OMCeO Udine

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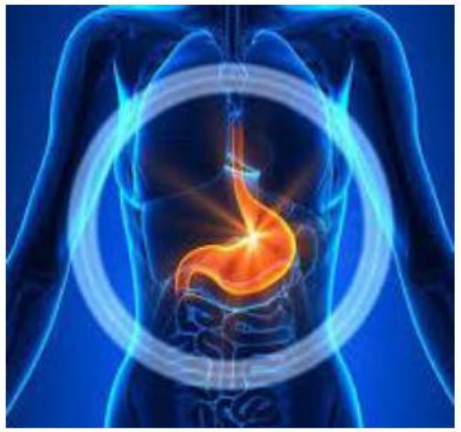
LA MALATTIA DA REFLUSSO GASTRO-ESOFAGEO

Trattamento chirurgico



Dott. Massimo Vecchiato
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SOC di Chirurgia Generale
Udine - ASUFC

SISME
Società Italiana per lo Studio delle Malattie dell'Esofago

Udine, 06/04/2024

- **CONFLITTO D’INTERESSI**

Dichiaro che negli ultimi due anni NON ho avuto rapporti anche di finanziamento con
soggetti portatori di interessi commerciali in campo sanitario

CHI OPERARE?

QUALE PLASTICA?

FOLLOW UP E RECIDIVE?

ORIGINAL ARTICLE

How to select patients for antireflux surgery? The ICARUS guidelines (international consensus regarding preoperative examinations and clinical characteristics assessment to select adult patients for antireflux surgery)

Ans Pauwels,[1] Veerle Boecxstaens,[1,2,3] Christopher N Andrews,[4] Stephen E Attwood,[5] Richard Berrisford,[6] Raf Bisschops,[1,7] Guy E Boeckxstaens,[1] Serhat Bor,[8] Albert J Bredenoord,[9] Michele Cicala,[10] Maura Corsetti,[11,12] Fernando Fornari,[13] Chandra Prakash Gyawali,[14] Jan Hatlebakk,[15] Scott B Johnson,[16] Toni Lerut,[17] Lars Lundell,[18] Sandro Mattioli,[19] Hiroto Miwa,[20] Philippe Nafteux,[17] Taher Omari,[21] John Pandolfino,[22] Roberto Penagini,[23] Thomas W Rice,[24] Philip Roelandt,[1,7] Nathalie Rommel,[1,25] Vincenzo Savarino,[26] Daniel Sifrim,[27] Hidekazu Suzuki,[28] Radu Tutuian,[29] Tim Vanuytsel,[1,7] Marcelo F Vela,[30] David I Watson,[31] Frank Zerbib,[32] Jan Tack[1,7]

Pauwels A, et al. Gut 2019;68:1928–1941

Pazienti con **bruciore epigastrico e reflusso come sintomi principali che rispondono bene ai PPI sono buoni candidati** per chirurgia antireflusso. Statement **ENDORSED**; **GRADE A.**

Pazienti con **rigurgito come sintomo principale sono buoni candidati** per chirurgia antireflusso**, indipendentemente dalla risposta ai PPI**. Statement **NOT ENDORSED**; **GRADE B**.

Pazienti con **bruciore funzionale** (Rome III/IV criteria, no associazione dei sintomi con documentati episodi di reflusso) **sono cattivi candidati** alla chirurgia antireflusso. Statement **ENDORSED**; **GRADE B.**

Pazienti con **ipersensibilità esofagea al reflusso** (normale esposizione acida ma associazione positiva con eventi di reflusso) **sono buoni candidati** per chirurgia antireflusso. Statement **NOT ENDORSED**; **GRADE C**.

Pazienti con **sintomi extra-esofagei** (asma, tosse cronica e/o laringite) **sono buoni candidati** per chirurgia antireflusso **solo se i sintomi sono chiaramente attribuiti al reflusso**. Statement **NOT ENDORSED**; **GRADE C.**

Pazienti con **body mass index >35kg/m2 sono cattivi candidati** alla chirurgia antireflusso. Statement **NOT ENDORSED**; **GRADE B**.

Pauwels A, et al. Gut 2019;68:1928–1941

Pazienti con **sintomi GERD e diagnosi endoscopica di HH sono buoni candidati** per chirurgia antireflusso. Statement **ENDORSED**; **GRADE B**.

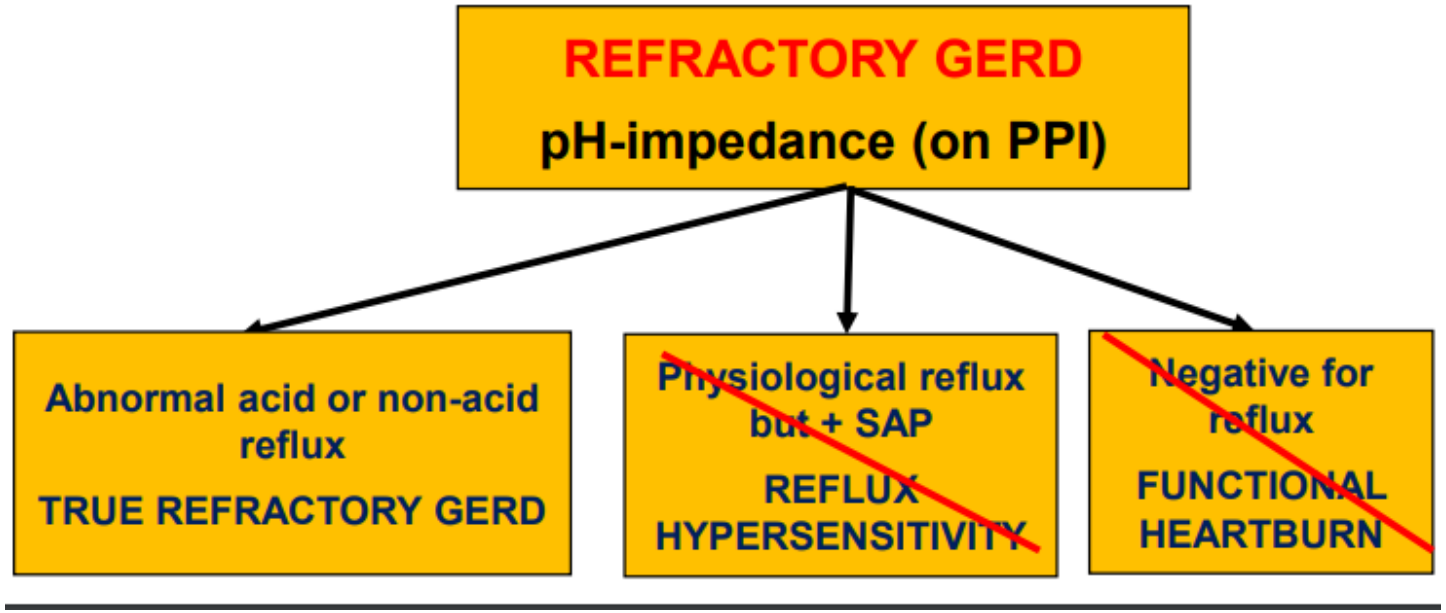
Pazienti con **sintomi GERD e segni di esofagite LA B or maggiore** off PPI **sono buoni candidati** per chirurgia antireflusso. Statement **ENDORSED**; **GRADE B.**

Pazienti con **sintomi GERD e esofago di Barrett** (metaplasia intestinale) **sono buoni candidati** per chirurgia antireflusso. Statement **ENDORSED**; **GRADE B.**

Pazienti con **sintomi GERD senza esofagite** off PPIs **sono cattivi candidati** alla chirurgia antireflusso. **NOT ENDORSED; GRADE C.**

Pazienti sintomatici con **ernia para-esofagea sono buoni candidati** per chirurgia antireflusso oltre che alla riparazione dell'ernia. Statement **ENDORSED**; **GRADE C**.

Pauwels A, et al. Gut 2019;68:1928–1941



Impedenziometria e score sintomatologici

Dati ancora insufficienti:
- MII+ in on-PPI e non risposta a PPI/MMI+ e pHmetria negativa
- MNBI<1500 ohms

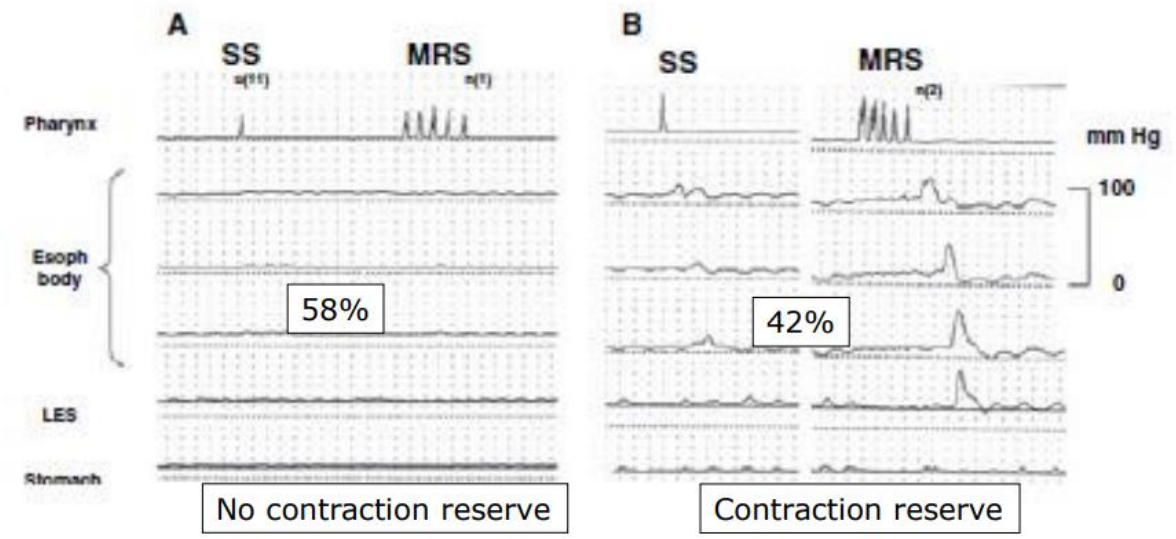
SI>=50% e SAP>95%:attenzione a ipersensibilità esofagea

J Am Coll Surg 2013; 217:586-597 T De Meester

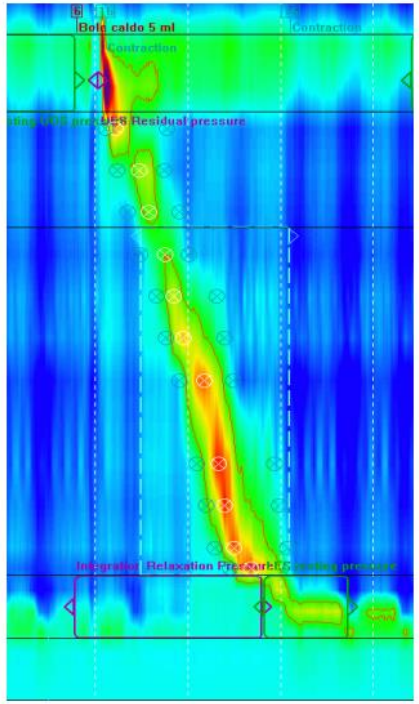
Pauwels A, et al. Gut 2019;68:1928–1941. doi:10.1136/gutjnl-2019-318260

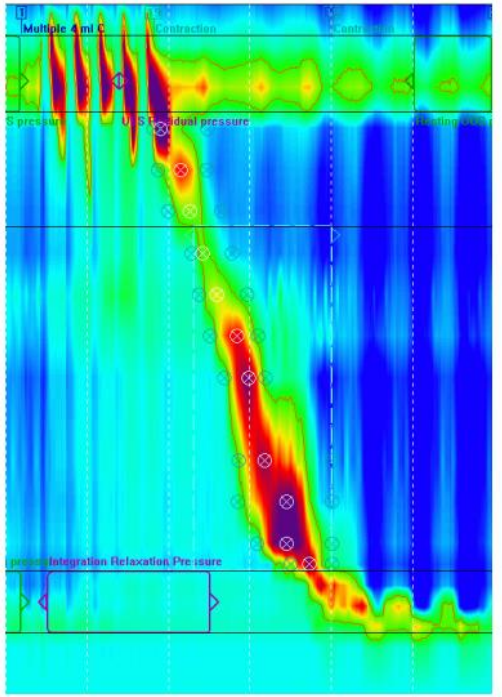
MANOMETRIA ESOFAGEA

Escludere disordini motori maggiori
Motilità inefficace e “tailoring” della plastica: NOT ENDORSED (MRS)



Fornari et al, 2009





Preoperative esophageal motility does not affect outcome of ARS at 3 yrs

Prospective randomized trial of Nissen vs Toupet (106 pts)

Pre and postoperative dysphagia in pts with IEM (n=60) or aperistalsis (n=7)

Symptom/complaint	Nissen-Rossetti (n = 34)	Toupet (n = 33)
Preoperatively		
Dysphagia (%)		
None	75	73
Mild	15	21
Moderate	6	6
Severe	3	0
Postoperatively		
Dysphagia (%)		
None	88	94
Mild	12	6
Moderate	0	0
Severe	0	0

Rydberg et al, 1999

Table 4 Summary of the ICARUS guidelines

Recommendations	Based on statement(s)
Antireflux surgery can be considered for patients with typical symptoms of heartburn, with a good response to proton pump inhibitors (PPIs).	1
Patients with functional heartburn and patients with eosinophilic oesophagitis are poor candidates for antireflux surgery.	4, 6
Patients with morbid obesity and patients with substance abuse are not excluded from antireflux surgery.	9, 11
Endoscopy (during the last year) is mandatory prior to referral for antireflux surgery. There is no need to wean the patient off PPI for endoscopy.	13, 14
Patients with GORD symptoms and a hiatal hernia, Barrett's oesophagus or erosive oesophagitis grade B or higher at endoscopy are good candidates for antireflux surgery.	15, 16b, 18
Patients without erosive oesophagitis are not excluded from antireflux surgery.	17
There is no need to obtain routine biopsies of the distal oesophagus in patients considered for antireflux surgery.	19
A barium X-ray should be obtained in patients with suspicion of a hiatal hernia or short oesophagus when considered for antireflux surgery.	20
Patients with GORD symptoms and a hiatal hernia on X-ray are good candidates for antireflux surgery.	21, 22
Patients with GORD symptoms and a para-oesophageal hernia on X-ray are good candidates for antireflux surgery in addition to para-oesophageal hernia repair.	23
A short oesophagus on barium X-ray does not exclude the patient from antireflux surgery.	24
Oesophageal manometry and oesophageal pH monitoring (±impedance) are mandatory prior to referral for antireflux surgery. The latter is preferentially done off PPI and in patients with NERD.	25, 30, 31
Patients with normal pH-monitoring off PPI are poor candidates for antireflux surgery.	32
Response to baclofen does not enhance patient eligibility for antireflux surgery.	35
There is no need to assess gastric emptying rate in patients considered for antireflux surgery.	36, 37

BUONI CANDIDATI

Sintomi tipici con buona risposta ai PPI
GERD con ernia jatale, Barrett, Esofagite >= B
GERD ed ernia paraesofagea

NON BUONI CANDIDATI

Pirosi retrosternale funzionale e EoE
Normale pHmetria off PPI
Ipersensibilità esofagea
Disturbi psichici/ansia/depressione

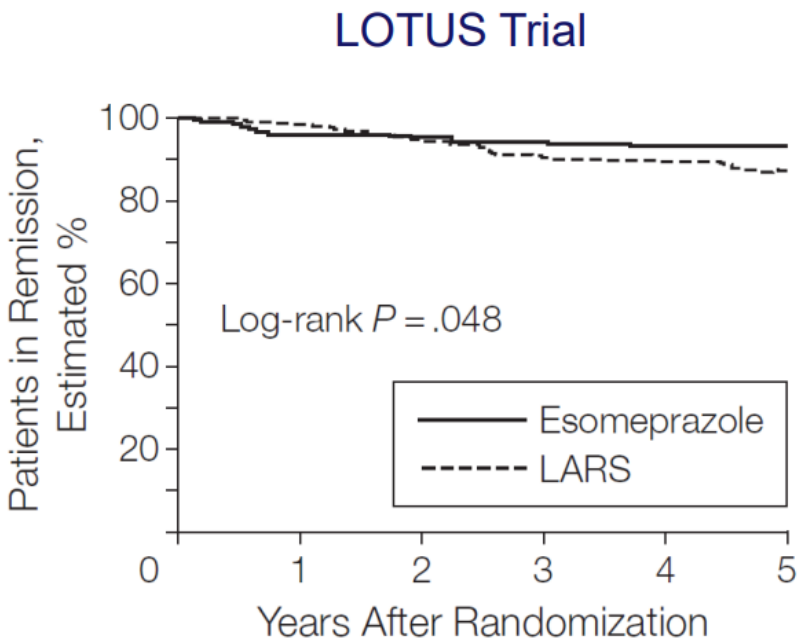
Laparoscopic Antireflux Surgery vs Esomeprazole Treatment for Chronic GERD

The LOTUS Randomized Clinical Trial

- 5-year follow-up study

- Nissen in expert centres vs esomeprazole:
similar treatment failure, relief of heartburn > surgery

- Majority of patients in remission after 5 years



Only PPI-responders included!

- <u>Only patients with complete symptom control on esomeprazole</u>, partial responders or patients refractory to treatment were excluded : results are not necessarily applicable to the group of patients with **insufficient symptom control on PPI (STUDIO FUNZIONALE)**

JAMA, May 18, 2011—Vol 305, No. 19

PPI vs Chirurgia

32-45% sintomi persistenti con PPI (reflussi non acidi, misti, rigurgito, disturbi funzionali)
Intolleranza PPI
Effetti collaterali dei PPI

Svuotamento gastrico

La chirurgia migliora svuotamento gastrico
Ritardatao svuotamento: >90% a 1 ora; 69% a 2 ore; 10% a 4 ore
Non correlazione con ritardato svuotamento e outcome
No routine studio; utile in nausea, vomito, eruttazioni

Reflusso laringeo

20% della popolazione
Fumo, acol, post nasal drip, sinusite,
PPI trial 3 mesi
LARS scarsi risultati
Test: pH testing orofaringeo o HMII pH:non standardizzati i risultati
Necessaria conferma test standard

J Am Coll Surg 2013; 217:586-597 T De Meester

LARS e sclerodermia

THE ROLE OF SURGERY IN MANAGING ESOPHAGEAL INVOLVEMENT IN SYSTEMIC SCLEROSIS: A SYSTEMATIC LITERATURE REVIEW

Pietro Matucci Cerinic1, Akpabio Akpabio2, Michael Hughes3, 4, Zsuzsanna Mcmahan5, Massimo Vecchiato6,Antonio Martino7, Roberto Petri8, Giovanni Terrosu9, Marco Matucci-Cerinic10, Alessia Alunno1

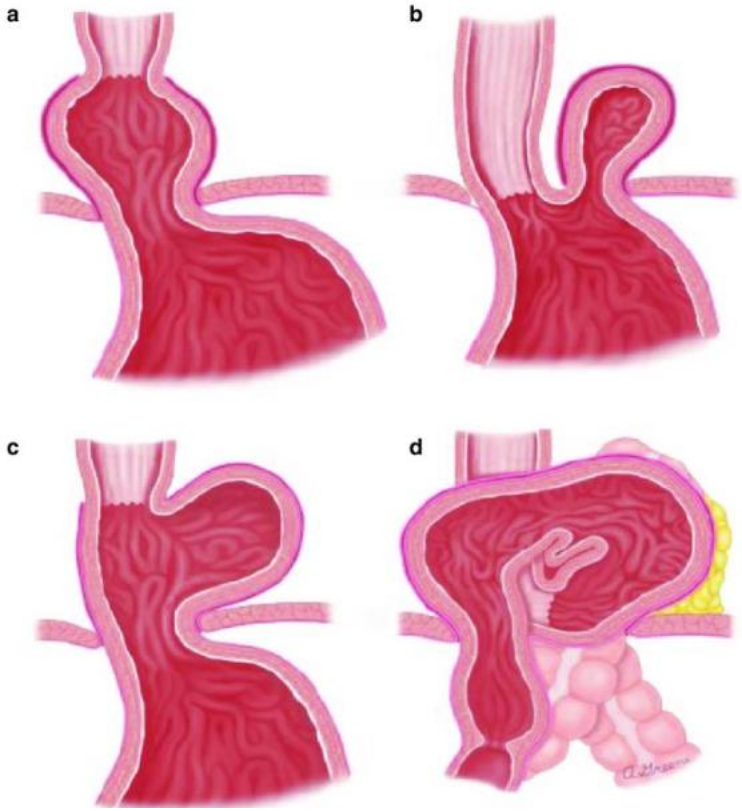
TABLE 2 - SUMMARY OF SURGICAL PROCEDURES AND OUTCOMES OF SSc PATIENTS

Authors	Year	Indications	N° procedures	RYGB	Nissen	Toupet	Dor	Watson	C-N	B-N	C-B	C-T	M-B IV	Other	Efficacy
Andrade	2017	GERD	1				1								Support FP
Bancewicz	1987	Dysmotility	2		2										Support FP
Braghetto	1998	GERD	2	2											Support RYGB
Ellis	1973	GERD	1		1										Poor results
Gockel	2006	Dysphagia	1				1								Support FP
Goldberg	2016	GERD	10	-	-	-	-	-	-	-	-	-	-	-	Support FP
Henderson	1973	GERD	13								11			2	Support FP
Henderson	1978	GERD	9							2				7	Unclear
Hii	2021	GERD	17			1	12	4							Support FP
Katada	2013	GERD	2	-	-	-	-	-	-	-	-	-	-	-	Poor results
Kent	2007	GERD	18	8	5	1			3			1			Support RYGB
Leiva-Juarez	2021	GERD	10		4	1	5								Support FP
Loganathan	2021	GERD	5				5								Support FP
Mansour	1988	GERD	11		2				1		2		6	3	Poor results
Nakajima	2013	GERD	1		1										Support FP
Poirier	1994	GERD	14	1	10				2		1				Support FP
Sampaio-Barros	2003	Dysphagia	10	1	7										Support FP
Soares	2011	GERD	6				6								Support FP
Stirling	1989	GERD	28						28						Poor results
Surjan	2023	GERD	1	1											Support RYGB
Tran	2021	GERD	7	-	-	-	-	-	-	-	-	-	-	-	Support FP
Watson	2006	GERD	6	-	-	-	-	-	-	-	-	-	-	-	Support FP
Yan	2018	GERD	14	7	2	2	1					2			Support RYGB
Tot (n°)			189	20	34	4	31	4	34	2	14	3	6	12	

RYGB: *Roux-en-Y gastric by-pass*; C-N: *Collis-Nissen*; B-N: *Belsey-Nissen*; C-B: *Collis-Belsey*; C-T: *Collis-Toupet*; M-B IV: *Mark-Belsey IV*; - : *Undefined* ; FP: *Fundoplication*.

- surgical management of refractory GERD remains a challenge
- limited evidence
-safety and beneficial effect of FP obtained in the majority of SSc patients

ERNIA PARAESOFAGEA



Pazienti anziani(reflusso, lassità tessuti, cifoscoliosi)

Sintomatica (rigurgito, anemia cronica, bruciore, disfagia, sazietà precoce)
Asintomatica

Complicanza acuta: volvolo, strozzamento, perforazione (8-10%emergenza / urgenza / **semielettiva**)

- >mortalità e morbidità in urgenza
- 1,1-2 % per anno di sviluppare complicanze
- mortalità elettiva 1,4% vs 1% in watchful
-ridotta morbidità in emergenza in VL

Diseases of the Esophagus 2020;33:1-9
SAGES Guidelnes 2013

ERNIA PARAESOFAGEA

- Ottima risposta/risoluzione dei sintomi ma bassa efficacia su sintomi pneumologici
- >QoL anche in anziani (rischio perioperatorio):operare tutti i sintomatici con rischio operatorio accettabile
- Non necessario studio funzionale (tranne RXTD)
- Complicanza in asintomatici:-18% in<65 anni
- -<7% in 85 anni
- -75 anni solo se sintomatici (discussione caso per caso)
- Recidiva anatomica è frequente (60% a 12 anni); non ripercussioni funzionali

- NOTE TECNICHE

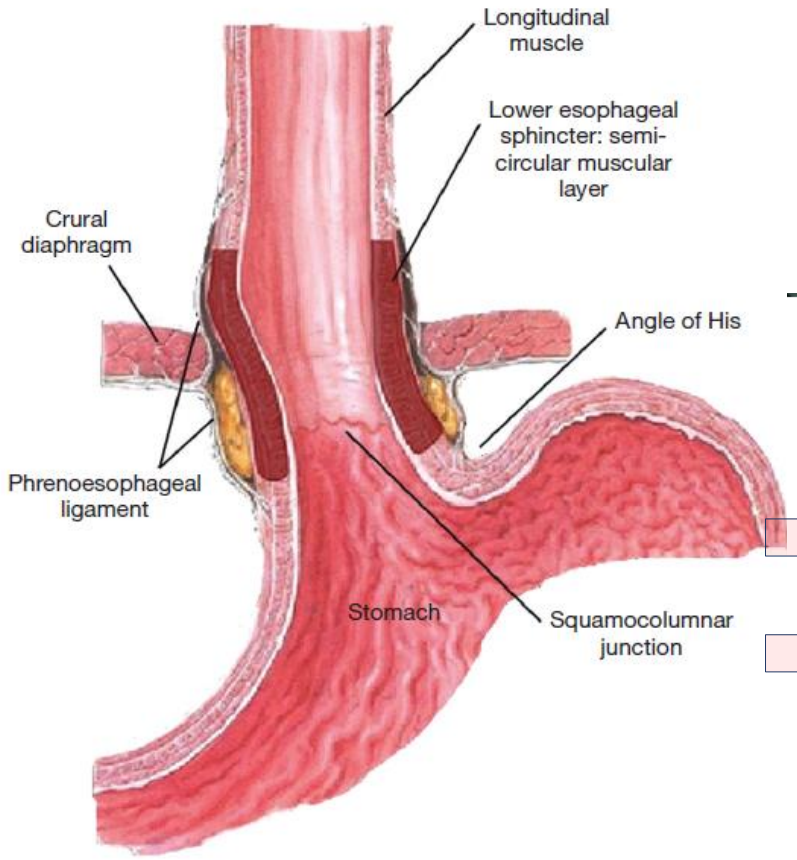
1)Trattamento laparoscopico
2)Rete riduce recidiva precoce (14vs 25%) vs rischi di una protesi e simili risultati a distanza
3)Fundoplication:previene reflusso; fissaggio in addome
4)Gastropessi:utile nel prevenire recidive/reflusso

Diseases of the Esophagus 2020;33:1-9
SAGES Guidelnes 2013

REFLUSSO E CHIRURGIA BARIATRICA

- -BMI correlato a reflusso (61% obesi ha reflusso)
- -Reflusso post chirurgia > Sleeve (Angolo di His, Slingfibers, > pressione pouch)
- -Studio funzionale (phmetria)
- -PPI
- -Reverse a Roux-en-Y Gastric by pass

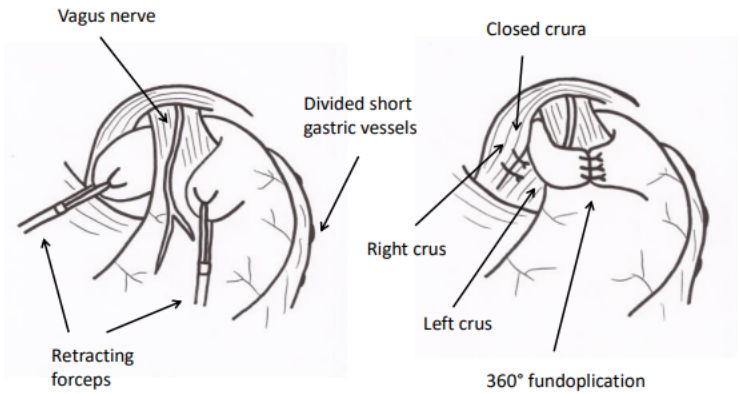
Surg Clin North Am. 2015 Jun;95(3):579-91. doi: 10.1016/j.suc.2015.02.010



	description of repair	approach
Nissen	360° posterior fundoplication	laparoscopic
Collis-Nissen	360° fundoplication + gastroplasty	laparoscopic
Nissen-Rossetti	360° anteroposterior fundoplication	laparoscopic
Collis	gastroplasty (tubulation of stomach)	laparoscopic
Rossetti	360° anterior fundoplication	laparoscopic
Toupet	270° posterior fundoplication	laparoscopic
Lind	270° anteroposterior fundoplication	laparoscopic
Thal	90° anterior fundoplication	laparoscopic
Dor	180° anterior fundoplication	laparoscopic
Hill	90° anterior fundoplication + posterior gastropexy	laparoscopic
Guarner	120° posterior fundoplication	laparoscopic
Belsey-Mark IV	270° anterolateral fundoplication	transthoracic

- Laparoscopic Nissen fundoplication - LNF:
  - minimal invasive procedure
  - gold standard
  - most commonly performed anti-reflux surgery

- Corrects GORD:
  - Reducing hiatal hernia
  - Reconstructing oesophageal hiatus
  - Reinforcing LOS



TIP AND TRICKS

Dissezione mediastinica per ottenere 3 cm stabili in addome

Chiusura della crura (non evidenza superiorità uso di mesh su recidiva)

Mobilizzazione del fondo gastrico “floppy”

Learning curve 50 procedure

Standardizzazione

Laparoscopic fundoplication è sicura e duratura se standardizzata ed eseguita in centri specialistici

Am J Gastroenterol 2008;103:289-91
Arch Surg 1998;133:600-6

Hiatal Hernia Repair With Tension-Free Mesh or Crural Sutures Alone in Antireflux Surgery A 13-Year Follow-Up of a Randomized Clinical Trial

159 pazienti con GERD randomizzati (mesh non riassorbibile)

Recidiva radiologica di HH 38% per mesh vs 31% senza mesh (NS)

Disfagia scores significativamente maggiore nel gruppo mesh

Analatos et al JAMA Surg. 2024;159(1):11-18.
doi:10.1001/jamasurg.2023.4976

JAMA Surgery | Original Investigation

Clinical Outcomes of a Laparoscopic Total vs a 270° Posterior Partial Fundoplication in Chronic Gastroesophageal Reflux Disease

A Randomized Clinical Trial

Apostolos Analatos, MD; Bengt S. Håkanson, MD, PhD; Christoph Ansorge, MD, PhD; Mats Lindblad, MD, PhD; Lars Lundell, MD, PhD; Anders Thorell, MD, PhD

- 15-year follow-up study
- 159 Toupet 270° vs 151 Nissen
- = reflux control, swallowing function, QoL

Table 2. Mean (SD) Dysphagia Scores for Solid Food and Liquid Items During the 15 Years of Follow-up[a]

	Preoperation			1 y Postoperation			2 y Postoperation			3 y Postoperation			15 y Postoperation		
Allocation	PF (n = 112)	TF (n = 109)	*P* value[b]	PF (n = 145)	TF (n = 135)	*P* value[b]	PF (n = 141)	TF (n = 126)	*P* value[b]	PF (n = 144)	TF (n = 146)	*P* value[b]	PF (n = 158)	TF (n = 149)	*P* value[b]
Dysphagia for liquids	1.5 (0.8)	1.3 (0.7)	.07	1.0 (0.3)	1.1 (0.4)	.04	1.1 (0.4)	1.1 (0.4)	.63	1.1 (0.4)	1.1 (0.3)	.69	1.2 (0.5)	1.2 (0.5)	.58
P value vs baseline[c]	NA	NA	NA	<.001	.01	NA	<.001	<.001	NA	.00	<.001	NA	<.001	.12	NA
Dysphagia for solids	1.7 (0.9)	1.5 (0.9)	.25	1.1 (0.4)	1.3 (0.6)	.01	1.1 (0.4)	1.3 (0.6)	.01	1.2 (0.6)	1.2 (0.5)	.36	1.3 (0.6)	1.3 (0.5)	.97
P value vs baseline[c]	NA	NA	NA	<.001	.03	NA	<.001	.02	NA	.00	<.001	NA	<.001	<.001	NA

Abbreviations: NA, not applicable; PF, posterior partial fundoplication; TF, total fundoplication.

[a] Patients were originally randomized to a PF or a TF. Scores range from 1 to 4, where 1 indicates no dysphagia episodes and 4 indicates more than 3.

[b] The Mann-Whitney *U* test.

[c] The Friedman and Wilcoxon signed rank test.

JAMA Surg. 2022;157(6):473-480

COMPLICANZE DELLA CHIRURGIA ANTIREFLUSSO

Table 1. Early and late complications after laparoscopic Nissen fundoplication, from a review of the literature.

Postoperative mortality (%)	0.15
Perforations (%)	1.0
Haemorrhage (%)	1.1
Pneumothorax (%)	2.0
Splenectomy (%)	0.1
Early dysphagia (%)	20
Dilatation/endoscopy (%)	4.0
Late dysphagia (%)	5.5
Reoperation for dysphagia (%)	0.9
Reoperation for reflux (%)	0.7

Best Practice & Research Clinical Gastroenterology Vol. 18, No. 5, pp. 935–945, 2004

COMPLICANZE DELLA CHIRURGIA ANTI-REFLUSSO

-Lesione del n vago: sazietà precoce, alterato svuotamento gastrico, diarrea
-Disfagia: edema, 90% si risolve
-Erniazione paraesofagea
-Alterazione capacità del vomito e/o eruttazione

Table 3. Indications for a reoperation due to failed index anti-reflux repair.

Recurrent reflux (%)	67
Dysphagia-stenosis (%)	10
Herniated wrap (%)	14
Severe fundoplication symptoms (%)	3
Miscellaneous (%)	6

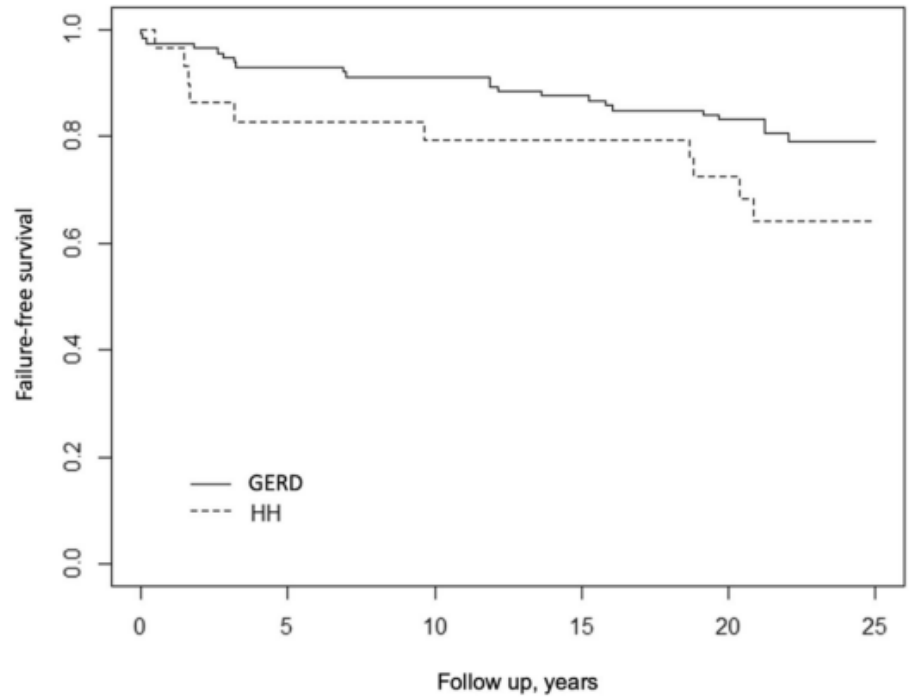
Best Practice & Research Clinical Gastroenterology Vol. 18, No. 5, pp. 935–945, 2004

RECIDIVA E RISULTATI A DISTANZA

Journal of Gastrointestinal Surgery
https://doi.org/10.1007/s11605-023-05797-4

SSAT PLENARY PRESENTATION

Antireflux Surgery's Lifespan: 20 Years After Laparoscopic Fundoplication

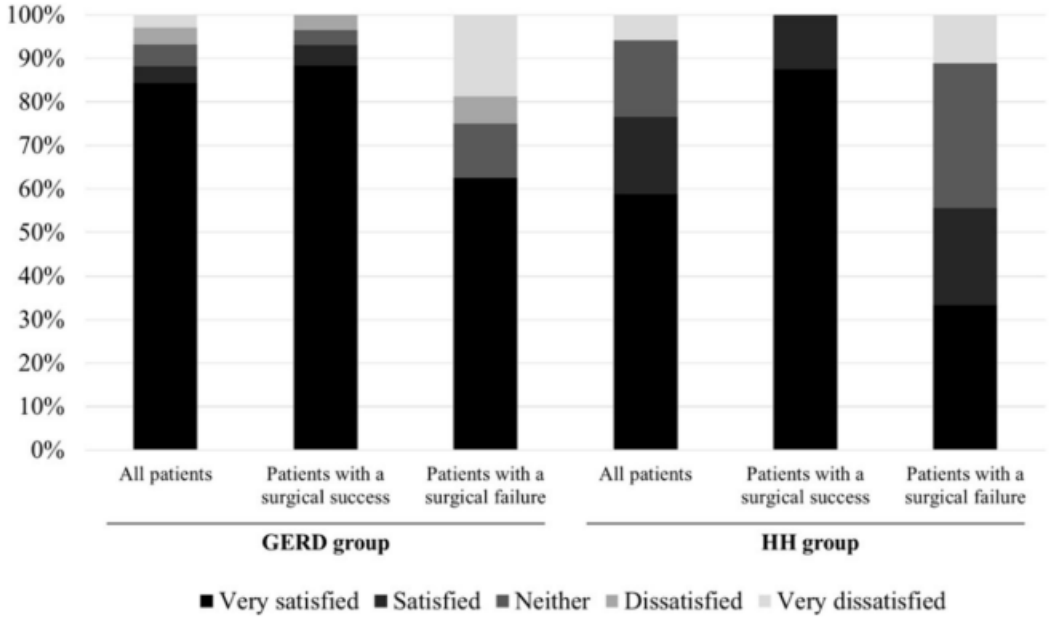


-Recidiva di GERD
-Esofagite >B persistente o recidiva
-HH recidiva o Slipped anche se asintomatici
-pHmetria patologica anche se asintomatica
-progressione di ADK su Barrett

Journal fo Gastrointestinal Surgery 2023

RECIDIVA E RISULTATI A DISTANZA

	GERD 112	**HH 30**
INDICAZIONE	Sintomi tipici 78% Atipici 4% Barrett 17%	HH tipo 3 83.3%
Mesh	0	36.7%
Successo vs falimento	80.4% vs 19.6%	63.3% vs 36.7%
Cause fallimento	Slipped wrap 36.4% (80% solo radiologica) Disfagia 22.7%	Slipped wrap > Recidiva di ernia ma asintomatica 36%
Controllo sintomi	93.5%	
Ripresa PPI	26%	23.3%
Soddisfazione	87.6%	76.7%



Journal fo Gastrointestinal Surgery 2023

TRATTAMENTO COMPLICANZE DELLA CHIRURGIA ANTI-REFLUSSO

-Terapia medica con PPI (30%)

-Disfagia: dilatazioni endoscopiche

-Revisione chirurgica:complessa, incremento complicanze, ridotti risultati

-Gas bloat:(>in Nissen)dieta, simeticone, procinetici

-Diarrea (>svuotamento, lesioni vago); > se associata colecistectomia; norme dietetiche

Best Practice & Research Clinical Gastroenterology Vol. 18, No. 5, pp. 935–945, 2004

TAKE HOME MESSAGE

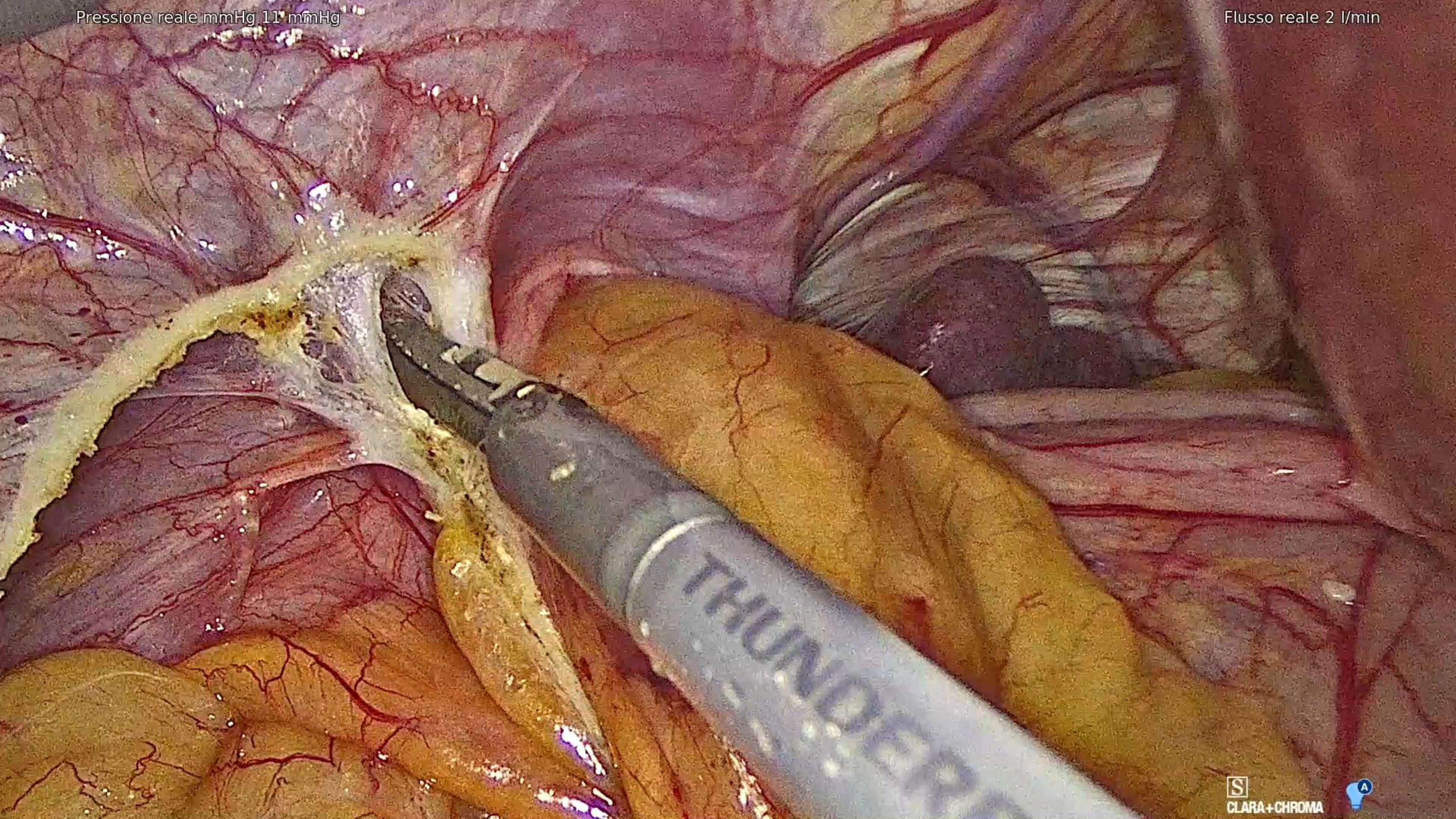
-ACCURATA SELEZIONE DEI PAZIENTI

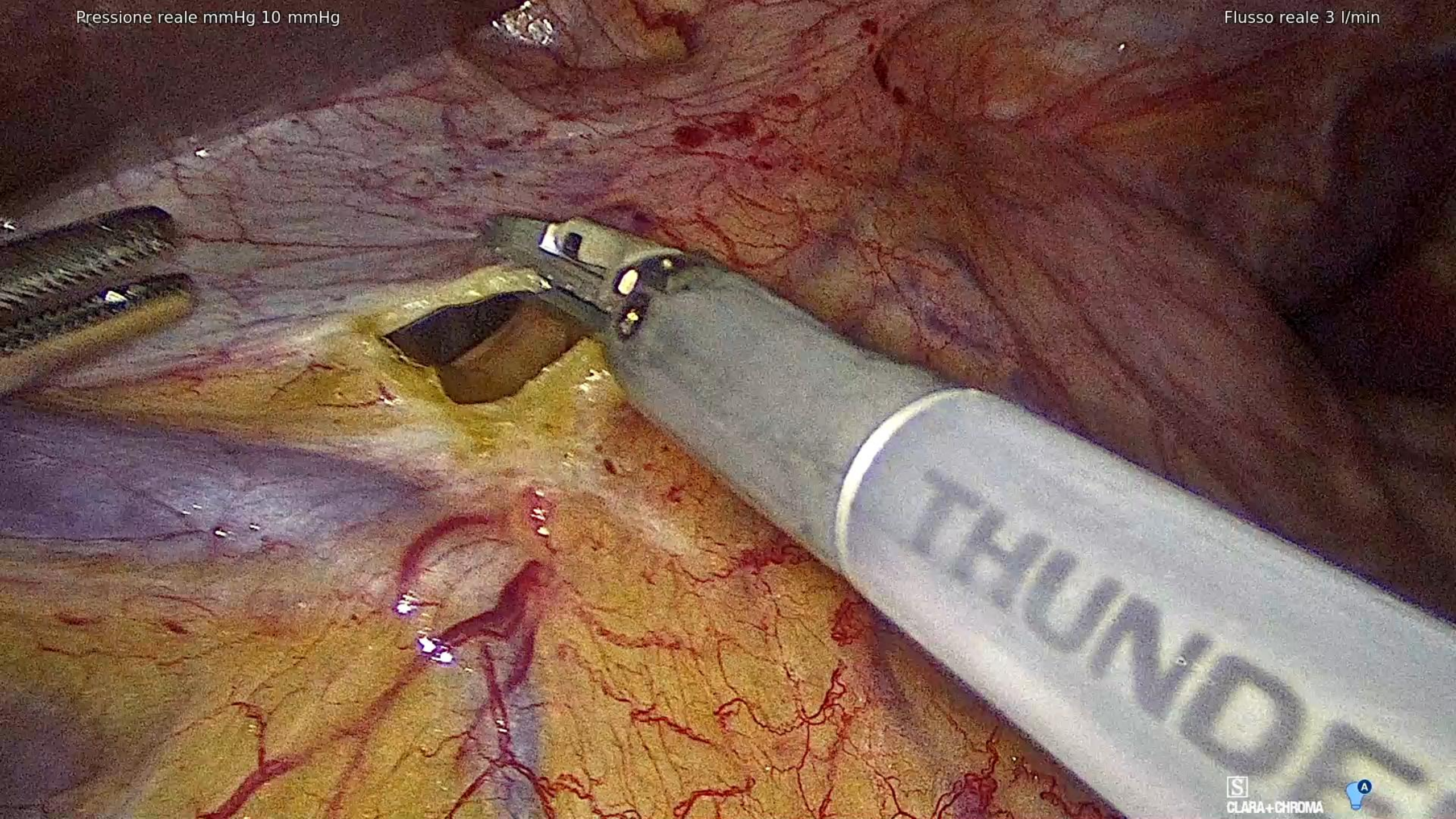
-SINTOMI TIPICI E PPI RESPONDER/REFRATTARIO

-STUDIO PRE OPERATORIO

-TECNICA STANDARDIZZATA

-COMPLICANZE E RECIDIVE


Pressione reale mmHg 11 mmHg
Flusso reale 2 l/min
THUNDER
CLARA+CHROMA


Pressione reale mmHg 10 mmHg
Flusso reale 3 l/min
THUNDE
CLARA+CHROMA

GRAZIE