Intra-thoracic Gastric Pouch Migration Following Laparoscopic Sleeve Gastrectomy

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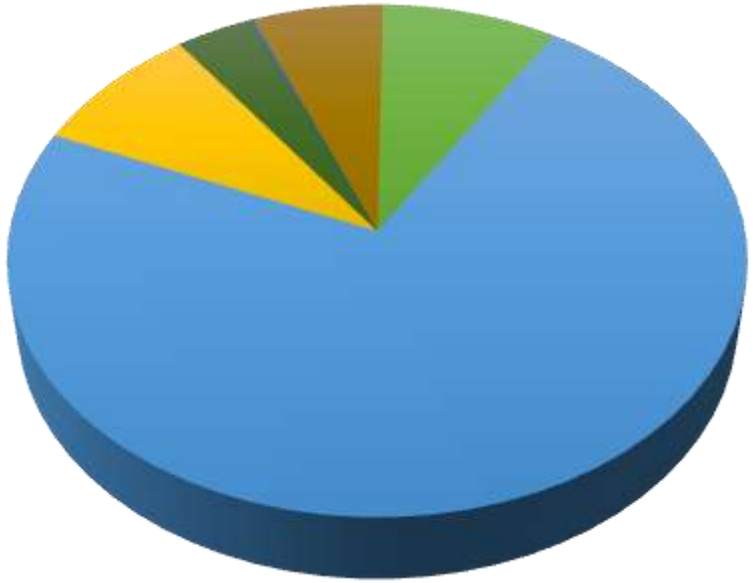
I have no potential conflict of interest to report

CASE MIX DISCLOSURE (2022)



(OAGB/RYGB)	SG	Robotic	Revisional	SASI	Allurion capsule
151	1284	150	65	4	113
9%	73%	8%	4%	0.2%	6%

Total 1761

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ITSM refers to:

The gastric sleeve that was intra-abdominal during the sleeve gastrectomy procedure then migrated up some time after the surgery

INTRODUCTION

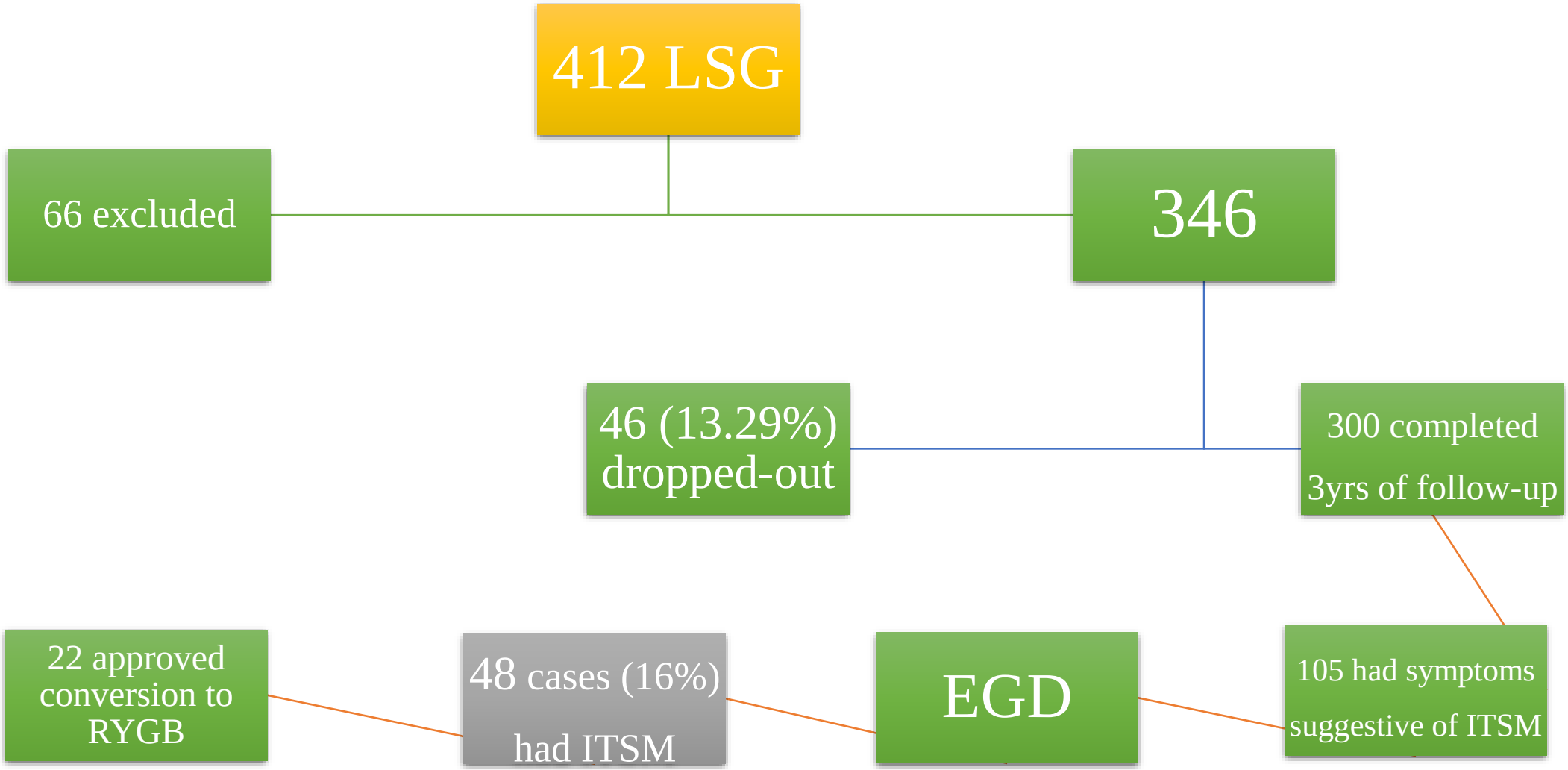
Intra-thoracic sleeve migration (ITSM) is an underreported phenomenon

Patients suffer from many symptoms like

Rationale

Intra-thoracic sleeve migration (ITSM) is an underreported phenomenon

Study Sample



Methodology

Jan-oct (2019)

300 LSG

3 years of screening

Persistent or recurrent symptoms after conservative measures

EGD

Review and compare complaints of: Group A (no ITSM) vs Group B (ITSM)

Offer RYGB for ITSM group

GERD-HRQL questionnaire

Exclusion criteria
Symptoms of GERD before LSG
Endoscopic evidence of GERD
Concomitant hiatal hernia repair

Screen for
Persistent epigastric pain
Intractable GERD
Dysphagia
Persistent vomiting

Results

Clinical findings from screening of the cases (N=300)

Symptom or sign	Number of cases	Percentage
Epigastric pain	108	36%
Dysphagia	14	4.7%
Persistent vomiting	88	29.3%
Reflux symptoms	66	22%
Additional symptoms & signs investigated		
Globus sensation	48	16%
Water intolerance	136	45.3%
Protein intolerance	116	38.7%

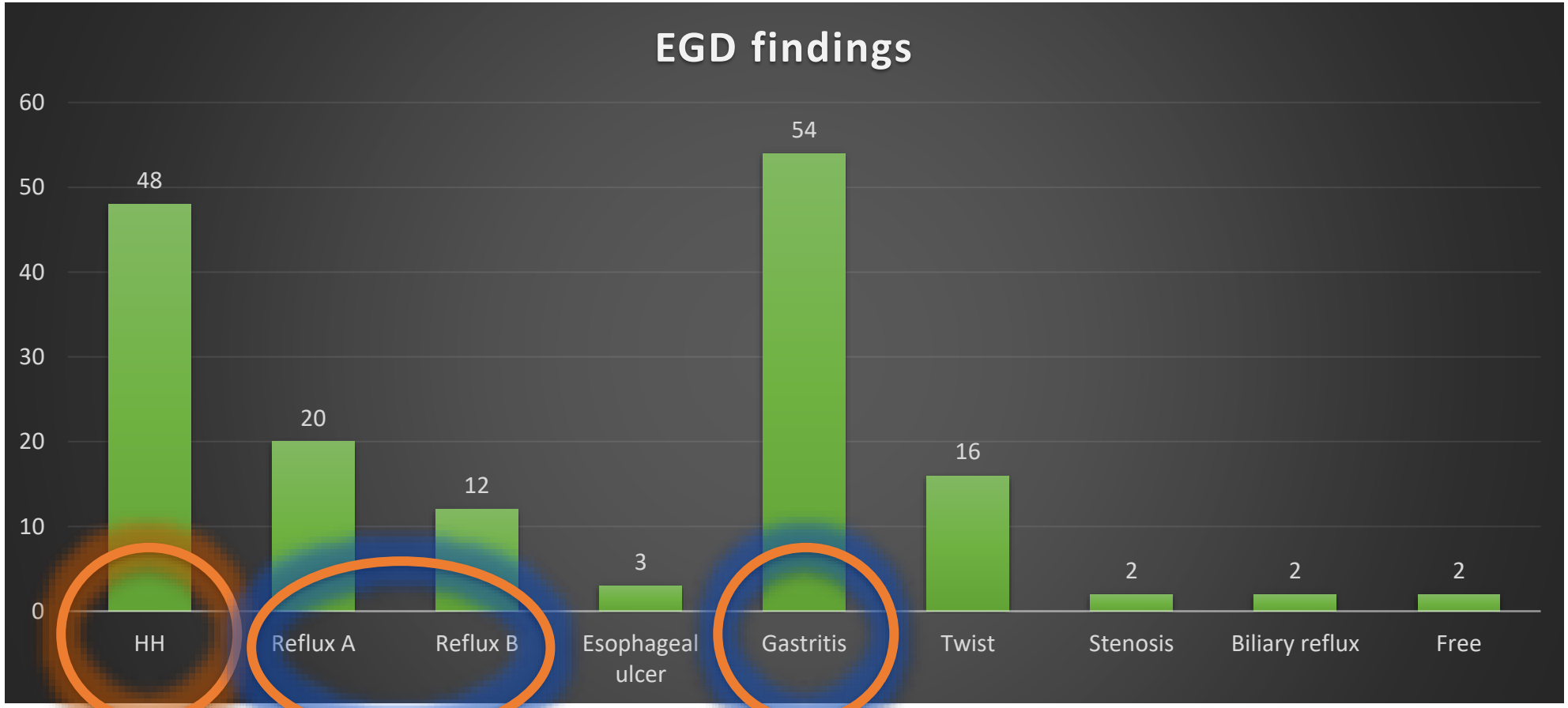
1

2

3

Results

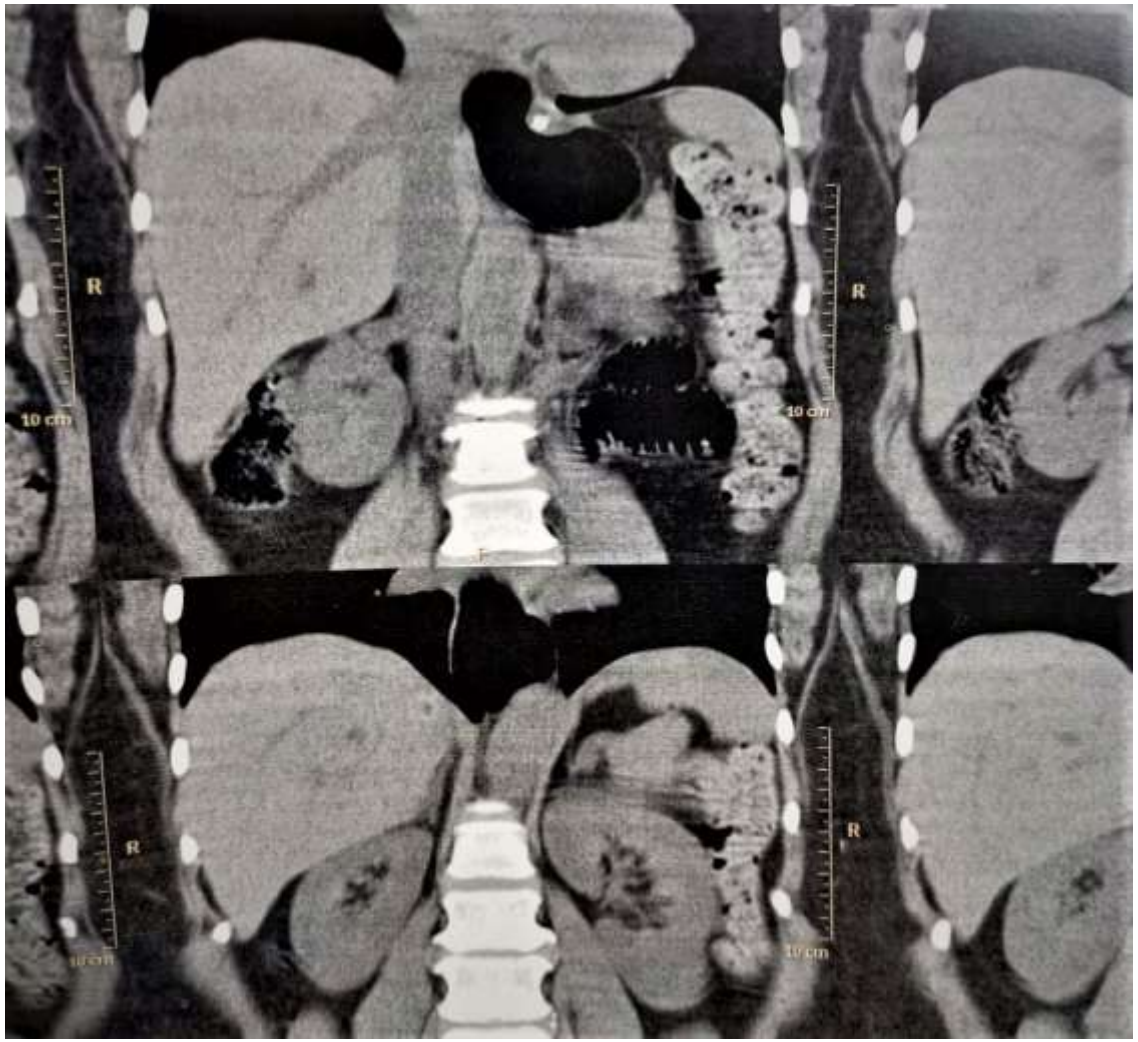
EGD findings (N=105)



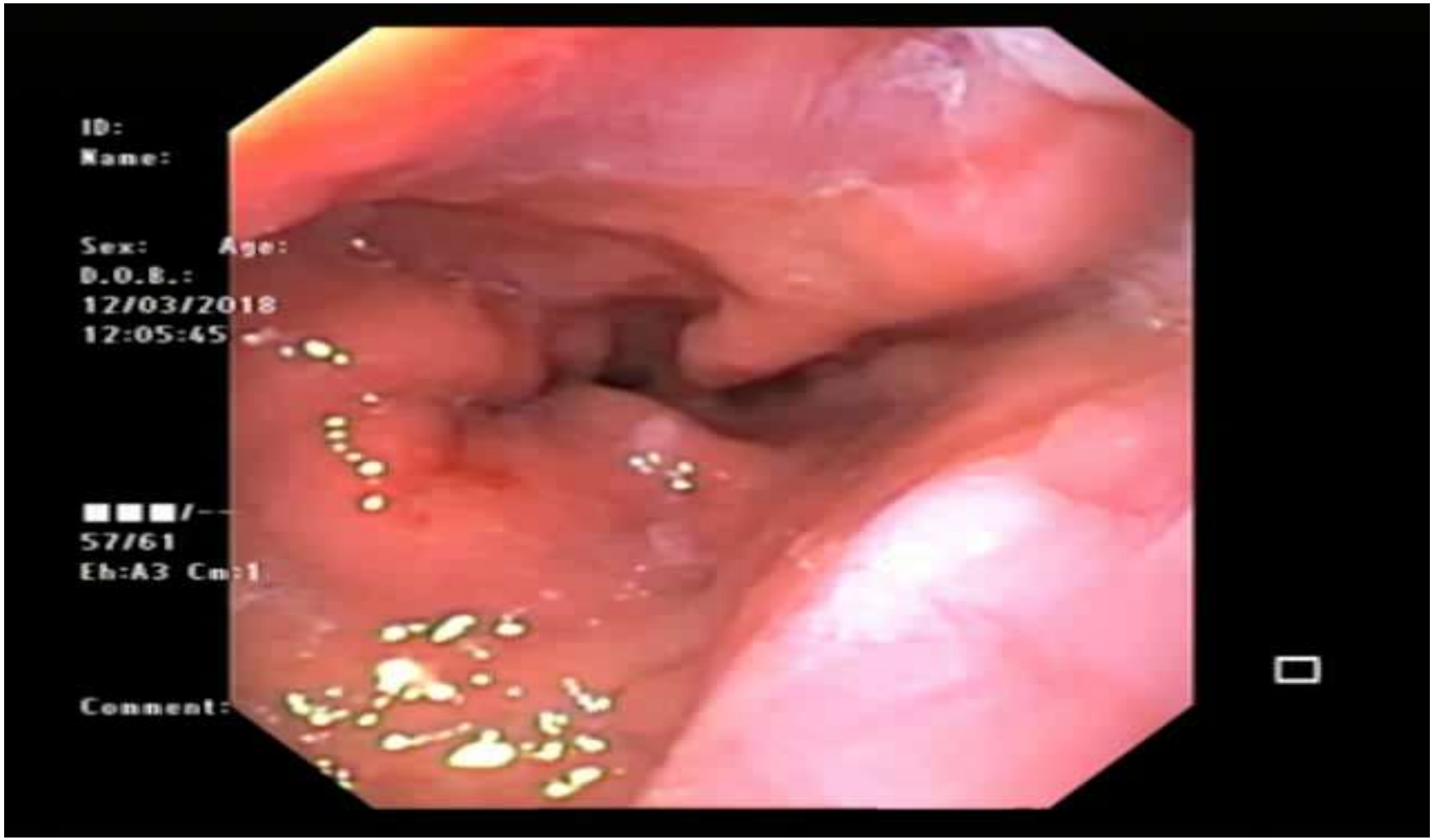
48 cases had endoscopic evidence of ITSM, 54 cases had gastritis and sleeve twist was found in 16 cases.

Results

ITSM appearance by CT and EGD



Results



Results

Incidence of ITSM was found by EGD to be

16%

Results

Comparison between clinical findings in group (A) and (B)

variables	Groups		Pearson Chi-Square	P value
	A (N=252)	B (N=48)		
Epigastric pain	86 (34.2%)	22 (45.8%)	2.398	0.121
Persistent vomiting	56 (22.2%)	32 (66.7%)	38.422	<0.001
Refractory GERD	38 (15.1%)	28 (58.3%)	43.960	<0.001
Dysphagia	4 (1.6%)	10 (20.8%)	54.829	<0.001
Globus sensation	22 (8.7%)	26 (54.2%)	61.934	<0.001
Water intolerance	100 (39.7%)	36 (75.0%)	20.594	<0.001
Protein intolerance	76 (30.2%)	40 (83.3%)	48.072	<0.001

Results

All the cases with ITSM were offered revisional surgery to RYGB and cruroplasty

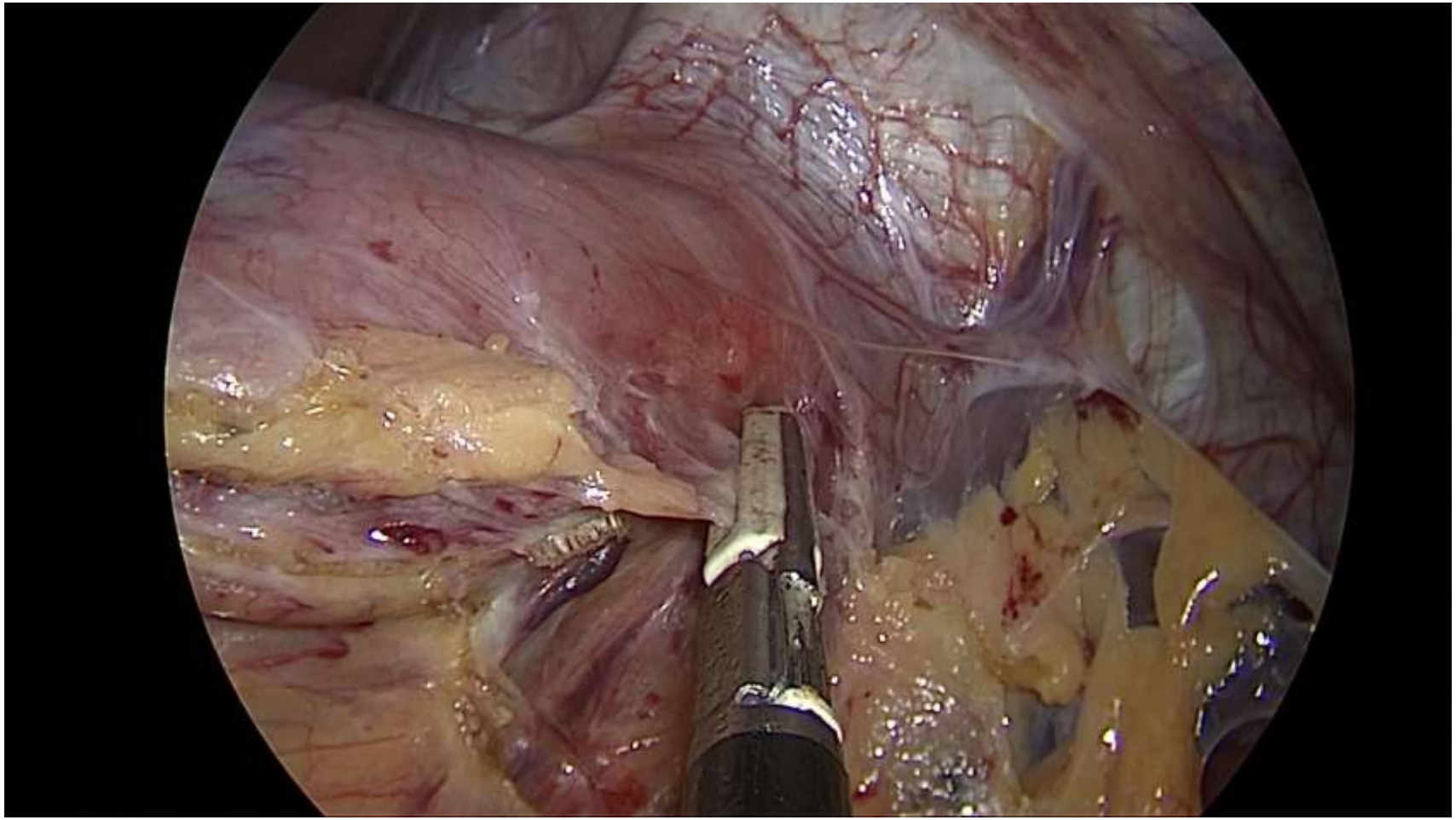
22 cases approved conversion to RYGB plus cruroplasty

Re-operation successfully eliminated the complaints

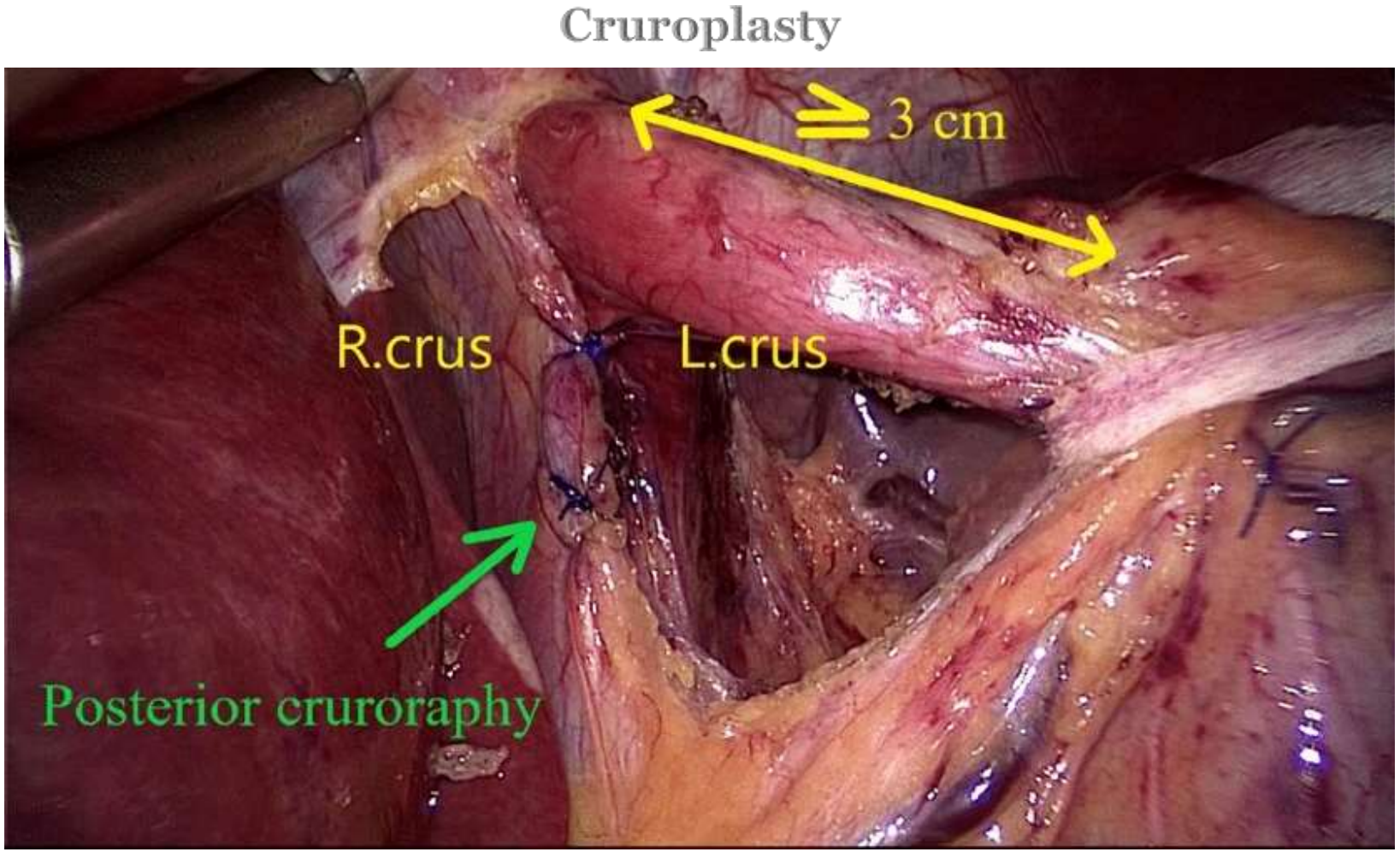
All the 22 cases answered the GERD-HRQL questionnaire before and after Surgical revision

Results

Cruroplasty



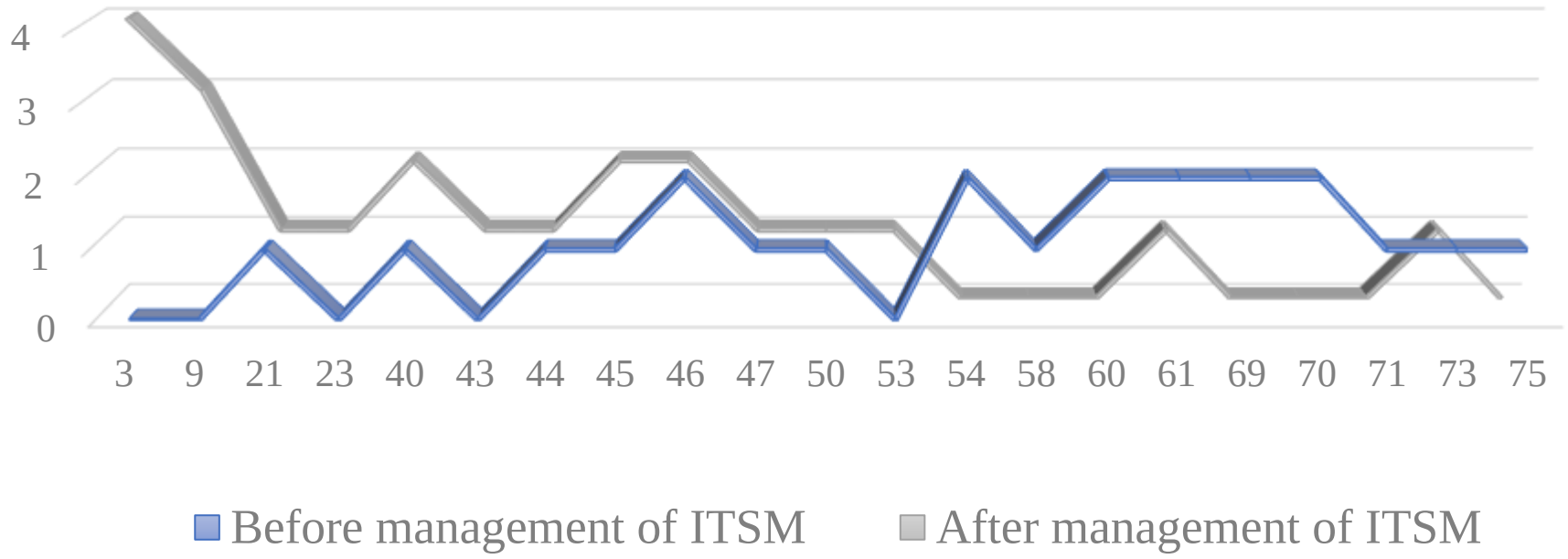
Results



Hutopila, I., Ciocoiu, M., Paunescu, L., & Copaescu, C. (2023). Reconstruction of the phreno-esophageal ligament (R-PEL) prevents the intrathoracic migration (ITM) after concomitant sleeve gastrectomy and hiatal hernia repair. *Surgical Endoscopy*, *37*(5), 3747–3759. https://doi.org/10.1007/s00464-022-09829-z

Results

GERD HRQL score



Mean score before ITSM management was 47.13±21.4 and it improved to 29.19 after revision (P-value <0.001)

Possible mechanisms responsible for ITSM

- Enlarged natural orifice due to a rapid postoperative weight loss leading to melt down hiatal fat
- Transection at the angle of His
- Partial removal of the sling diaphragmatic fibers
- Increased intra-abdominal pressure by several mechanisms e.g.: constipation or pregnancy
- Loss of ligament fixation e.g.: omental attachement

Take-home message

Sleeve herniation should be included in differential diagnosis of LSG patients presenting with persistent vomiting and/or GERD

Pre and post-LSG endoscopic assessment is recommended

Management of ITSM should be tailored according to the patient condition, taking into consideration the patient weight and BMI status

RYGB plus cruroplasty is an excellent option for ITSM surgical management

Finally search for preventive measures of ITSM must be pursued to improve quality of life and outcome of LSG.

Thank you..

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Comparison between group (A) and group (B) demographics

Variables	Group A (N=252)	Group B (N=48)	T-test	P value
Age	33.88 ± 9.92	37.13 ± 8.88	-2.275	.764
BMI before the operation	48.56 ± 6.17	49.61 ± 6.78	-1.000	.257
BMI at presentation	33.21 ± 5.39	34.43 ± 4.95	-1.533	.375
% Excess weight lost	66.57 ± 17.41	62.06 ± 17.59	1.630	.916

GERD-HRQL Questionnaire

GERD Health-related Quality of Life (GERD-HRQL) Questionnaire

Patient Name: _____ Date: _____

Are you currently taking any medications for GERD symptoms? YES NO

Please circle the number that best reflects your symptoms using the scoring scale provided below.

Scoring Scale
0 = No symptoms
1 = Symptoms noticeable but not bothersome
2 = Symptoms noticeable and bothersome but not every day
3 = Symptoms bothersome every day
4 = Symptoms affect daily activities
5 = Symptoms are incapacitating – unable to do daily activities

1. How bad is the heartburn?	0	1	2	3	4	5
2. Heartburn when lying down?	0	1	2	3	4	5
3. Heartburn when standing up?	0	1	2	3	4	5
4. Heartburn after meals?	0	1	2	3	4	5
5. Does heartburn change your diet?	0	1	2	3	4	5
6. Does heartburn wake you from sleep?	0	1	2	3	4	5
7. Do you have difficulty swallowing?	0	1	2	3	4	5
8. Do you have pain with swallowing?	0	1	2	3	4	5
9. If you take medication, does this affect your daily life?	0	1	2	3	4	5
10. How bad is the regurgitation?	0	1	2	3	4	5
11. Regurgitation when lying down?	0	1	2	3	4	5
12. Regurgitation when standing up?	0	1	2	3	4	5
13. Regurgitation after meals?	0	1	2	3	4	5
14. Does regurgitation change your diet?	0	1	2	3	4	5
15. Does regurgitation wake you from sleep?	0	1	2	3	4	5

16. How satisfied are you with your present condition?

- ☐ Satisfied
- ☐ Neutral
- ☐ Dissatisfied

HRQL-GERD SCORING GUIDE

The GERD-HRQL questionnaire was developed and validated to measure changes of typical GERD symptoms such as heartburn and regurgitation in response to surgical or medical treatment.

Total Score: Calculated by summing the individual scores to questions 1-15.

- Greatest possible score (worst symptoms) = 75
- Lowest possible score (no symptoms) = 0

Heartburn Score: Calculated by summing the individual scores to questions 1-6.

- Worst heartburn symptoms = 30
- No heartburn symptoms = 0
- Scores less than or equal to 12 with each individual question not exceeding 2 indicate heartburn elimination.

Regurgitation Score: Calculated by summing the individual scores to questions 10-15.

- Worst regurgitation symptoms = 30
- No regurgitation = 0
- Scores less than or equal to 12 with each individual question not exceeding 2 indicate regurgitation.