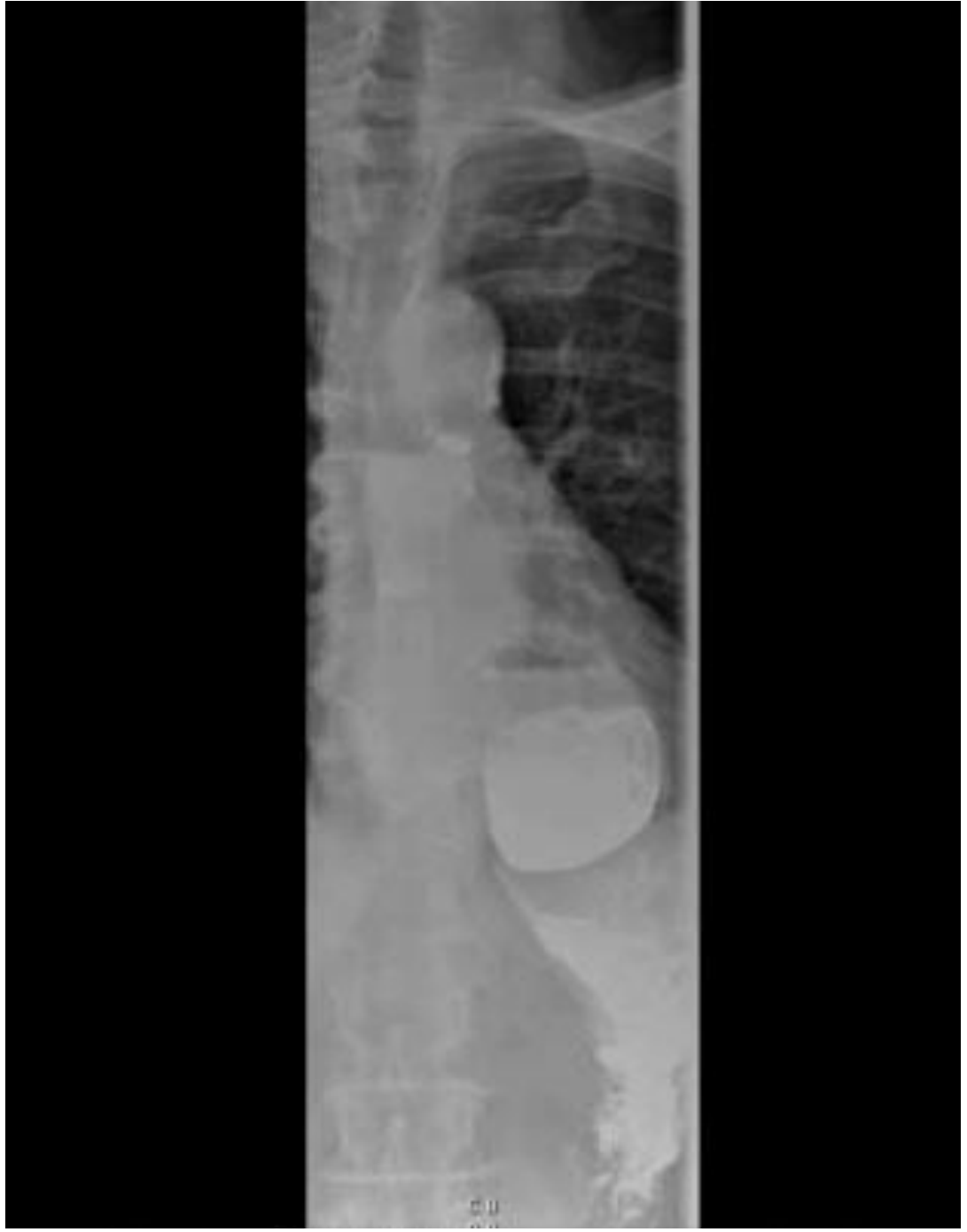



Diagnosis of EOE
Diet
With specialist dietitian
Significant dysphagia
Drugs
Guided by symptom severity, patient expectations, & chance of remission
BD PPI
BOT 1mg BD
Significant dysphagia
Dilatation
With continued BOT or biologics
Rescope and biopsy after each intervention
Consider maintenance therapy
BOT 0.5mg BD Or 1mg OD
PPI
Diet
Remission
No remission
- Assess compliance with treatment
- Rule out other co-existing pathology
- Consider dilatation
- Consider combination treatment or biologic therapy

CASE 1

- 60-year-old lady with 18-month history of dysphagia that has got progressively worse
- Experience heartburn
- Dysphagia with each meal
- Regurgitation to solids with each meal
- No chest pain
- ++ Weight loss >5kg

Gastroscopy finding: Distal Oesophageal Diverticula




ID:
Name:
Sex: Age:
D.O.B.:
19/05/2022
09:01:45
■■■/---(0/1)
Eh:A1 Cm:1
Comment:

What types of oesophageal diverticula does one find ?

- **Pulsion diverticulum**
- **Traction Diverticulum**

What is associated with a pulsion diverticula ?

And what is the cause of a traction diverticula ?

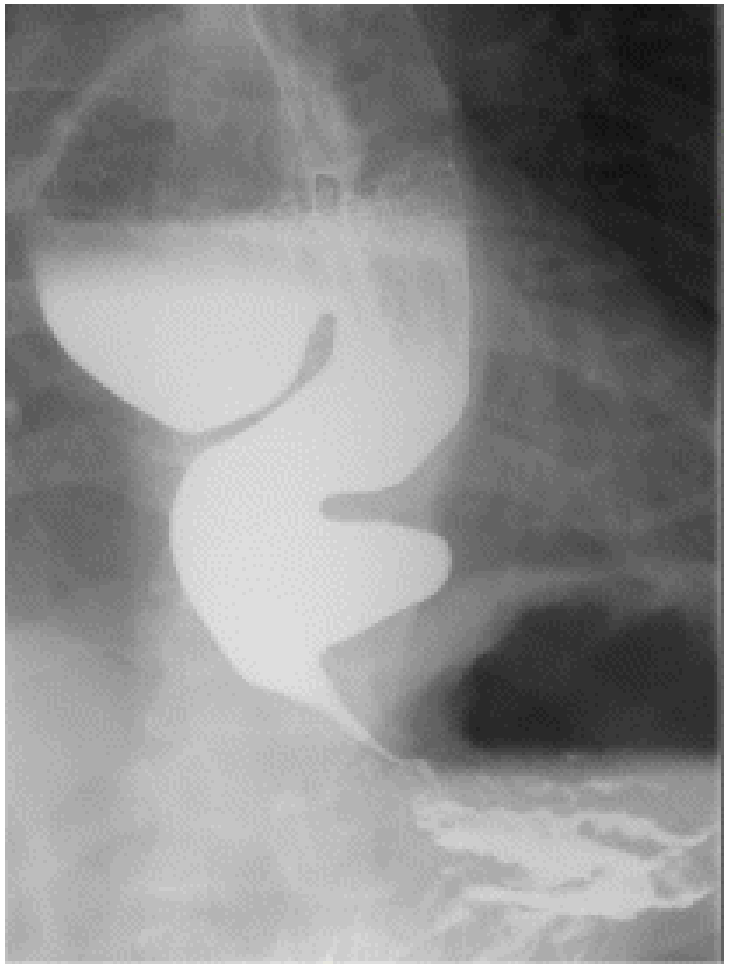
Looking at the Ba-swallow: What do you expect to find with such a history accept the diverticula ??

What do you expect to find with HRM?

- **Motility Disorder**
- **TB**
- **Achalasia**

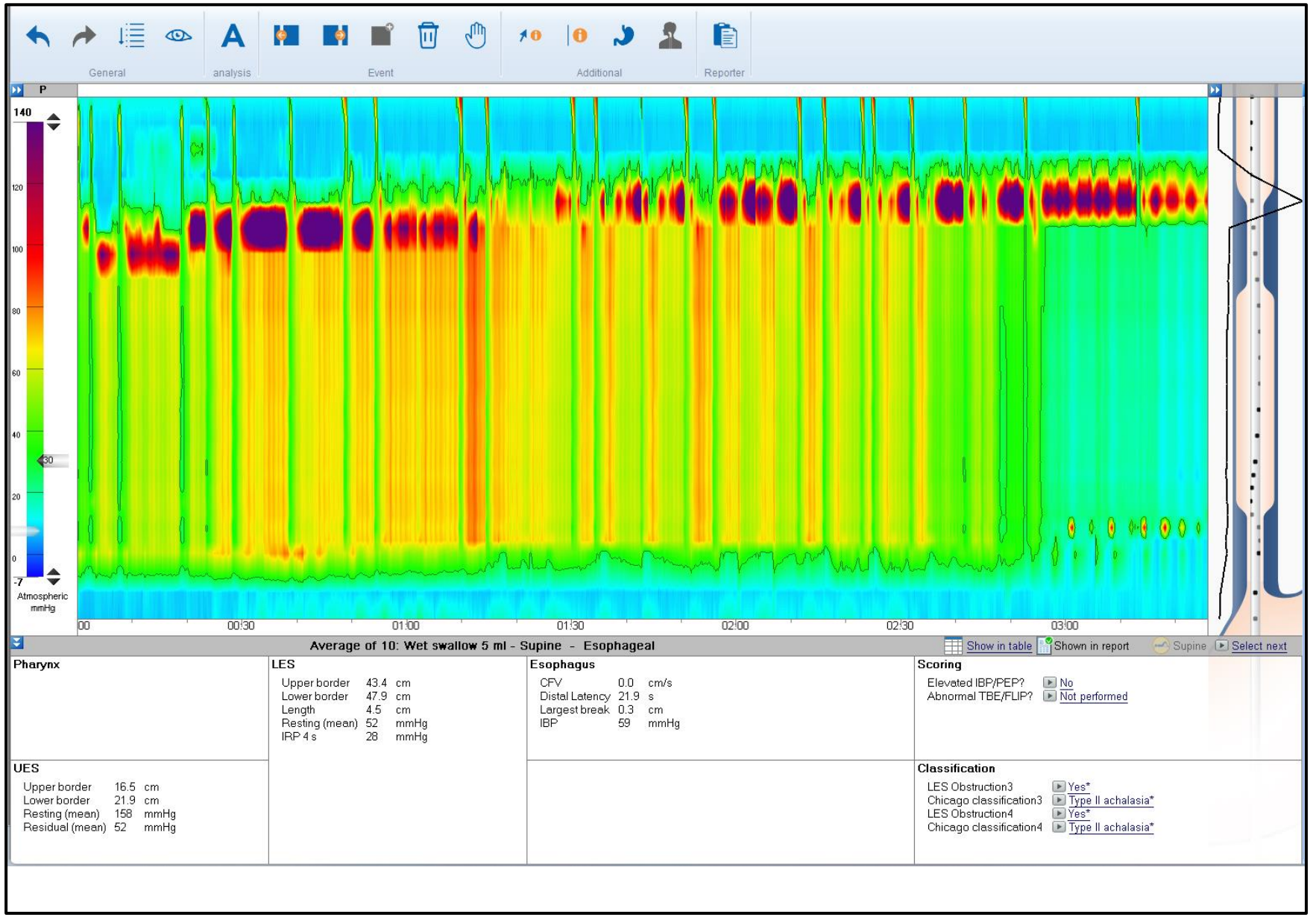
Dilated Oesophagus

Distal Bird Beaked OGJ

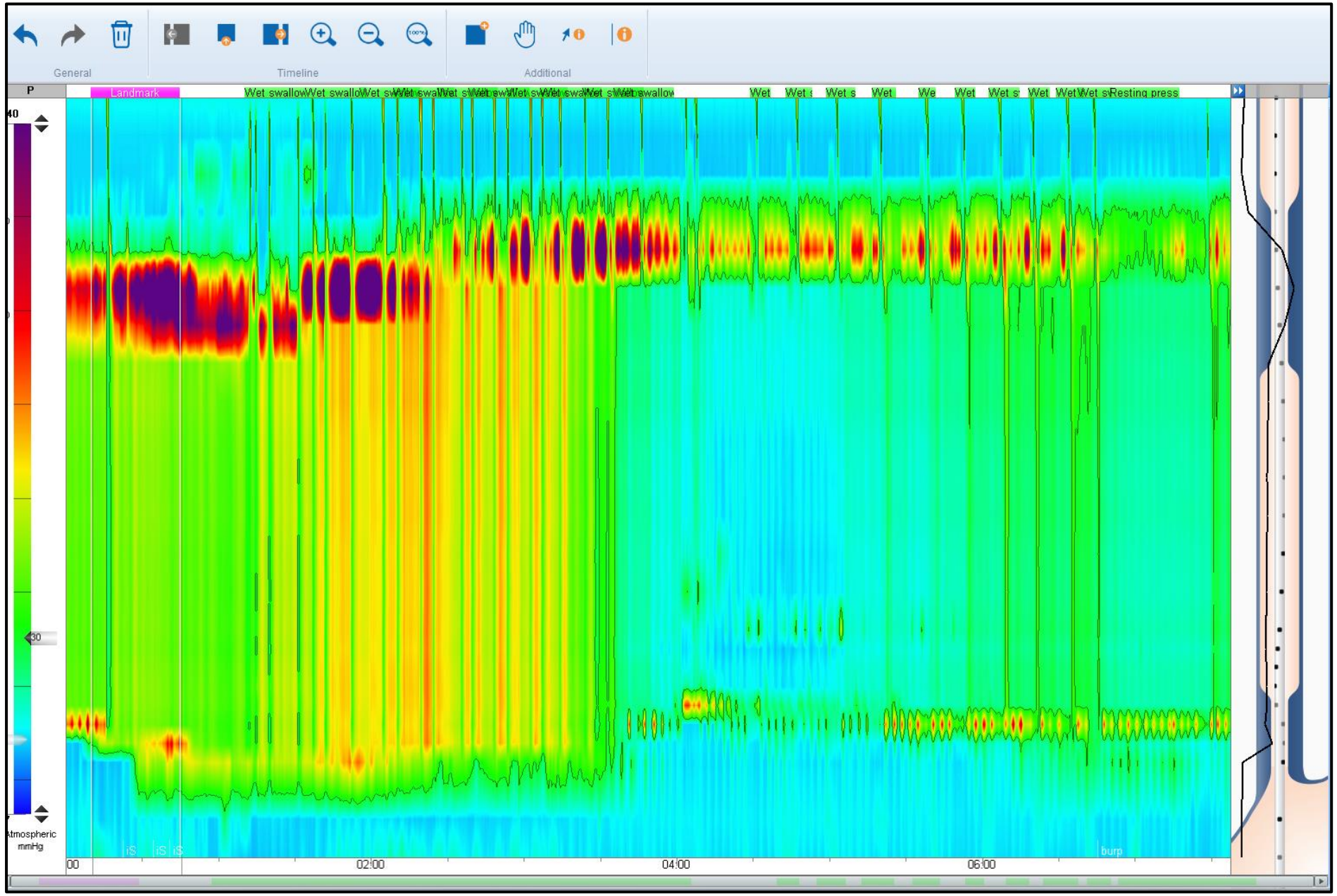


What Type of achalasia

What is strange, looking at the study?



Here it is more pronounced

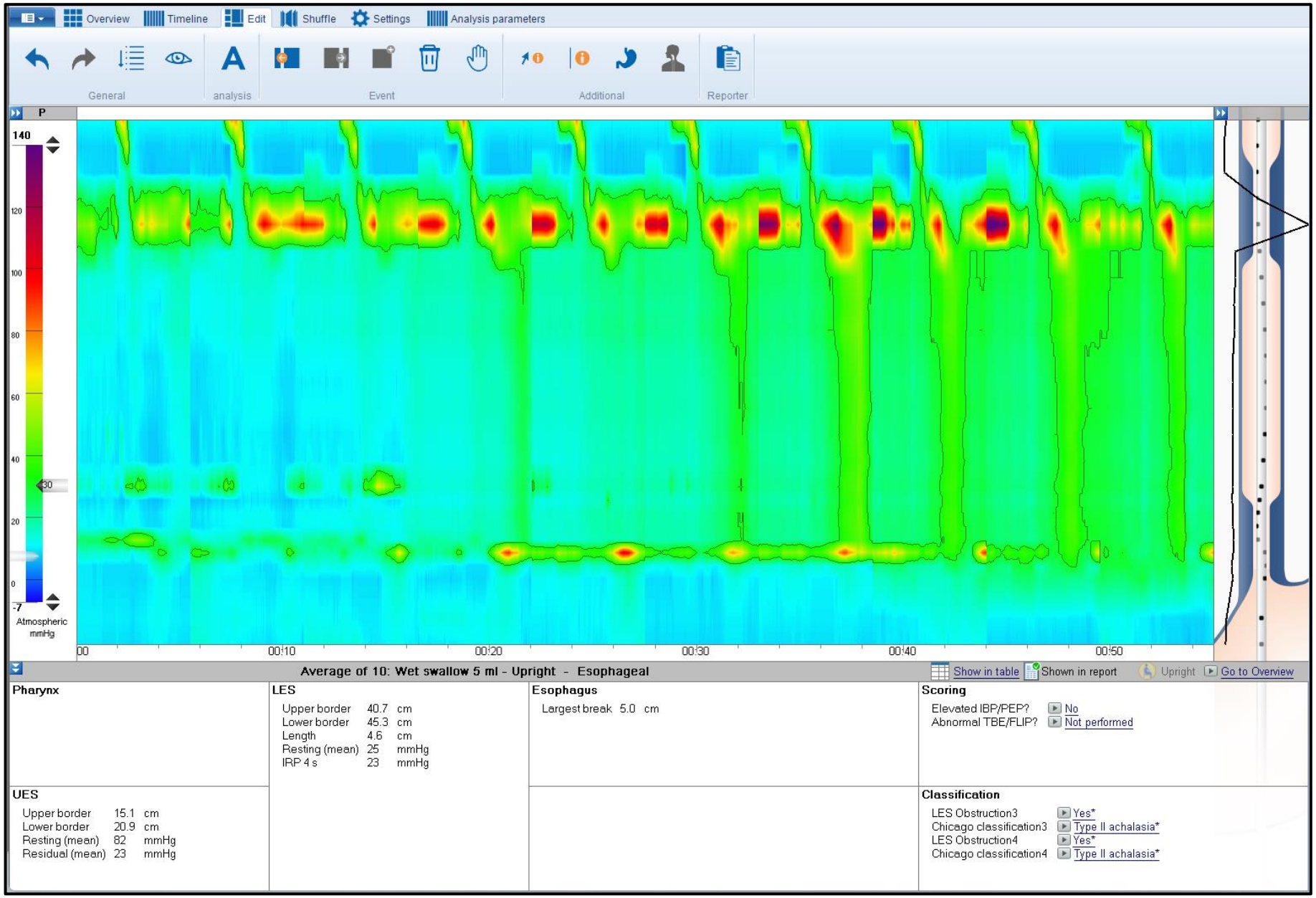


- **Image of Achalasia Type II**

also called Achalasia with compression

- **Very high PEP and then the pressure drops**

Explanation for this ?


Overview
Timeline
Edit
Shuffle
Settings
Analysis parameters
General
analysis
Event
Additional
Reporter
P
140
120
100
80
60
40
30
20
0
-7
Atmospheric mmHg
00
00:10
00:20
00:30
00:40
00:50
Average of 10: Wet swallow 5 ml - Upright - Esophageal
Show in table
Shown in report
Upright
Go to Overview
Pharynx
LES
Upper border 40.7 cm
Lower border 45.3 cm
Length 4.6 cm
Resting (mean) 25 mmHg
IRP 4 s 23 mmHg
Esophagus
Largest break 5.0 cm
Scoring
Elevated IBP/PEP? No
Abnormal TBE/FLIP? Not performed
UES
Upper border 15.1 cm
Lower border 20.9 cm
Resting (mean) 82 mmHg
Residual (mean) 23 mmHg
Classification
LES Obstruction3 Yes*
Chicago classification3 Type II achalasia*
LES Obstruction4 Yes*
Chicago classification4 Type II achalasia*

Oesophagus emptied due to a tLOSR

The patient did not vomit

How would you manage such a patient ?

- **Pneumatic Dilitation**
- **Heller’s Miotomy**
- **POEM**

CASE 2

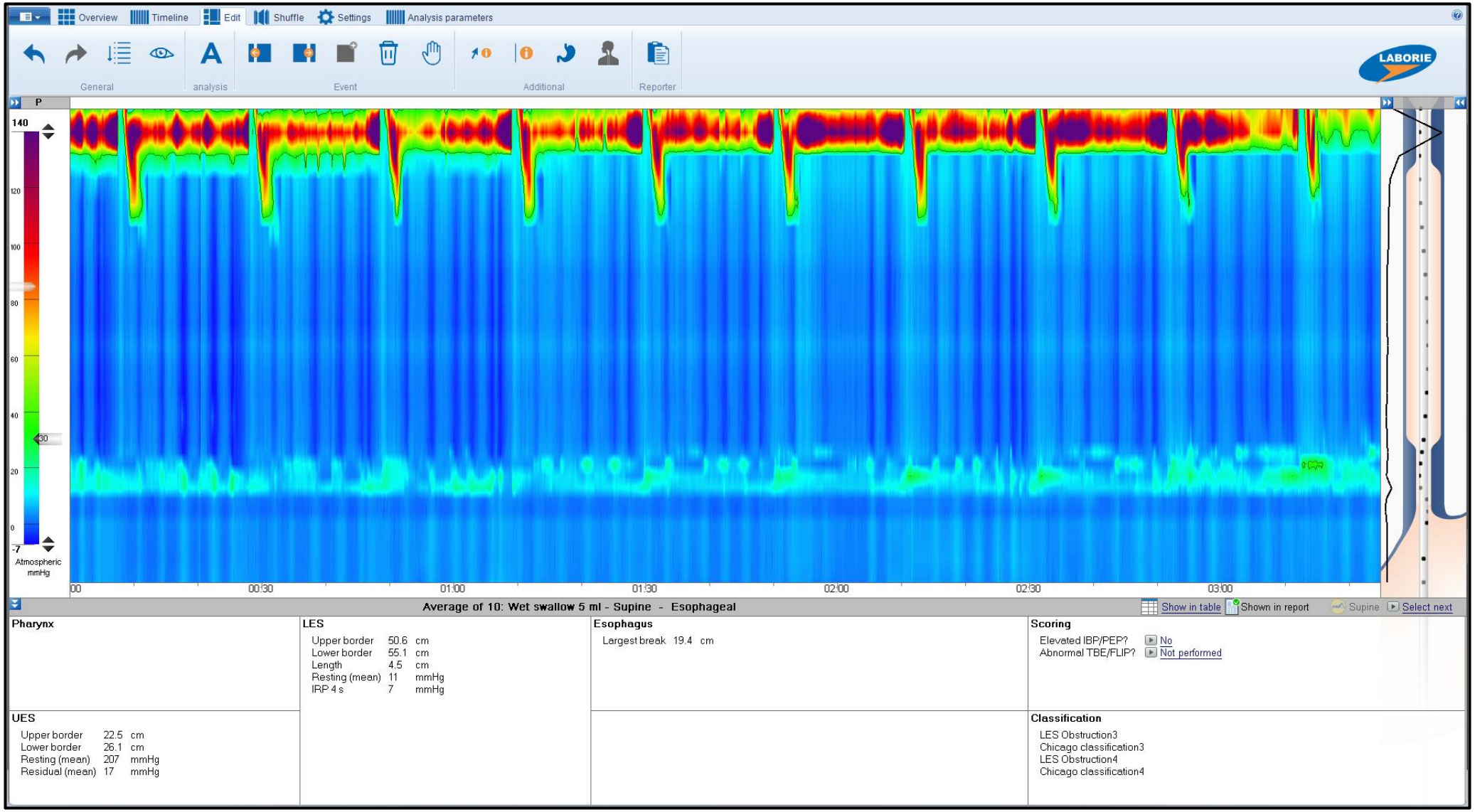
- 57-year-old gentleman changed his diet 2 years ago due to the worry of developing DM
- Dropped his weight from 105kg to 80 kg

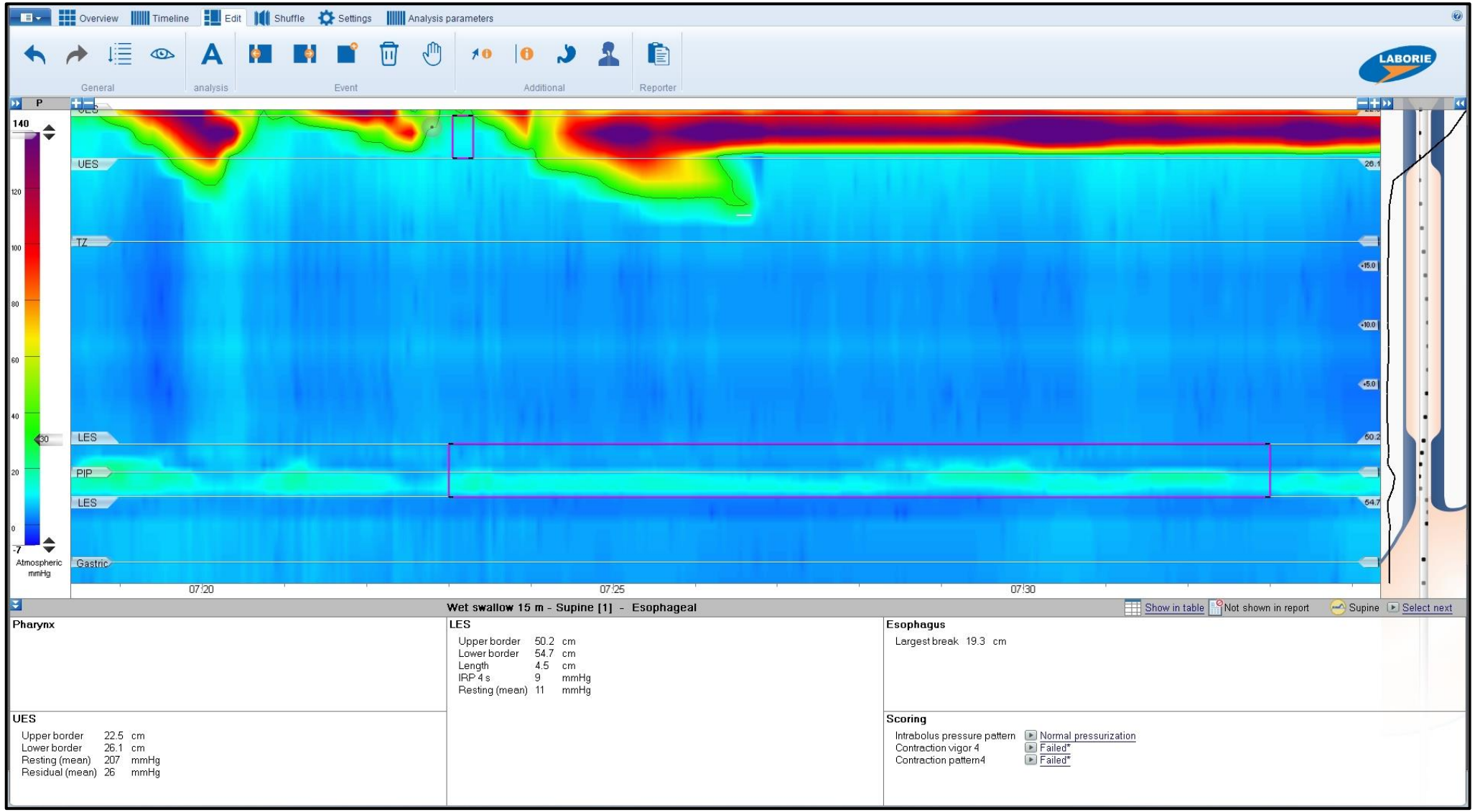
- For the past year despite losing weight, he developed severe heartburn and regurgitation

Gastroscopy findings:

- **LA A and a small HH and was prescribed Omez 40mg per day**
- **Heartburn was much improved but not the regurgitation**

What disorder?




Overview
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analysis
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Additional
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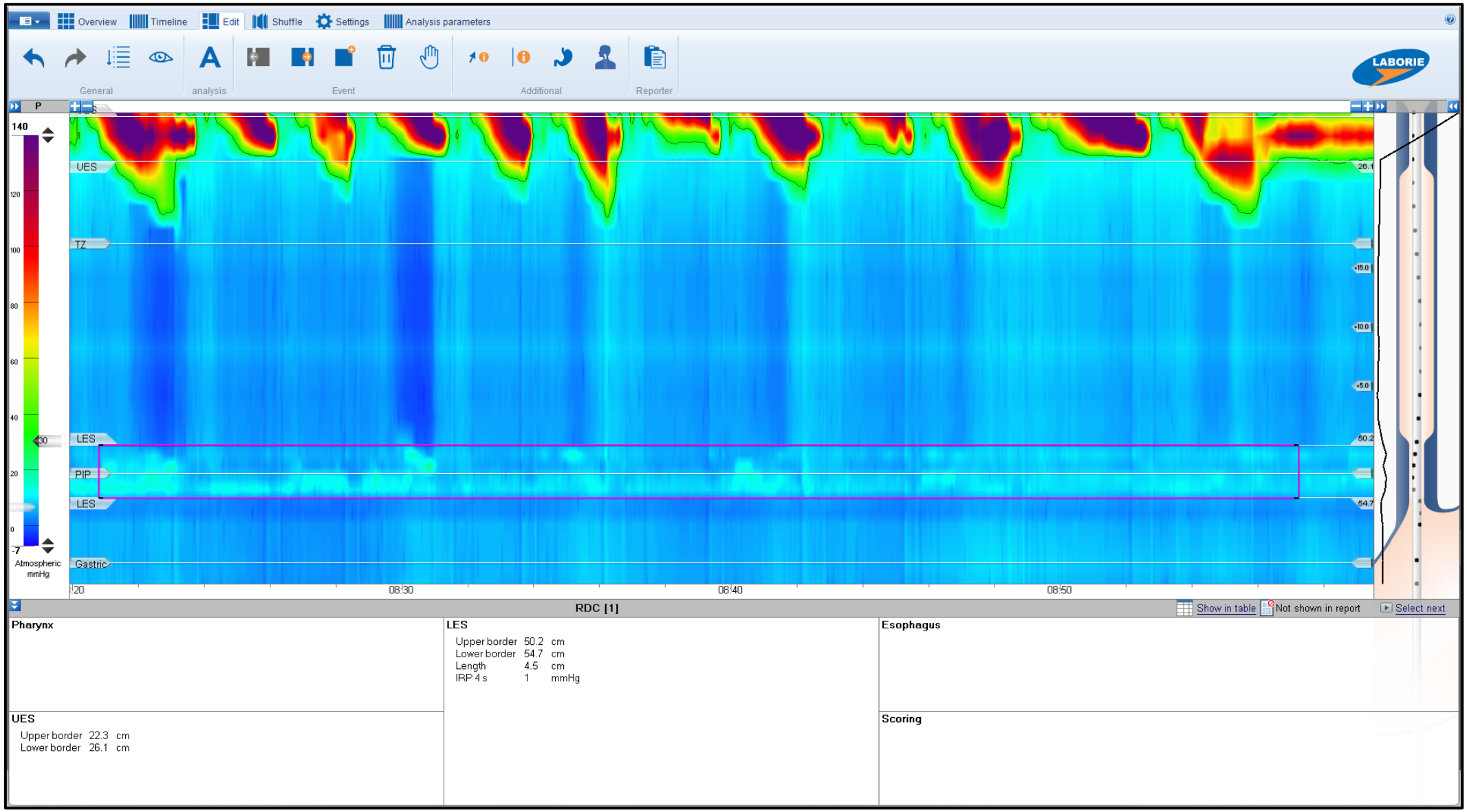
30
20
0
-7
Atmospheric mmHg
UES
TZ
LES
PIP
LES
Gastric
26.1
+15.0
+10.0
+5.0
50.2
54.7
07:20
07:25
07:30
Wet swallow 15 ml - Supine [1] - Esophageal
Show in table
Not shown in report
Supine
Select next
Pharynx
LES
Upper border 50.2 cm
Lower border 54.7 cm
Length 4.5 cm
IRP 4 s 9 mmHg
Resting (mean) 11 mmHg
Esophagus
Largest break 19.3 cm
UES
Upper border 22.5 cm
Lower border 26.1 cm
Resting (mean) 207 mmHg
Residual (mean) 26 mmHg
Scoring
Intrabolus pressure pattern Normal pressurization
Contraction vigor 4 Failed*
Contraction pattern4 Failed*


Overview
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Analysis parameters
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analysis
Event
Additional
Reporter
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30
20
0
-7
Atmospheric
mmHg
UES
TZ
LES
PIP
LES
Gastric
26.1
+15.0
+10.0
+5.0
50.2
54.7
08:20
08:30
08:40
08:50
RDC [1]
Show in table
Not shown in report
Select next
Pharynx
LES
Upper border 50.2 cm
Lower border 54.7 cm
Length 4.5 cm
IRP 4 s 1 mmHg
Esophagus
UES
Upper border 22.3 cm
Lower border 26.1 cm
Scoring

Absent Contractility
(Dysfunction of Peristalsis

Why is it not Achalasia Type I

Can one get achalasia with normal IRP?

What systemic illness must one exclude

- **IRP is to low (unless it is a treated achalasia Type I)**
- **Yes , but IRP will be at the upper range of normal with classic symptoms**
- **Connective tissue disease eg scleroderma**

How would you treat such a patient ?

Would be conservative and treat with PPI

Why not a fundoplication ?

- **Because of absent contractility and poor peristaltic reserve**

- **What do you look at in HRM to assess the peristaltic reserve**

- **MRS**
- **RDC clearance contraction**
- **Solid swallows**

What is the dysphagia Score?

Can predict late oncome post – fundoplication dyspahagia

If the score is <1

MRS DCI /Mean DCI of the 10 swallows of water

CASE 3

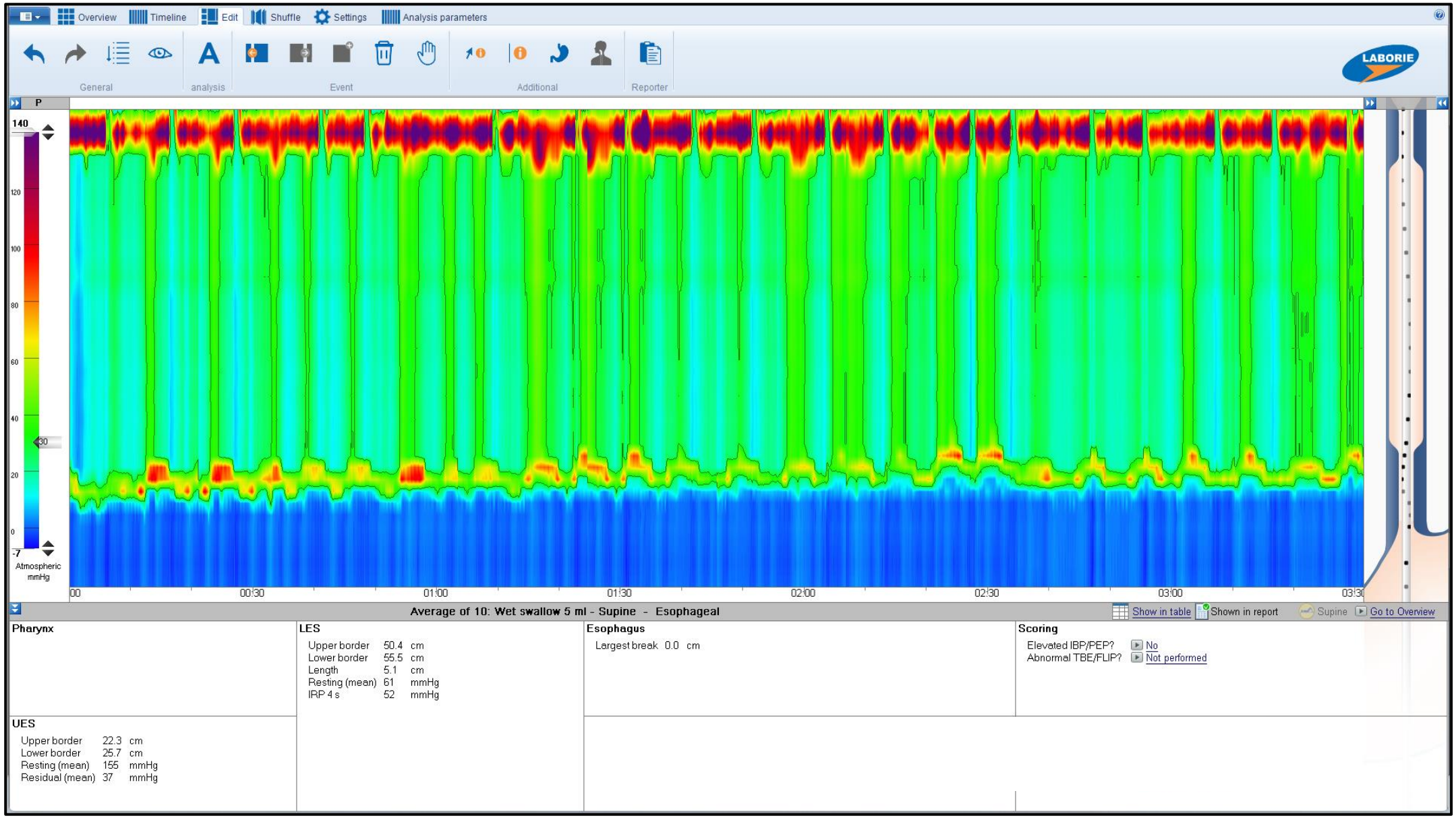
- 22-year-old male student developed regurgitation when eating fruit at the end of 2022
- Became progressively worse and now he experiences regurgitation with each meal and in between meals he vomits foamy mucous but not acidic
- Burp when he eats
- Occasional chest pain
- Slight dysphagia per occasion

- Weight loss of 4 kg (currently 61cm)

- No heartburn
- No other co-morbidities

What could this be on the history alone ?

- Achalasia or EoE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Analysis parameters
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Reporter
LABORIE
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60
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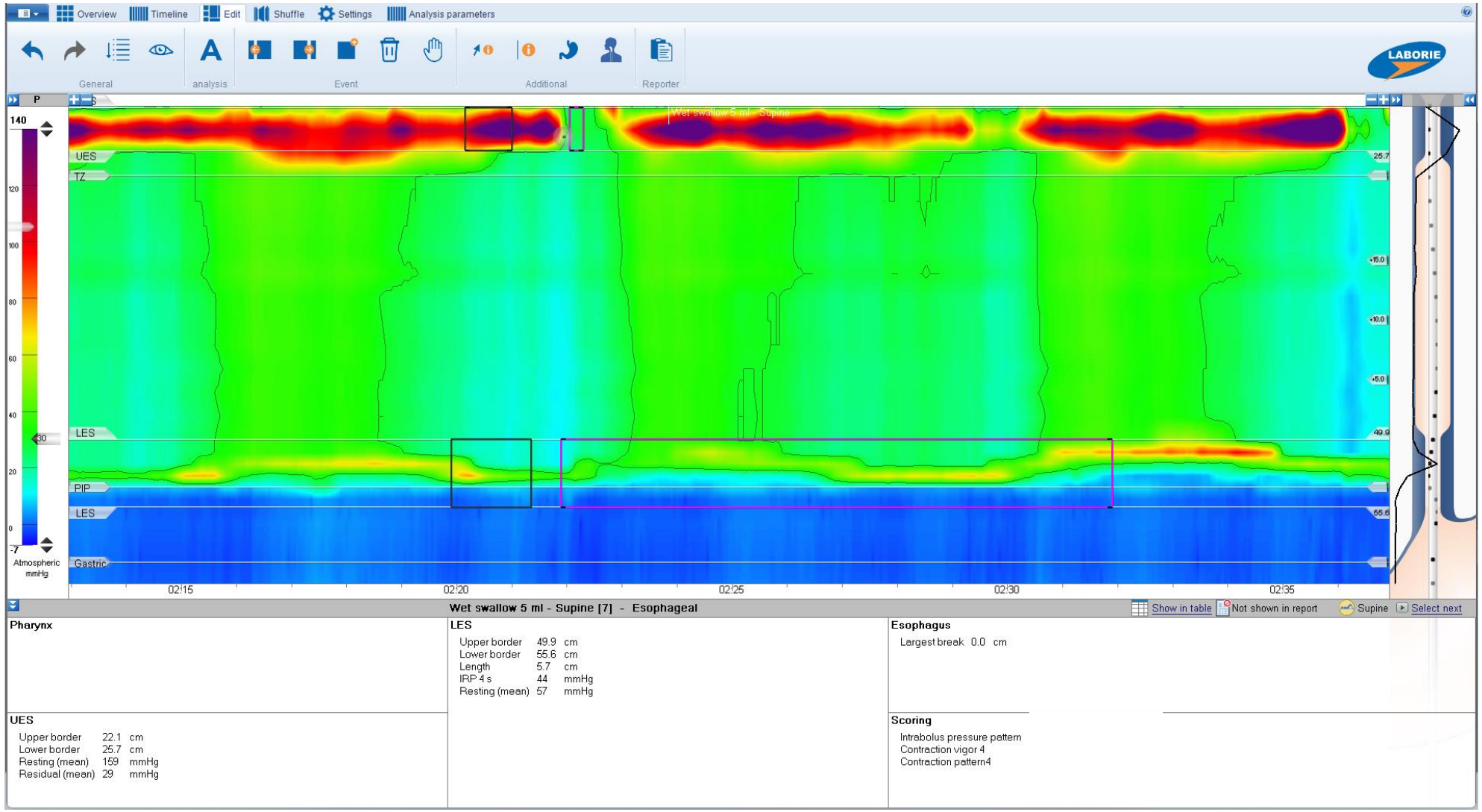
0
-7
Atmospheric mmHg
00
00:30
01:00
01:30
02:00
02:30
03:00
03:30
Average of 10: Wet swallow 5 ml - Supine - Esophageal
Show in table
Shown in report
Supine
Go to Overview
Pharynx
LES
Upper border 50.4 cm
Lower border 55.5 cm
Length 5.1 cm
Resting (mean) 61 mmHg
IRP 4 s 52 mmHg
Esophagus
Largest break 0.0 cm
Scoring
Elevated IBP/PEP? No
Abnormal TBE/FLIP? Not performed
UES
Upper border 22.3 cm
Lower border 25.7 cm
Resting (mean) 155 mmHg
Residual (mean) 37 mmHg


Overview
Timeline
Edit
Shuffle
Settings
Analysis parameters
General
analysis
Event
Additional
Reporter
LABORIE
Wet swallow 5 ml - Supine
UES
TZ
LES
PIP
LES
Gastric
140
120
100
80
60
40
30
20
0
-7
Atmospheric mmHg
02:15
02:20
02:25
02:30
02:35
Wet swallow 5 ml - Supine [7] - Esophageal
Show in table
Not shown in report
Supine
Select next
Pharynx
LES
Upper border 49.9 cm
Lower border 55.6 cm
Length 5.7 cm
IRP 4 s 44 mmHg
Resting (mean) 57 mmHg
Esophagus
Largest break 0.0 cm
UES
Upper border 22.1 cm
Lower border 25.7 cm
Resting (mean) 159 mmHg
Residual (mean) 29 mmHg
Scoring
Intrabolus pressure pattern
Contraction vigor 4
Contraction pattern4

Type II Achalasia /Achalasia with compression

Why?

Increased IRP

>20% of pan-esophageal pressurizations

Definition of PEP

Intra-bolus pressure that stretches from the UES down to the LOS Upper border

CASE 4

- 69-year-old lady with typical GERD symptoms

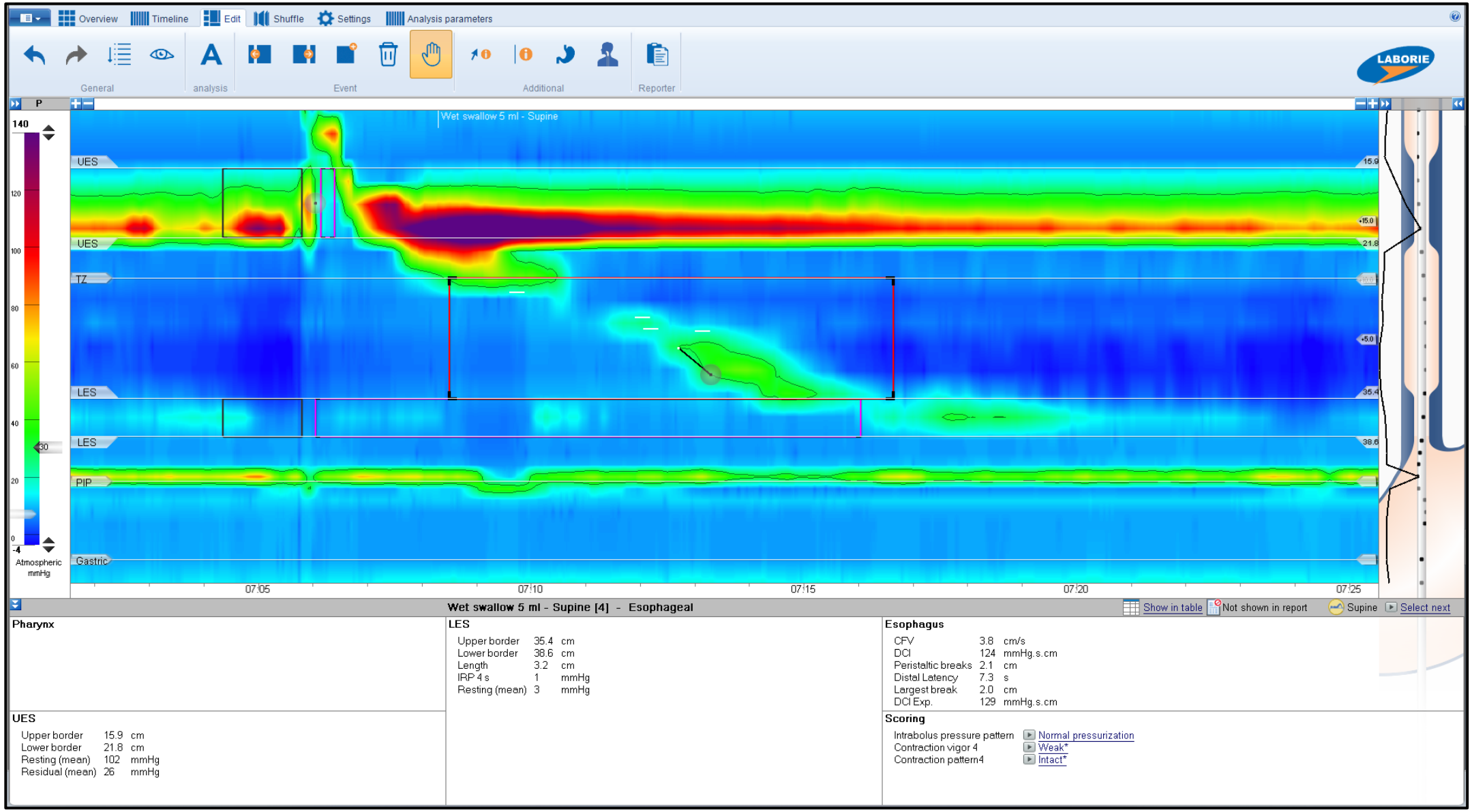
  What are the symptoms?

- Gastroscopy findings : Normal except for a hiatus hernia

- Ba-swallow confirmed the HH

With above findings what would you expect to find with HRM ?

Hypotensive LOSP , HH and IEM associated with GERD symptoms


Overview
Timeline
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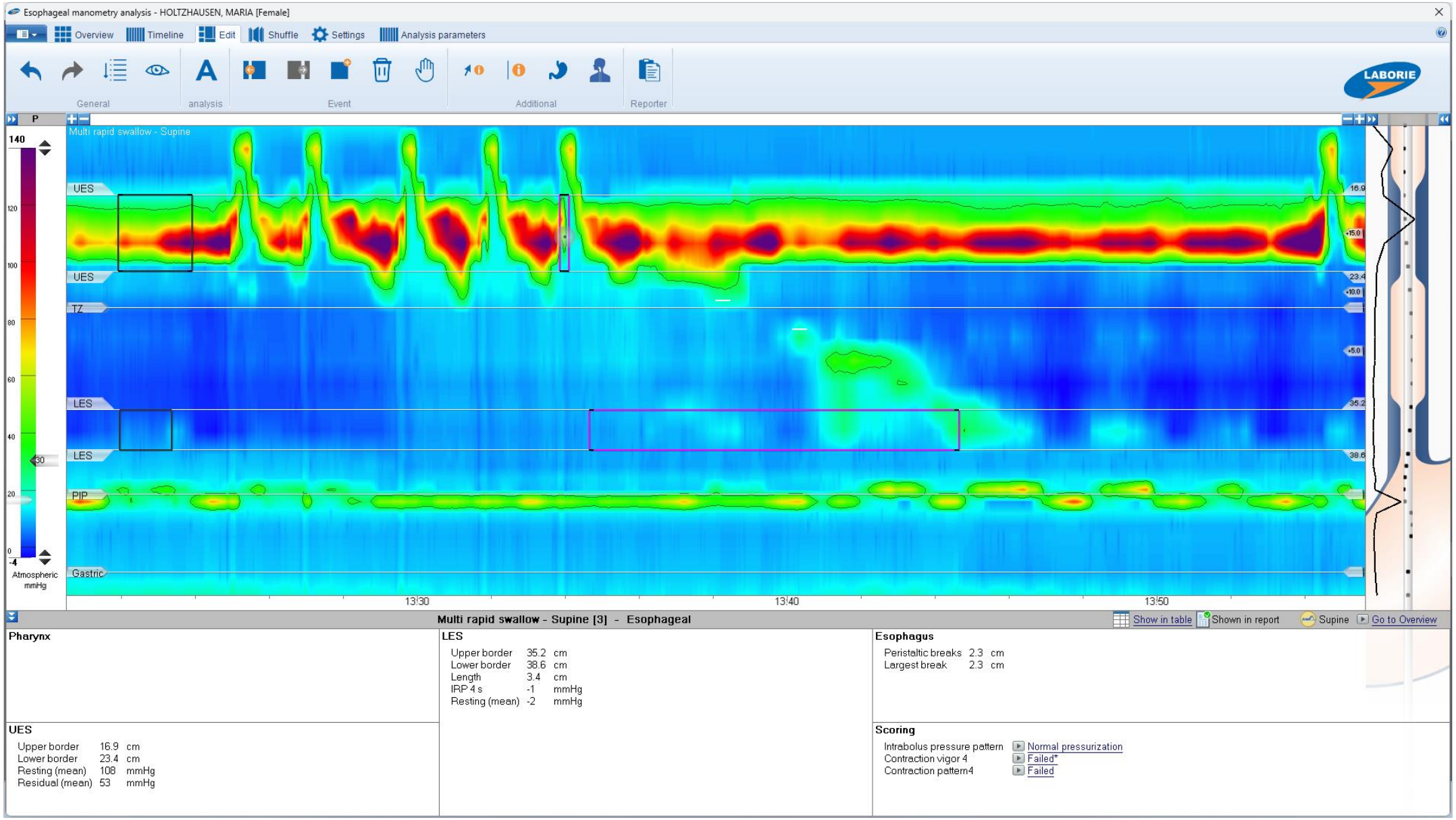
Shuffle
Settings
Analysis parameters
General
analysis
Event
Additional
Reporter
LABORIE
Wet swallow 5 ml - Supine
UES
UES
TZ
LES
LES
PIP
Gastric
140
120
100
80
60
40
30
20
0
-4
Atmospheric
mmHg
07:05
07:10
07:15
07:20
07:25
Wet swallow 5 ml - Supine [4] - Esophageal
Show in table
Not shown in report
Supine
Select next
Pharynx
LES
Upper border 35.4 cm
Lower border 38.6 cm
Length 3.2 cm
IRP 4 s 1 mmHg
Resting (mean) 3 mmHg
Esophagus
CFV 3.8 cm/s
DCI 124 mmHg.s.cm
Peristaltic breaks 2.1 cm
Distal Latency 7.3 s
Largest break 2.0 cm
DCI Exp. 129 mmHg.s.cm
UES
Upper border 15.9 cm
Lower border 21.8 cm
Resting (mean) 102 mmHg
Residual (mean) 26 mmHg
Scoring
Intrabolus pressure pattern Normal pressurization
Contraction vigor 4 Weak*
Contraction pattern4 Intact*

What else would you perform during HRM in this case and why ?

MRS


Esophageal manometry analysis - HOLTZHAUSEN, MARIA [Female]
Overview
Timeline
Edit
Shuffle
Settings
Analysis parameters
General
analysis
Event
Additional
Reporter
LABORIE
Multi rapid swallow - Supine
UES
UES
TZ
LES
LES
PIP
Gastric
Atmospheric mmHg
13:30
13:40
13:50
Multi rapid swallow - Supine [3] - Esophageal
Show in table
Shown in report
Supine
Go to Overview
Pharynx
LES
Upper border 35.2 cm
Lower border 38.6 cm
Length 3.4 cm
IRP 4 s -1 mmHg
Resting (mean) -2 mmHg
Esophagus
Peristaltic breaks 2.3 cm
Largest break 2.3 cm
UES
Upper border 16.9 cm
Lower border 23.4 cm
Resting (mean) 108 mmHg
Residual (mean) 53 mmHg
Scoring
Intrabolus pressure pattern Normal pressurization
Contraction vigor 4 Failed*
Contraction pattern4 Failed

To assess peristaltic reserve if a fundoplication is planned

What other provocative procedures could help with assessing peristaltic reserve ?

Upright position perform RDC and solid swallows and look at the clearance contraction

CASE 5

- 70-year-old gentleman presented with dysphagia for solids and fluids since 2017
- At the time he had a Ba-swallow that was said to be presby-oesophagus

- **Gastroscopy** demonstrated LA A oesophagitis and the OGJ-was tight and was reported as ? early achalasia and referred for HRM

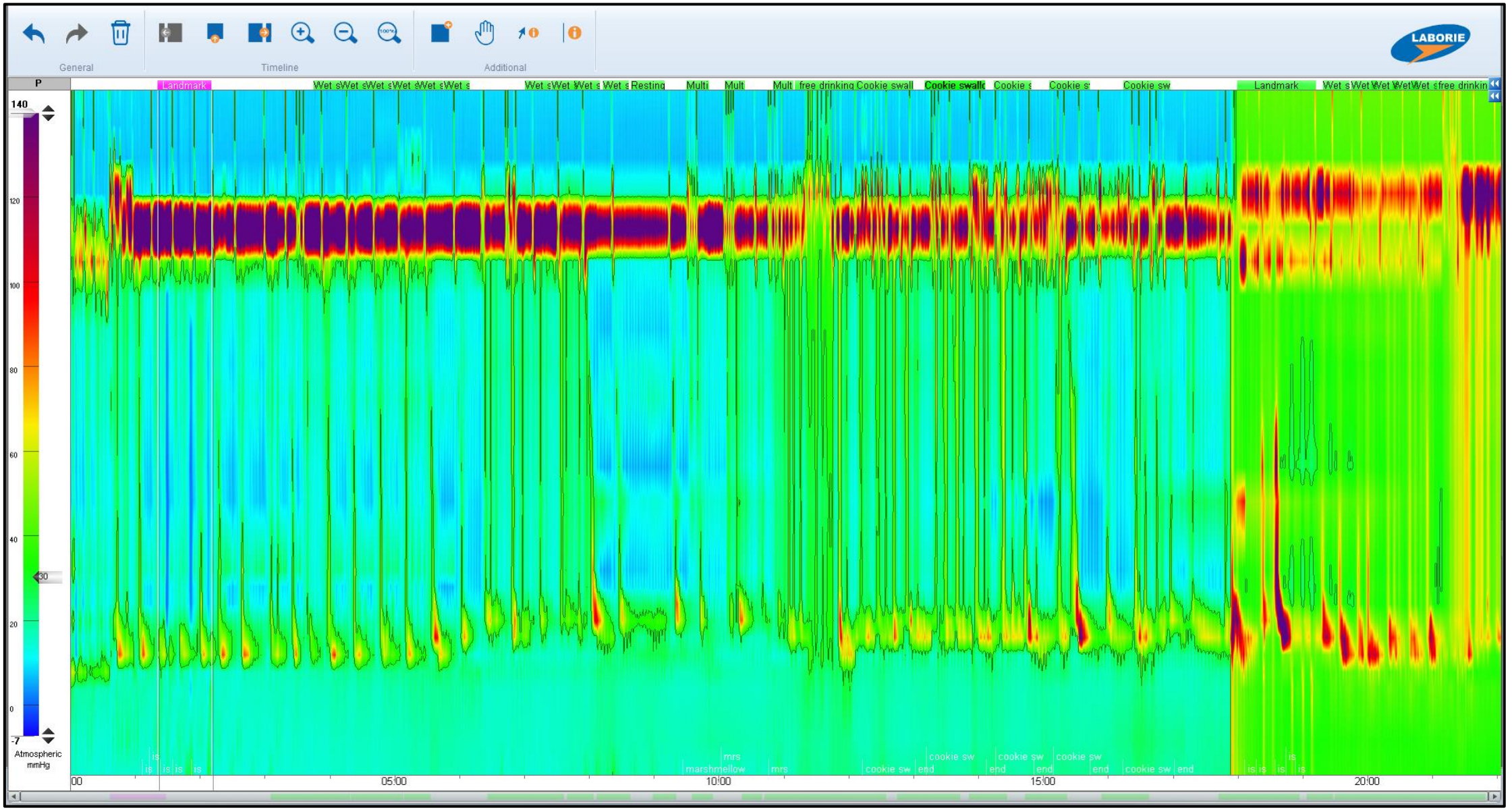
- **HRM Metrics** : IRP 28mmHg
  LOSP : 47 mmHg
  Motility : 5 Premature contractions and 5 ineffective contractions

  With the 5 ineffective contractions we could not call it as spastic achalasia

- **Ba-swallow** demonstrated hold up with tertiary contractions and a distal narrowing of the oesophagus

- Adco-zilden 180mg (Viagra)per day seemed to help for a short period of time
- PPI gave no relief

1st Study


General
Timeline
Additional
LABORIE
P
Landmark
Resting
Multi
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05:00
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15:00
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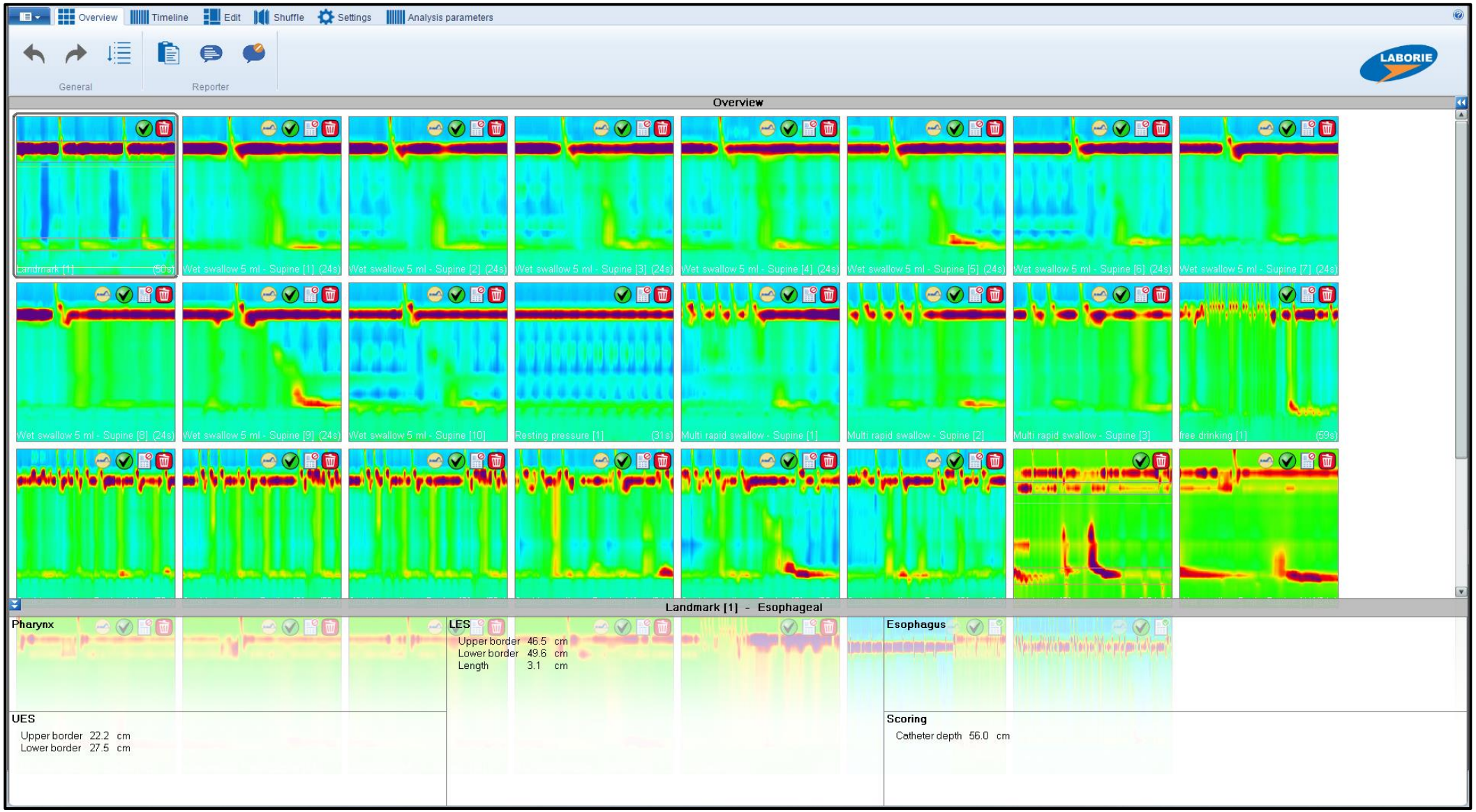
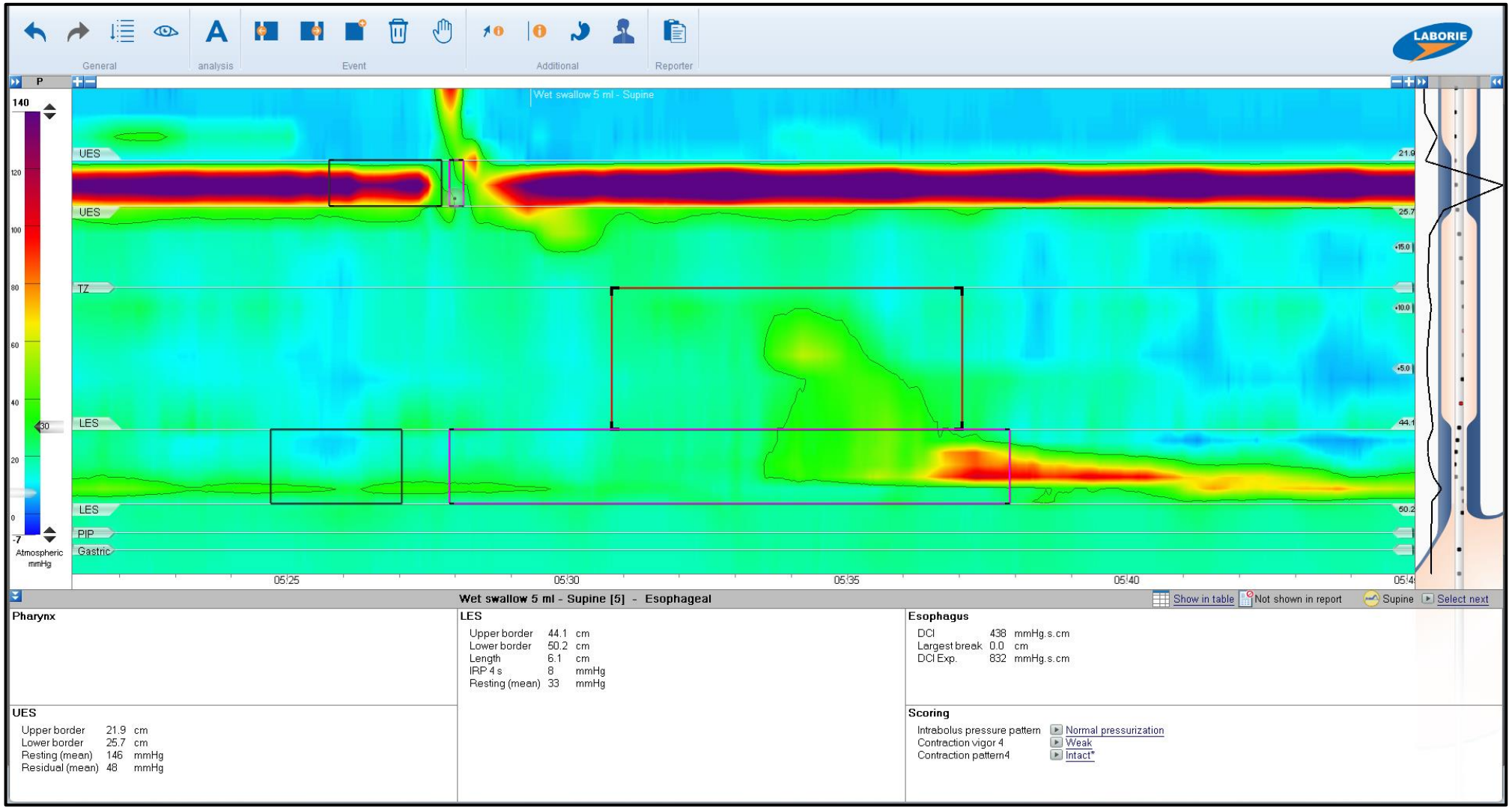
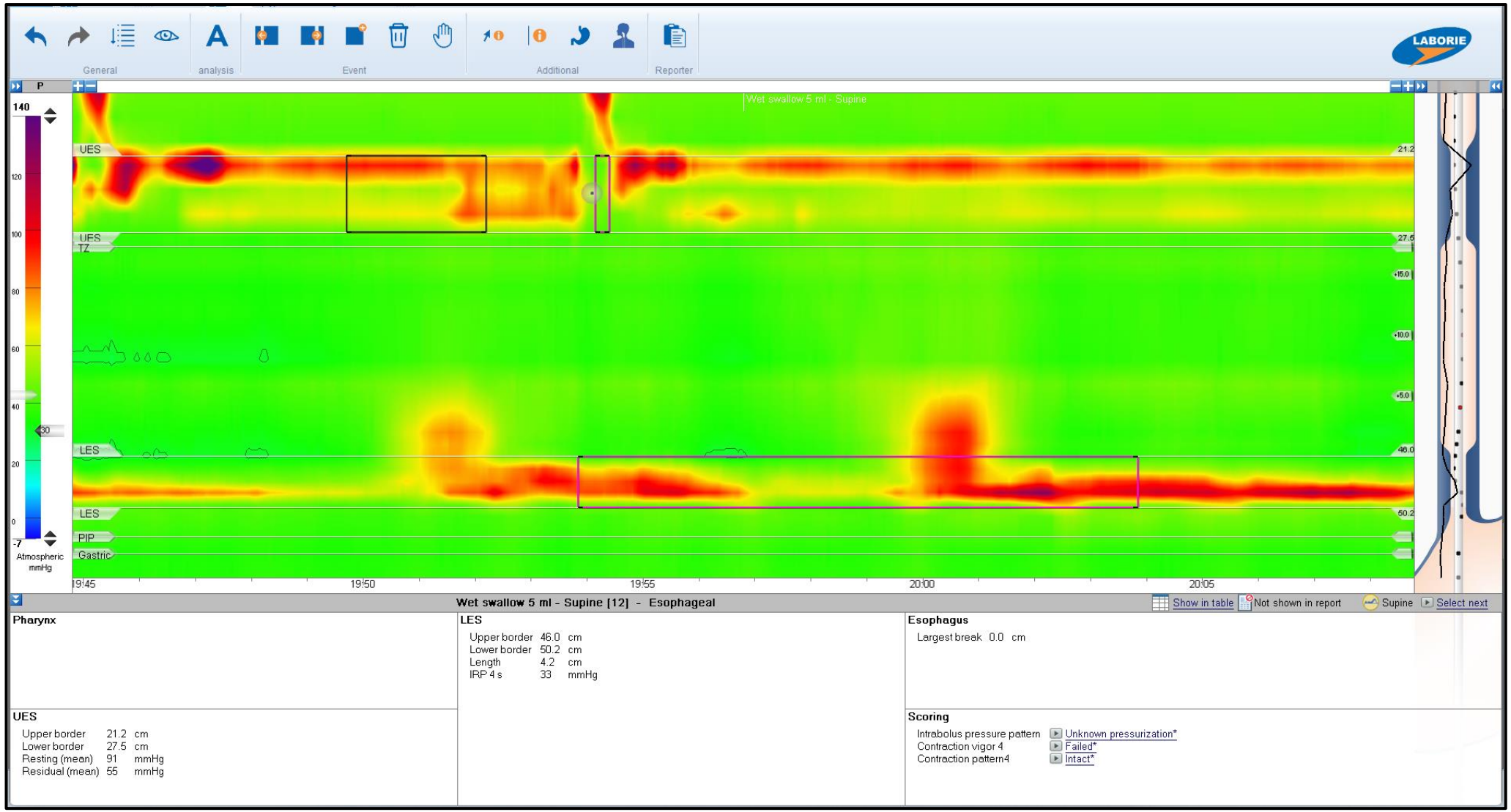

Overview
Timeline
Edit
Shuffle
Settings
Analysis parameters
General
Reporter
LABORIE
Overview
Landmark [1] (60s)
Wet swallow 5 ml - Supine [1] (24s)
Wet swallow 5 ml - Supine [2] (24s)
Wet swallow 5 ml - Supine [3] (24s)
Wet swallow 5 ml - Supine [4] (24s)
Wet swallow 5 ml - Supine [5] (24s)
Wet swallow 5 ml - Supine [6] (24s)
Wet swallow 5 ml - Supine [7] (24s)
Wet swallow 5 ml - Supine [8] (24s)
Wet swallow 5 ml - Supine [9] (24s)
Wet swallow 5 ml - Supine [10]
Resting pressure [1] (31s)
Multi rapid swallow - Supine [1]
Multi rapid swallow - Supine [2]
Multi rapid swallow - Supine [3]
free drinking [1] (59s)
Landmark [1] - Esophageal
Pharynx
LES
Upper border 46.5 cm
Lower border 49.6 cm
Length 3.1 cm
Esophagus
UES
Upper border 22.2 cm
Lower border 27.5 cm
Scoring
Catheter depth 56.0 cm

Weak contraction



UPRIGHT POSITION



Inconclusive as there was a weak contraction and remnants of contractions

6 months later

Gastroscopy findings of 2018 was tight OGJ

Ba-swallow (5-12-18) showed distal oesophageal narrowing with secondary and tertiary contractions with hold up of the Barium .Saw reflux up to his mouth
PPI therapy gave no relief of his symptoms.

He does use Tramacet but not for the past 3 days.

- His symptoms become progressively worse
- Struggles to get solids like meat and chicken down .Fluids also gives a problem
- Burps while eating and quite often has to vomit once the food gets stuck
- Experiences chest discomfort
- No weight loss
- Has no heartburn
- Regurgitation symptoms when the food bolus gets stuck.

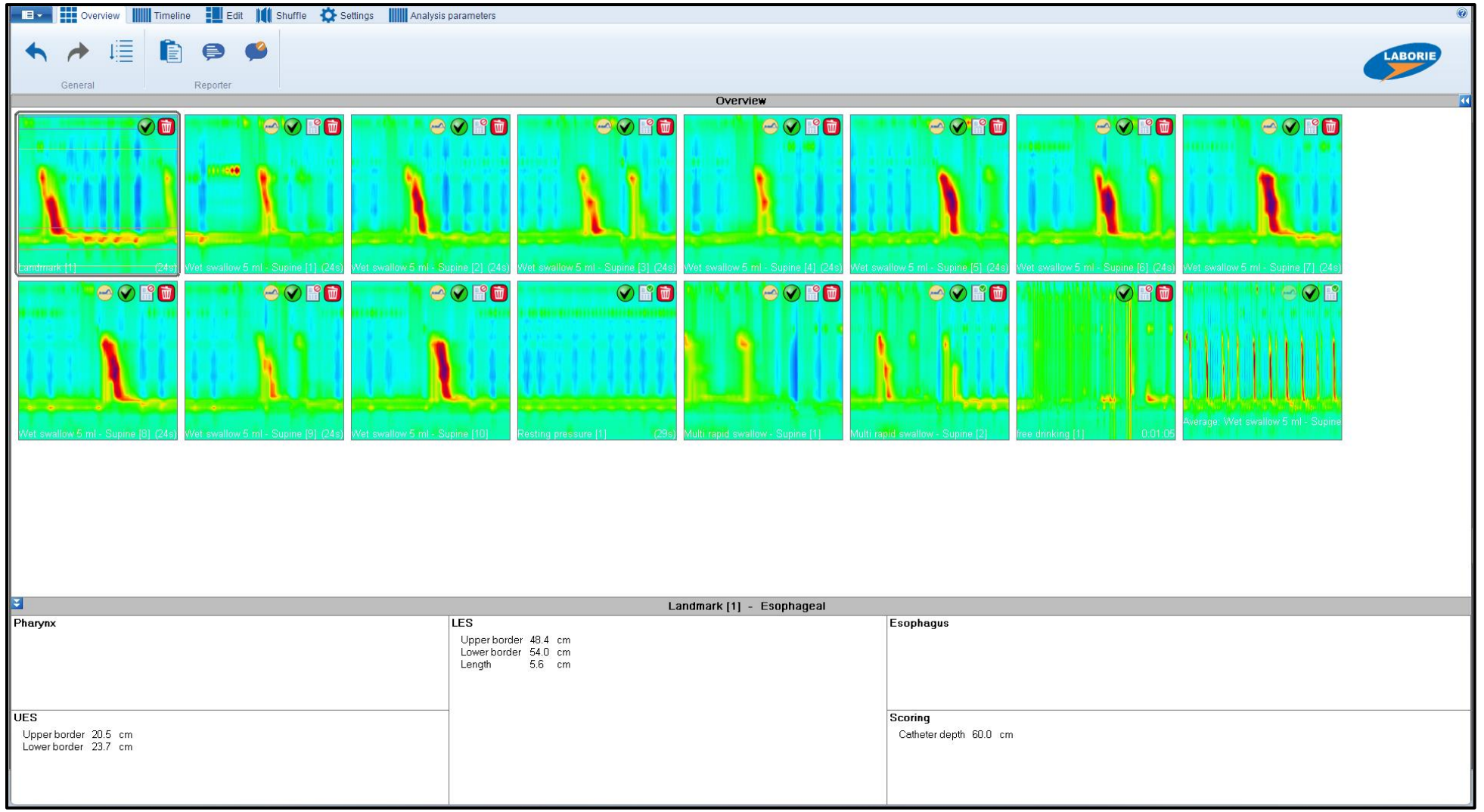
What is the Eckardt score?

The Eckardt Score is a grading system used for the evaluation of symptoms ,stages and efficacy of achalasia treatment .
A score > 3 implies the presence of achalasia

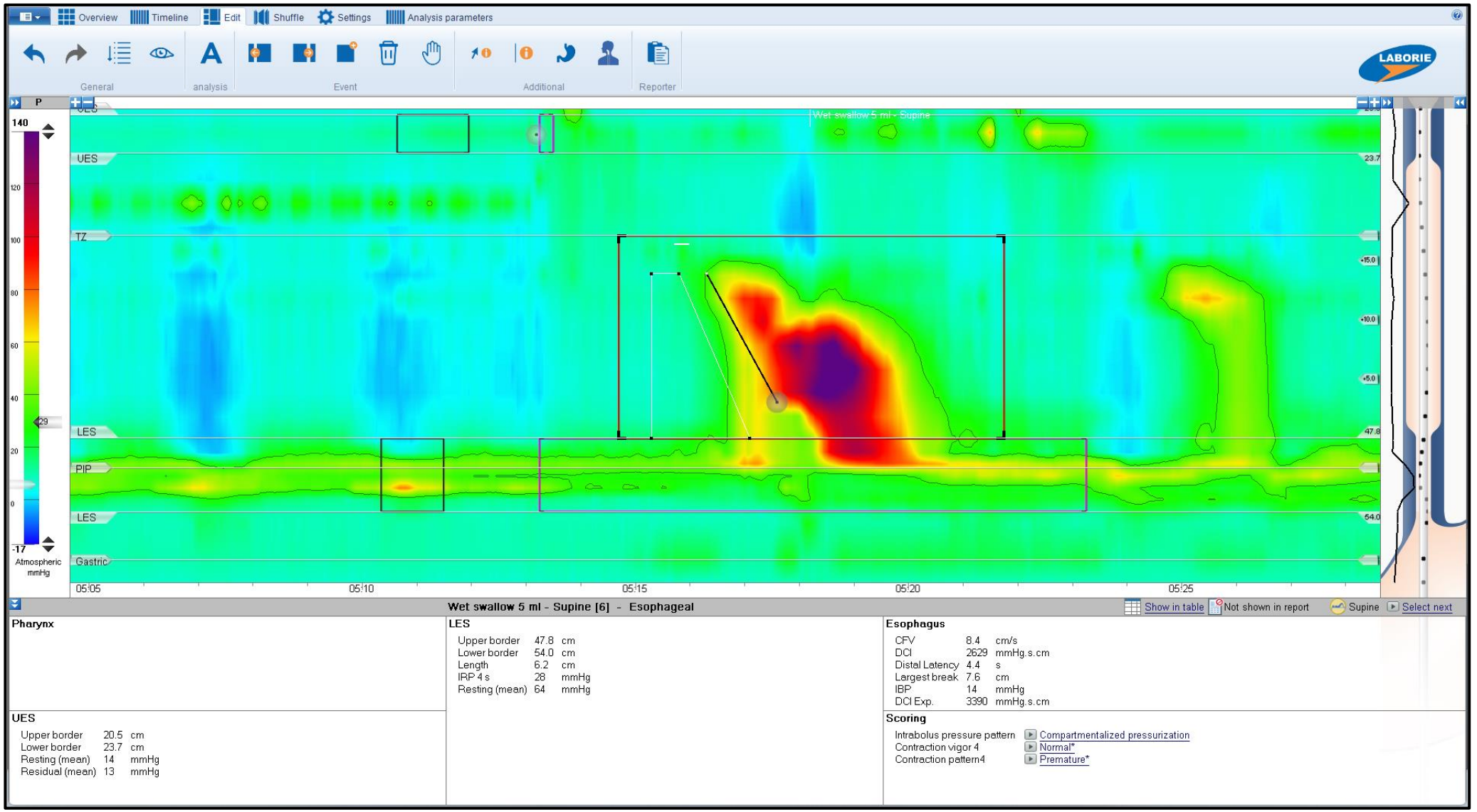
Score	Dysphagia	Regurgitation	Retrosternal pain	Weight loss (kg)
0	None	None	None	None
1	Occasional	Occasional	Occasional	<5
2	Daily	Daily	Daily	5-10
3	Each meal	Each meal	Each meal	>10

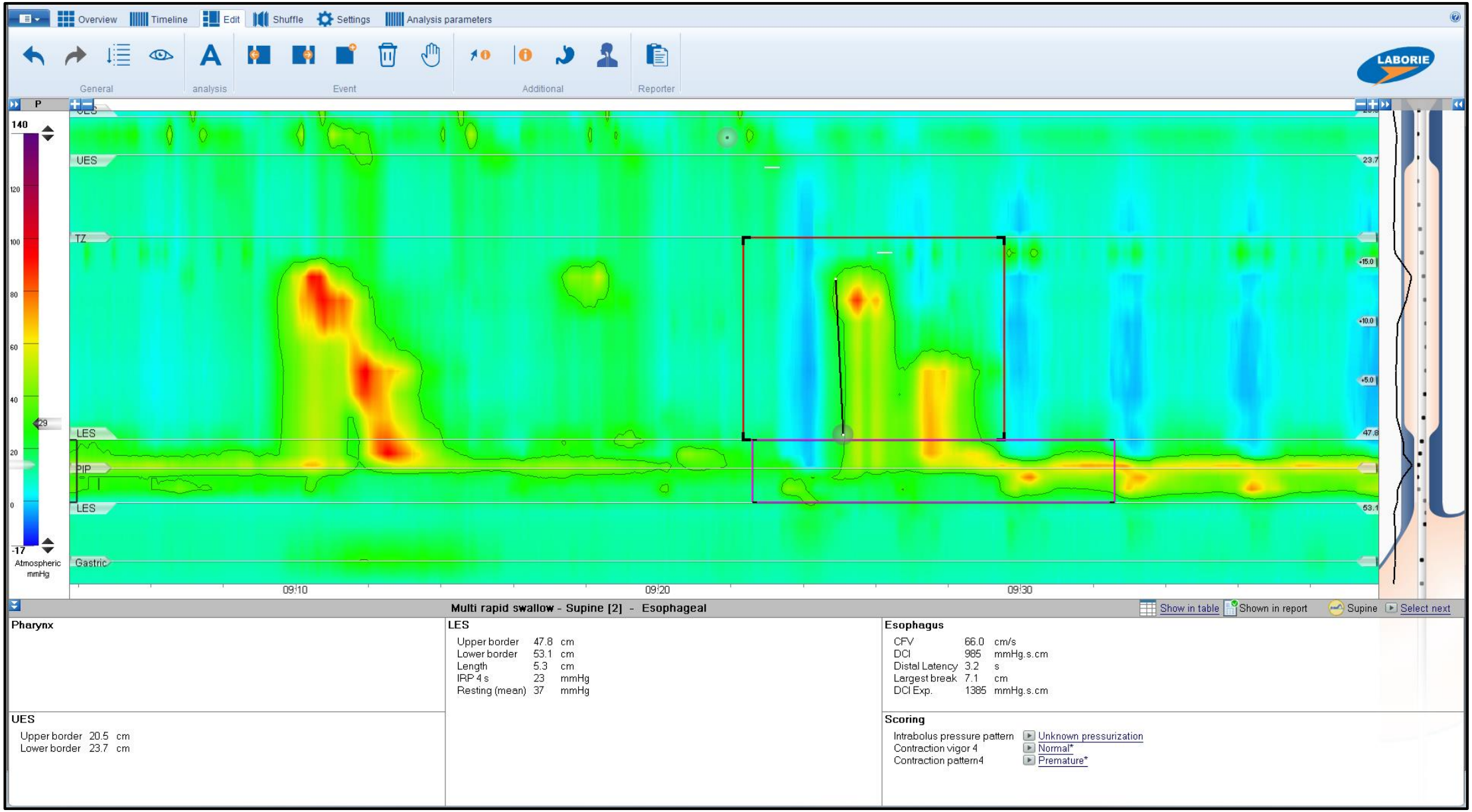
COUNT out of /12

His score was 9/12

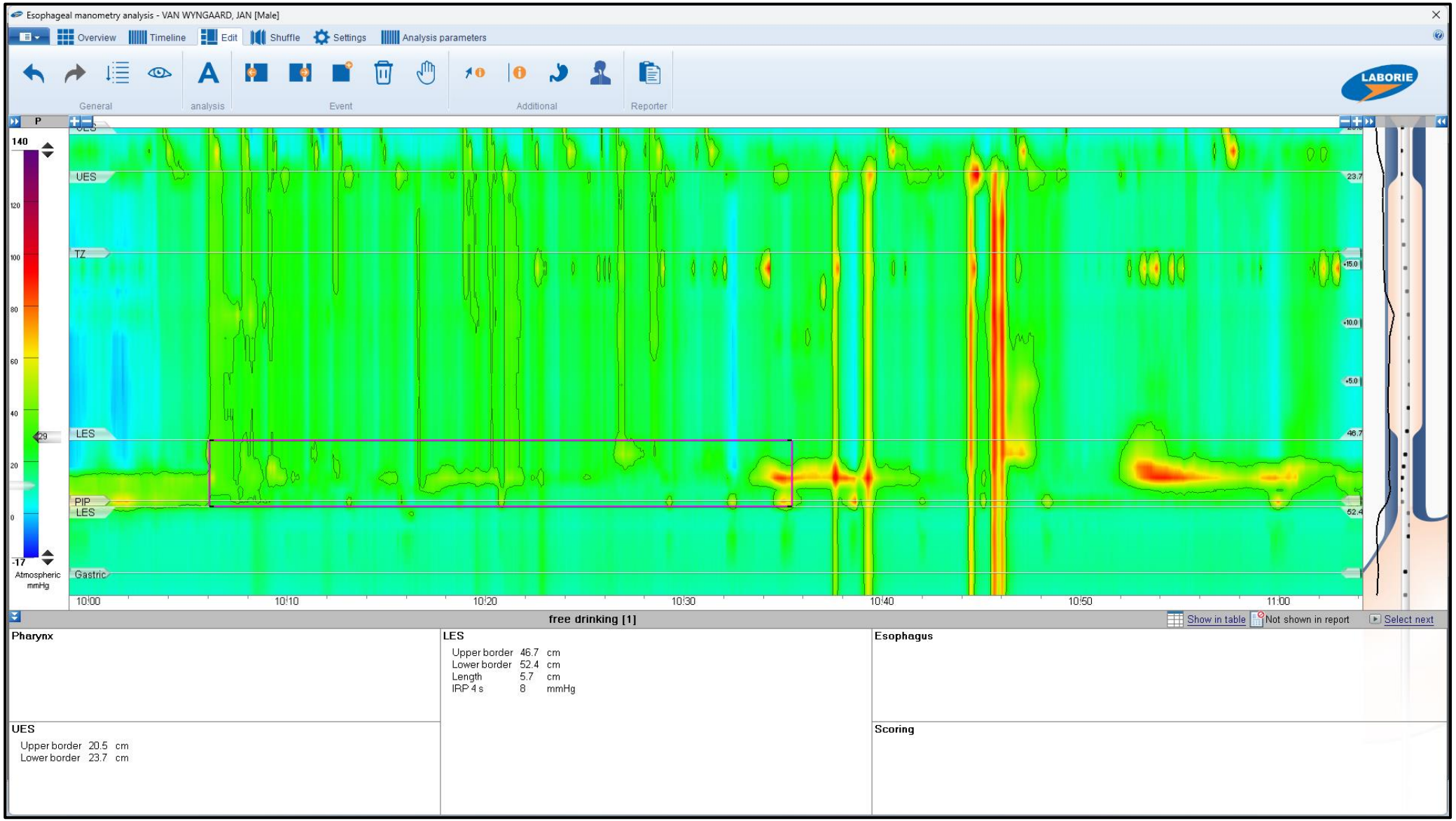

Overview
Timeline
Edit
Shuffle
Settings
Analysis parameters
General
Reporter
LABORIE
Overview
Landmark [1] (24s)
Wet swallow 5 ml - Supine [1] (24s)
Wet swallow 5 ml - Supine [2] (24s)
Wet swallow 5 ml - Supine [3] (24s)
Wet swallow 5 ml - Supine [4] (24s)
Wet swallow 5 ml - Supine [5] (24s)
Wet swallow 5 ml - Supine [6] (24s)
Wet swallow 5 ml - Supine [7] (24s)
Wet swallow 5 ml - Supine [8] (24s)
Wet swallow 5 ml - Supine [9] (24s)
Wet swallow 5 ml - Supine [10]
Resting pressure [1] (29s)
Multi rapid swallow - Supine [1]
Multi rapid swallow - Supine [2]
free drinking [1] 0:01:05
Average: Wet swallow 5 ml - Supine
Landmark [1] - Esophageal
Pharynx
LES
Upper border 48.4 cm
Lower border 54.0 cm
Length 5.6 cm
Esophagus
UES
Upper border 20.5 cm
Lower border 23.7 cm
Scoring
Catheter depth 60.0 cm

What would you call this swallow?




Overview
Timeline
Edit
Shuffle
Settings
Analysis parameters
General
analysis
Event
Additional
Reporter
LABORIE
P
140
120
100
80
60
40
29
20
0
-17
Atmospheric
mmHg
UES
TZ
LES
PIP
LES
Gastric
23.7
+15.0
+10.0
+5.0
47.8
53.1
09:10
09:20
09:30
Multi rapid swallow - Supine [2] - Esophageal
Show in table
Shown in report
Supine
Select next
Pharynx
LES
Upper border 47.8 cm
Lower border 53.1 cm
Length 5.3 cm
IRP 4 s 23 mmHg
Resting (mean) 37 mmHg
Esophagus
CFV 66.0 cm/s
DCI 985 mmHg.s.cm
Distal Latency 3.2 s
Largest break 7.1 cm
DCI Exp. 1385 mmHg.s.cm
UES
Upper border 20.5 cm
Lower border 23.7 cm
Scoring
Intrabolus pressure pattern Unknown pressurization
Contraction vigor 4 Normal*
Contraction pattern4 Premature*

RDC

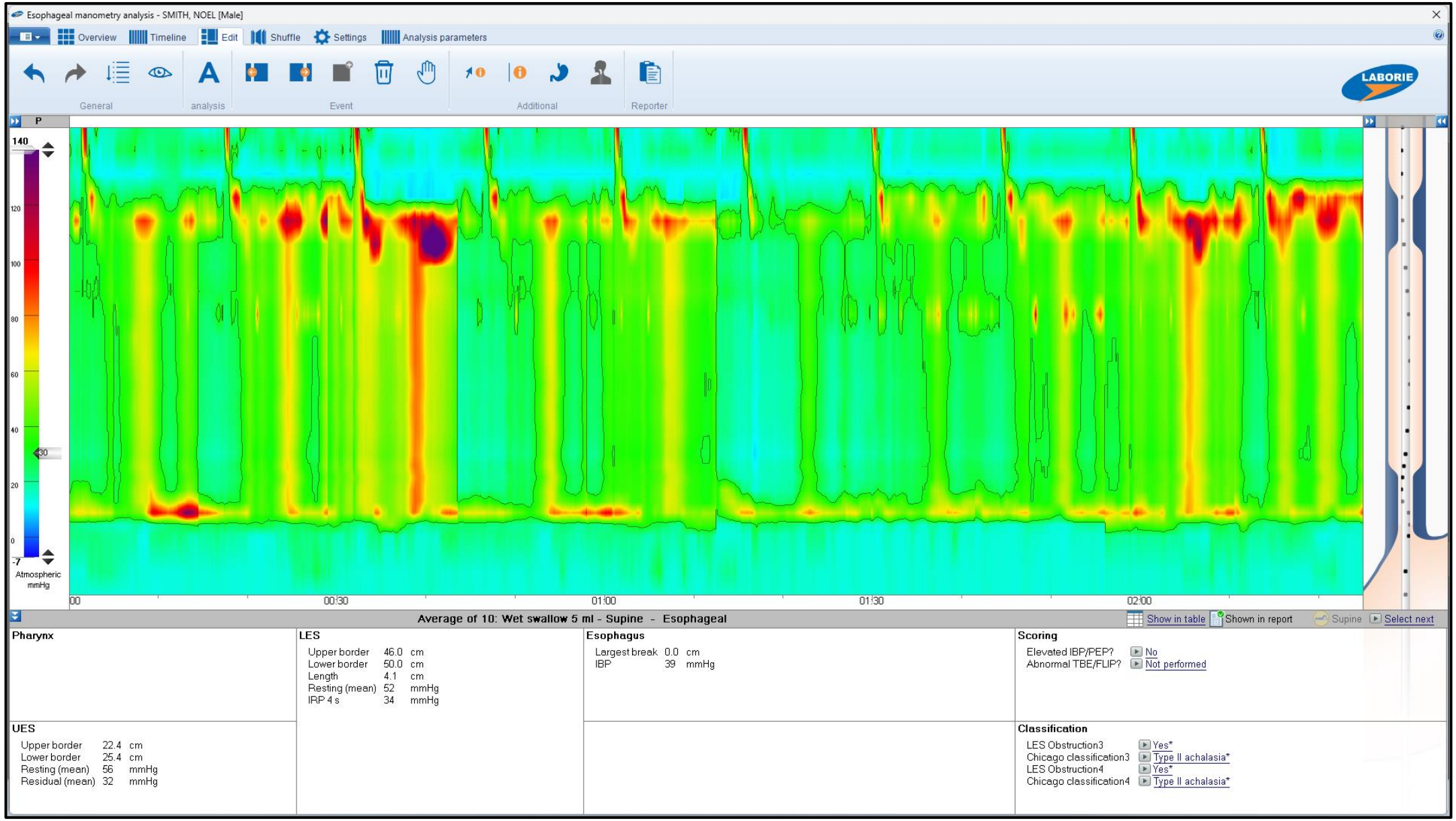

Esophageal manometry analysis - VAN WYNGAARD, JAN [Male]
Overview
Timeline
Edit
Shuffle
Settings
Analysis parameters
General
analysis
Event
Additional
Reporter
LABORIE
UES
TZ
LES
PIP
LES
Gastric
140
120
100
80
60
40
29
20
0
-17
Atmospheric mmHg
10:00
10:10
10:20
10:30
10:40
10:50
11:00
free drinking [1]
Show in table
Not shown in report
Select next
Pharynx
LES
Upper border 46.7 cm
Lower border 52.4 cm
Length 5.7 cm
IRP 4 s 8 mmHg
Esophagus
UES
Upper border 20.5 cm
Lower border 23.7 cm
Scoring

Prof Bredenoord felt there were no normal

contractions, increased IRP and premature contractions

He felt it was a Type III achalasia / Spastic achalasia

17 Months later



Type II Achalasia / Achalasia with compression

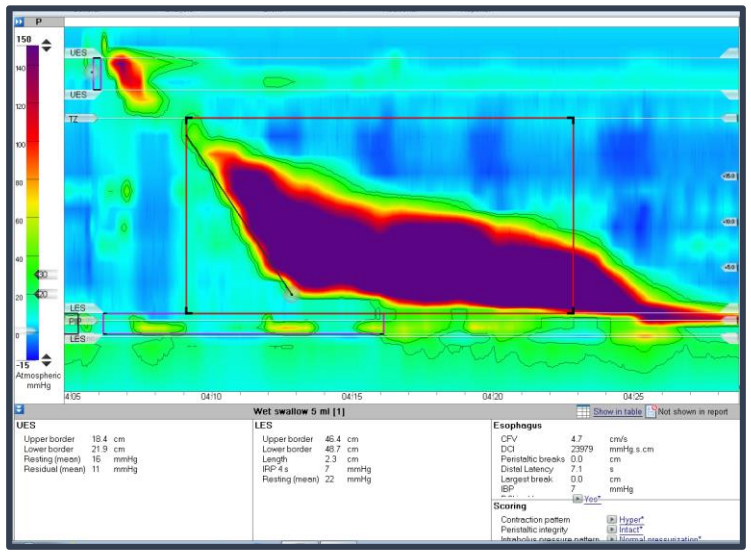
Good example of an **evolving achalasia**

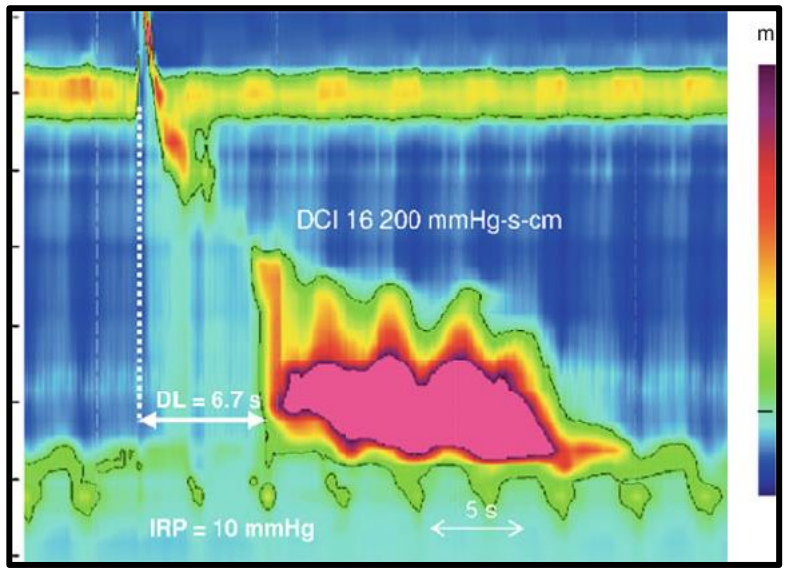
HYPERCONTRACTYLE

JACKHAMMER

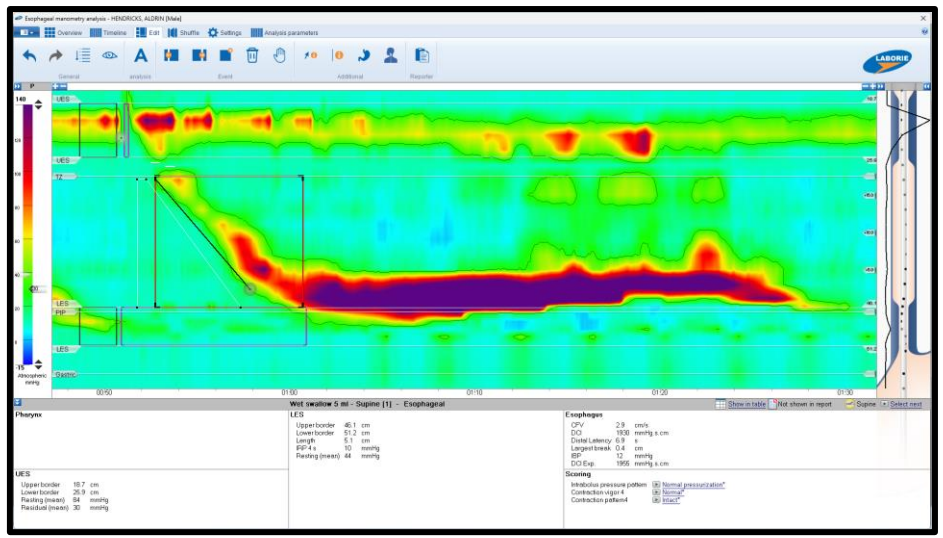
HYPERTENSIVE LOSP

SINGEL PEAKED
DCI> 8000





TRIPPLE PEAKED
DCI > 8000



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Thank you
for listening
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