

# ΧΕΙΡΟΥΡΓΙΚΗ ΑΝΤΙΜΕΤΩΠΙΣΗ ΓΑΣΤΡΟΟΙΣΟΦΑΓΙΚΗΣ ΠΑΛΙΝΔΡΟΜΗΣΗΣ

**Δημήτριος Θεοδώρου**

*Επίκουρος Καθηγητής Χειρουργικής*

**Μονάδα Χειρουργικής Ανωτέρου Πεπτικού**

**‘Α Προπαιδευτική Χειρουργική Κλινική  
Πανεπιστημίου Αθηνών**

**Ιπποκράτειο ΓΝΑ**

# Ορισμός

- ▣ Είναι η Παλινδρόμηση Γαστρικού περιεχομένου (ανεξάρτητα από την υφή) στον Οισοφάγο

*Φυσιολογικό Φαινόμενο*

# Ανατομία

- ▣ Υπάρχει Κατώτερος Οισοφαγικός Σφιγκτήρας;

# Ανατομία

- ▣ **Ζώνη Αυξημένης Πίεσης Κατώτερου Οισοφάγου:**
  - Φρενοοισοφαγικός Σύνδεσμος
  - Ενδοκοιλιακό Τμήμα
  - Κυκλοτερής Μυϊκή στιβάδα Οισοφάγου
  - Μυϊκός Στομάχου

# Ανατομία

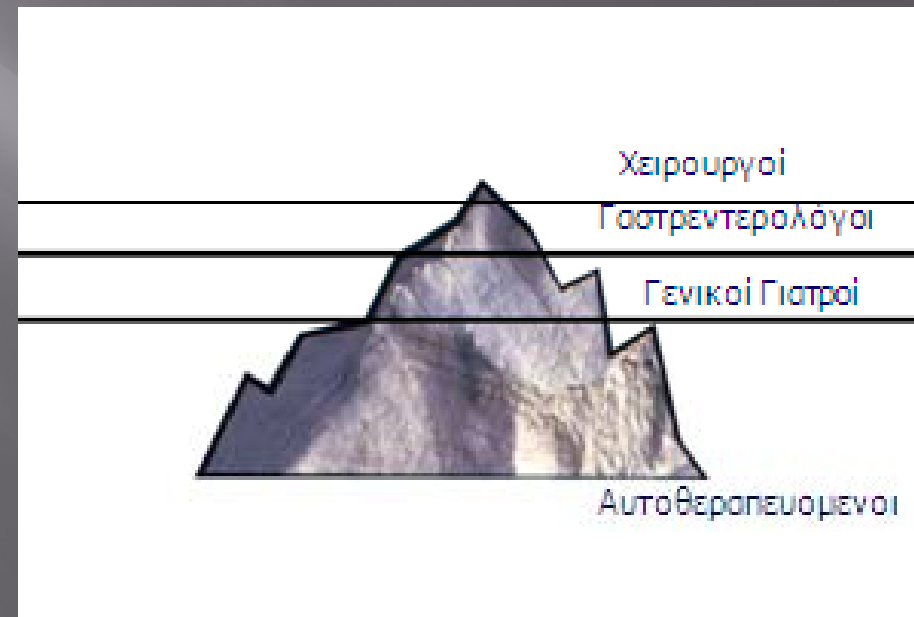
- ▣ **Ζώνη Αυξημένης Πίεσης Κατώτερου Οισοφάγου:**  
**Πίεση ηρεμίας >6mmHg**  
**Μήκος ολικό 2 εκ**  
**Μήκος ενδοκοιλιακό 1 εκ**

# Συμπτώματα

- ▣ **Τυπικά**  
Καύσος  
Αναγωγές
- ▣ **Άτυπα**  
Πόνος  
Δυσπεπτικά  
Αναπνευστικά (Άσθμα)  
ΩΡΛ

# Γαστροοισοφαγική Παλινδρόμηση

- ▣ Συχνή ασθένεια (44% μηνιαία συμπτώματα)
- ▣ Κόστος νόσου \$9,8 δις ετησίως στις ΗΠΑ (από το οποία 5.8 δις \$ φάρμακα)





# Θεραπεία

- ▣ **Συντηρητική**  
Αλλαγές τρόπου ζωής  
Αναστολείς αντλίας πρωτονίου
- ▣ **Ενδοσκοπική**
- ▣ **Χειρουργική**  
Θολοπλαστική Nissen



# PPI

- ▣ Σε 83% ρυθμίζει τα συμπτώματα
- ▣ Σε 78% επουλώνει την οισοφαγίτιδα

DeVault et al Arch Intern Med 1995

# ΡΡΙ

- ▣ **Μειονεκτήματα**

Μετά την διακοπή 80%  
θα υποτροπιάσουν

# ΡΡΙ

## ▣ Μειονεκτήματα

Μακροχρόνια χρήση  
απαραίτητη:

- Κόστος
- Ποιότητα ζωής ειδικά στους νέους

# ΡΡΙ

- ▣ Μειονεκτήματα

Η ΓΟΠ δεν σταματά

Εφαρμογή Πληθυσμογραφίας

Tamhankar et al J Gastrontest Surg 2004

# PPI

- ▣ **Μειονεκτήματα**

Η ΓΟΠ δεν σταματά

Παλινδρόμηση χολής στο  
75% των ασθενών

Tack et al Am J Gastroenter 2004

# PPI

## Risk of Community-Acquired Pneumonia and Use of Gastric Acid-Suppressive Drugs

**Conclusion** Current use of gastric acid-suppressive therapy was associated with an increased risk of community-acquired pneumonia.

**Table 1.** Relative Risks for Community-Acquired Pneumonia by Exposure to Gastric Acid-Suppressive Therapy

	Total	Unexposed	Exposed to Acid-Suppressive Drugs		
			Overall	H <sub>2</sub> -Receptor Antagonists	Proton Pump Inhibitors
No. of patients	364 683	345 224	19 450*	10 177	12 337
Person-years	977 893	970 331	7562*	2351	5191
No. of cases of pneumonia	5551	5366	185	54	131
Unadjusted relative risk (95% CI)		1.00	4.47 (3.82-5.12)	4.24 (3.18-5.43)	4.63 (3.84-5.43)

# PPI

## Long-term Proton Pump Inhibitor Therapy and Risk of Hip Fracture

**Conclusion** Long-term PPI therapy, particularly at high doses, is associated with an increased risk of hip fracture.

**Table 2.** Risk of Hip Fracture Associated With Increasing Cumulative Duration of Proton Pump Inhibitor Therapy

	Cumulative Proton Pump Inhibitor Therapy Duration, y			
	1	2	3	4
OR (95% CI)*				
Crude	1.43 (1.35-1.52)	1.84 (1.67-2.01)	2.10 (1.91-2.35)	2.17 (1.93-2.45)
Adjusted†	1.22 (1.15-1.30)	1.41 (1.28-1.56)	1.54 (1.37-1.73)	1.59 (1.39-1.80)



# Θολοπλαστική

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## **PRACTICE GUIDELINES**

### Updated Guidelines for the Diagnosis and Treatment of Gastroesophageal Reflux Disease

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Kenneth R. DeVault M.D., F.A.C.G., and Donald O. Castell M.D., M.A.C.G.

*Departments of Medicine, Mayo Clinic College of Medicine, Jacksonville, Florida; and Medical University of South Carolina, Charleston, South Carolina*

Am J Gastroenterol 2005;100:190-200

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#### **TREATMENT GUIDELINE VI: SURGERY**

*Antireflux surgery, performed by an experienced surgeon, is a maintenance option for the patient with well-documented GERD.*

*Level of Evidence: II*

# Ενδείξεις

- ▣ Αποτυχία PPI
- ▣ Επιλογή ασθενούς παρά την επιτυχία PPI
- ▣ Επιπλοκές ΓΟΠ ( Barrett, βαριά οισοφαγίτιδα)
- ▣ Διαφραγματοκήλη
- ▣ Άτυπα συμπτώματα με θετική πεχαμετρία
- ▣ Δυσανεξία στα PPI

# Προεγχειρητικά

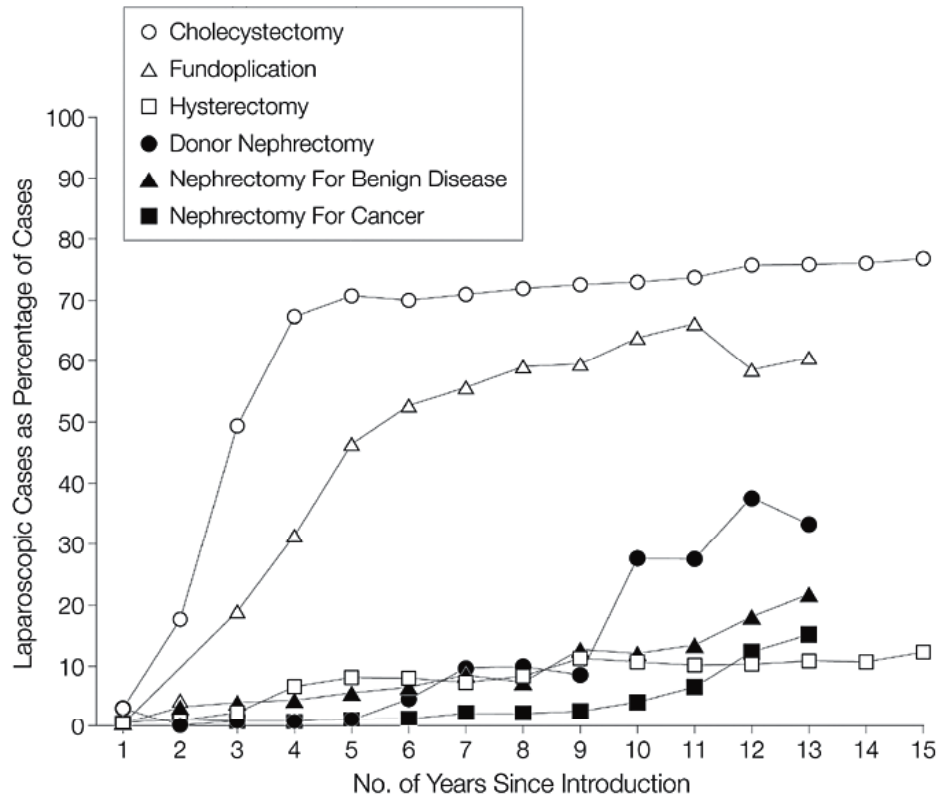
- ▣ Ενδοσκόπηση
- ▣ Μανομετρία
- ▣ 24ωρη Πεχαμετρία (μόνο επί άτυπης συμπτωματολογίας ή έλλεψης οισοφαγίτιδας)

# Nissen

- ▣ 1956 Nissen
- ▣ 1991 Dellamagne λαπαροσκοπική Nissen  
11000 το 1985 σε 25000 το 1997

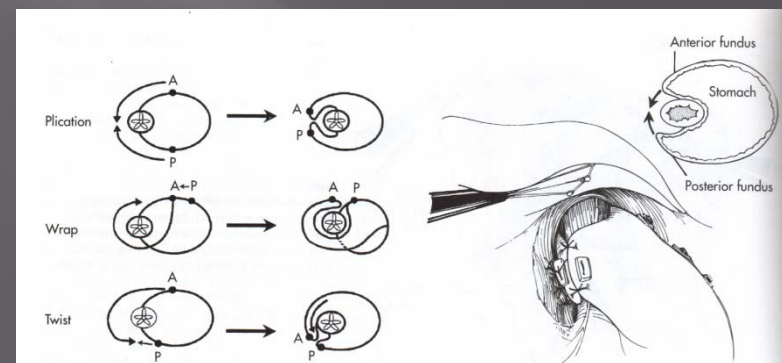
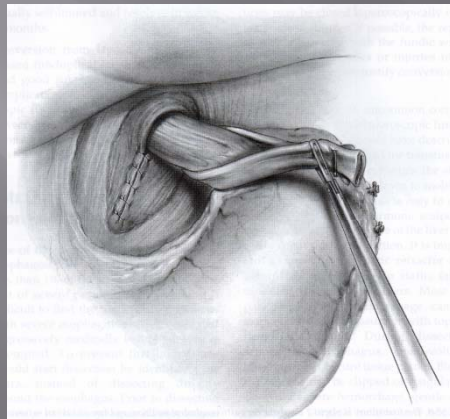
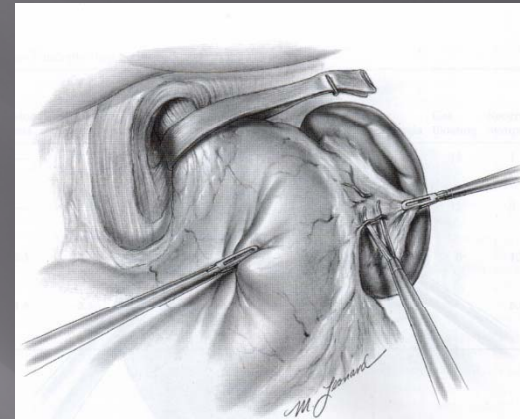
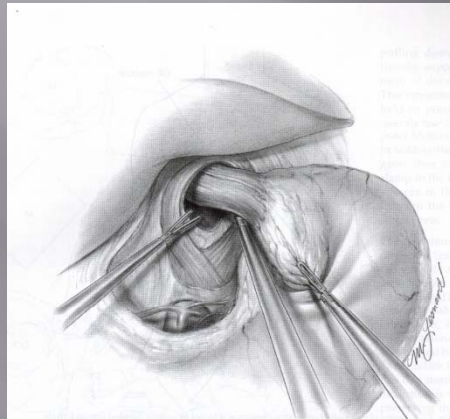
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**Figure.** Comparison of Diffusion Curves for Laparoscopic Procedures

# Τεχνικά Ζητήματα





# Μακροχρόνια Αποτελέσματα

## Laparoscopic Nissen Fundoplication: Clinical Outcomes at 10 Years

Jamie J Kelly, BM, FRCS, David I Watson, MD, FRACS, Kin Fah Chin, BM, FRCS,  
Peter G Devitt, MS, FRCS, FRACS, Philip A Game, MBBS, FRCS, FRACS, Glyn G Jamieson, MS, FRACS

- 
- BACKGROUND:** Laparoscopic Nissen fundoplication is now the most common operative procedure for treatment of gastroesophageal reflux disease, although longterm clinical outcomes after this procedure remain uncertain.
- STUDY DESIGN:** Outcomes for 250 patients who underwent Nissen (total) fundoplication at least 10 years ago (September 1991 to August 1995) were determined prospectively using a structured questionnaire that evaluated clinical symptom scores for heartburn, dysphagia, and satisfaction with clinical outcomes.
- RESULTS:** Clinical followup data for at least 10 years (120 to 167 months) after operation were available for 226 patients, an additional 21 patients had died, making outcomes for 247 patients (99%). Of the three (1%) remaining patients, one was lost to followup and dementia developed in two. One hundred eighty-seven (83%) patients were highly satisfied with the clinical outcomes. One hundred eighty-nine (84%) had good or excellent control of heartburn. Symptom scores for heartburn, dysphagia, and overall satisfaction were unchanged from 5-year followup data. Forty-two (17%) patients underwent revision operations, 28 (22%) were in the first 125 patients and 14 (11%) in the subsequent 125 patients. Antireflux medication use increased gradually, resulting in 47 (21%) patients using medication at 10 years. Of 21 deaths, 1 was postoperative and the remaining 20 were similar to that predicted for a matched population. A high preoperative heartburn score correlated with high patient satisfaction and lower dysphagia score at 10 or more years ( $p = 0.038$  and  $p = 0.041$ , respectively).
- CONCLUSIONS:** Laparoscopic Nissen fundoplication is an effective longterm treatment for gastroesophageal reflux disease. ([J Am Coll Surg 2007;205:570-575](#). © 2007 by the American College of Surgeons)
-



# Μακροχρόνια Αποτελέσματα

## Long-Term Outcome of Antireflux Surgery in Patients With Barrett's Esophagus

Wayne L. Hofstetter, MD, Jeffrey H. Peters, MD, Tom R. DeMeester, MD, Jeffrey A. Hagen, MD, Steven R. DeMeester, MD, Peter F. Crookes, MD, Peter Tsai, MD, Farzana Banki, MD, and Cedric G. Bremner, MD

*From the Department of Surgery, Division of Thoracic and Foregut Surgery, University of Southern California, Los Angeles, California*

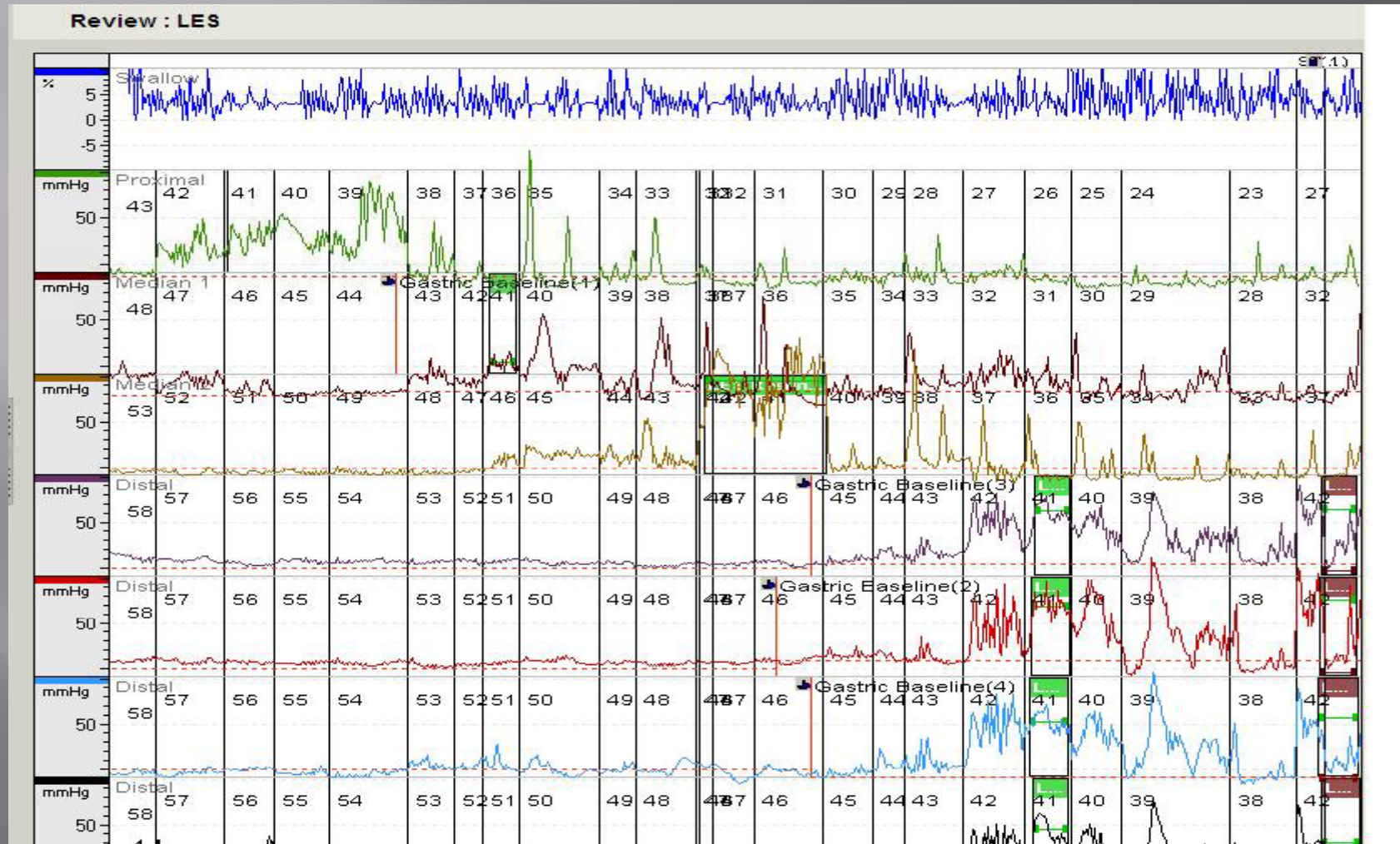
condition to be improved, and 97% were satisfied. Low-grade dysplasia regressed to nondysplastic Barrett's in 7 of 16 (44%), and intestinal metaplasia regressed to cardiac mucosa in 9 of 63 (14%). Low-grade dysplasia developed in 4 of 63 (6%) patients. No patient developed high-grade dysplasia or cancer in 410 patient-years of follow-up.

# Αίτια Αποτυχίας

Εμμονή ή υποτροπή  
συμπτωμάτων

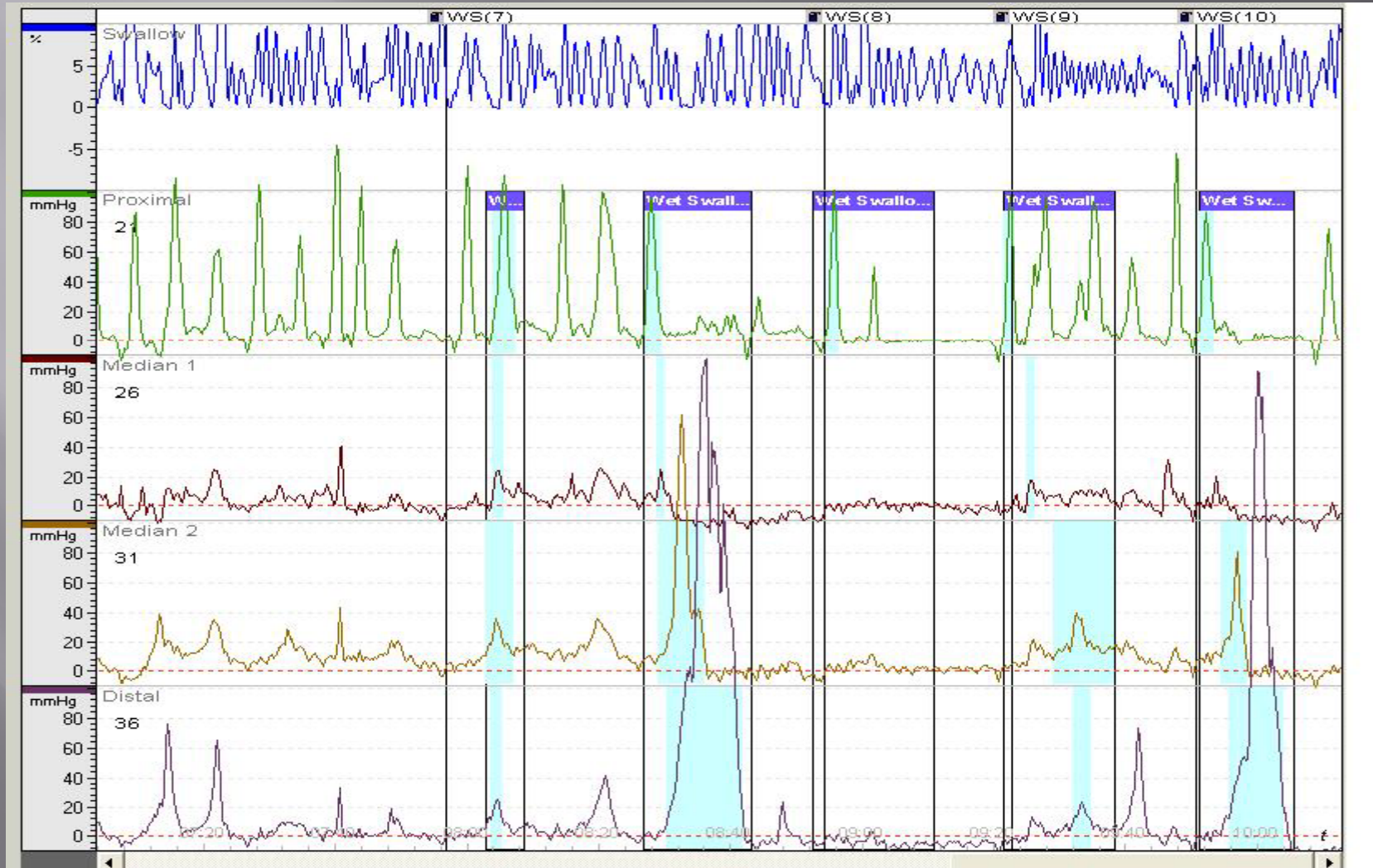
- ▣ Κακή επιλογή ασθενών
- ▣ Κακή τεχνική
- ▣ Βραχύς οισοφάγος

# 32 ετών με θολοπλαστική προ έτους εμφανίζει δυσφαγία και οξέα επεισόδια θωρακικού πόνου





# Διάχυτος Οισοφαγικός Σπασμός



## Multivariate Analysis of Factors Predicting Outcome After Laparoscopic Nissen Fundoplication

*Guilherme M.R. Campos, M.D., Jeffrey H. Peters, M.D., Tom R. DeMeester, M.D., Stefan Öberg, M.D., Peter F. Crookes, M.D., Silvia Tan, M.S., Steven R. DeMeester, M.D., Jeffrey A. Hagen, M.D., Cedric G. Bremner, M.D.*

good outcome (87%) and 26 had a fair or poor outcome. Three factors were significantly predictive of a successful outcome: an abnormal 24-hour pH score (odds ratio = 5.4; 95% confidence interval [CI] = 1.9-15.3), a typical primary symptom (odds ratio = 5.1; 95% CI = 1.9-13.6), and a clinical response to acid suppression therapy (odds ratio = 3.3; 95% CI = 1.3-8.7). We conclude that 24-hour pH moni-

# Αίτια Αποτυχίας

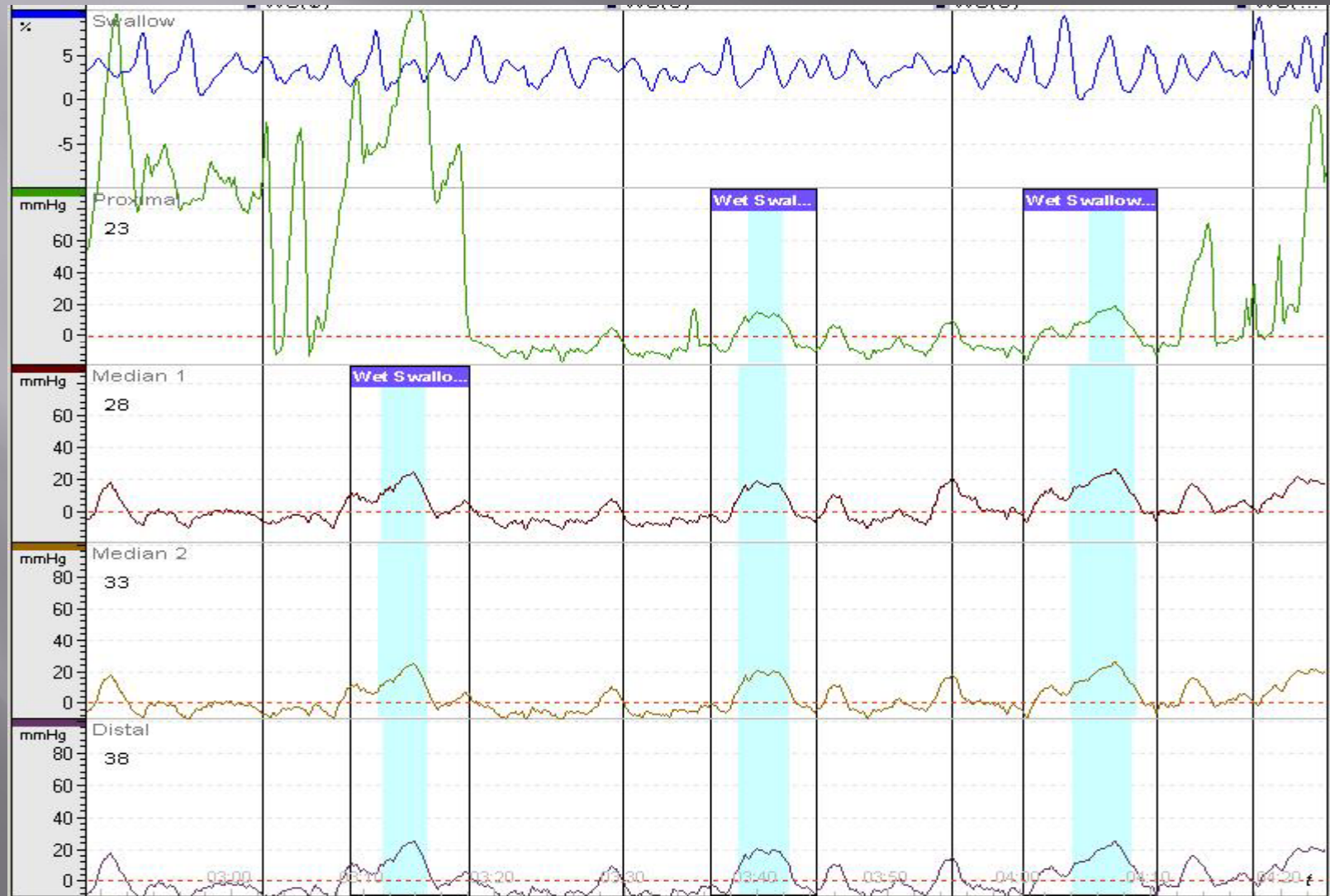
Νέα συμπτώματα

- ▣ Δυσφαγία (έως 20%)

- Κινητικότητα

- Μήκος και Διάμετρος  
θολοπλαστικής

## 26 ετών άμεση δυσφαγία μετά από θολοπλαστική





# Effect of an Esophageal Bougie on the Incidence of Dysphagia Following Nissen Fundoplication

*A Prospective, Blinded, Randomized Clinical Trial*

Emma J. Patterson, MD; Daniel M. Herron, MD; Paul D. Hansen, MD; Najib Ramzi, MSc;  
Blayne A. Standage, MD; Lee L. Swanström, MD

**Results:** The mean operating time was 148 minutes (range, 65-295 minutes). The overall operative morbidity was 9% (7.4% in the bougie group and 11% in the no bougie group,  $P=.41$ ). One esophageal injury (1.2%) occurred in the bougie group. The 30-day mortality was 0. Long-term dysphagia assessment was completed in 90% of patients, with a mean follow-up of 11 months. Overall, long-term postoperative dysphagia was present in 13 patients (17%) in the bougie group and 24 patients (31%) in the no bougie group ( $P=.047$ ). Severe dysphagia occurred in 5% of patients in the bougie group and 14% in the no bougie group.

# Αίτια Αποτυχίας

Χρήση PPIs



# Long-term Outcome of Medical and Surgical Therapies for Gastroesophageal Reflux Disease

## Follow-up of a Randomized Controlled Trial

**Conclusion** This study suggests that antireflux surgery should not be advised with the expectation that patients with GERD will no longer need to take antisecretory medications or that the procedure will prevent esophageal cancer among those with GERD and Barrett esophagus.

*JAMA. 2001;285:2331-2338*

# Absence of Gastroesophageal Reflux Disease in a Majority of Patients Taking Acid Suppression Medications After Nissen Fundoplication

*Reginald V.N. Lord, M.B.B.S., Anna Kaminski, B.S., Stefan Öberg, M.D, Ph.D., David J. Bowrey, M.D., Jeffrey A. Hagen, M.D., Steven R. DeMeester, M.D., Lelan F. Sillin, M.D., Jeffrey H. Peters, M.D., Peter F. Crookes, M.D., Tom R. DeMeester, M.D.*

tionnaire. The mean postoperative follow-up period was 28 months (median 18 months). Thirty-seven patients (43%) were taking acid suppression medications after fundoplication. Only 23% (20 of 86) of all the patients and only 24% (9 of 37) of those taking acid suppression medications had abnormal esophageal acid exposure on the 24-hour pH study. Heartburn and regurgitation were the only symptoms that were signifi-

# The Extended Learning Curve for Laparoscopic Fundoplication: A Cohort Analysis Of 400 Consecutive Cases

J. Gill • M. I. Booth • J. Stratford • T. C. B. Dehn

**Abstract** Many studies have looked at the learning curve associated with laparoscopic Nissen fundoplication (LNF) in a given institution. This study looks at the learning curve of a single surgeon with a large cohort of patients over a 10-year period. Prospective data were collected on 400 patients undergoing laparoscopic fundoplication for over 10 years. The patients were grouped consecutively into cohorts of 50 patients. The operating time, the length of postoperative hospital stay, the conversion rate to open operation, the postoperative dilatation rate, and the reoperation rate were analyzed. Results showed that the mean length of operative time decreased from 143 min in the first 50 patients to 86 min in the last 50 patients. The mean postoperative length of hospital stay decreased from 3.7 days initially to 1.2 days latterly. There was a 14% conversion to open operation rate in the first cohort compared with a 2% rate in the last cohort. Fourteen percent of patients required reoperation in the first cohort and 6% in the last cohort. Sixteen percent required postoperative dilatation in the first cohort. None of the last 150 patients required dilatation. In conclusion, laparoscopic fundoplication is a safe and effective operation for patients with gastroesophageal reflux disease. New techniques and better instrumentation were introduced in the early era of LNF. The learning curve, however, continues well beyond the first 20 patients.

# Comparison of Long-term Outcome of Laparoscopic and Conventional Nissen Fundoplication

*A Prospective Randomized Study With an 11-Year Follow-up*

*Paulina T. P. Salminen, MD,\* Heikki I. Hiekkänen, MSc,† Arto P. T. Rantala, MD, PhD,\*  
and Jari T. Ovaska, MD, PhD\**

result, were similar in both groups. With the benefit of hindsight, 73.7% of the patients in the open group and 81.8% in the LAP group would again choose surgical treatment ( $P = 0.3042$ ). In the LAP group, there were 5 (13.2%) partially or totally disrupted plications compared with the 14 (40.0%) disrupted plications in the open group ( $P = 0.0152$ ). There were 10 incisional hernias in the open group compared with none in the LAP group ( $P < 0.001$ ).



# A comparison of the cost effectiveness of pharmacotherapy or surgery (laparoscopic fundoplication) in the treatment of GORD

Bojke L, Hornby E, Sculpher M; REFLUX Trial Team

Pharmacoeconomics. 2007;25(10):829-41

- **CONCLUSIONS:** The results of the model suggest that, on the basis of current evidence, laparoscopic fundoplication represents a cost effective means of treating GORD rather than lifelong medical management.



# Ενδοσκοπικές Μέθοδοι

## AGA Institute Medical Position Statement on the Use of Endoscopic Therapy for Gastroesophageal Reflux Disease

*This document presents the official recommendations of the AGA Institute on "Endoscopic Therapy for Gastroesophageal Reflux Disease." It was approved by the Clinical Practice and Economics Committee on June 20, 2006, and by the AGA Institute Governing Board on July 24, 2006.*

Most studies of endoscopic therapy have only limited follow-up information of a relatively small number of patients. Thus, the durability of these technologies beyond 1-2 years remains unclear. Short-term and long-term safety issues are unresolved, but serious adverse events led to the voluntary withdrawal of Enteryx by the manufacturer in September 2005 and suspension of the Gatekeeper clinical program in late 2005. The economics of all techniques for the patient, practitioner, and society are unknown. While newer devices and improvements in endoscopic antireflux techniques may yield better and more durable treatment outcomes, current data suggest that there are no definite indications for endoscopic therapy for GERD at this time. Both practitioners and patients need to be aware of the limitations in the evidence that exist with these devices at present.

# Ρομποτική Θολοπλαστική

Randomized clinical trial

## Randomized clinical trial of robot-assisted *versus* laparoscopic Nissen fundoplication

M. Morino, L. Pellegrino, C. Giaccone, C. Garrone and F. Rebecchi

Department of Surgery, Minimally Invasive Surgery Centre, University of Turin, Corso Achille Mario Dogliotti 14, 10126 Turin, Italy  
*Correspondence to:* Professor M. Morino (e-mail: mario.morino@unito.it)

**Results:** There were no significant differences in age, sex, body mass or preoperative reflux pattern between the groups. Operating times were significantly longer for robot-assisted than standard laparoscopic operations (mean total operating time 131.3 *versus* 91.1 min,  $P < 0.001$ ; skin-to-skin time 78.0 *versus* 63.5 min,  $P = 0.001$ ). There was no conversion to open surgery. Conversion to standard laparoscopy was necessary in one of 25 robot-assisted procedures. The length of hospital stay was similar in both groups. Robot-assisted surgery was associated with significantly higher mean total costs (€3157 *versus* €1527;  $P < 0.001$ ). There were no significant differences in clinical, endoscopic and functional outcomes between groups. There was no procedure-related mortality.

# Ρομποτική Θολοπλαστική

THE INTERNATIONAL JOURNAL OF MEDICAL ROBOTICS AND COMPUTER ASSISTED SURGERY  
*Int J Med Robotics Comput Assist Surg* 2006; 2: 287–292.  
Published online in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/rcs.108

REVIEW ARTICLE

## Robotic foregut surgery<sup>†</sup>

Fumito Ito  
Jon C. Gould\*

*University of Wisconsin School of  
Medicine and Public Health,  
Department of Surgery, Madison, WI,  
USA*

The relevant literature appears to demonstrate that robotic antireflux surgery is feasible and safe, but there seems to be no major difference in the clinical outcomes when compared to standard laparoscopic antireflux surgery. Operating time and costs are increased for computer-assisted antireflux surgery compared to the conventional laparoscopic approach. At the current level of technology, computer-assisted antireflux surgery does not appear to offer major clinical advantages to patients with skilled and experienced laparoscopic surgeons.

- ▣ Η λαπαροσκοπική θολοπλαστική είναι
  - Ασφαλής
  - Αποτελεσματική
  - Οικονομική

***Ε Φ Ο Σ Ο Ν***

τηρούνται οι **KANONEΣ**

Μονάδα Χειρουργικής Ανωτέρου Πεπτικού  
‘Α Προπαιδευτική Χειρουργική Κλινική  
Πανεπιστημίου Αθηνών  
Ιπποκράτειο ΓΝΑ

