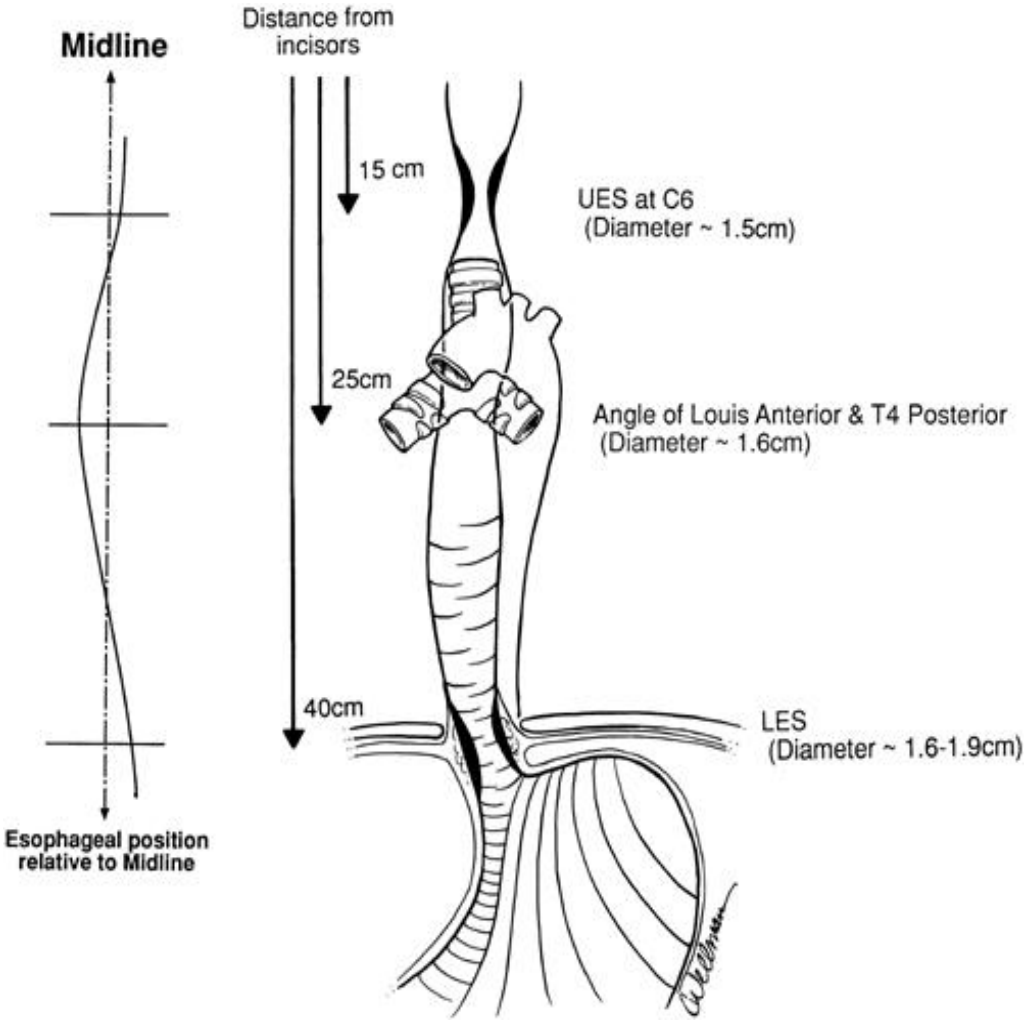
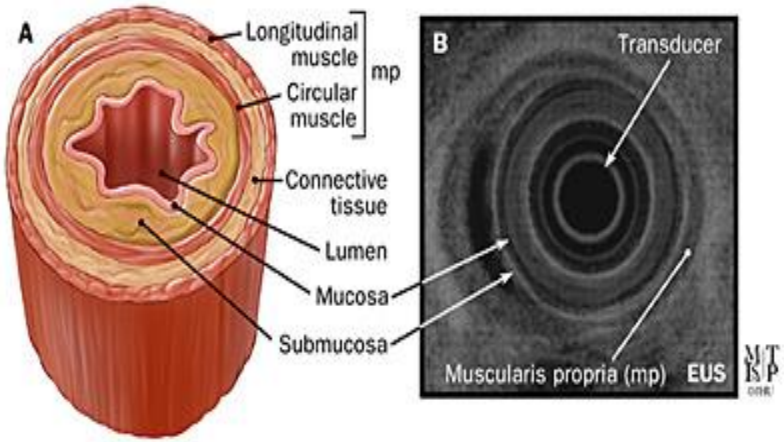
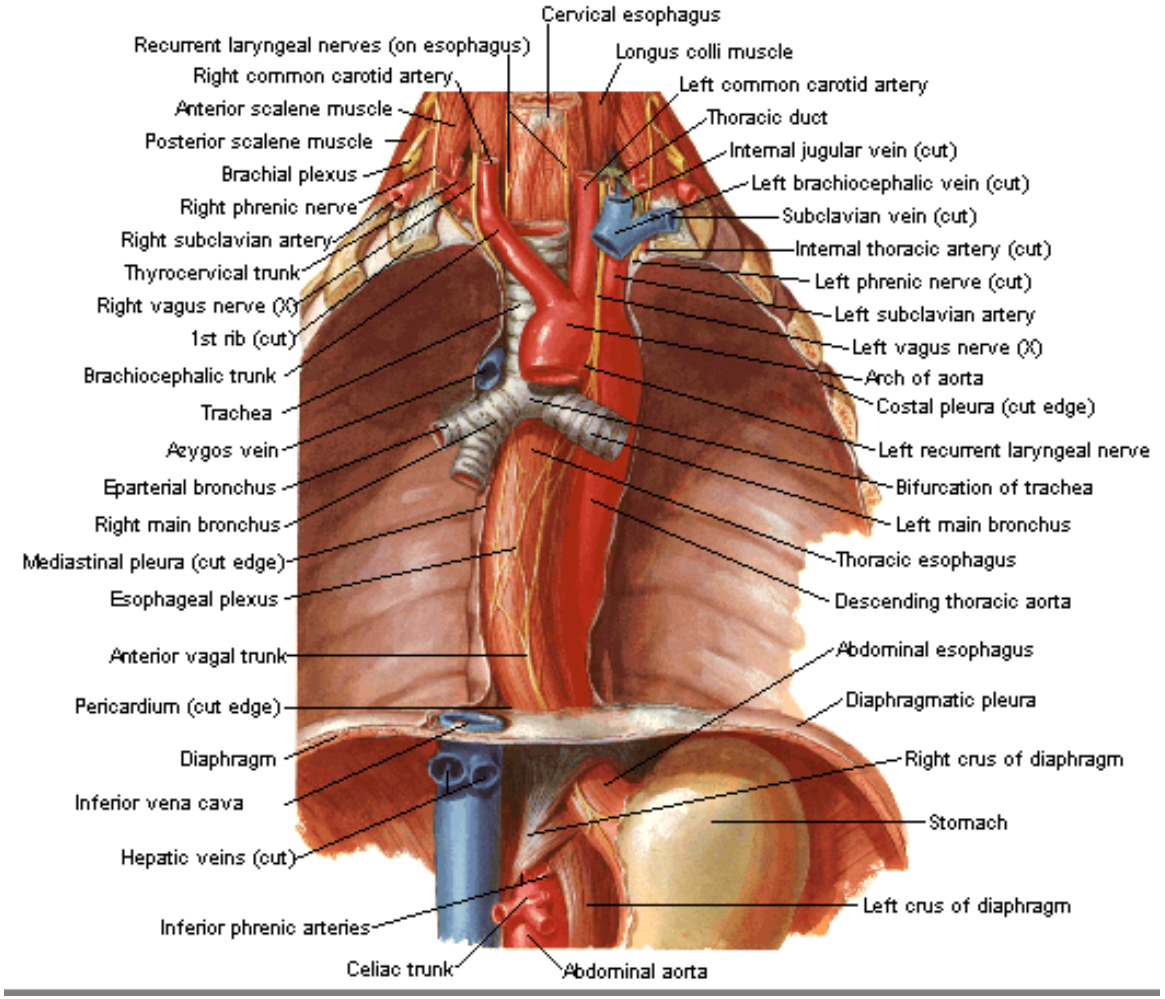
ΧΕΙΡΟΥΡΓΙΚΕΣ ΠΑΘΗΣΕΙΣ ΟΙΣΟΦΑΓΟΥ

Μονάδα Χειρουργικής Ανωτέρου Πεπτικού
Α Προπαιδευτική Χειρουργική Κλινική Πανεπιστημίου Αθηνών

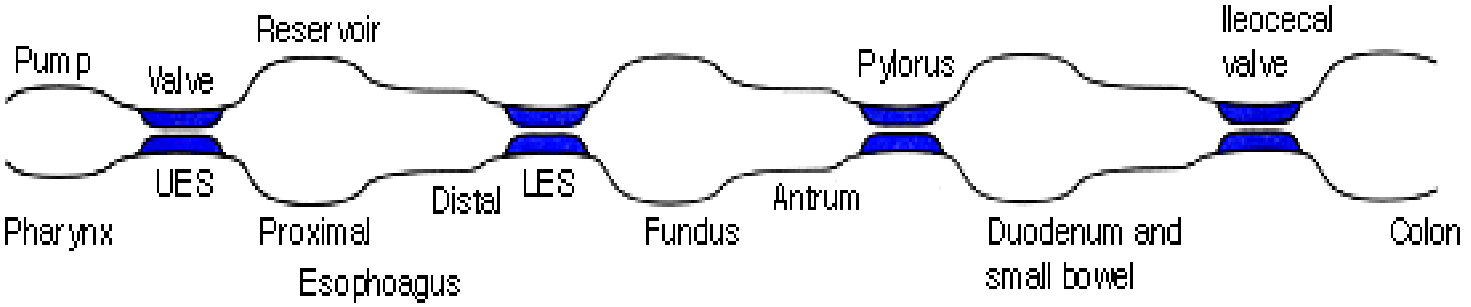
ANATOMIA

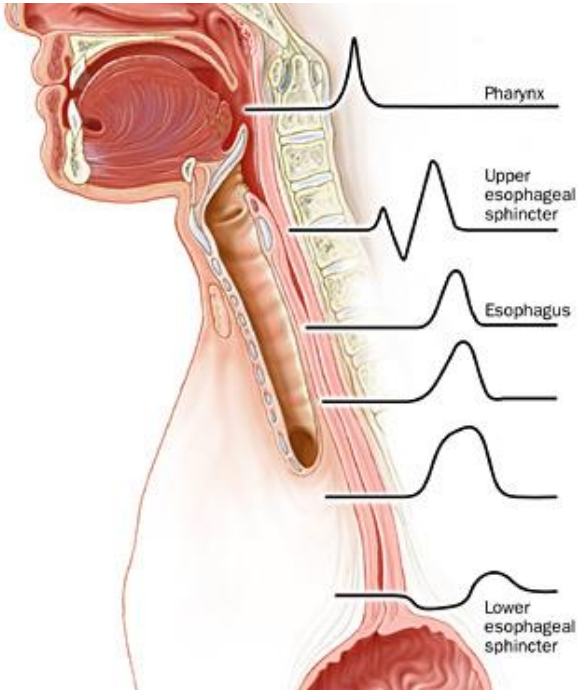

Midline
Distance from incisors
15 cm
25cm
40cm
UES at C6
(Diameter ~ 1.5cm)
Angle of Louis Anterior & T4 Posterior
(Diameter ~ 1.6cm)
LES
(Diameter ~ 1.6-1.9cm)
Esophageal position relative to Midline


A
Longitudinal muscle
Circular muscle
mp
Connective tissue
Lumen
Mucosa
Submucosa
B
Transducer
Muscularis propria (mp)
EUS

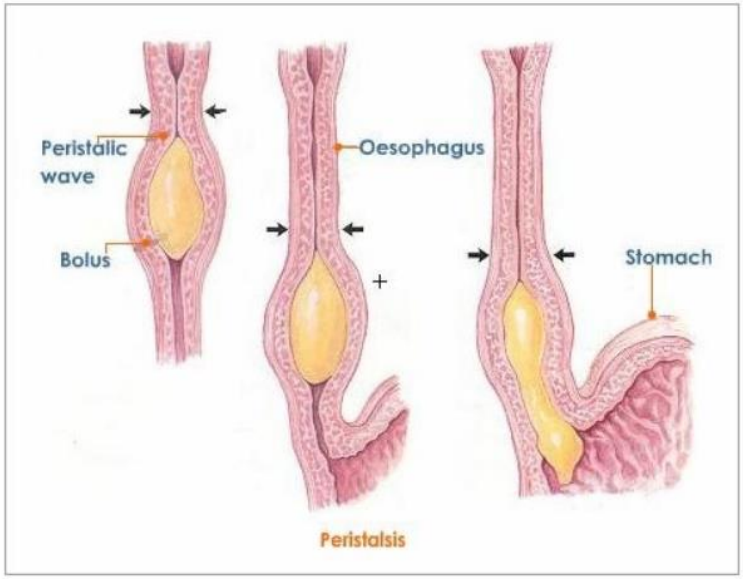

Cervical esophagus
Recurrent laryngeal nerves (on esophagus)
Longus colli muscle
Right common carotid artery
Left common carotid artery
Anterior scalene muscle
Thoracic duct
Posterior scalene muscle
Internal jugular vein (cut)
Brachial plexus
Left brachiocephalic vein (cut)
Right phrenic nerve
Subclavian vein (cut)
Right subclavian artery
Internal thoracic artery (cut)
Thyrocervical trunk
Left phrenic nerve (cut)
Right vagus nerve (X)
Left subclavian artery
1st rib (cut)
Left vagus nerve (X)
Brachiocephalic trunk
Arch of aorta
Trachea
Costal pleura (cut edge)
Azygos vein
Left recurrent laryngeal nerve
Eparterial bronchus
Bifurcation of trachea
Right main bronchus
Left main bronchus
Mediastinal pleura (cut edge)
Thoracic esophagus
Esophageal plexus
Descending thoracic aorta
Anterior vagal trunk
Abdominal esophagus
Pericardium (cut edge)
Diaphragmatic pleura
Diaphragm
Right crus of diaphragm
Inferior vena cava
Stomach
Hepatic veins (cut)
Inferior phrenic arteries
Left crus of diaphragm
Celiac trunk
Abdominal aorta

ΦΥΣΙΟΛΟΓΙΑ





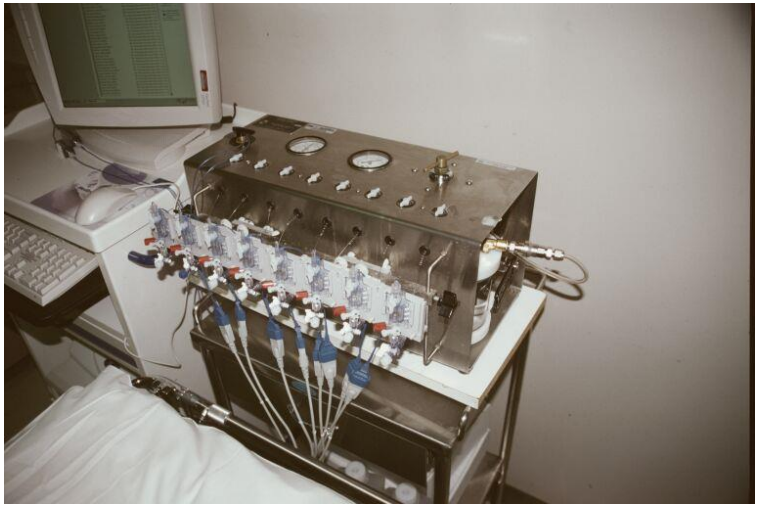
SWALLOW

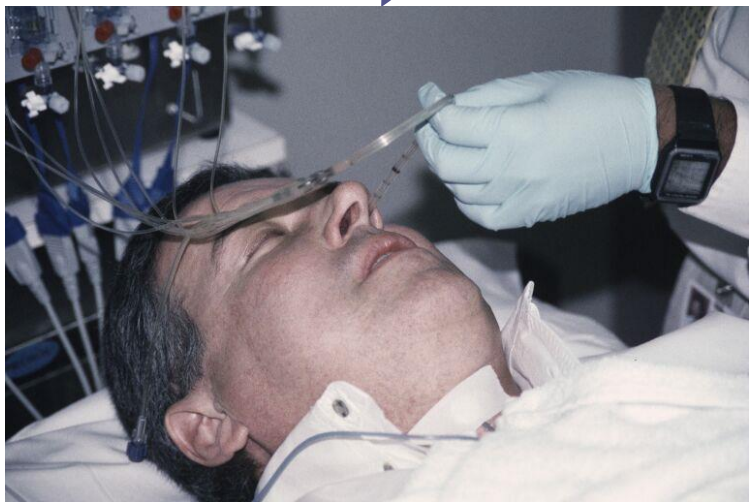


Μανομετρία Οισοφάγου

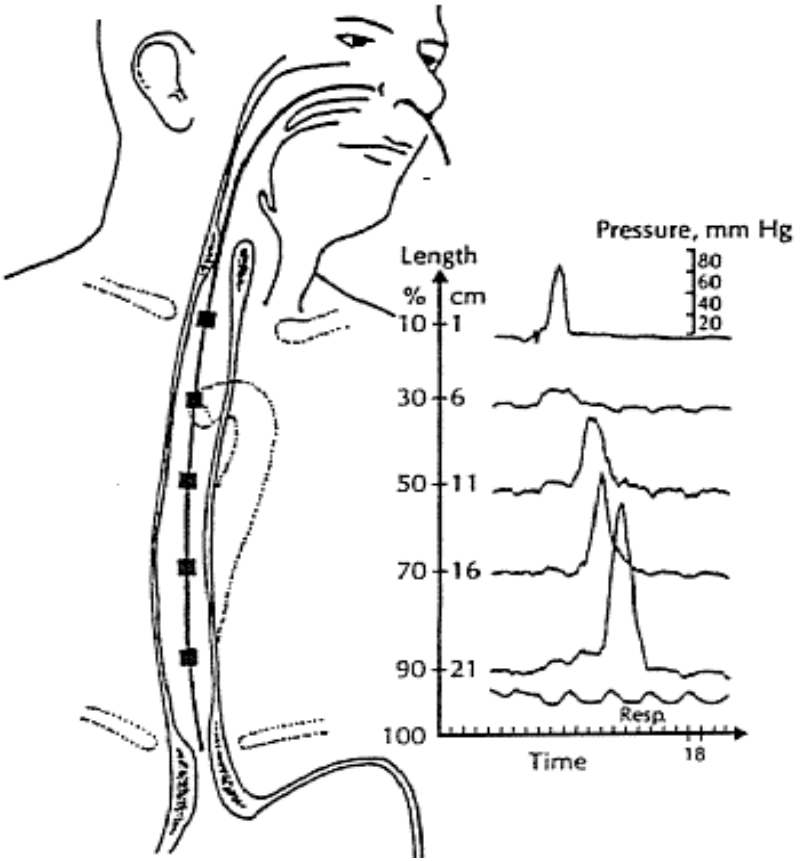
- ✓ **ΣΥΜΒΑΤΙΚΗ**
- ✓ **ΥΨΗΛΗΣ ΑΝΑΛΥΣΗΣ (HRM)**

ΣΥΜΒΑΤΙΚΗ

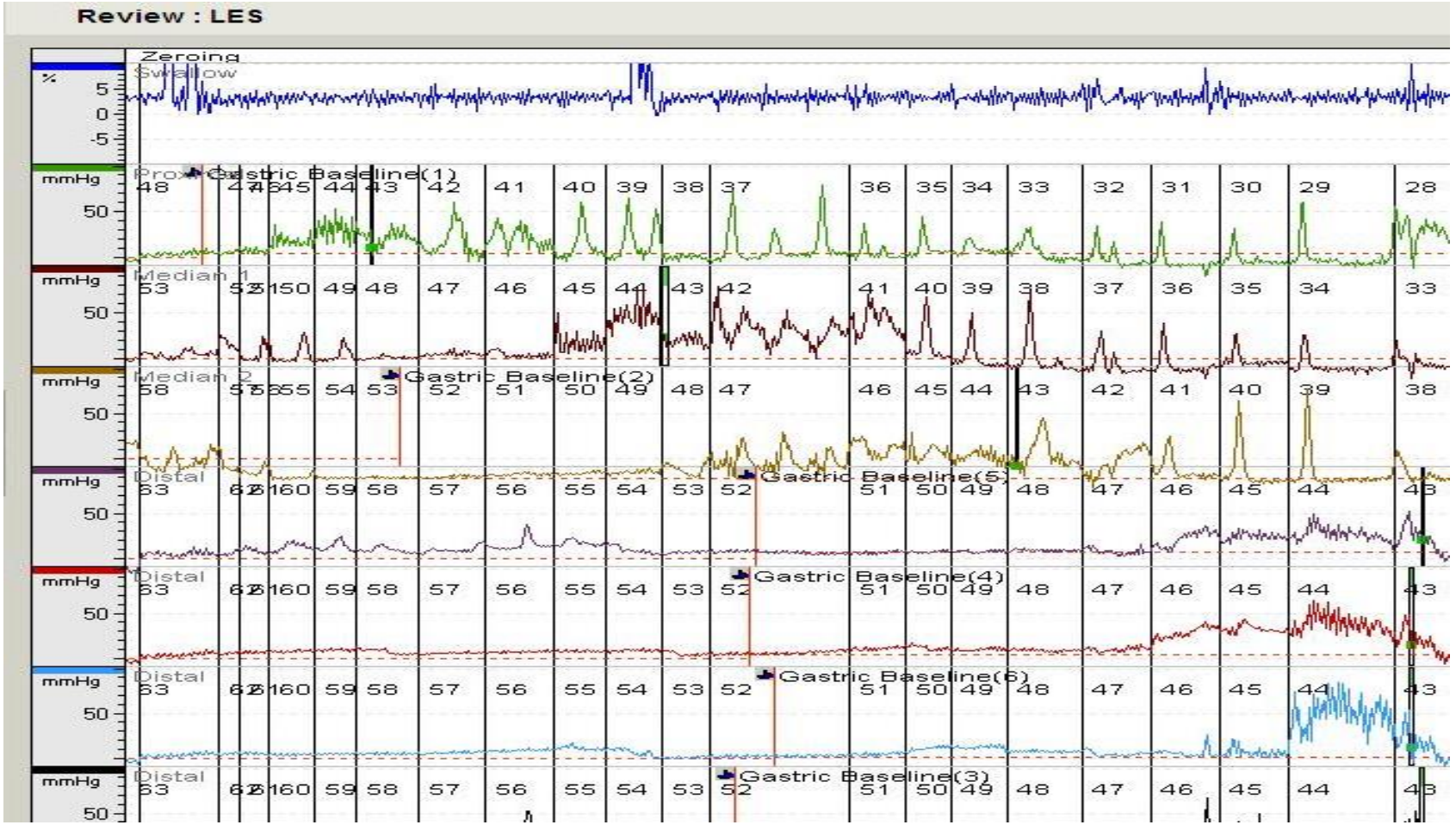




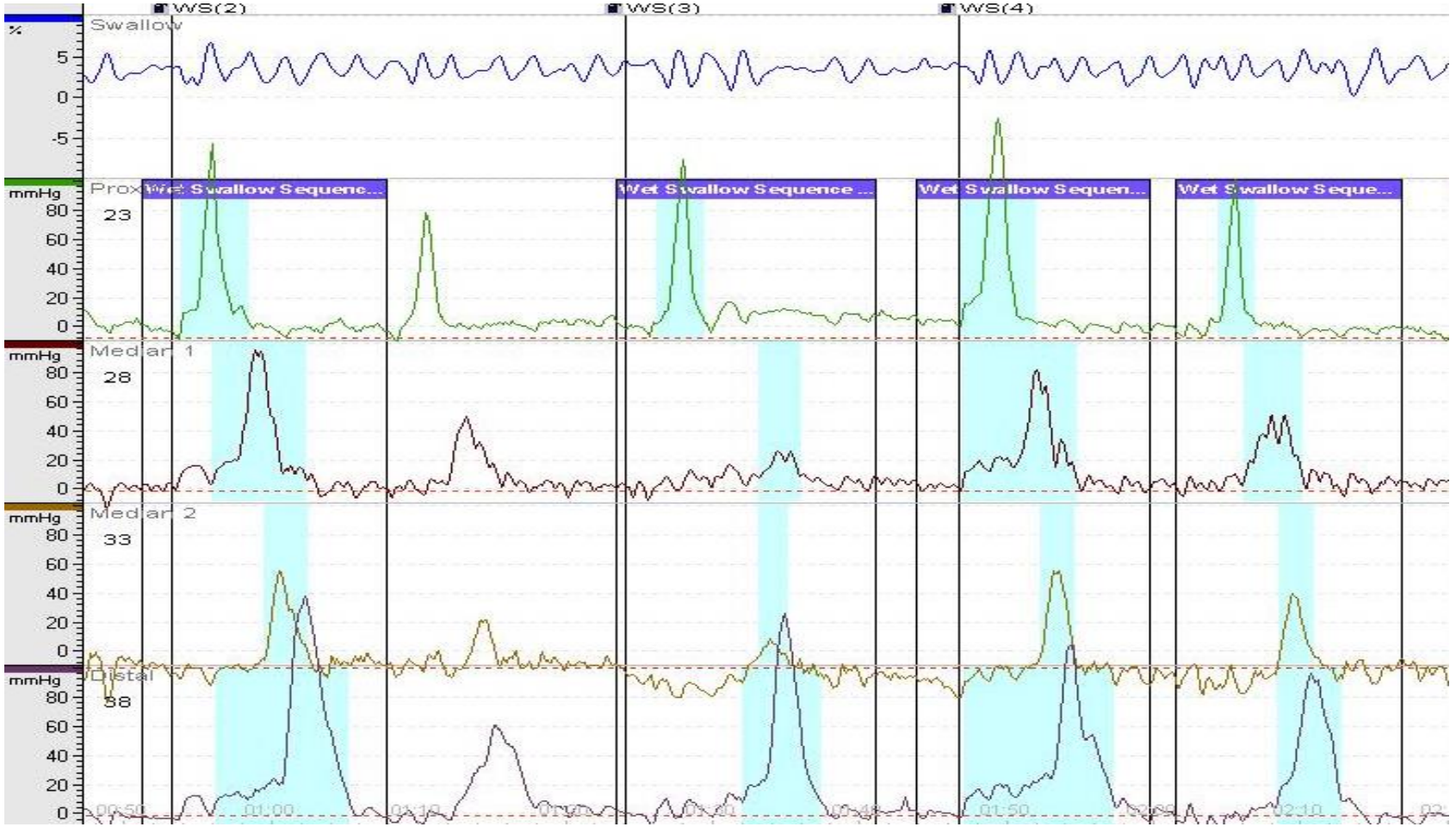
ΜΑΝΟΜΕΤΡΙΚΟ ΠΡΟΦΙΛ-ΕΡΜΗΝΕΙΑ



ΚΟΣ ΣΕ ΗΡΕΜΙΑ



ΣΩΜΑ ΟΙΣΟΦΑΓΟΥ



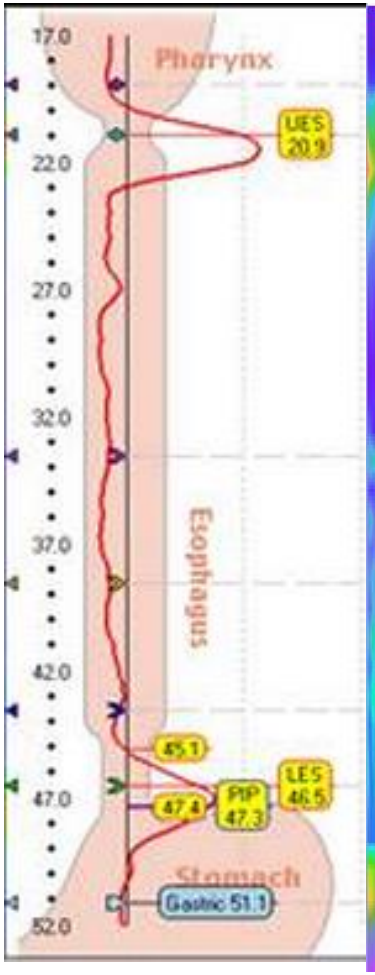
ΥΨΗΛΗΣ ΑΝΑΛΥΣΗΣ ΜΑΝΟΜΕΤΡΙΑ (HRM)

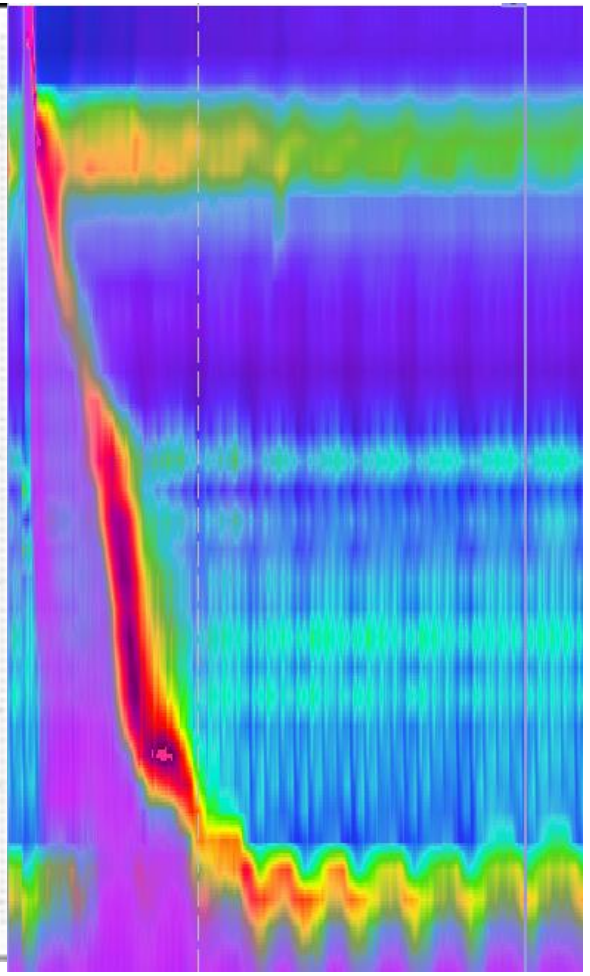
ΚΑΘΕΤΗΡΑΣ

.36 κανάλια (1 εκ)

.Ταυτόχρονη καταγραφή φάρυγγα-οισοφάγου

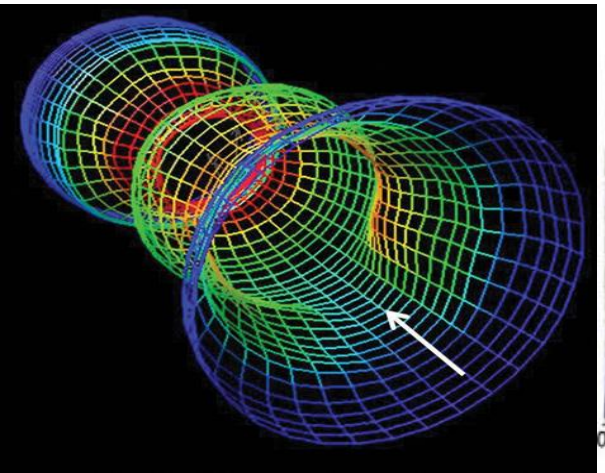
.Εμπέδηση

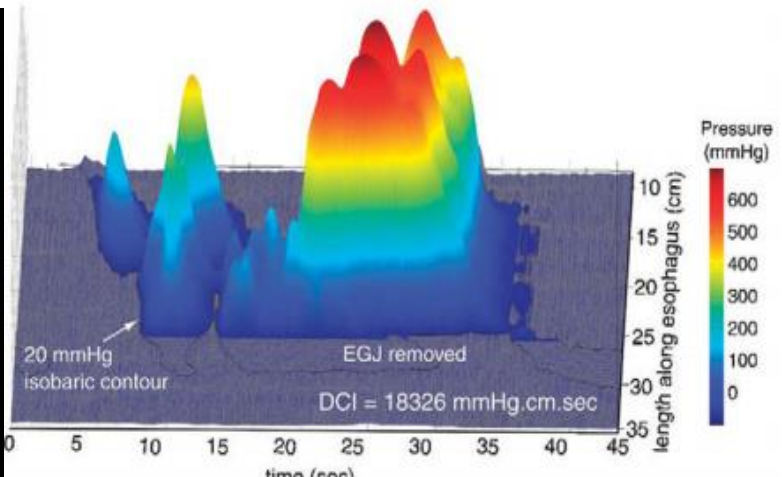




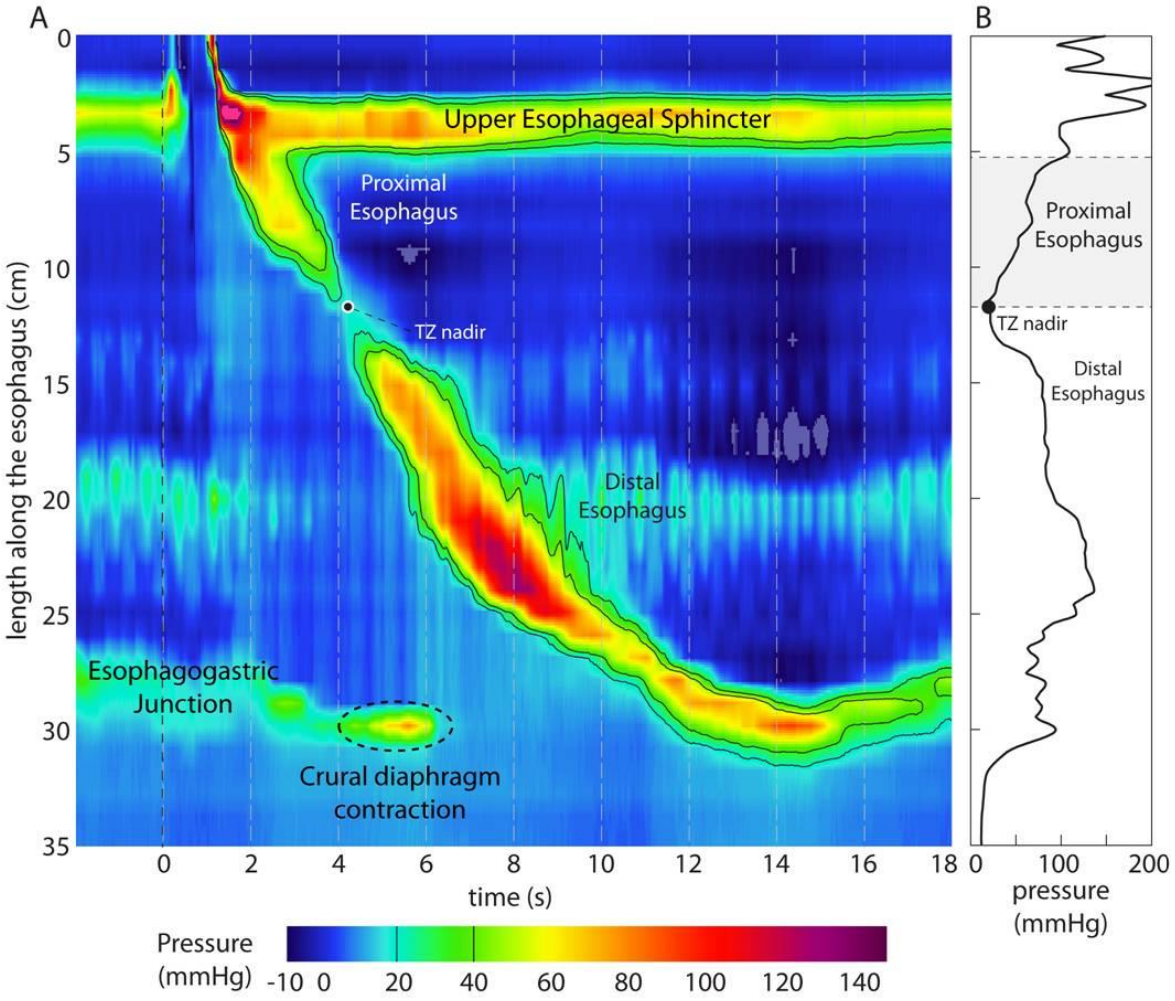
ΧΑΡΑΚΤΗΡΙΣΤΙΚΑ

.5-8’
.Χωρίς μετακίνηση
.10 καταπόσεις
.Ελάχιστη παρέμβαση στο πόρισμα
.Συνδυασμός με εμπεδησιομετρία/3D





ΥΨΗΛΗΣ ΑΝΑΛΥΣΗΣ ΜΑΝΟΜΕΤΡΙΑ (HRM)



ΔΙΑΤΑΡΑΧΕΣ ΚΙΝΗΤΙΚΟΤΗΤΑΣ

ΑΧΑΛΑΣΙΑ

- Νευρομυϊκή νόσος
- Προσβάλει τον ΚΟΣ: **ΧΑΛΑΣΗ!!**
- Το σώμα παρουσιάζει προοδευτικά έκπτωση της λειτουργίας και ταυτόχρονες συστολές
- Σπάνια: 1/100.000
- Κύριο σύμπτωμα: παράδοξη **δυσφαγία**

ΑΧΑΛΑΣΙΑ-ΑΙΤΙΑ

WJGP World Journal of Gastrointestinal Pathophysiology

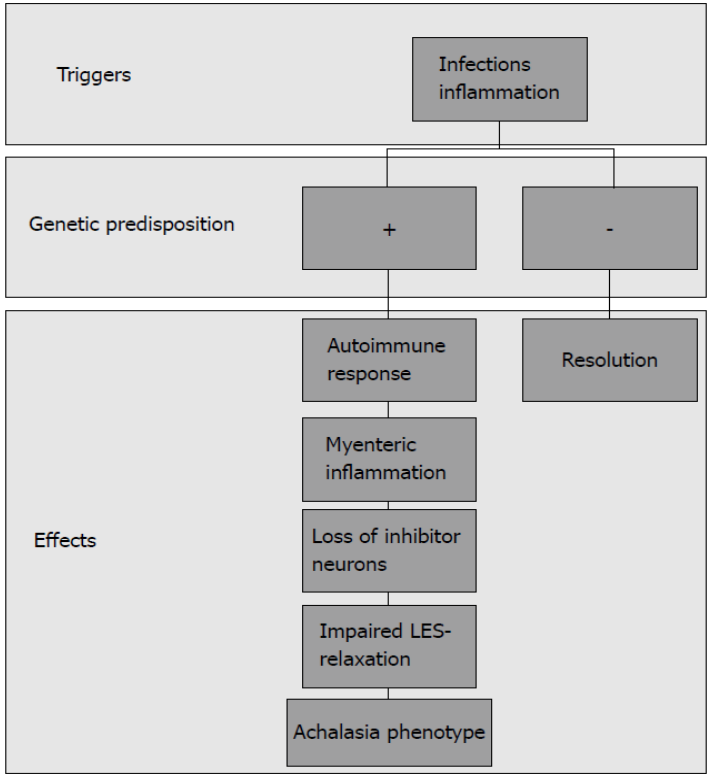
Online Submissions: http://www.wjgnet.com/esps/
bpgoffice@wjgnet.com
doi:10.4291/wjgp.v4.i4.65

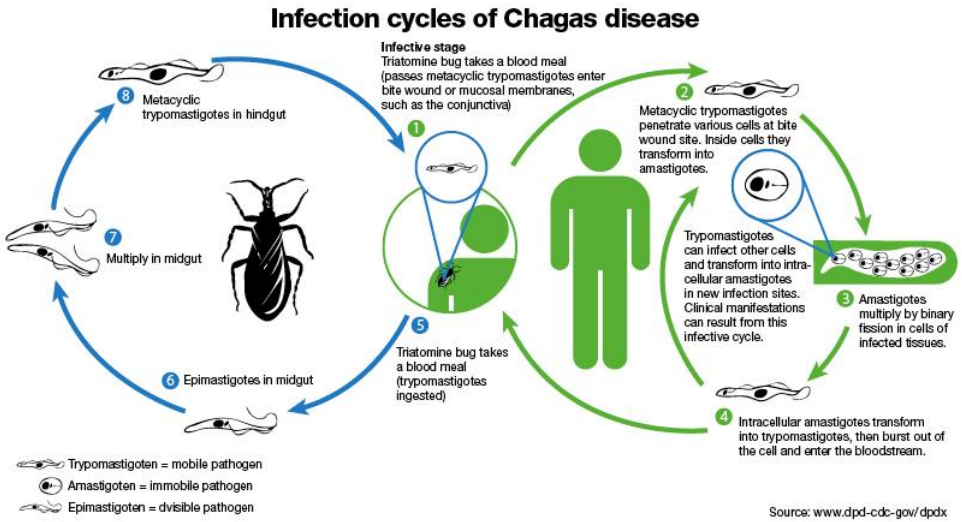
World J Gastrointest Pathophysiol 2013 November 15; 4(4): 65-73
ISSN 2150-5330 (online)

EDITORIAL

Genetic contribution to motility disorders of the upper gastrointestinal tract

Giovanni Sarnelli, Alessandra D'Alessandro, Marcella Pesce, Ilaria Palumbo, Rosario Cuomo

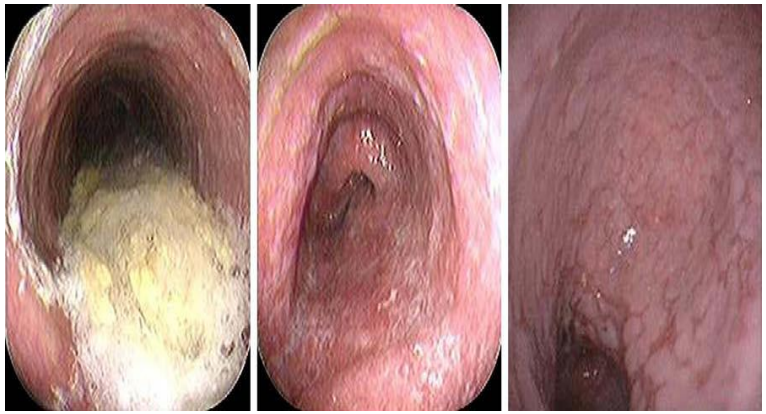




ΑΧΑΛΑΣΙΑ - Διάγνωση

SAGES
Society of American Gastrointestinal and Endoscopic Surgeons
http://www.sagescms.org

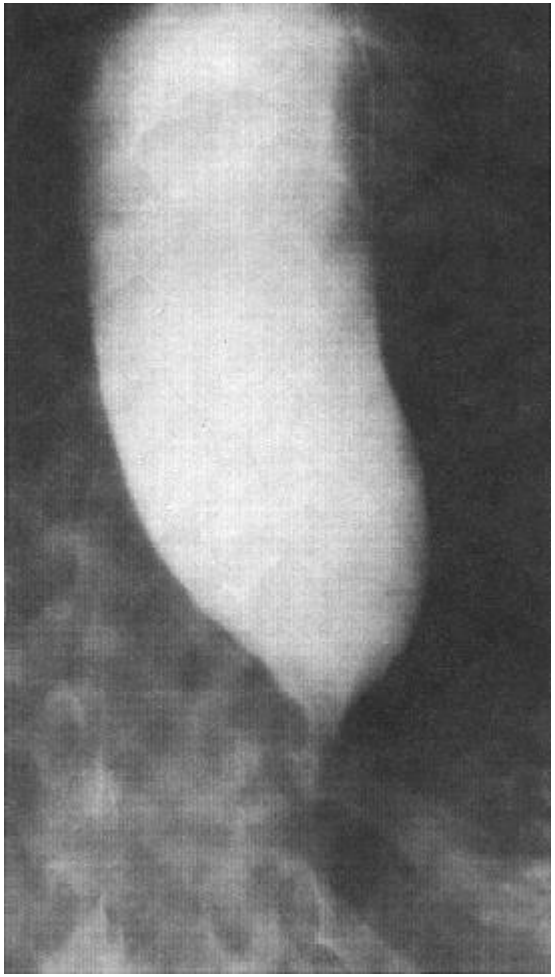
Recommendation: Patients with suspected achalasia should undergo a barium esophagram, an upper endoscopy, and esophageal manometry to confirm the diagnosis (**+++, strong**).



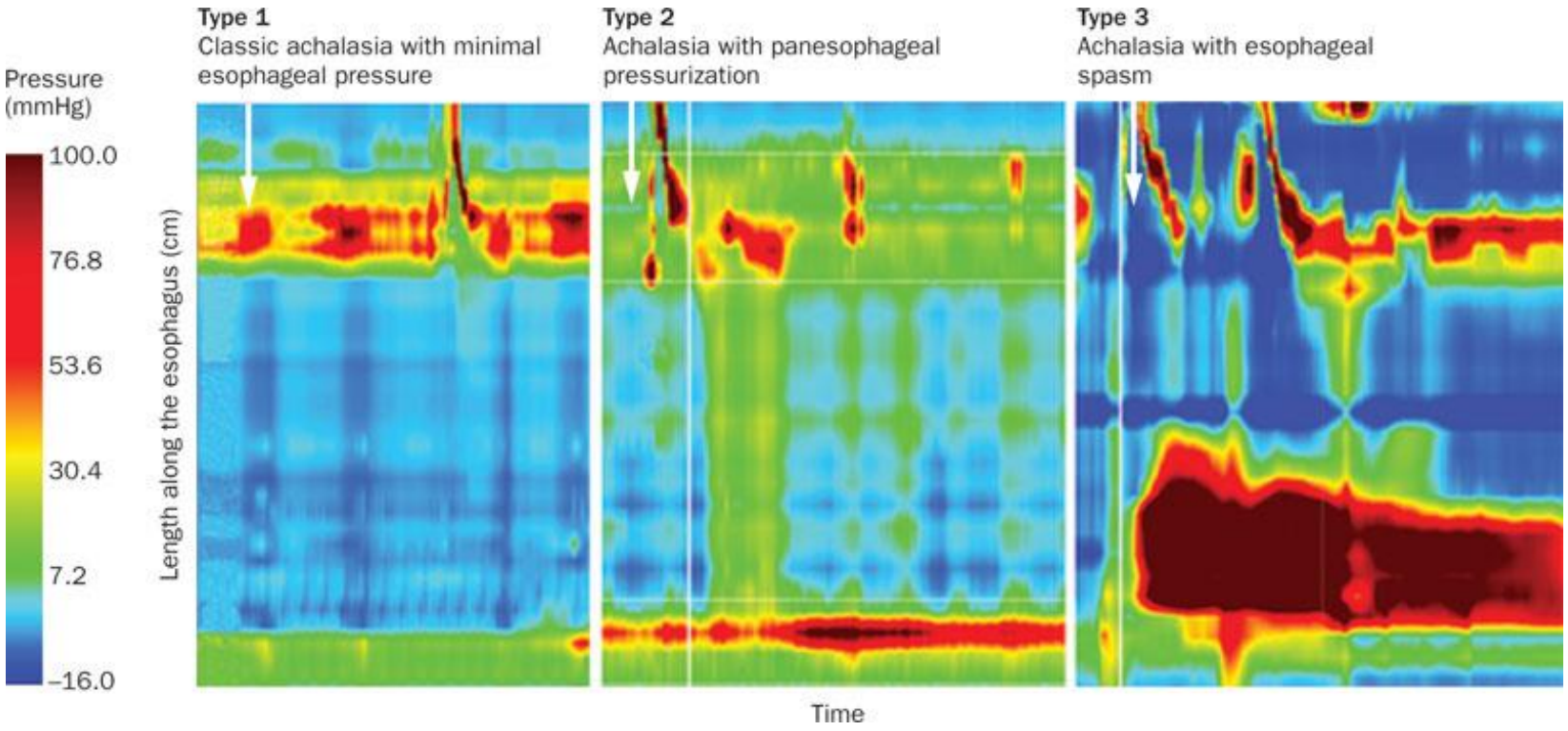
Ενδοσκόπηση & ανάστροφη απεικόνιση θόλου

ΑΧΑΛΑΣΙΑ-ΔΙΑΓΝΩΣΗ

ΒΑΡΙΟΥΧΟ ΓΕΥΜΑ

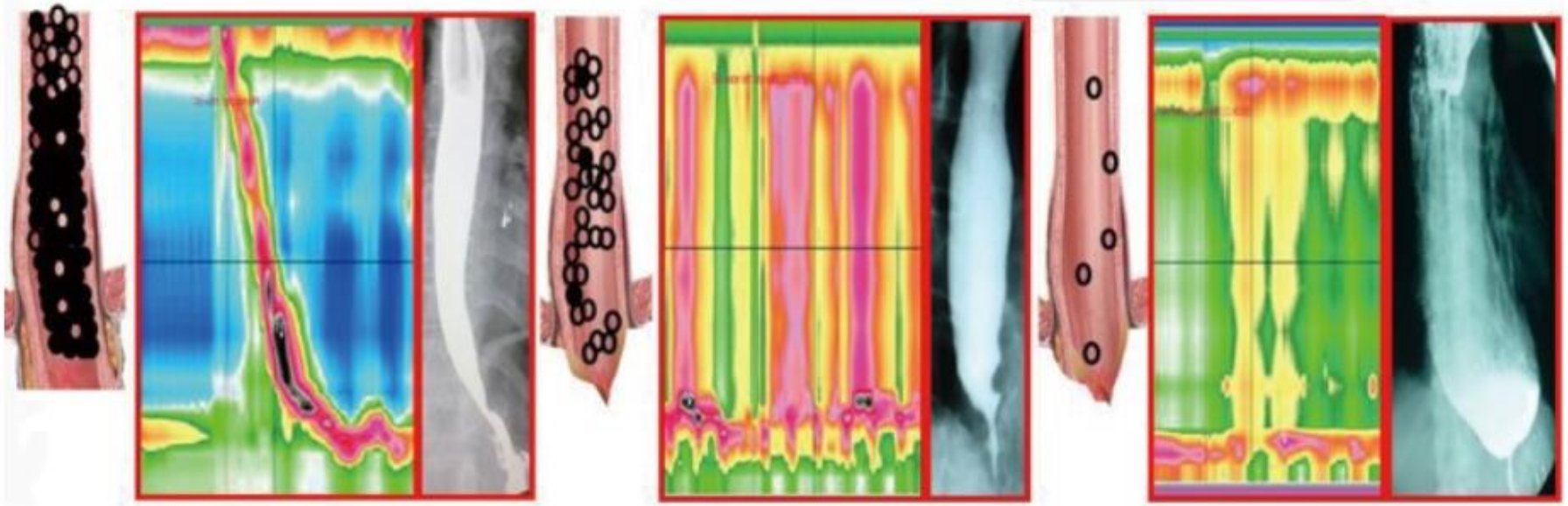


HRM


Type 1
Classic achalasia with minimal esophageal pressure
Type 2
Achalasia with panesophageal pressurization
Type 3
Achalasia with esophageal spasm
Pressure (mmHg)
100.0
76.8
53.6
30.4
7.2
–16.0
Length along the esophagus (cm)
Time

√ ? Infections
Measles, VZV, herpes virus
√ Neurodegenerative process
√ ? Autoimmune
√ Anti-myenteric neuronal antibodies
√ HLA-DQA1*0101, DQB1*0502 and DQB1*0601
√ Genetic susceptibility

Myenteric plexus inflammation/ neurodegenerative process
↓
Loss of inhibitory ganglion cells in myenteric plexus
↓
↓ Inhibitory neurotransmitter (NO)
++
↓
Intact cholinergic transmission
↓
Imbalance of NO/cholinergic neurotransmitter (↑ Ach/ ↓ NO)
↓
Achalasia cardia

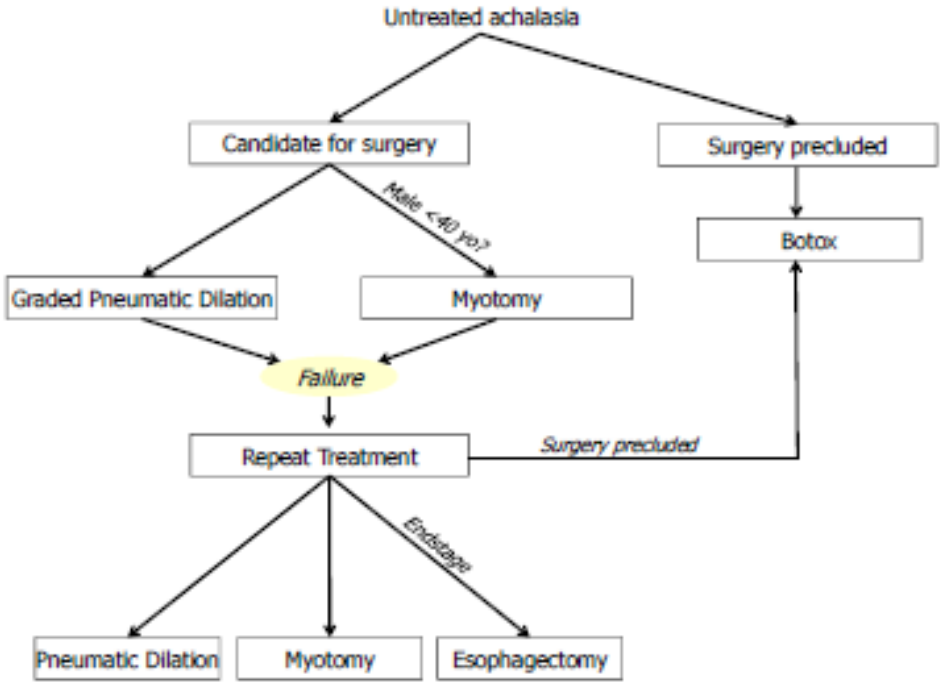


A B C

● NANC (NO) ○ Ach

ΘΕΡΑΠΕΙΑ ΑΧΑΛΑΣΙΑΣ

- **Αναστ. Ασβεστίου**
- **Ενδοσκοπική (**Διαστολές,Bottox,POEM**)**
- **Χειρουργική (Μυοτομή)**



•Μείωση πίεσης ΚΟΣ
•Πρόληψη ΓΟΠ

Treating Achalasia

From Whalebone to Laparoscope

Anita E. Spiess, MD; Peter J. Kahrilas, MD

Conclusions.—Both pneumatic dilation and surgical myotomy are effective therapies for achalasia; laparoscopic Heller myotomy is emerging as the optimal surgical therapy.

JAMA. 1998;280:638-642

META-ANALYSIS

Endoscopic and Surgical Treatments for Achalasia

A Systematic Review and Meta-Analysis

Guilherme M. Campos, MD, PhD, Eric Vittinghoff, PhD,† Charlotte Rabl, MD,* Mark Takata, MD,* Michael Gadenstätter, MD,‡ Feng Lin, MS,† and Ruxandra Ciovica, MD**

Ann Surg 2009;249: 45–57

Results Obtained With Endoscopic Botulinum Toxin Injection in the Treatment of Achalasia

Author (Reference No.)	Year	Design	n	Botulinum Toxin (Units)	Follow-up (mo)	Decrease LESP (%)	Symptom Improvement* (% of Patients)				Received Treatment After EBTI n (%)		
							<1 mo	3 mo	6 mo	>12 mo	Repeat EBTI	Dilation	Myotomy
Pasricha[13]	1996	PC	31	80	29	45	90	55	55	—	26 (84)	3 (10)	1 (3)
Fishman[14]	1996	PC	60	100	10	—	70	—	—	36	16 (27)	2 (3)	1 (2)
Cuilliere[48]	1997	PC	55	80	6	31	75	69	53	—	19 (35)	—	—
Gordon[49]	1997	PC	16	80	7	—	75	56	44	—	4 (25)	1 (6)	1 (6)
Wehrmann[50]	1999	PC	20	100	24	—	80	—	—	10	14 (70)	1 (5)	1 (5)
Kolbasnik[51]	1999	PC	30	80	21	—	—	77	57	39	14 (47)	3 (10)	1 (3)
D'Onofrio[52]	2002	PC	37	100	22	30	84	—	—	51	14 (38)	—	—
Neubrand[53]	2002	RC	25	25	30	31	64	—	—	39	14 (56)	1 (4)	1 (4)
Martinek[54]	2003	PC	41	100	26	35	93	83	—	55	10 (24)	1 (2)	4 (10)
							Mean (Range)						
Total			315		18 (6–30)	34.0 (30–45)	78.7 (64–93)	70 (55–83)	53.3 (44–57)	40.6 (10–55)	131 (46.6)	12 (3.8)	10 (3.2)

Ann Surg 2009;249: 45–57

Results Obtained With Endoscopic Balloon Dilation in the Treatment of Achalasia

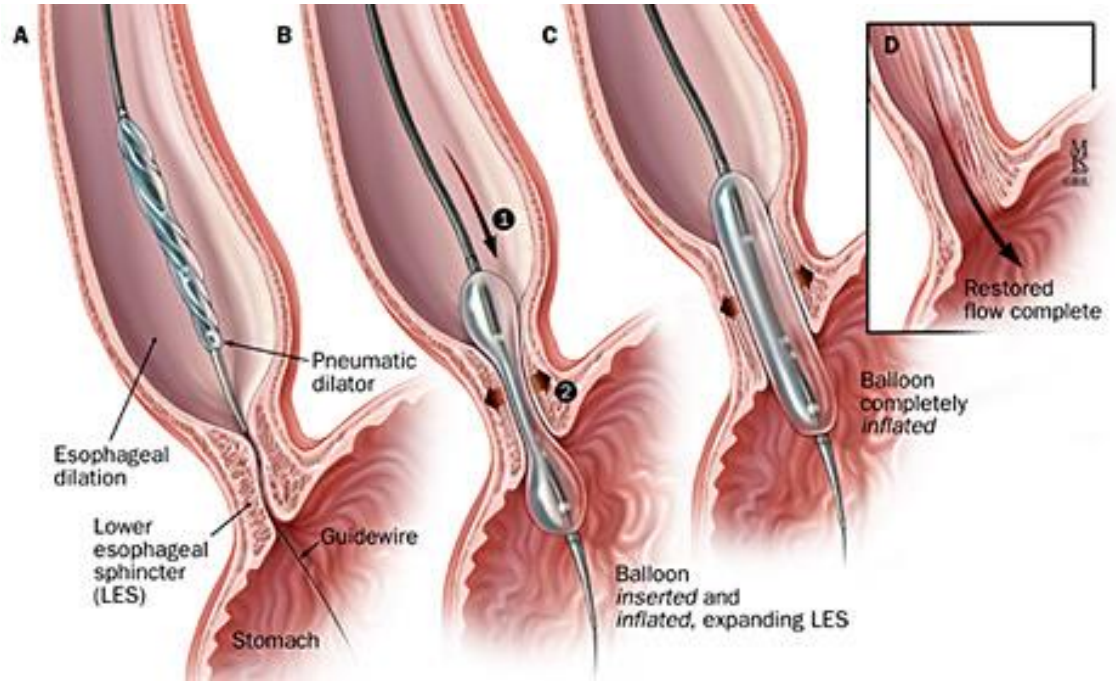
Author	Year	Design	n	Dilator Size (cm)	Duration of Dilation (s)	Pressure During Dilation (psi)	Follow-up (mo)	Decrease LESP (%)	Symptom Improvement* (% of Patients) ≤1 mo	6 mo	12 mo	>36 mo	Received Treatment After Dilation: Dilation n (%)	Myotomy n (%)	Perforation n (%)
Gelfand[55]	1989	PC	24	3.0, 3.5	30	7	6	64	—	81	—	—	2 (8)	1 (4)	0 (0)
Barkin[56]	1990	RC	50	3.0, 3.5, 4.0	68	18	15	—	90	—	90	—	0 (0)	2 (4)	4 (8)
Kadakia[57]	1993	PC	29	3.0	60	8.8	48	67	—	—	—	62	11 (38)	2 (7)	0 (0)
Wehrmann[21]	1995	PC	40	3.0, 3.5	240	7	29	42	87	—	—	70	12 (30)	2 (5)	1 (3)
Lambroza[58]	1995	RC	27	3.0, 3.5, 4.0	90	15	21	—	—	—	63	—	3 (11)	0 (0)	0 (0)
Khan[59]	1998	PC	81	3.0	6, 60	10	6	—	—	97	—	—	2 (3)	0 (0)	0 (0)
Sabharwal[60]	2002	RC	76	2.0, 3.0, 4.0	60	—	29	—	97	—	54	—	24 (32)	3 (4)	0 (0)
Mikaeli[61]	2004	PC	262	3.5, 3.0	10, 30	10	54	—	—	—	—	60	77 (29)	17 (6)	3 (1)
Guardino[37]	2004	RC	96	3.0	45	9.5	7	—	—	51	—	—	33 (34)	—	2 (2)
Dobrucali[62]	2004	PC	43	3.0	60	15	28	75	56	61	38	—	18 (42)	3 (7)	1 (2)
Chan[63]	2004	RC	66	3.0, 3.5, 4.0	120	9	55	—	—	79	—	—	13 (20)	2 (3)	3 (5)
Ghoshal[64]	2004	RC	126	3.0	90	11	15	39	—	—	71	—	37 (29)	6 (5)	1 (1)
Boztas[65]	2005	RC	50	3.0, 3.5, 4.0	60	—	32	55	83		67		10 (20)	5 (10)	0 (0)
Katsinelos[10]	2005	RC	39	3.0, 3.5, 4.0	93	—	111	72	—	—	—	33	28 (72)	6 (15)	2 (5)
Rai[18]	2005	PC	56	3.5	120	10	6	—	96	—	89	—	4 (7)	0 (0)	0 (0)
								Mean (Range)							
Total			1065		73 (6–240)	10.9 (7–18)	30.8 (6–111)	59.1 (39–75)	84.8 (56–97)	73.8 (51–97)	68.2 (38–90)	58.4 (33–70)	274 (25)	49 (5)	17 (1.6)

Ann Surg 2009;249: 45–57

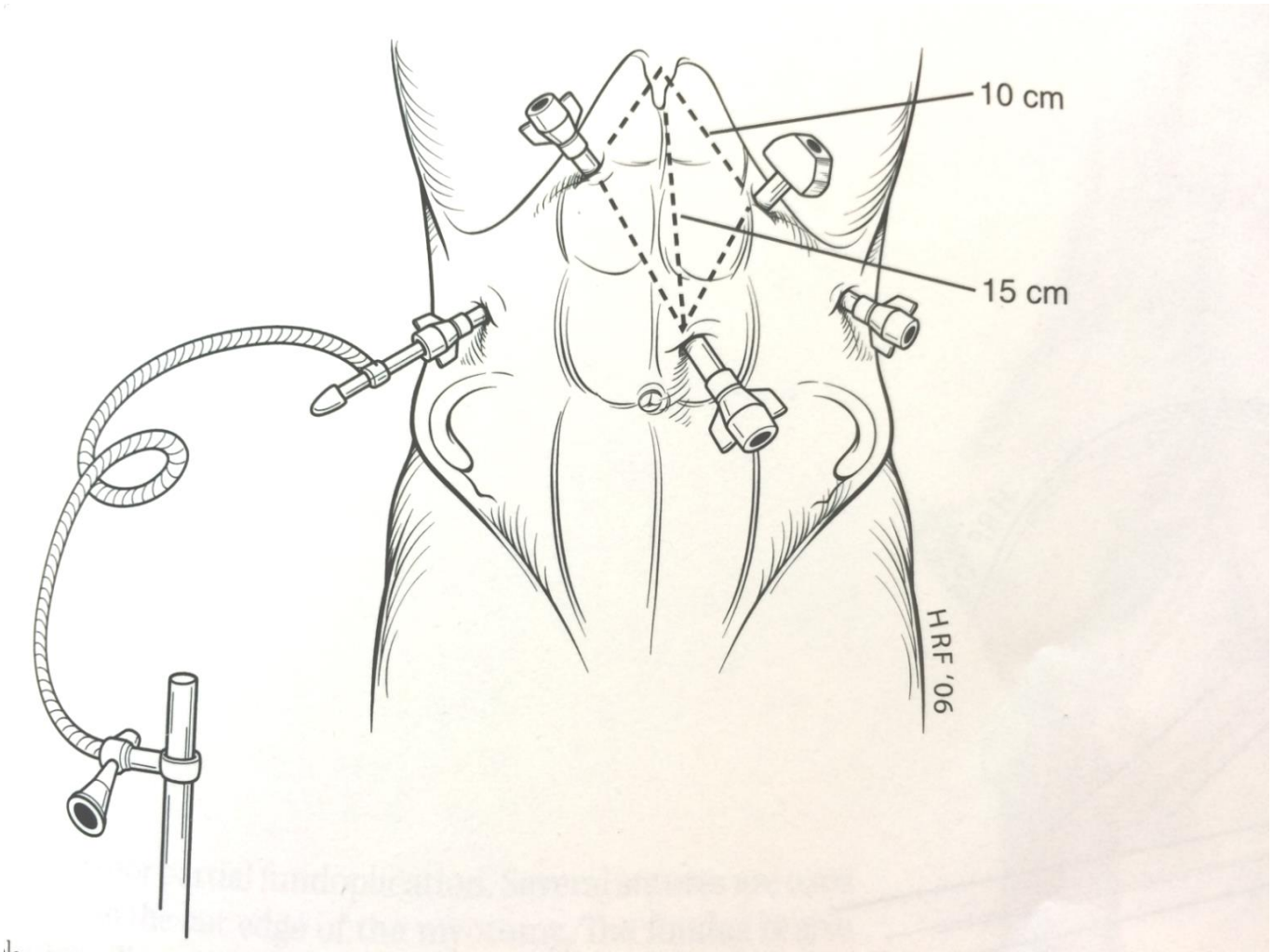
Results Obtained With Laparoscopic Myotomy in the Treatment of Achalasia

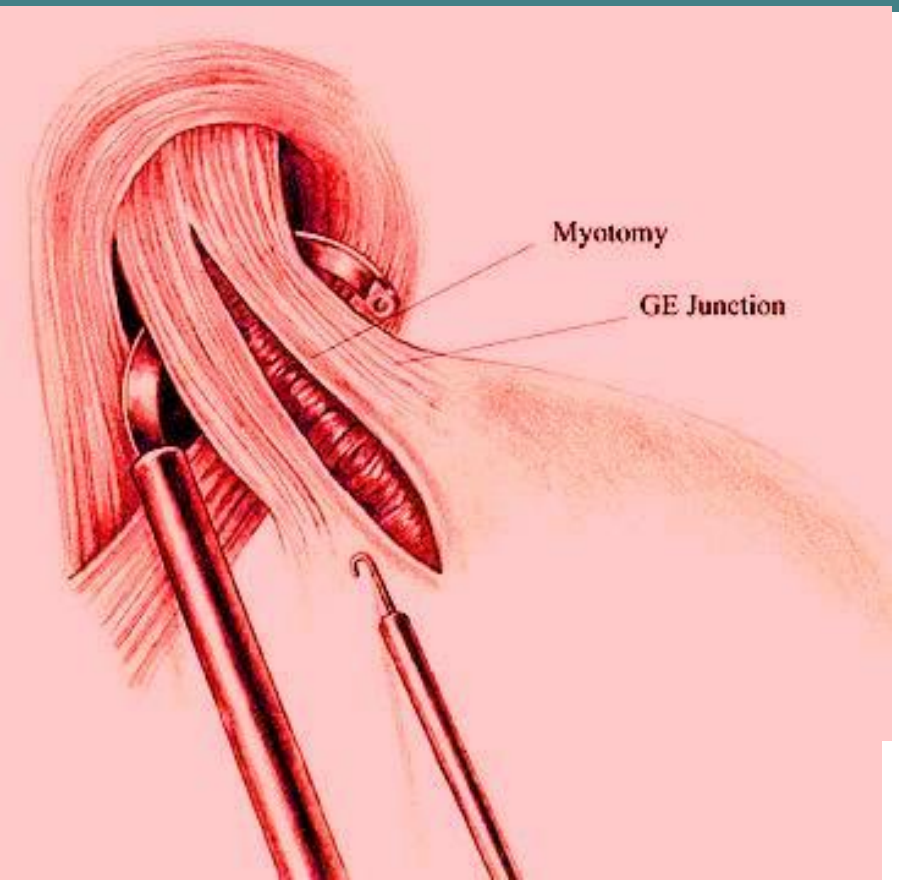
Author	Year	Design	N All	Follow-up (mo)	N With ARP	N Without ARP	Symptom Improvement: All N (%)	Symptom Improvement: With ARP (%)	Symptom Improvement: Without ARP (%)	Evidence of GER: All n/N* (%)	Evidence of GER: With ARP n/N* (%)	Evidence of GER: Without ARP (%)
Mitchell[109]	1995	PC	14	12	14	0	14 (100)	14 (100)	—	1/14 (7)	1/14 (7)	—
Delgado[110]	1996	RC	12	—	12	0	10 (83)	10 (83)	—	—	—	—
Raiser[111]	1996	RC	35	26	35	0	28 (80)	28 (80)	—	0/18 (0)†	0/18 (0)	—
Collard[112]	1996	RC	12	14.4	12	0	10 (83)	10 (83)	—	0/6 (0)†	0/6 (0)	—
Anselmino[113]	1997	PC	43	12	43	—	39 (91)	39 (91)	—	2/35 (6)†	2/35 (6)	—
Hunter[45]	1997	RC	40	12	39	1	36 (90)	35 (90)	—	2/40 (5)	2/39 (5)	—
Vogt[114]	1997	PC	20	12	18	2	18 (90)	—	—	3/20 (15)	2/18 (11)	1/2 (50)
Morino[32]	1997	PC	21	29	21	0	21 (100)	21 (100)	—	1/17 (6)†	1/17 (6)	—
Kumar[115]	1998	PC	19	27	0	19	17 (89)	—	17 (89)	5/15 (33)	—	5/15 (33)
Richards[116]	1999	PC	16	8.3	0	16	14 (88)	—	14 (88)	3/14 (21)†	—	3/14 (21)
Stewart[103]	1999	RC	63	17	55	8	56 (89)	—	—	5/46 (11)	—	—
Patti[102]	1999	RC	133	23	133	—	124 (93)	124 (93)	—	6/36 (17)†	6/35 (17)	—
Bloomston[104]	2000	RC	67	18	8	59	61 (91)	—	—	13/68 (19)	—	13/68 (19)
Yamamura[117]	2000	RC	24	16.5	24	0	20 (95)	20 (95)	—	1/9 (11)†	1/9 (11)	—
Zaninotto[118]	2000	PC	94	24	94	0	86 (91)	86 (91)	—	10/75 (13)†	10/75 (13)	—
Bonavina[119]	2000	RC	92	28	92	—	80 (87)	80 (87)	—	2/26 (8)†	2/26 (8)	—
Cade[105]	2000	RC	19	24	—	19	18 (95)	—	18 (95)	7/19 (37)	—	7/19 (37)
Ackroyd[120]	2001	PC	82	24	82	—	82 (100)	82 (100)	—	1/68 (1)	1/68 (1)	—
Wills[121]	2001	PC	62	38	62	—	49 (79)	49 (79)	—	2/62 (3)	2/62 (3)	—
Pechlivanides[122]	2001	PC	29	12	29	—	26 (90)	26 (90)	—	2/20 (10)†	2/20 (10)	—
Donahue[123]	2002	RC	81	45	81	—	69 (85)	69 (85)	—	—	—	—
Oelschlager[124]	2003	PC	110	46	110	—	91 (83)	91 (83)	—	19/43 (44)†	19/43 (44)	—
Douard[86]	2004	PC	52	50	52	—	48 (92)	48 (92)	—	6/52 (11)†	6/52 (11)	—
Arain[125]	2004	RC	78	16	78	—	62 (97)	62 (97)	—	1/6 (17)†	1/6 (17)	—
Perrone[126]	2004	PC	100	26	100	—	97 (97)	97 (97)	—	1/92 (1)	1/92 (1)	—
Frantzides[127]	2004	RC	53	36	52	1	49 (92)	48 (92)	—	5/53 (9)	5/53 (9)	—
Dempsey[128]	2004	RC	51	32.5	29	22	44 (86)	25 (86)	19 (86)	—	—	—
Avtan[129]	2005	RC	15	42	—	15	13 (87)	—	13 (87)	1/9 (11)†	—	1/9 (11)
Ramacciato[130]	2005	PC	32	12	17	15	31 (97)	16 (94)	15 (100)	4/32 (13)	1/17 (6)	3/15 (20)
Rossetti[131]	2005	PC	195	83	195	—	179 (92)	179 (92)	—	0/15 (0)†	0/15 (0)	—
Bonatti[132]	2005	RC	75	64	75	—	37 (84)	37 (84)	—	7/44 (15)	7/44 (15)	—
Rosemurgy[133]	2005	PC	262	32	79	183	236 (90)	—	—	—	—	—
Portale[34]	2005	RC	248	41	248	—	218 (88)	218 (88)	—	9/130 (7)†	9/130 (7)	—
Deb[134]	2005	RC	211	64	198	13	148 (89)	—	—	56/167 (34)	—	—
Khajanchee[135]	2005	PC	121	9	121	—	113 (93)	113 (93)	—	16/48 (33)†	16/48 (33)	—
Burpee[136]	2005	PC	66	28	10	56	54 (87)	—	54 (87)	18/30 (60)†	—	18/30 (60)
Smith[36]	2006	PC	209	21	206	3	173 (83)	—	—	4/209 (2)	4/206 (2)	—
Katada[137]	2006	RC	30	12	30	—	24 (80)	24 (80)	—	3/25 (12)†	3/25 (12)	—
Torquati[138]	2006	PC	200	42	53	147	170 (85)	—	—	12/43 (28)†‡	2/22 (9)	10/21 (48)
							Mean (Range)					
Total			3086	35.4 (8–83)	2507	579	89.3 (77–100)	90.3 (77–100)	89.9 (86–100)	14.9 (0–60)	8.8 (0–44)	31.5 (11–60)

ΕΝΔΟΣΚΟΠΙΚΕΣ ΔΙΑΣΤΟΛΕΣ

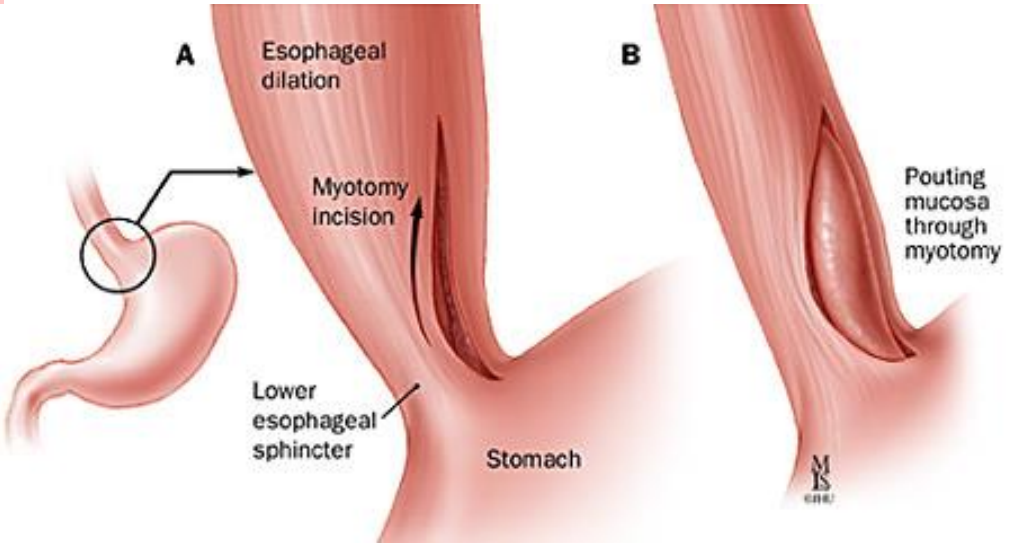


ΛΑΠΑΡΟΣΚΟΠΙΚΗ ΑΝΤΙΜΕΤΩΠΙΣΗ

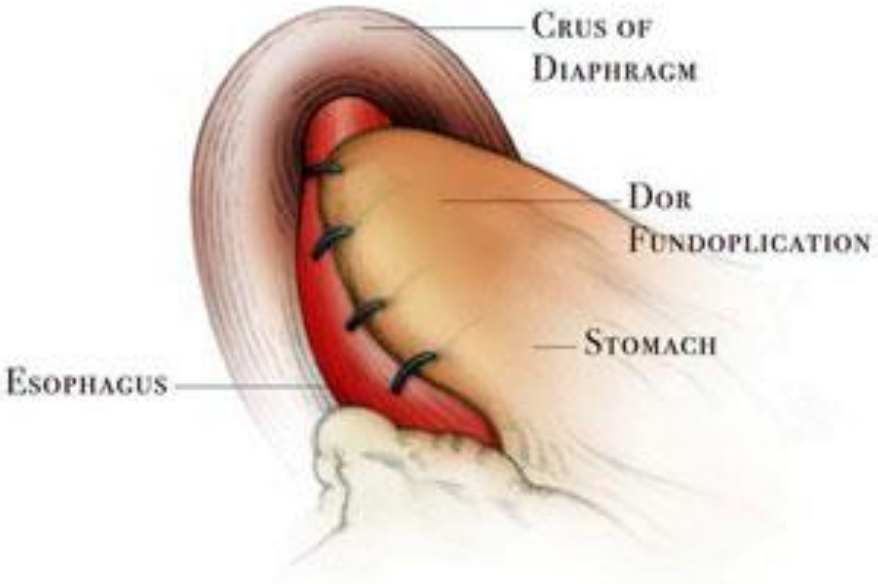


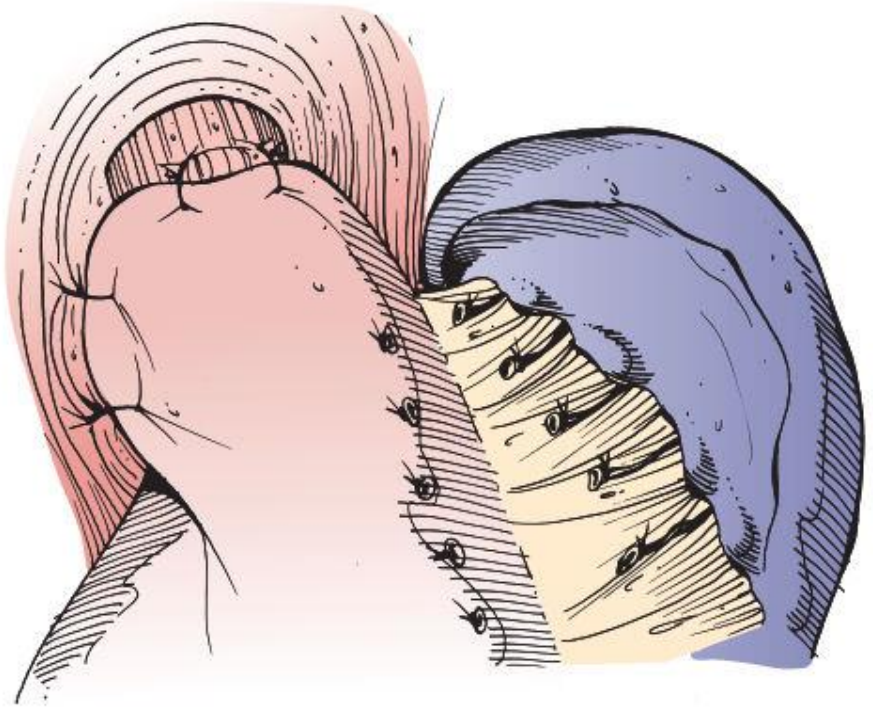

Myotomy
GE Junction

MYOTOMH


A
Esophageal dilation
Myotomy incision
Lower esophageal sphincter
Stomach
B
Pouting mucosa through myotomy

ΘΟΛΟΠΛΑΣΤΙΚΗ ΚΑΤΑ DOR





Είναι απαραίτητη η θολοπλαστική?

Results Obtained With Laparoscopic Myotomy in the Treatment of Achalasia

							Symptom Improvement			Evidence of GER		
Author	Year	Design	N All	Follow-up (mo)	N With ARP	N Without ARP	All N (%)	With ARP (%)	Without ARP (%)	All n/N* (%)	With ARP n/N* (%)	Without ARP (%)
Mitchell[109]	1995	PC	14	12	14	0	14 (100)	14 (100)	—	1/14 (7)	1/14 (7)	—
Delgado[110]	1996	RC	12	—	12	0	10 (83)	10 (83)	—	—	—	—
Raiser[111]	1996	RC	35	26	35	0	28 (80)	28 (80)	—	0/18 (0)†	0/18 (0)	—
Collard[112]	1996	RC	12	14.4	12	0	10 (83)	10 (83)	—	0/6 (0)†	0/6 (0)	—
Anselmino[113]	1997	PC	43	12	43	—	39 (91)	39 (91)	—	2/35 (6)†	2/35 (6)	—
Hunter[45]	1997	RC	40	12	39	1	36 (90)	35 (90)	—	2/40 (5)	2/39 (5)	—
Vogt[114]	1997	PC	20	12	18	2	18 (90)	—	—	3/20 (15)	2/18 (11)	1/2 (50)
Morino[32]	1997	PC	21	29	21	0	21 (100)	21 (100)	—	1/17 (6)†	1/17 (6)	—
Kumar[115]	1998	PC	19	27	0	19	17 (89)	—	17 (89)	5/15 (33)	—	5/15 (33)
Richards[116]	1999	PC	16	8.3	0	16	14 (88)	—	14 (88)	3/14 (21)†	—	3/14 (21)
Stewart[103]	1999	RC	63	17	55	8	56 (89)	—	—	5/46 (11)	—	—
Patti[102]	1999	RC	133	23	133	—	124 (93)	124 (93)	—	6/36 (17)†	6/35 (17)	—
Bloomston[104]	2000	RC	67	18	8	59	61 (91)	—	—	13/68 (19)	—	13/68 (19)
Yamamura[117]	2000	RC	24	16.5	24	0	20 (95)	20 (95)	—	1/9 (11)†	1/9 (11)	—
Zaninotto[118]	2000	PC	94	24	94	0	86 (91)	86 (91)	—	10/75 (13)†	10/75 (13)	—
Bonavina[119]	2000	RC	92	28	92	—	80 (87)	80 (87)	—	2/26 (8)†	2/26 (8)	—
Cade[105]	2000	RC	19	24	—	19	18 (95)	—	18 (95)	7/19 (37)	—	7/19 (37)
Ackroyd[120]	2001	PC	82	24	82	—	82 (100)	82 (100)	—	1/68 (1)	1/68 (1)	—
Wills[121]	2001	PC	62	38	62	—	49 (79)	49 (79)	—	2/62 (3)	2/62 (3)	—
Pechlivanides[122]	2001	PC	29	12	29	—	26 (90)	26 (90)	—	2/20 (10)†	2/20 (10)	—
Donahue[123]	2002	RC	81	45	81	—	69 (85)	69 (85)	—	—	—	—
Oelschlager[124]	2003	PC	110	46	110	—	91 (83)	91 (83)	—	19/43 (44)†	19/43 (44)	—
Douard[86]	2004	PC	52	50	52	—	48 (92)	48 (92)	—	6/52 (11)†	6/52 (11)	—
Arain[125]	2004	RC	78	16	78	—	62 (97)	62 (97)	—	1/6 (17)†	1/6 (17)	—
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Avtan[129]	2005	RC	15	42	—	15	13 (87)	—	13 (87)	1/9 (11)†	—	1/9 (11)
Ramacciato[130]	2005	PC	32	12	17	15	31 (97)	16 (94)	15 (100)	4/32 (13)	1/17 (6)	3/15 (20)
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Bonatti[132]	2005	RC	75	64	75	—	37 (84)	37 (84)	—	7/44 (15)	7/44 (15)	—
Rosemurgy[133]	2005	PC	262	32	79	183	236 (90)	—	—	—	—	—
Portale[34]	2005	RC	248	41	248	—	218 (88)	218 (88)	—	9/130 (7)†	9/130 (7)	—
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Burpee[136]	2005	PC	66	28	10	56	54 (87)	—	54 (87)	18/30 (60)†	—	18/30 (60)
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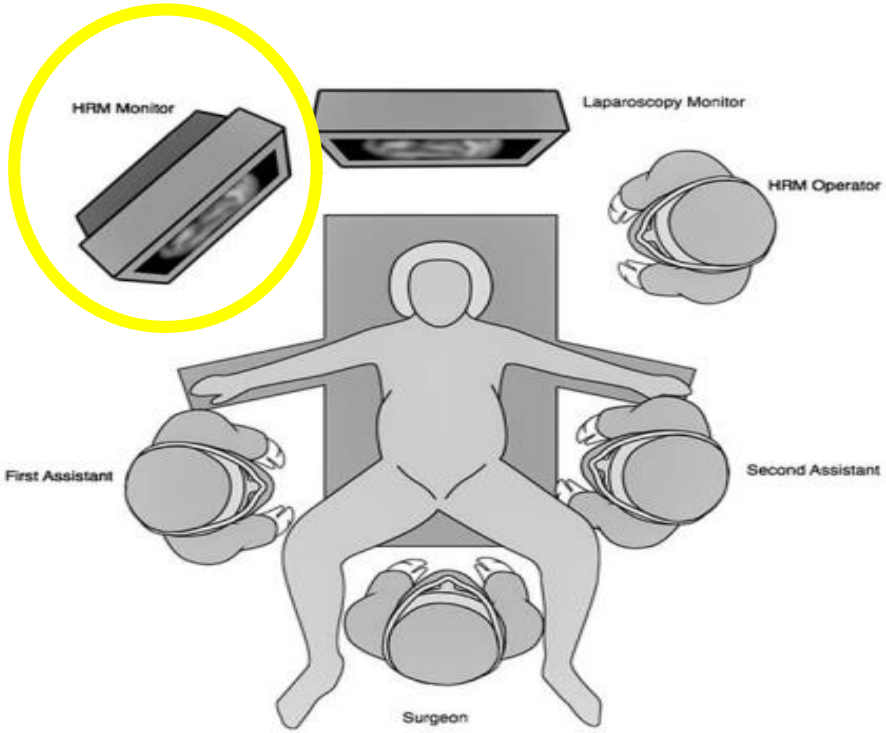
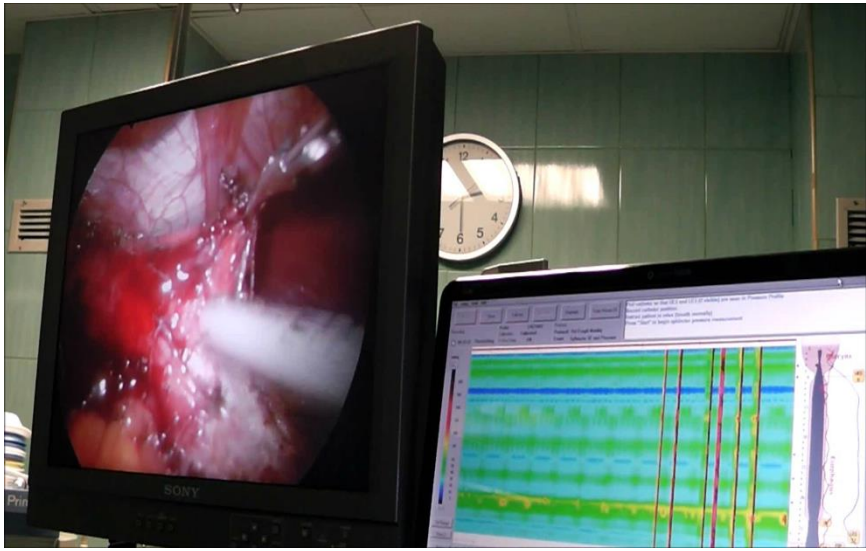
Total			3086	35.4 (8–83)	2507	579	89.3 (77–100)	90.3 (77–100)	89.9 (86–100)	14.9 (0–60)	8.8 (0–44)	31.5 (11–60)

Real-time Continuous Esophageal High-resolution Manometry (HRM) During Laparoscopic Heller Myotomy and Dor Fundoplication for the Treatment of Achalasia. A Promising Novelty in Regards of Perfecting Surgical Technique: Could It Guide Surgical Technique Toward Excellent Results?

Tania Triantafyllou, MD, Georgia Doulami, MD,* Joanna Papailiou, MD, PhD,* Apostolos Mantides, MD,† Georgios Zografos, MD, PhD,* and Dimitrios Theodorou, MD, PhD**





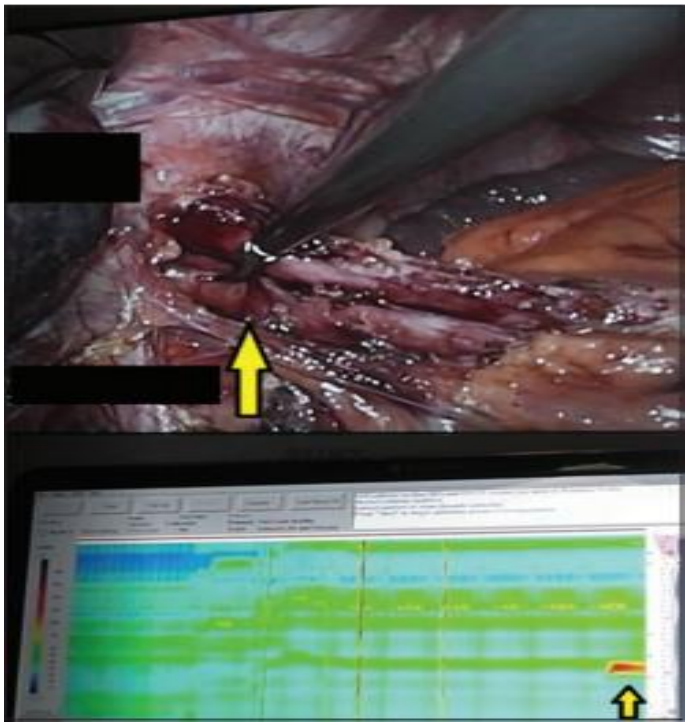
ORIGINAL ARTICLE

Annals of Gastroenterology (2019) **32,** 46-51

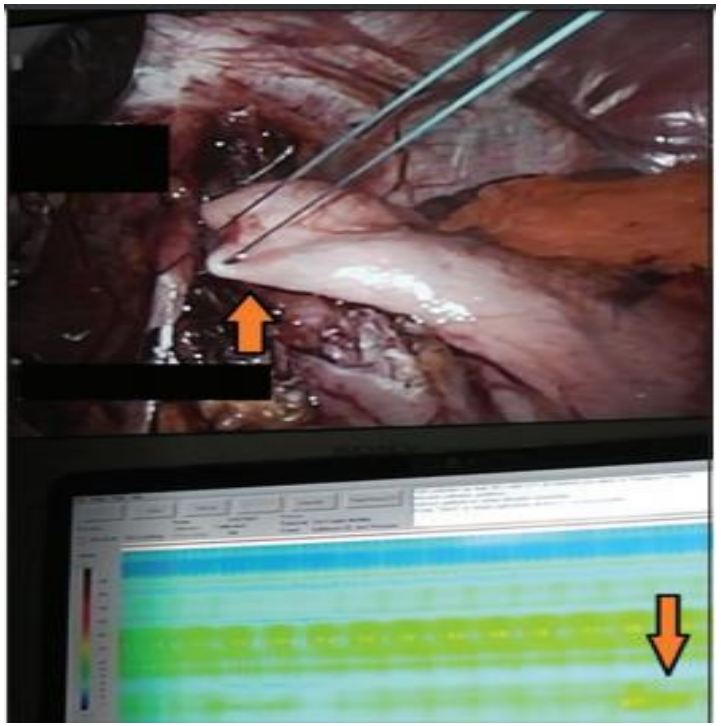
Long-term outcome of myotomy and fundoplication based on intraoperative real-time high-resolution manometry in achalasia patients

Tania Triantafyllou[a], Charalampos Theodoropoulos[a], Georgia Georgiou[a], Vasileios Kalles[a], Demosthenis Chrysikos[b], Konstantinos Filis[a], Georgios Zografos[a], Dimitrios Theodorou[a]

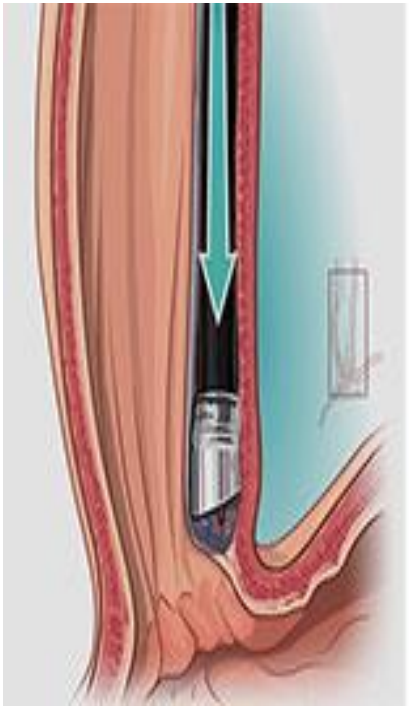
ΜΥΟΤΟΜΗ

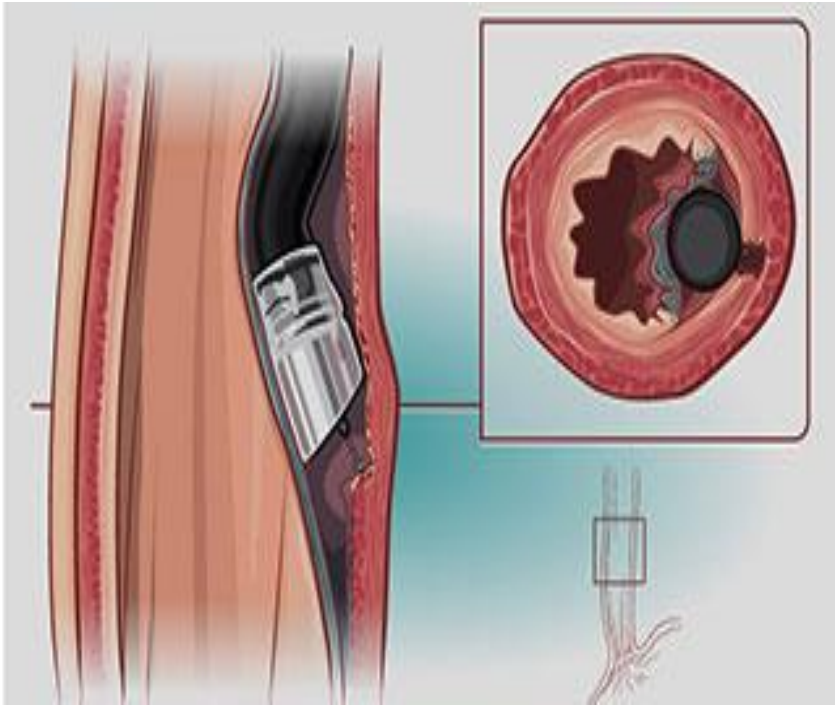


ΘΟΛΟΠΛΑΣΤΙΚΗ



POEM
(Peroral Endoscopic Myotomy)





JOURNAL OF LAPAROENDOSCOPIC & ADVANCED SURGICAL TECHNIQUES
Volume 29, Number 9, 2019

DOI: 10.1089/lap.2019.0242

A Decade of Investigation: Peroral Endoscopic Myotomy Versus Laparoscopic Heller Myotomy for Achalasia

Michael T. Olson, BS,[1] Tania Triantafyllou, MD,[2] and Saurabh Singhal, MBBS, MS[3]

Author, year (study design)	*Patients (n)*	*Primary outcome(s)*	*Median F/U [Range] (months)*	*Results*	*Finding(s)*
Sanaka et al., 2018 (Propensity score matching)[14]	31 (POEM), 88 (LHM)	Difference in esophageal acid exposure between procedure type	2-Month posttreatment	POEM versus LHM Abnormal total acid exposure: 48.4% versus 13.6% ($P<.001$) Abnormal DeMeester score: 54.8% versus 17.4% ($P<.005$)	POEM leads to significantly higher rates of abnormal esophageal acid exposure, w/o an increase in GERD Sx
Hanna et al., 2018 (Retrospective)[54]	42 (POEM), 54 (LHM)	Patient-reported outcomes between procedure type	21.9 (POEM), 37.0 (LHM)	POEM versus LHM Daily dysphagia: 24% versus 28% Daily regurgitation and chest pain: 7% versus 11%	No significant difference in follow-up Eckardt score; two procedures have similar patient-reported effectiveness
Ramirez et al., 2018 (Prospective)[55]	35 (POEM), 35 (LHM)	Myotomy extension, treatment success (Eckardt score ≤ 3), symptomatic reflux	10 (6–32) [POEM], 20 (6–68) [LHM]	POEM versus LHM Efficacy (Eckardt score ≤ 3): 94.2% versus 91.4% ($P=1.0$); similar symptomatic reflux rates	Shorter myotomy on the gastric side in POEM may contribute to an acceptable reflux rate with comparable dysphagia relief
Docimo et al., 2017 (Retrospective)[56]	44 (POEM), 122 (LHM)	Postoperative pain	1–24 Hours post-op	POEM versus LHM Average pain scores upon arrival to recovery room and 1 hour postop: 2.3 ± 3.0 versus 3.61 ± 3.0 ($P=.025$), and 2.2 ± 2.6 versus 3.5 ± 3.1 ($P=.034$), respectively	POEM has less postop pain; LHM patients required more narcotic analgesic administration during the first 24 hours
Peng et al., 2017 (Retrospective)[57]	13 (POEM), 18 (LHM)	Treatment success (Eckardt score ≤ 3), GERD occurrence, QOL	36	POEM versus LHM Treatment success: 83.3% versus 80.0% ($P=1.0$), similar GERD rates, no difference in QOL	POEM and LHM are both effective treatments that have comparable long-term outcomes
Schneider et al., 2016 (Retrospective)[58]	42 (POEM), 84 (LHM)	Early clinical outcomes (Eckardt score, QOL metrics, dysphagia, esophagitis)	36.2 (22.2–41.2) weeks [POEM], 158.1 (36.5–272.9) weeks [LHM]	POEM versus LHM Eckardt scores, QOL metrics, and dysphagia significantly improved in both groups; esophagitis: 53.4% versus 31.6% (Yates'	Early clinical outcomes are excellent with POEM and comparable to the standard-of-care LHM

ΕΚΚΟΛΠΩΜΑΤΑ ΟΙΣΟΦΑΓΟΥ

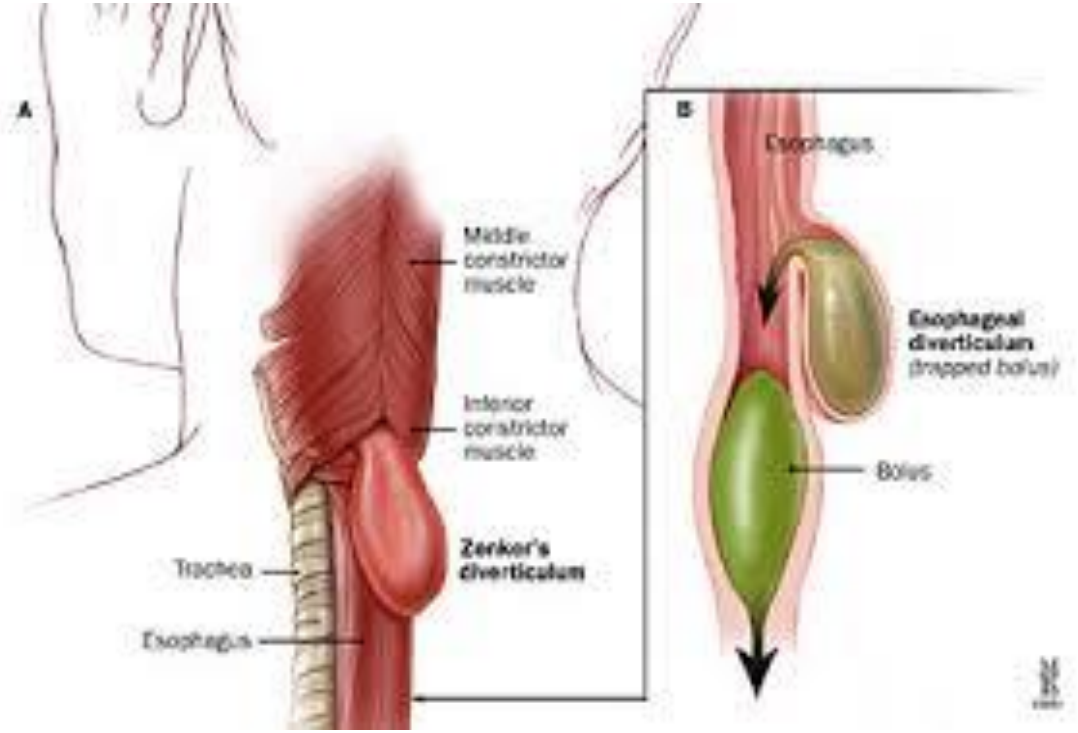
Ώσης:

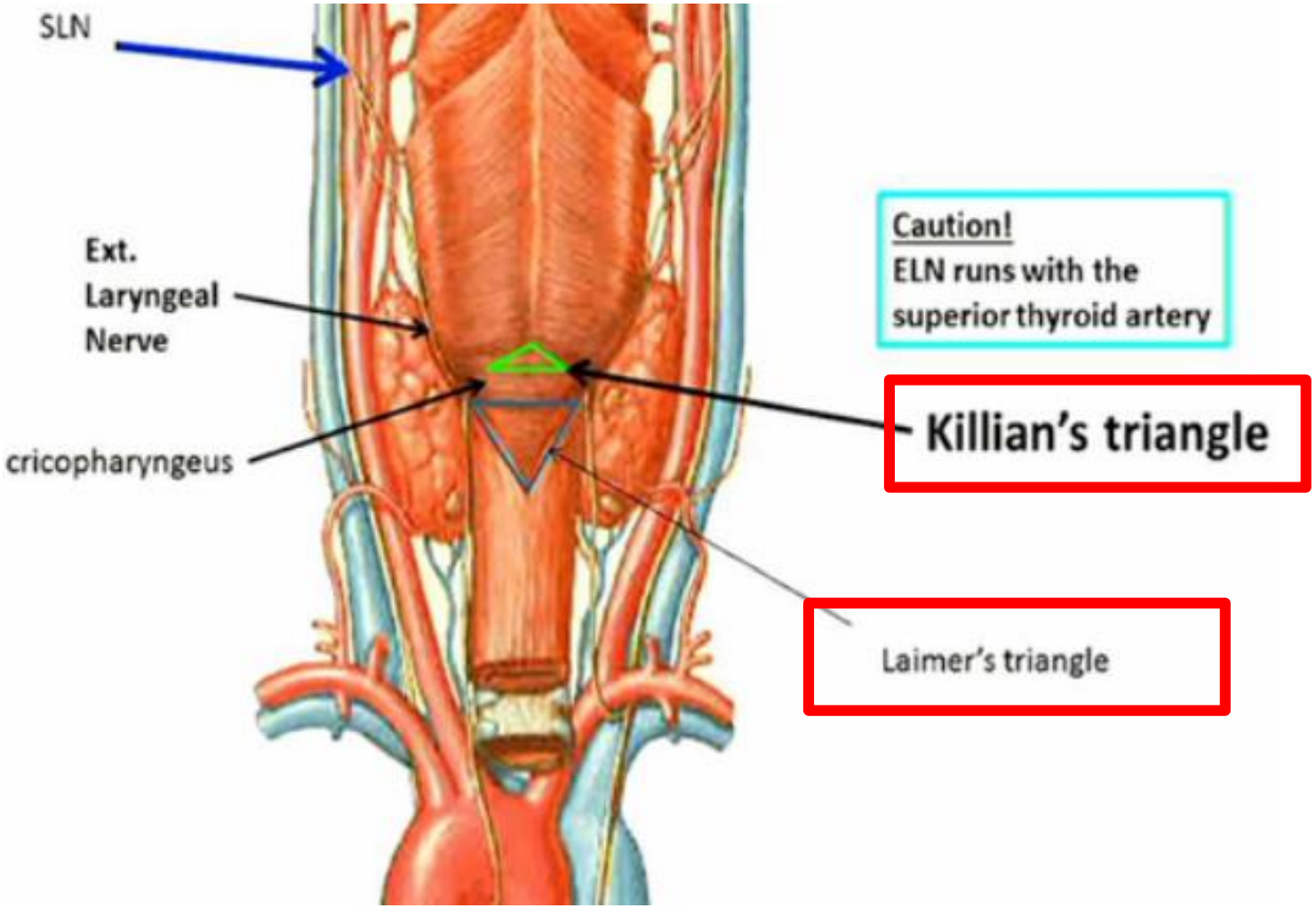
- Είναι τα συχνότερα
- Είναι ψευδή (από βλεννογόνο μόνο)
- Οφείλονται σε αυξημένη ενδοαυλική πίεση
- Άνω Zenker / Κάτω επιφρενικά

Έλξης:

- Είναι σπάνια
- Είναι αληθή (όλες στιβάδες)
- Οφείλονται σε εξωτερικές φλεγμονές και ίνωση
- Μεσότητα

ZENKER


A
B
Middle constrictor muscle
Inferior constrictor muscle
Zenker's diverticulum
Trachea
Esophagus
Esophagus
Esophageal diverticulum
(trapped bolus)
Bolus


SLN
Ext.
Laryngeal
Nerve
cricopharyngeus
Caution!
ELN runs with the
superior thyroid artery
Killian's triangle
Laimer's triangle

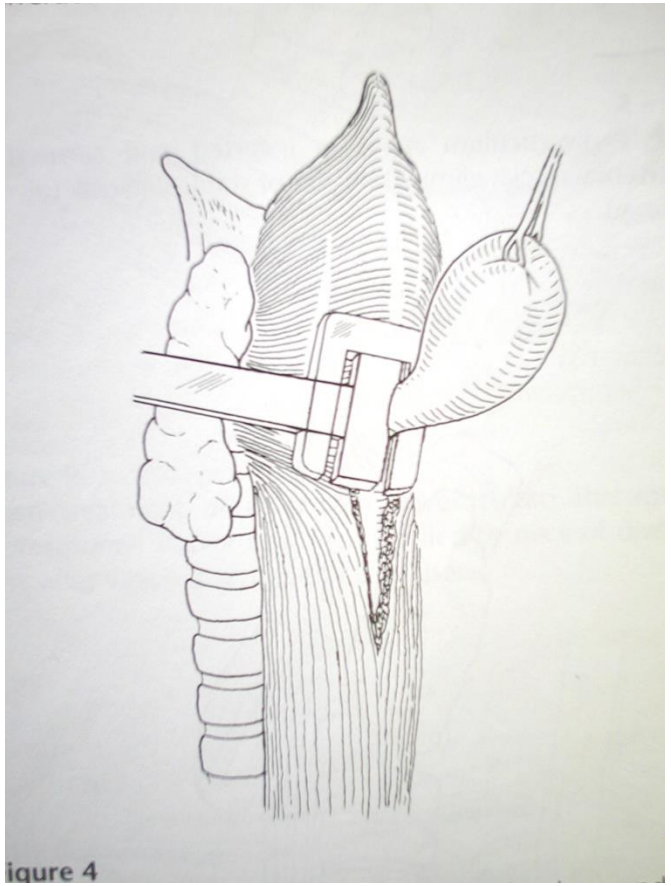
ΑΝΤΙΜΕΤΩΠΙΣΗ

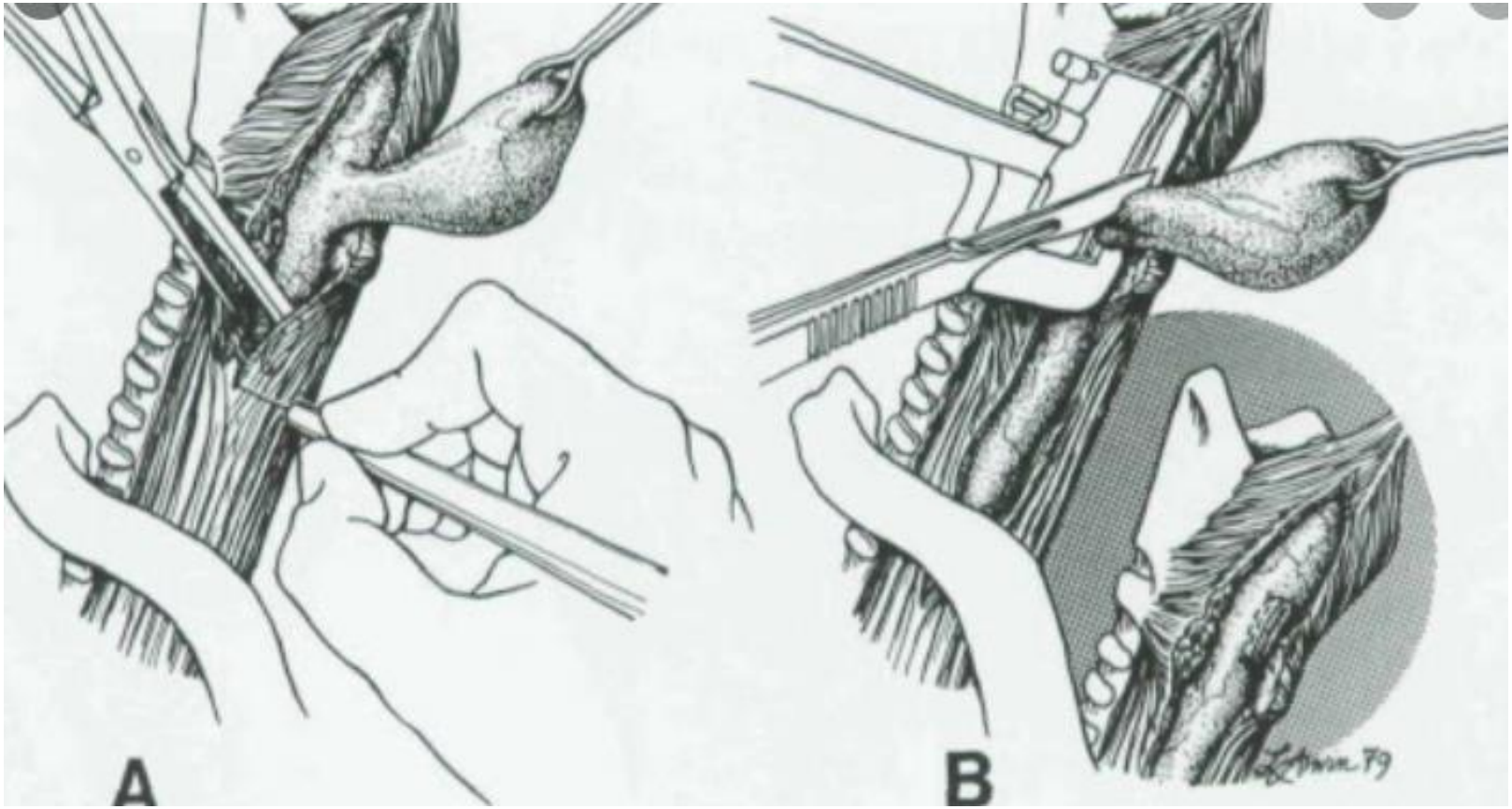
- **ΕΝΔΟΣΚΟΠΙΚΗ**
- **ΧΕΙΡΟΥΡΓΙΚΗ**

- Η θεραπεία απαιτεί

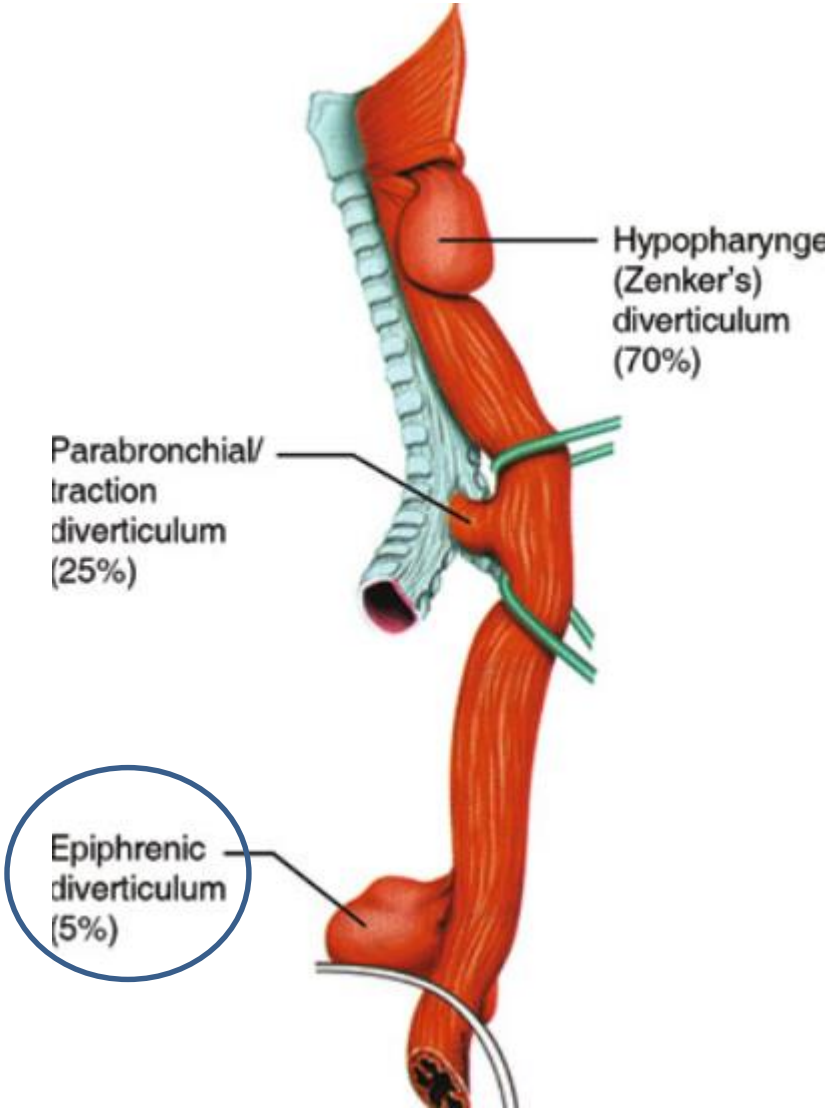
  - Μείωση πιέσεων μυοτομή περιφερικά

  - Αφαίρεση εκκολπώματος??




A
B

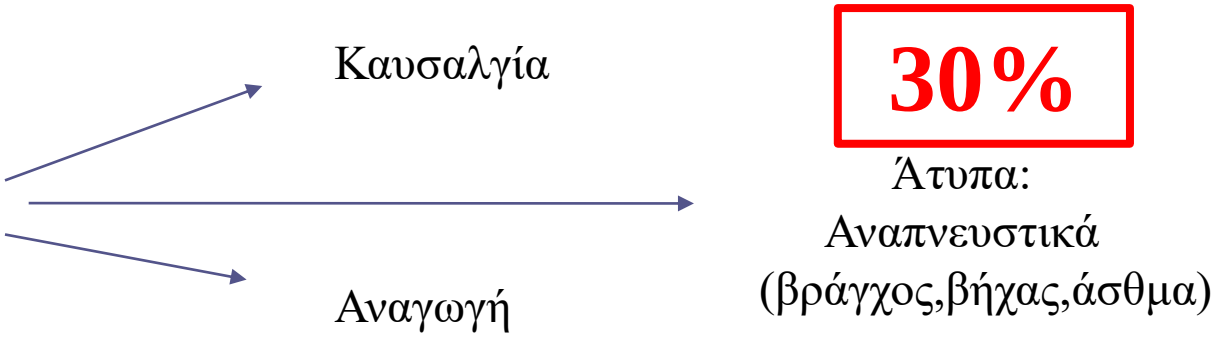
ΕΠΙΦΡΕΝΙΚΟ


Hypopharynge
(Zenker's)
diverticulum
(70%)
Parabronchial/
traction
diverticulum
(25%)
Epiphrenic
diverticulum
(5%)

ΓΟΠ

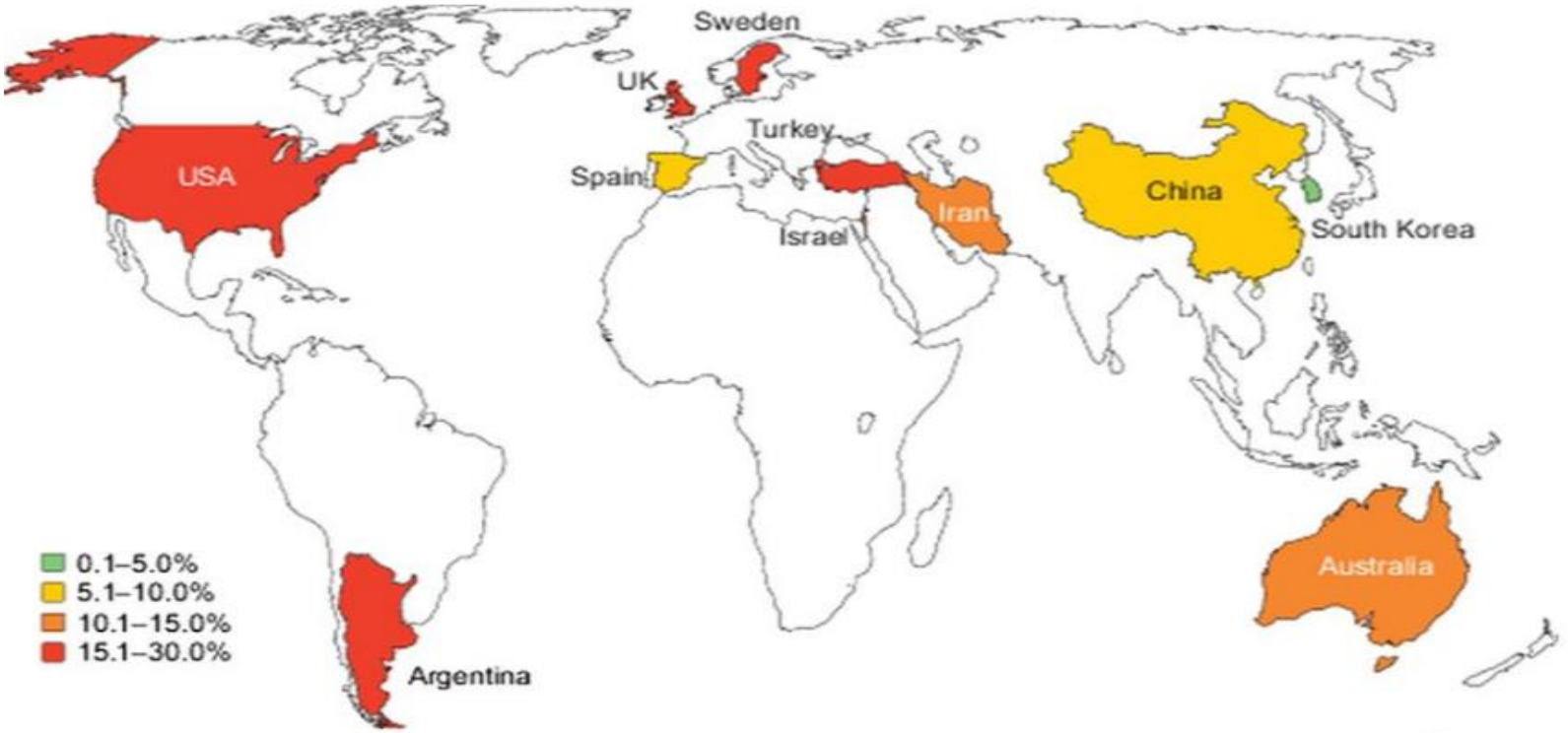
- Γαστρικό περιεχόμενο στον οισοφάγο
- Παλινδρομικό επεισόδιο: φυσιολογικό φαινόμενο

✓ Συμπτώματα



✓ Επιπλοκές

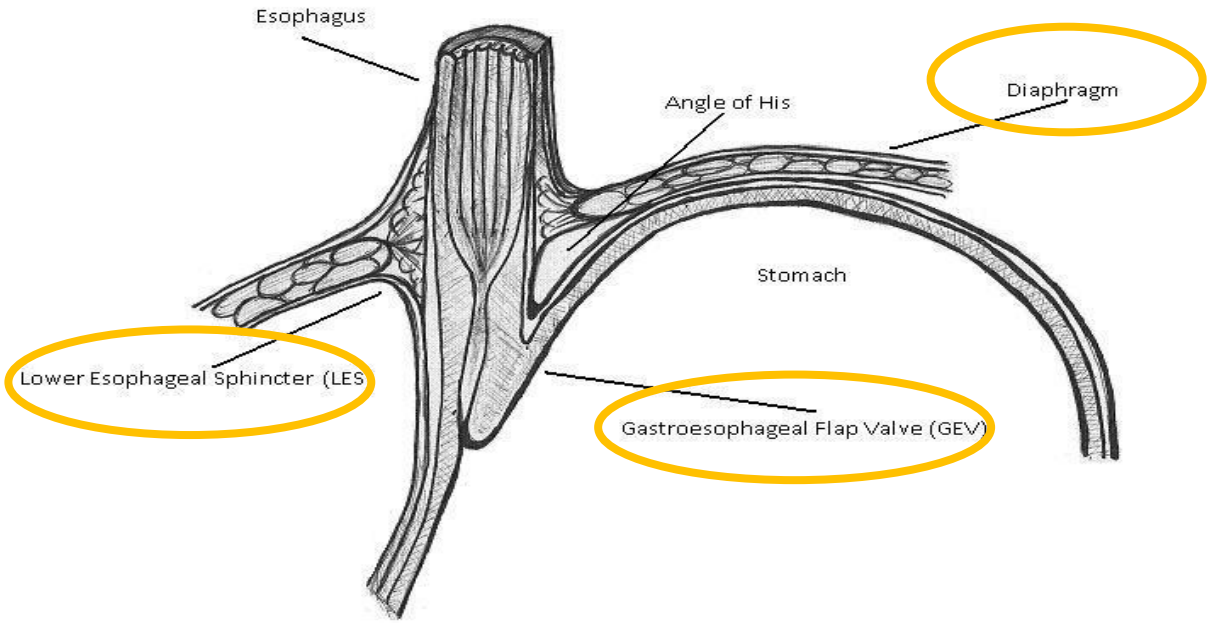
- ✓ Ανεπτυγμένες χώρες 26-28%
- ✓ Παχυσαρκία!!



El-Serag et al. GUT 2014

Antireflux Barrier

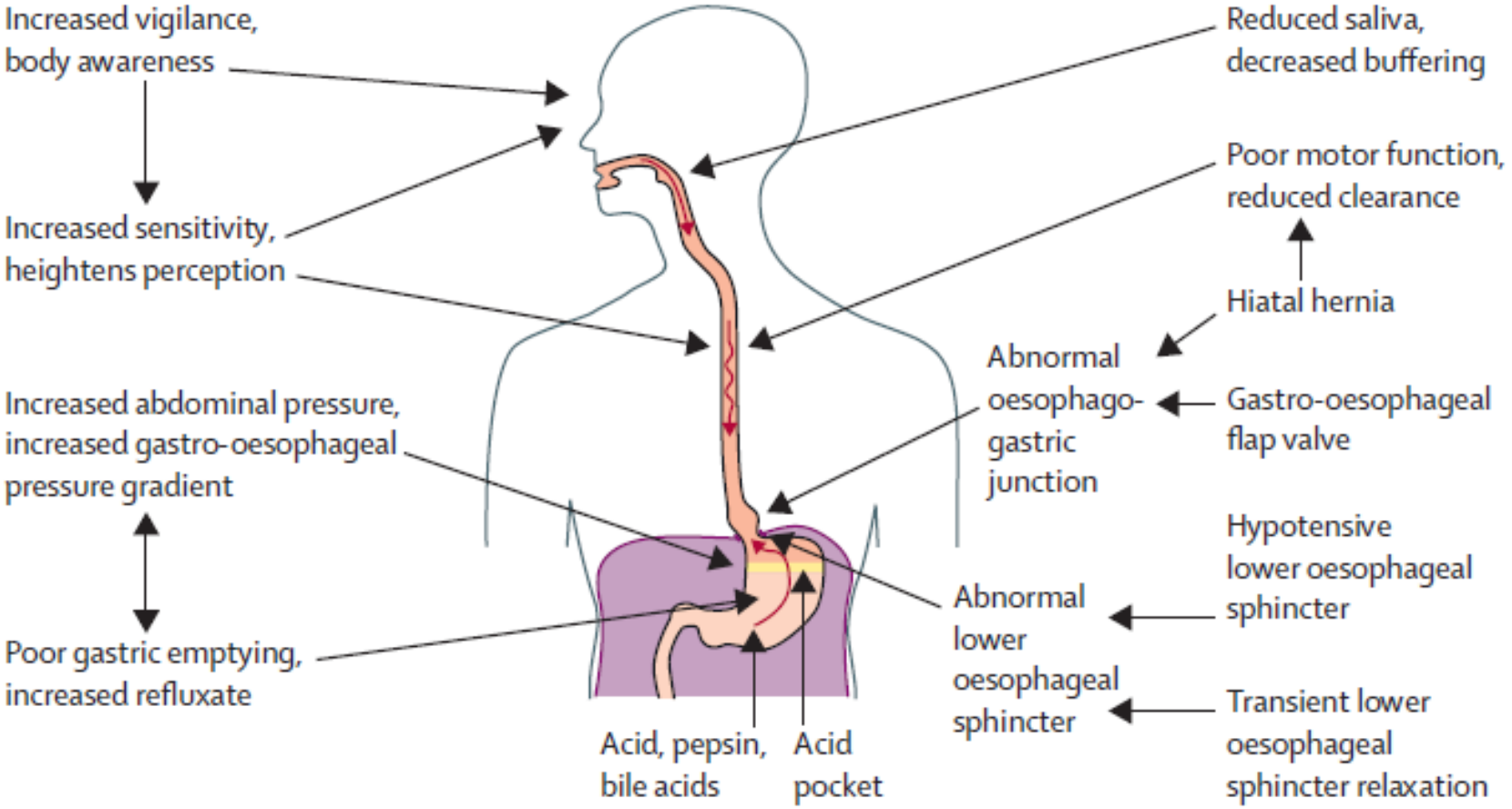
- Κάτω οισοφαγικός σφιγκτήρας
- Σκέλη διαφράγματος
- Φρενοοισοφαγική μεμβράνη
- Διαφορά πίεσης (flap valve)



Gastro-oesophageal reflux disease

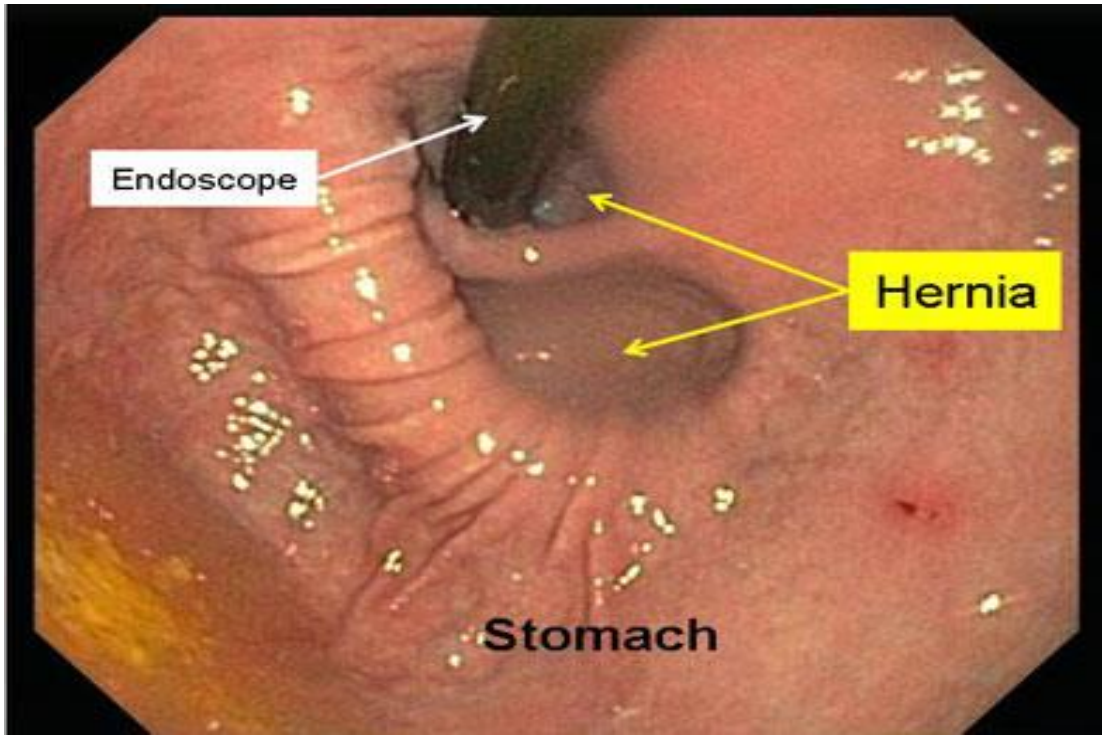
Albert J Bredenoord, John E Pandolfino, André J P M Smout

Lancet **2013; 381: 1933–42**



Διερεύνηση

- ✓ **Γαστροσκόπηση**
- ✓ Βαριούχο γεύμα
- ✓ Μανομετρία
- ✓ Πεχαμετρία



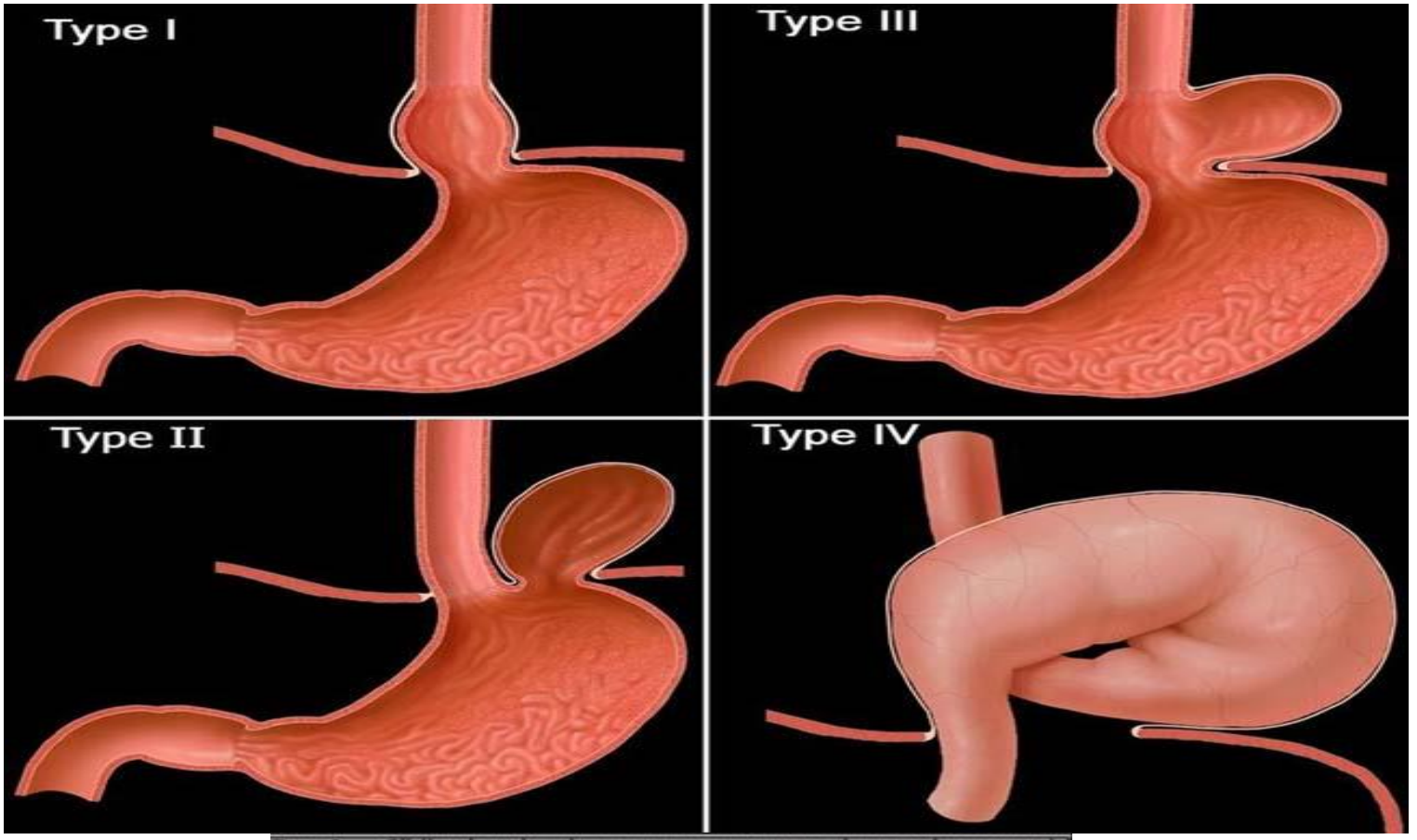
ΕΝΔΟΣΚΟΠΗΣΗ: ΠΟΤΕ?

- ✓ **Alarming** symptoms (δυσφαγία, ΑΒ, αιμορραγία, έμετοι)
- ✓ ≥ 2 **παράγοντες κινδύνου** για Barrett (άνδρας, ≥50 ετών, Καυκάσια φυλή, παχυσαρκία, οικογ.ιστορικό, κάπνισμα
- ✓ Γνωστή οισοφαγίτιδα ≥C (<75% περιμέτρου αυλού)

No.	Question	Answer
1	Should I perform endoscopy in all patients with GERD symptoms?	Endoscopy should be reserved for patients with GERD symptoms and either alarm features or multiple risk factors for Barrett's esophagus
2	Is erosive esophagitis specific for diagnosis of GERD?	Only LA grade C and D esophagitis are always specific for GERD
3	When to perform esophageal biopsies in patients with GERD symptoms?	Esophageal biopsies should be performed only when eosinophilic esophagitis is suspected
4	Should hiatal hernia always be identified and measured?	Hiatal hernia should always be identified and measured
5	Should patients with erosive esophagitis undergo repeat endoscopy after treatment?	Only patients with LA grade C and D esophagitis should undergo repeat endoscopy after PPI therapy
6	Is an instrumental finding of laryngitis a specific sign of GERD?	Laryngoscopic findings of laryngitis are not specific signs of GERD
7	Is pH monitoring alone inferior to impedance-pH	Impedance-pH monitoring is the test of choice to confirm or rule out GERD

ΔΙΑΦΡΑΓΜΑΤΟΚΗΛΗ

90%



Type I - Sliding hernia - the most common type, the esophagogastric junction migrates through the gap in the cephalad direction.
Type II - Paraesophageal hernia - only migrates the gastric fundus, the esophagogastric junction remains in intra-abdominal position.
Type III - Combination of types I and II.
Type IV - Involves the migration of other structures and organs such as omentum or transverse colon

Surg Endosc (2011) 25:2943–2949
DOI 10.1007/s00464-011-1646-9

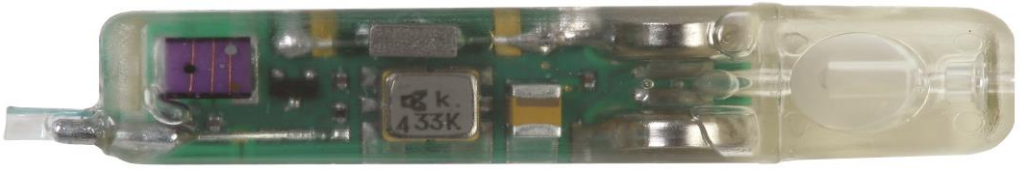
Value of preoperative esophageal function studies before laparoscopic antireflux surgery

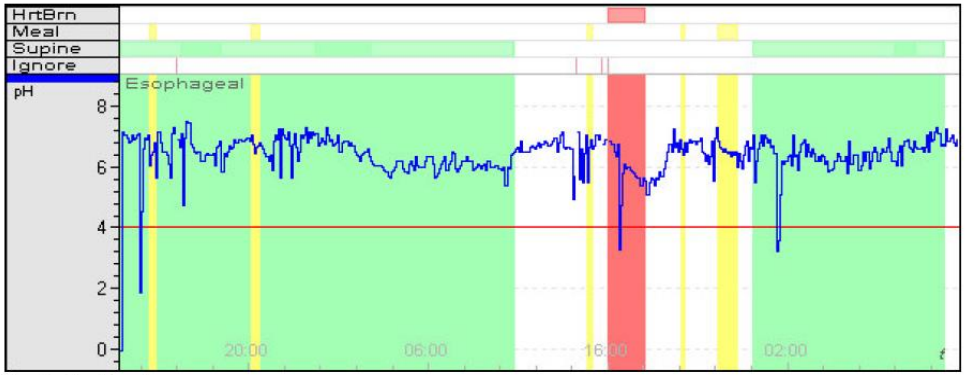
Walter W. Chan · Laura R. Haroian · C. Prakash Gyawali

	HRM (n = 1,081)	Ambulatory pH monitoring (n = 723)
Age (years)	48.4 ± 0.4	48.3 ± 0.5
Gender	613 F/468 M	429 F/294 M
HRM findings		
Esophageal body hypomotility	38 (3.5 %)	28 (3.8 %)
Isolated LES hypomotility	262 (24.2 %)	155 (21.4 %)
Body and LES hypomotility	93 (8.6 %)	57 (7.9 %)
Nonspecific spastic disorder	240 (22.2 %)	177 (24.5 %)
DES	34 (3.2 %)	26 (3.6 %)
Achalasia and variants	27 (2.5 %)	17 (1.9 %)
Ambulatory pH findings		
AET		507 (70.1 %)
Positive SAP		318 (44.0 %)
Elevated AET and positive SAP		275 (38.0 %)
Normal study		173 (23.9 %)

Taking these populations together, 7% of our study cohort had findings that were absolute (2.5%) or relative (4.5%) contraindications for a standard fundoplication. These findings further underscore

ΠΑΛΙΝΔΡΟΜΗΣΗ



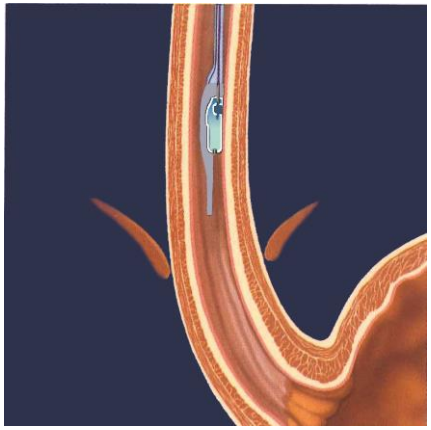


Reflux Table - Day 1

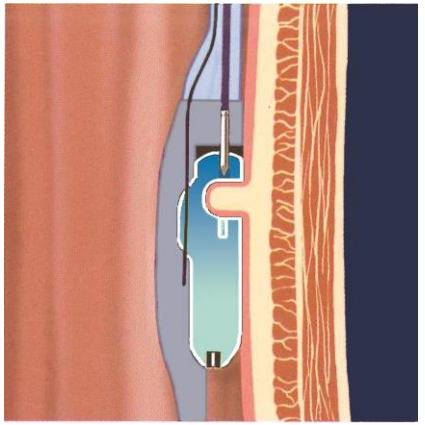
	Total	Upright	Supine	Meal	PostPr	PrePra
Duration of Period (min)	23:58	02:04	1d, 03:11	00:49	03:58	19:10
Number of Refluxes	1	0	1	0	0	1
Number of Long Refluxes>5 (min)	0	0	0	0	0	0
Duration of longest reflux (min)	1	0	1	0	0	1
Time pH <4 (min)	1	0	1	0	0	1
Fraction Time pH <4 (%)	0.1	0.0	0.0	0.0	0.0	0.1

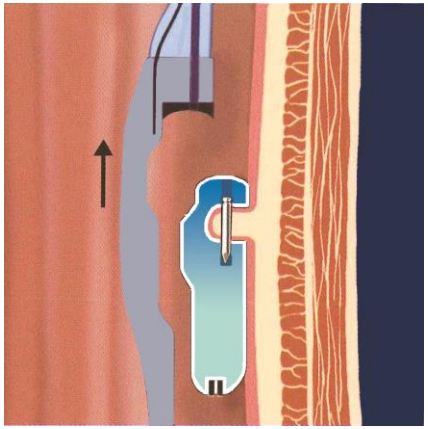
DeMeester Table - Day 1

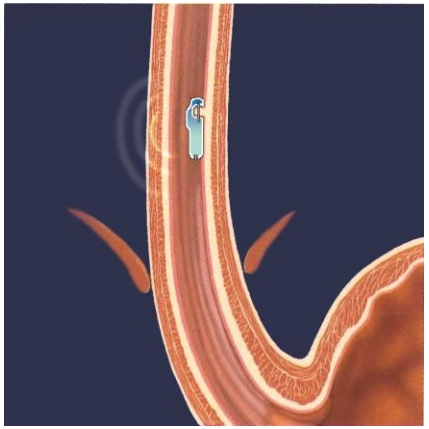
	Score
Duration (d,hh: mm: ss)	23:58
Number of Refluxes	-0.4
Number of Long Refluxes	0.3
Longest Reflux	0.2
Fraction Time pH <4 (Total)	-0.1
Fraction Time pH <4 (Upright)	0.1
Fraction Time pH <4 (Supine)	0.4
Total Score	0.5



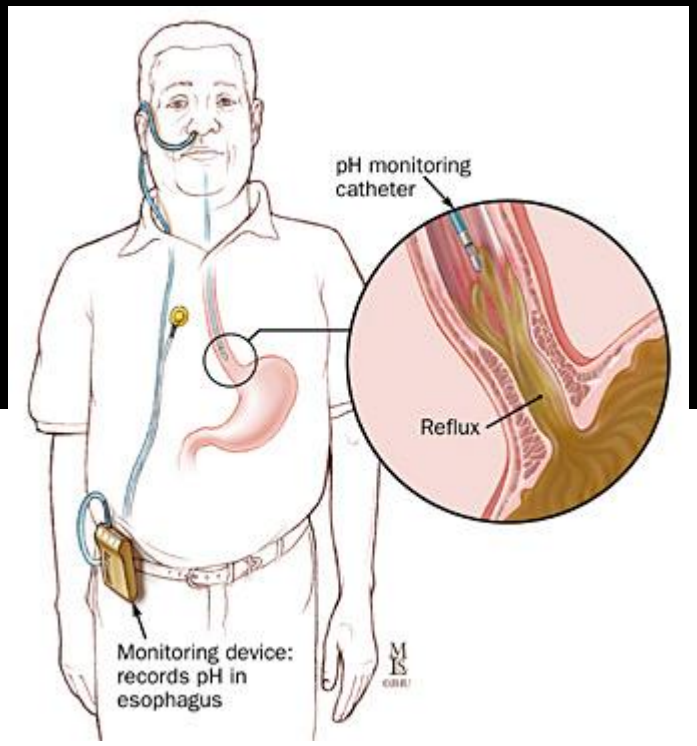

RAPID pH
BRAVO pH System
DELL
BRAVO pH Monitoring





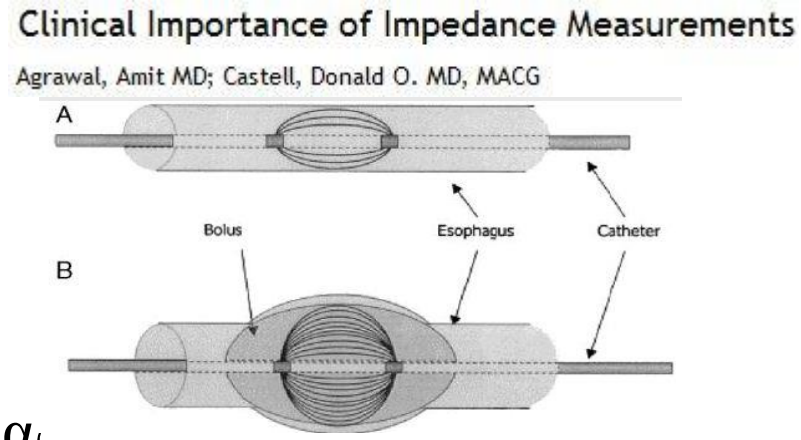


24ΩΡΗ ΠΛΗΘΥΣΜΟΓΡΑΦΙΑ-pH-ΜΕΤΡΙΑ ΟΙΣΟΦΑΓΟΥ

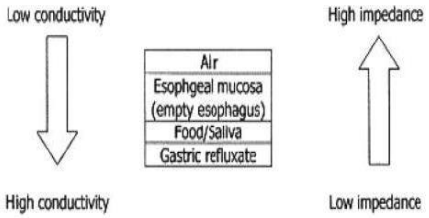


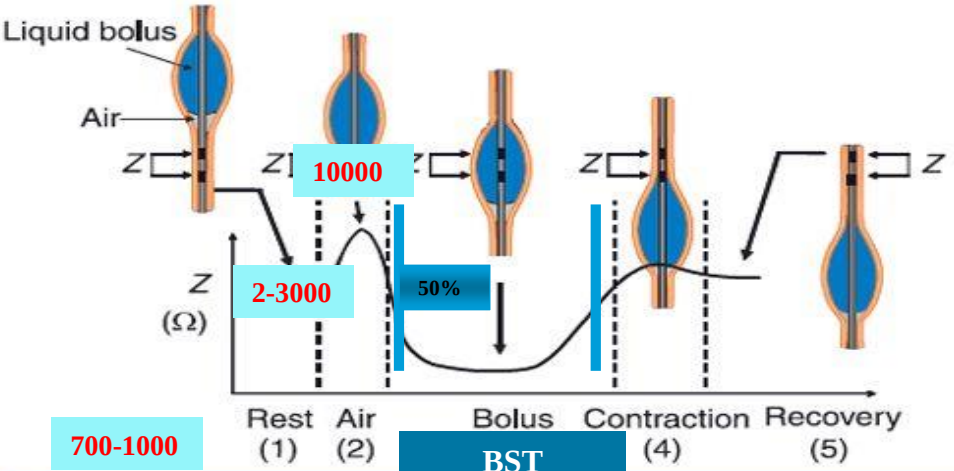
ΑΡΧΕΣ ΛΕΙΤΟΥΡΓΙΑΣ-ΕΜΠΕΔΗΣΗ

.Μεταβολή αντίστασης (Ohms) μεταξύ μεταλλικών ελασμάτων

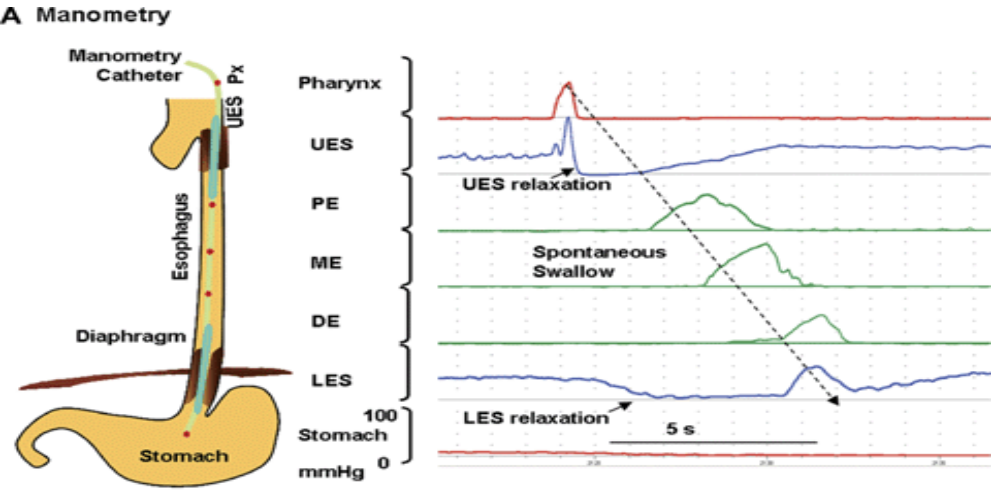


.Υγρός βλωμός ≠ Αέρας

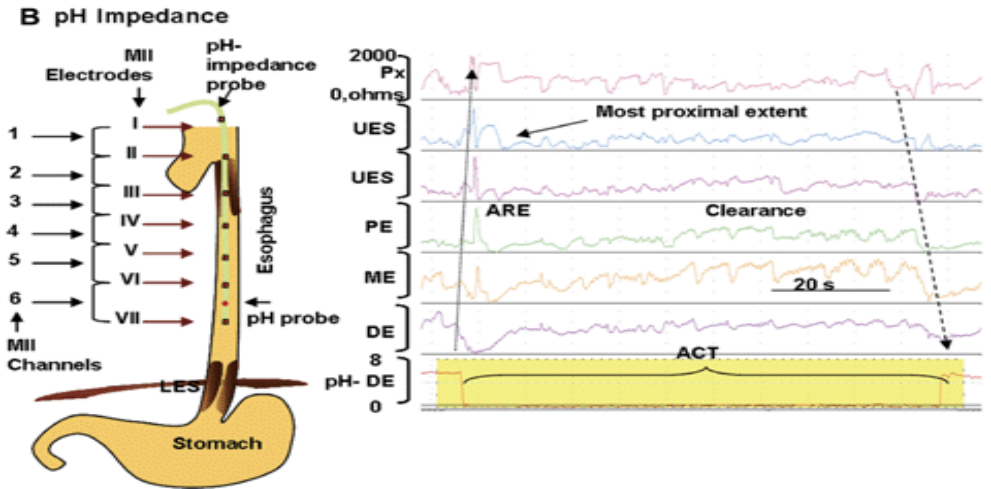




ΕΦΑΡΜΟΓΕΣ ΕΜΠΕΔΗΣΗΣ



Συνδυασμός με μανομετρία ή pHμετρία



Θεραπεία

- ✓ Δίαιτα και συνήθειες
- ✓ Αντιόξινα
- ✓ Η2 Αναστολείς
- ✓ Αναστολείς της αντλίας πρωτονίου

PPI

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

Μειονεκτήματα:

- Μακροχρόνια χρήση απαραίτητη:
- - Κόστος
- - Ποιότητα ζωής ειδικά στους νέους
- **Η ΓΟΠ δεν σταματά**
- Παλινδρόμηση χολής στο 75% των ασθενών

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

			Exposed to Acid-Suppressive Drugs		
	Total	Unexposed	Overall	H_2-Receptor Antagonists	Proton Pump Inhibitors
No. of patients	364 683	345 224	19 459*	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)

JAMA. 2004;292:1955-1960

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)

JAMA. 2006;296:2947-2953

Indications for surgery

When the diagnosis of reflux is objectively confirmed, surgical therapy should be considered in individuals who:

1. Have failed medical management (inadequate symptom control, severe regurgitation not controlled with acid suppression, or medication side-effects)

OR

2. Opt for surgery despite successful medical management (due to quality-of-life considerations, lifelong need for medication intake, expense of medications, etc.)

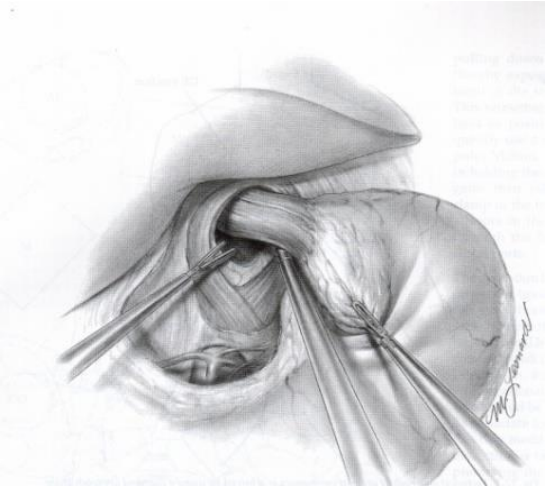
OR

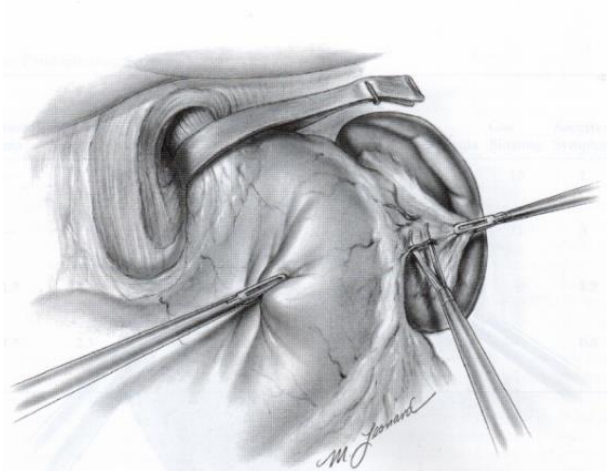
3. Have complications of GERD (e.g., Barrett's esophagus, peptic stricture) [18, 19]

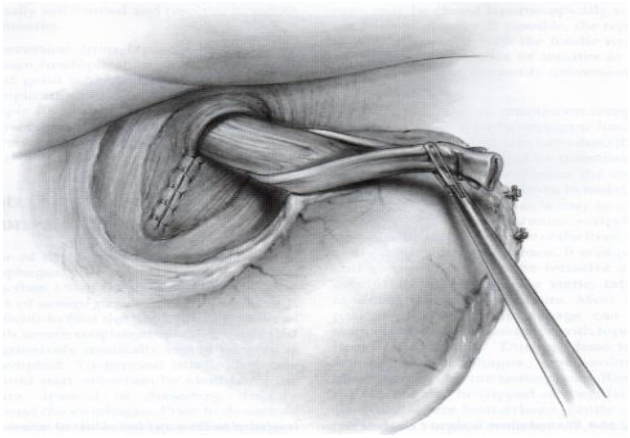
OR

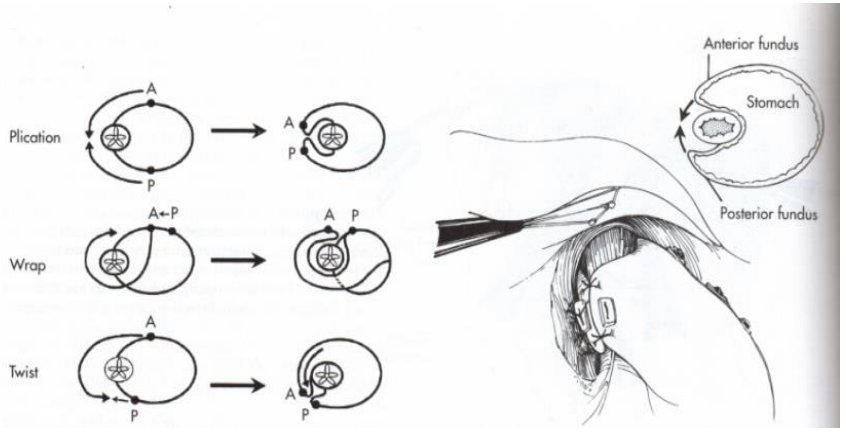
4. Have extra-esophageal manifestations (asthma, hoarseness, cough, chest pain, aspiration) [20–23]

ΧΕΙΡΟΥΡΓΙΚΗ ΤΕΧΝΙΚΗ









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

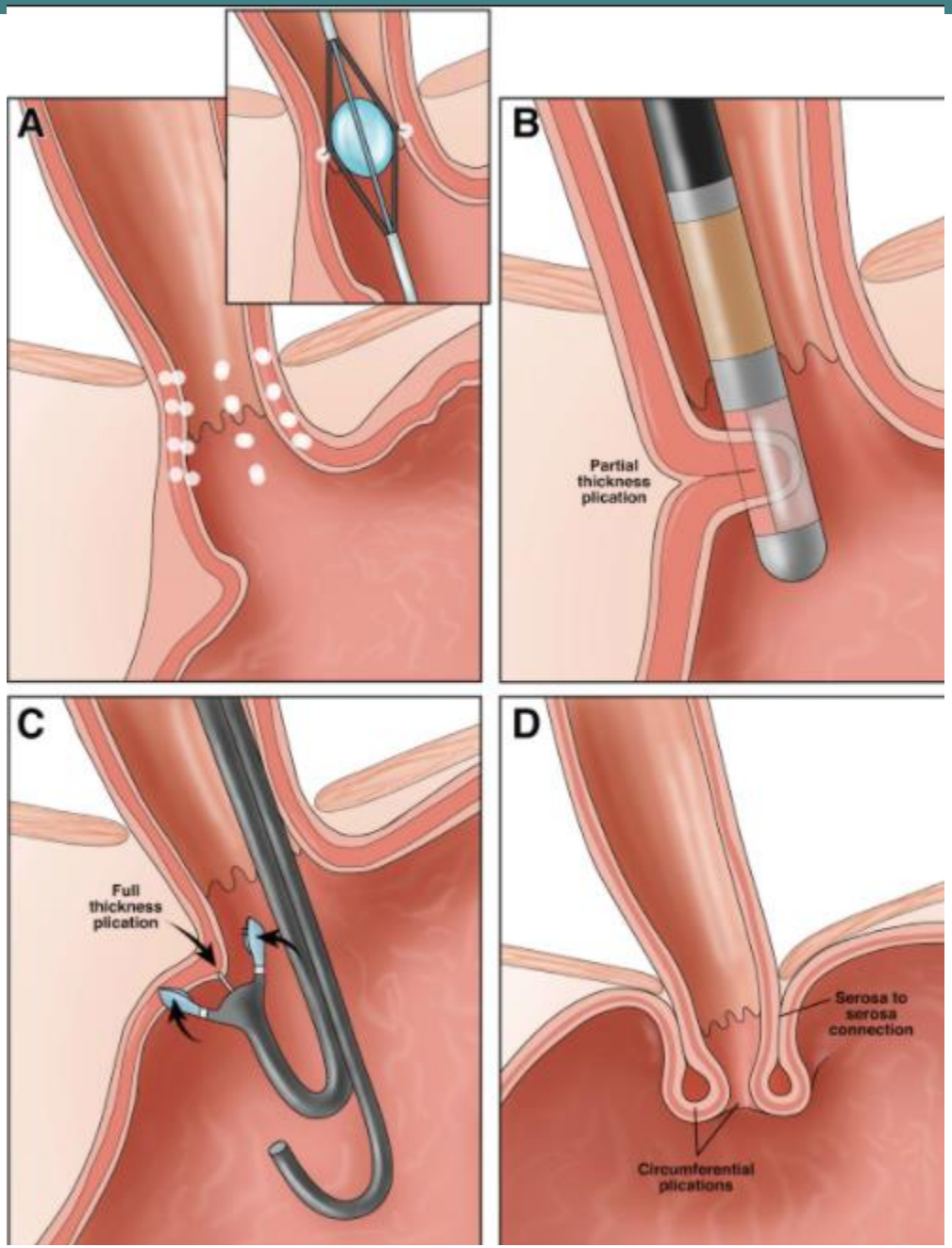
From the Department of Surgery, Division of Thoracic and Foregut Surgery, University of Southern California, Los Angeles, California

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.

ANNALS OF SURGERY
Vol. 234, No. 4, 532–539

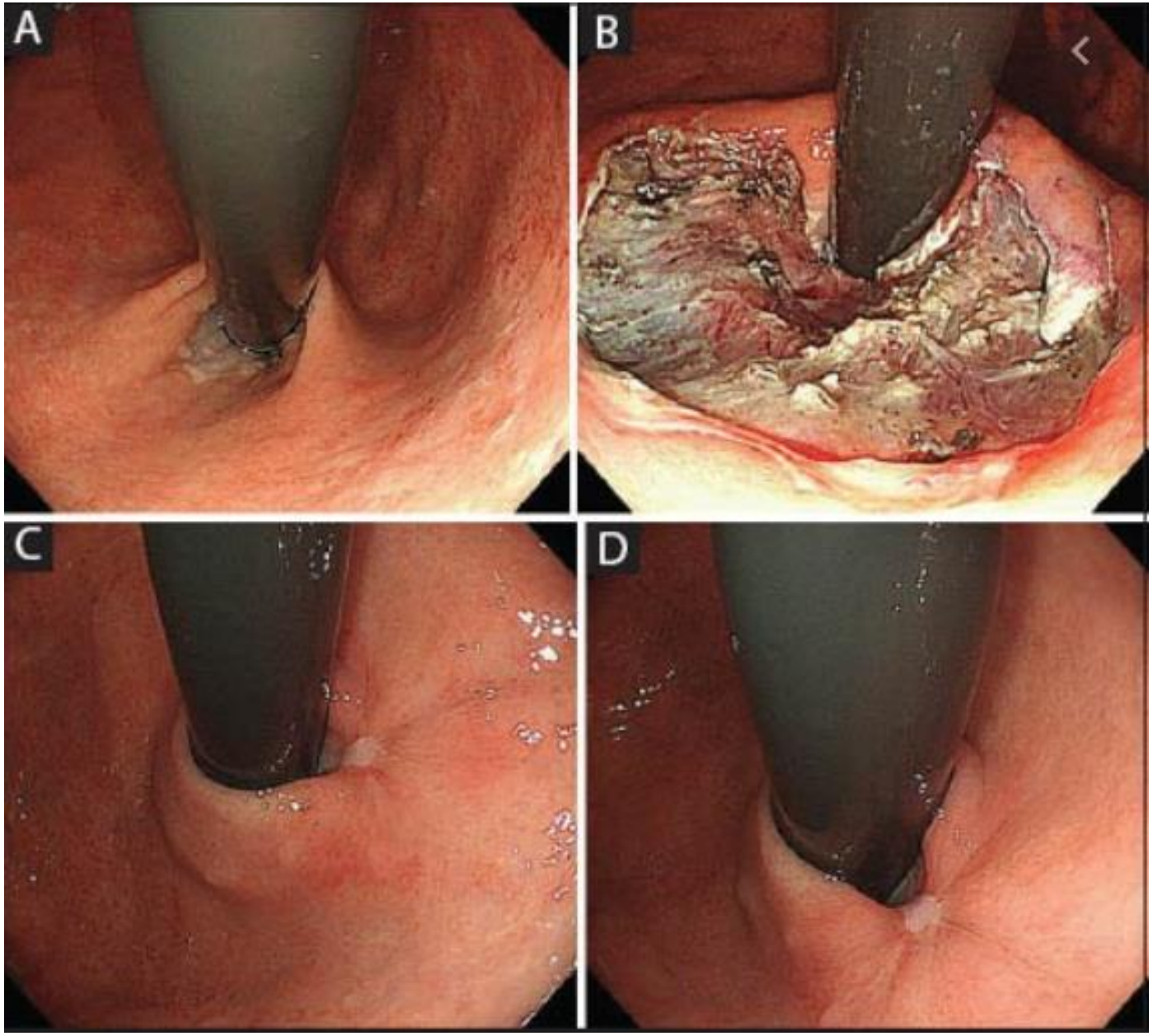
Transoral Incisionless Fundoplication

TIF



Anti-reflux mucosectomy

ARMS



ΕΠΙΠΛΟΚΕΣ ΓΟΠ

- Οισοφαγίτιδα
- Στένωση
- Έλκος
- Barrett
- Καρκίνος

World Journal of Gastroenterology

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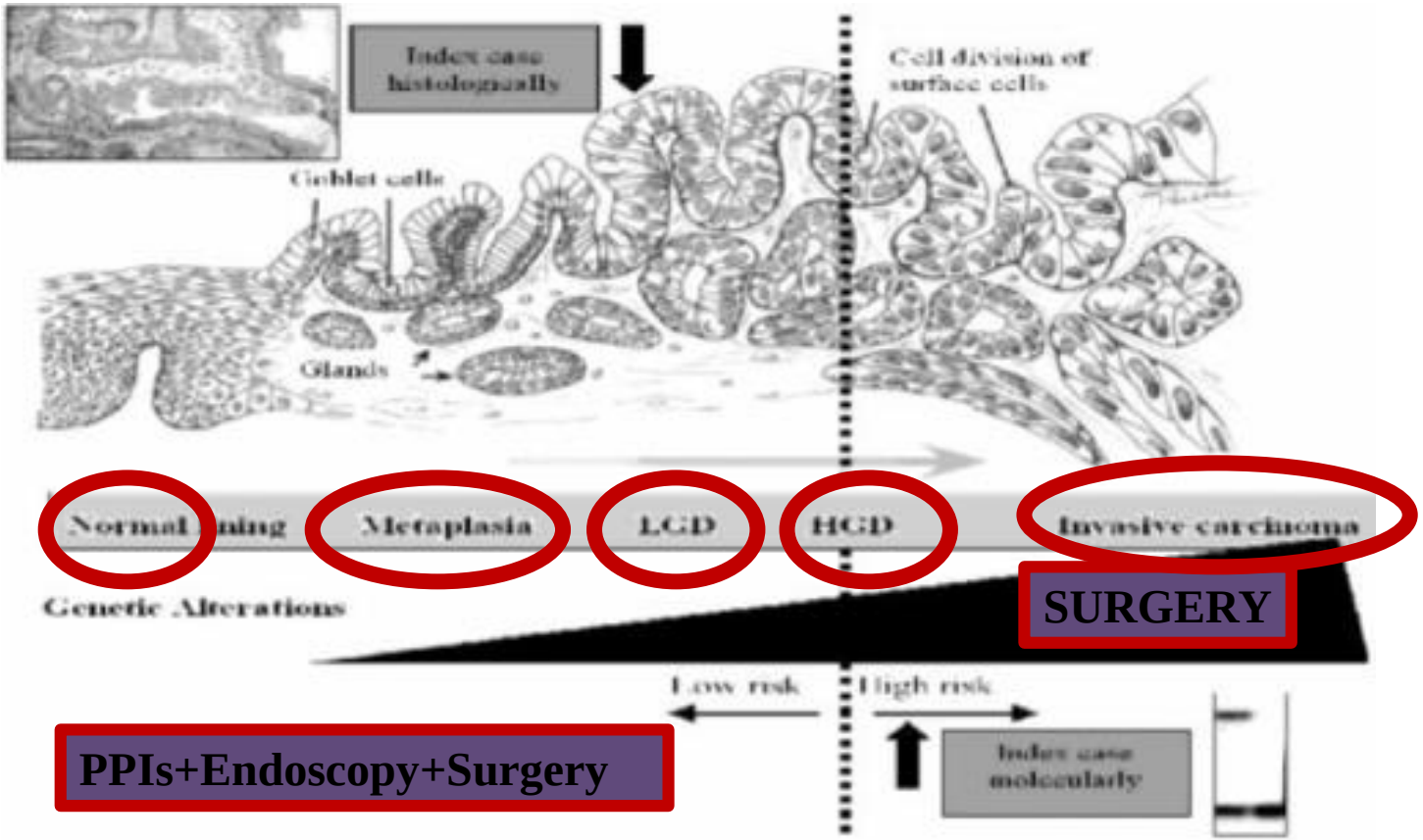
DOI: 10.3748/wjg.v21.i17.5210

World J Gastroenterol 2015 May 7; 21(17): 5210-5219
ISSN 1007-9327 (print) ISSN 2219-2840 (online)

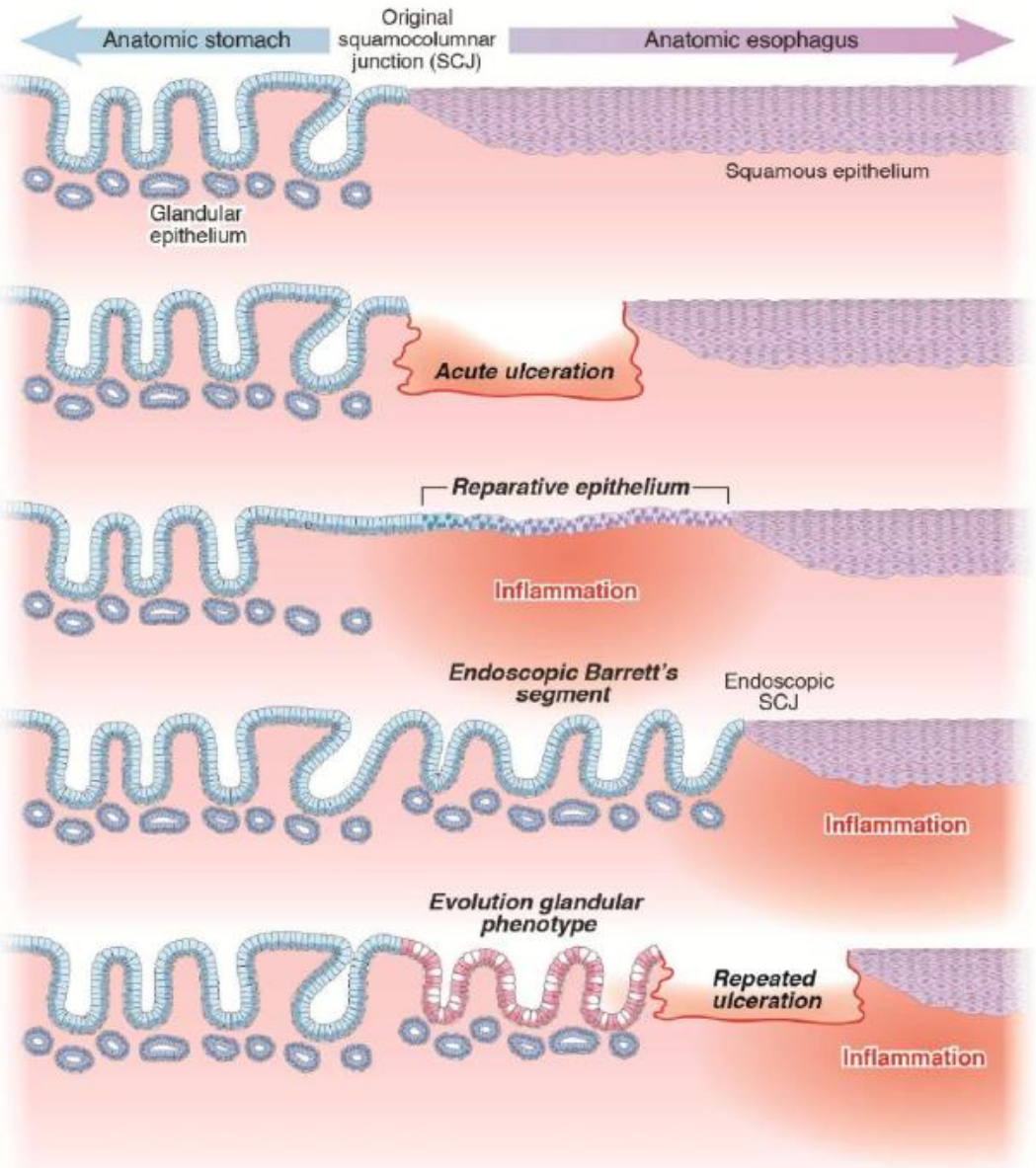
REVIEW

From reflux esophagitis to Barrett's esophagus and esophageal adenocarcinoma

Rui-Hua Wang



BARRETT'S OESOPHAGUS



Model of wounding and competitive replacement for development of Barrett's Epithelium by chronic acid reflux

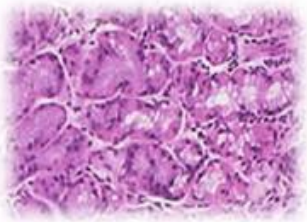
BARRETT

•Αντικατάσταση του επιθηλίου με μεταπλαστικό κυλινδρικό επιθήλιο
•3-5% των ασθενών με καθημερινά ενοχλήματα
•17 φορές πιο συχνός καρκίνος

✓ Πρόγραμμα συστηματικών ενδοσκοπήσεων
✓ Χειρουργική θεραπεία (θολοπλαστική) δραστική αποτροπή παλινδρόμησης

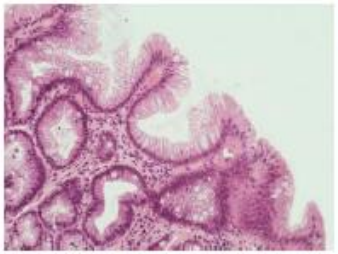
BARRETT'S CARCINOGENESIS

Mucosa of gastroesophageal junction with oesophagitis



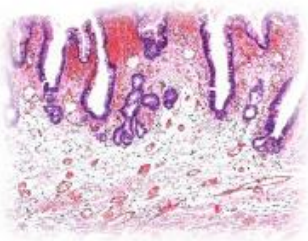
0.5%

BE without dysplasia



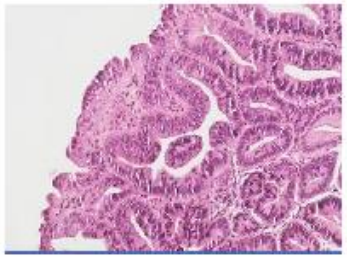
10%

BE with low-grade dysplasia

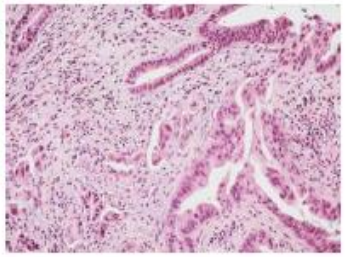


40%

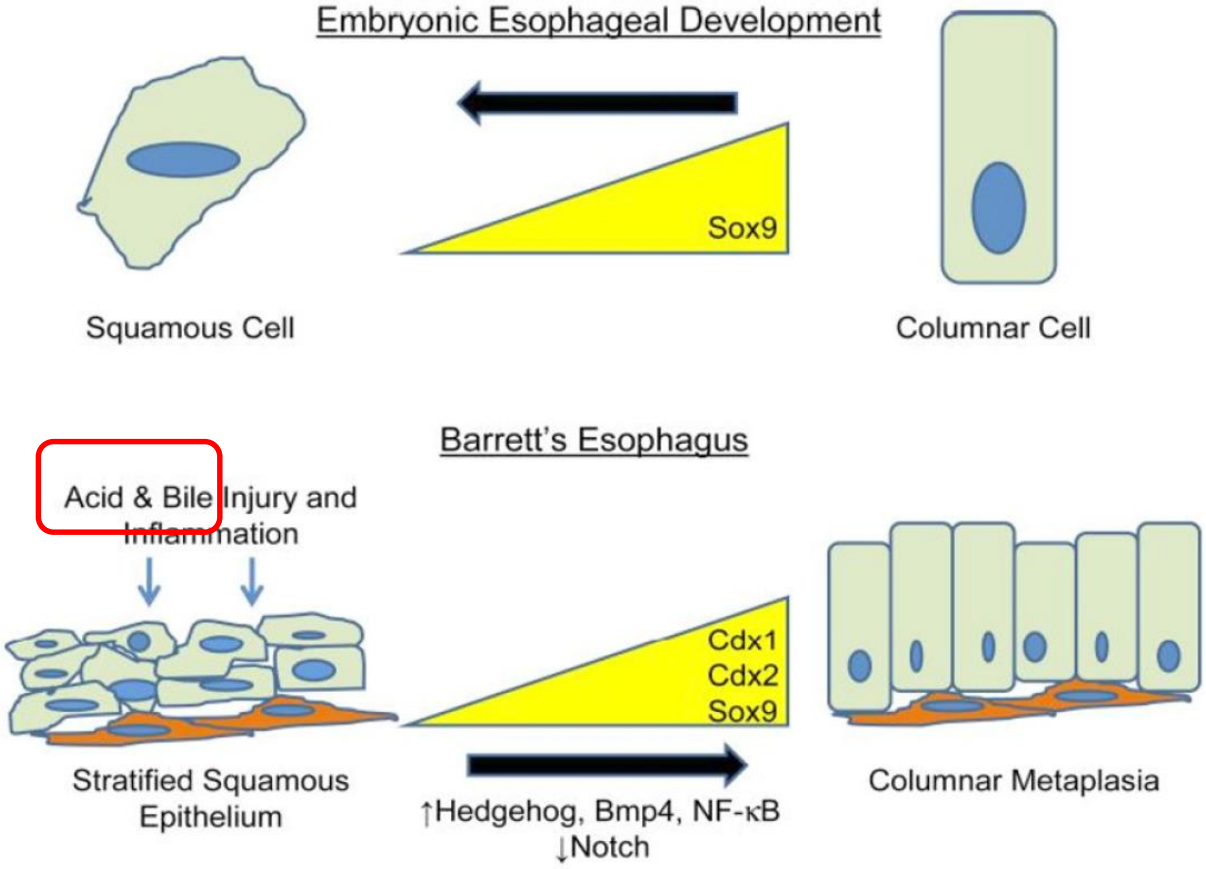
BE with high-grade dysplasia



Adenocarcinoma



Conteduca V, *et al*. Int J Oncol 2012; 41:414-24. Histopathological pictures with courtesy of the Institute of Pathology, Leipzig University Medical Center, Germany

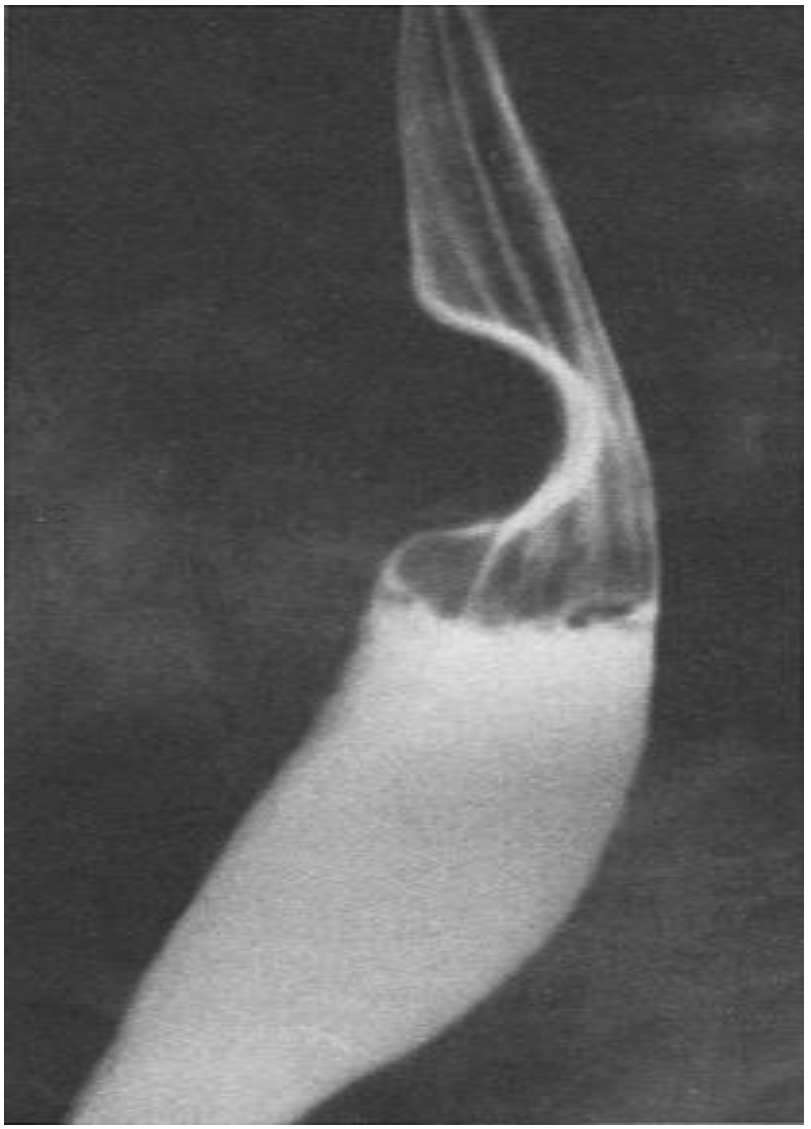


Current Problems in Surgery 50 (2013) 192–226

ΚΑΛΟΗΘΗ ΝΕΟΠΛΑΣΜΑΤΑ ΟΙΣΟΦΑΓΟΥ

ΣΤΡΩΜΑΤΙΚΟΙ ΟΓΚΟΙ

- ΛΕΙΟΜΥΩΜΑΤΑ (GISTS)-1%
- Κύριο σύμπτωμα: αιμορραγία
- 70% στο στομάχι
- Ki67, βαθμός διαφ/σης, αριθμός μιτώσεων,
- μέγεθος



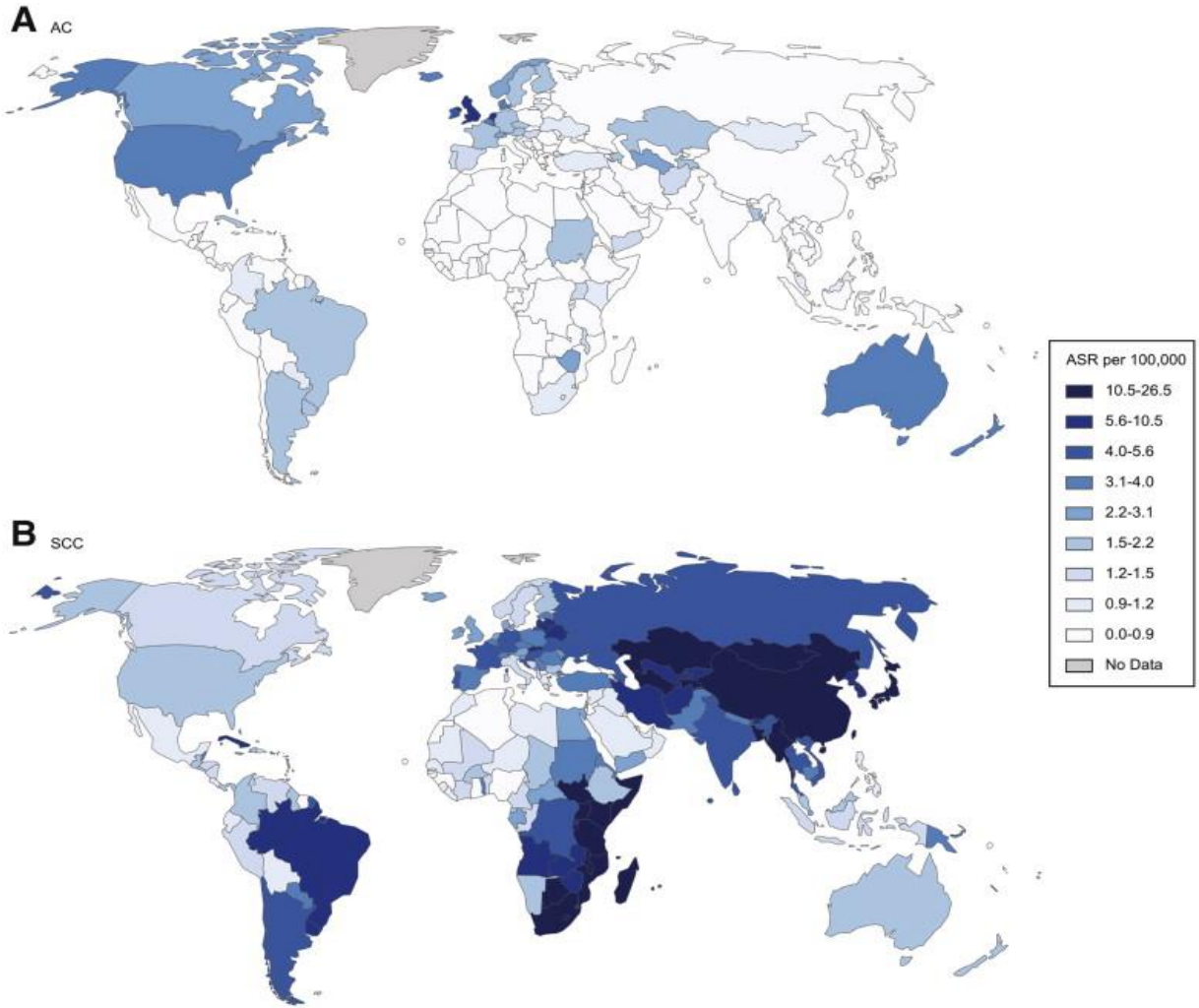
Robert F. Schwabe and John W. Wiley, Section Editors

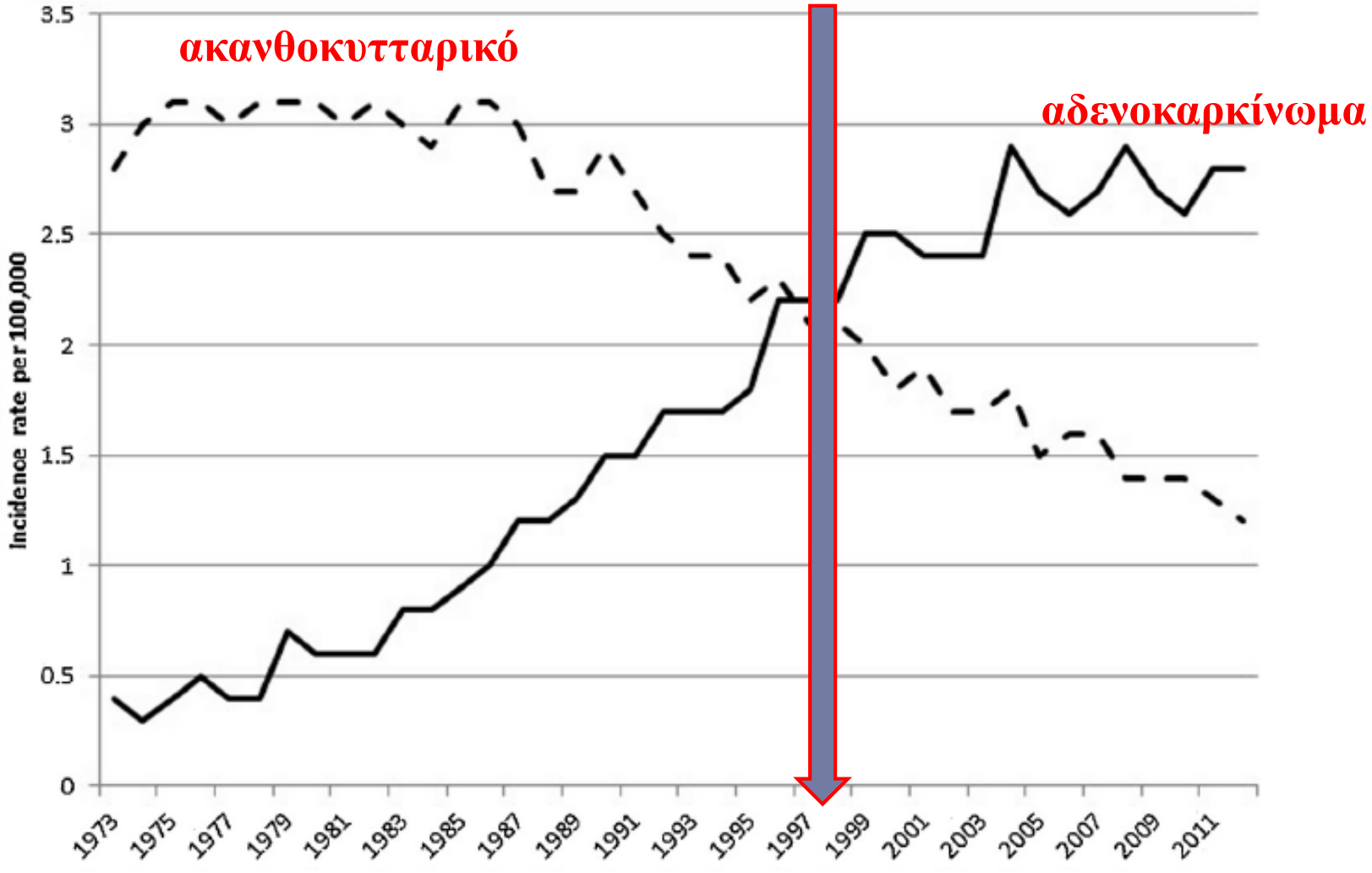
Epidemiology, Diagnosis, and Management of Esophageal Adenocarcinoma

Joel H. Rubenstein[1,2] and Nicholas J. Shaheen[3]

[1]Veterans Affairs Center for Clinical Management Research, Ann Arbor, Michigan; [2]Barrett's Esophagus Program, Division of Gastroenterology, Department of Medicine, University of Michigan, Ann Arbor, Michigan; and [3]Center for Esophageal Diseases and Swallowing, Division of Gastroenterology and Hepatology, Department of Medicine, University of North Carolina, Chapel Hill, North Carolina

- **15-25%** 5-y survival
- **604,000** παγκοσμίως/2020
- **8ος** συχνότερος καρκίνος παγκοσμίως
- **6η** συχνότερη αιτία θανάτου από καρκίνο
- **544,000** θάνατοι/2020





ΔΥΣΗ

J. Ferlay, I. Soerjomataram, M. Ervik, R. Dikshit, S. Eser, C. Mathers, M. Rebelo, D. M. Parkin, D. Forman, F. Bray, GLOBOCAN 2012 v1.1, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer. (2014). Available from: http://globocan.iarc.fr, accessed on 16/01/2015.

Cancer Epidemiology 47 (2017) 114–117

Contents lists available at ScienceDirect

Cancer Epidemiology

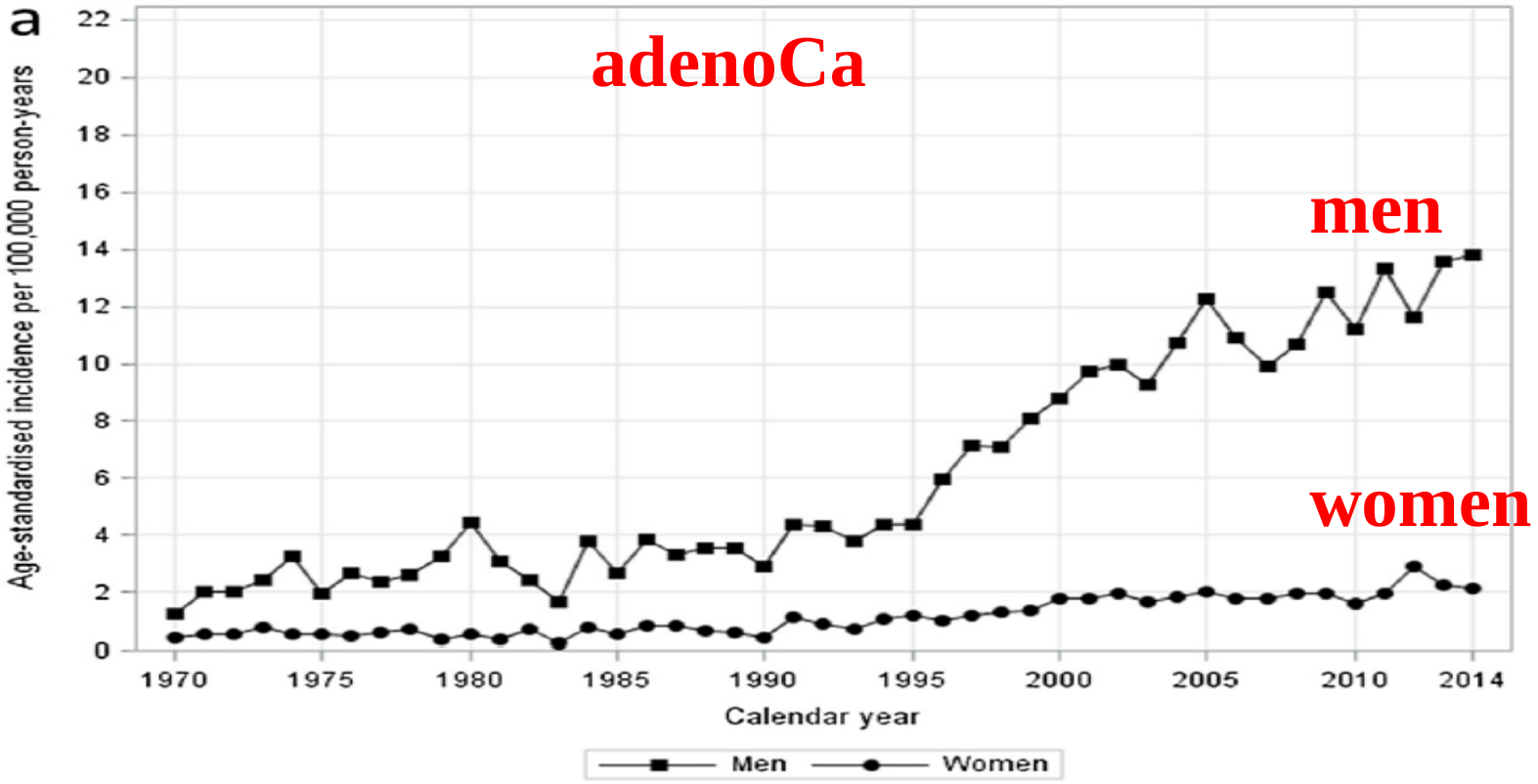
The International Journal of Cancer Epidemiology, Detection, and Prevention

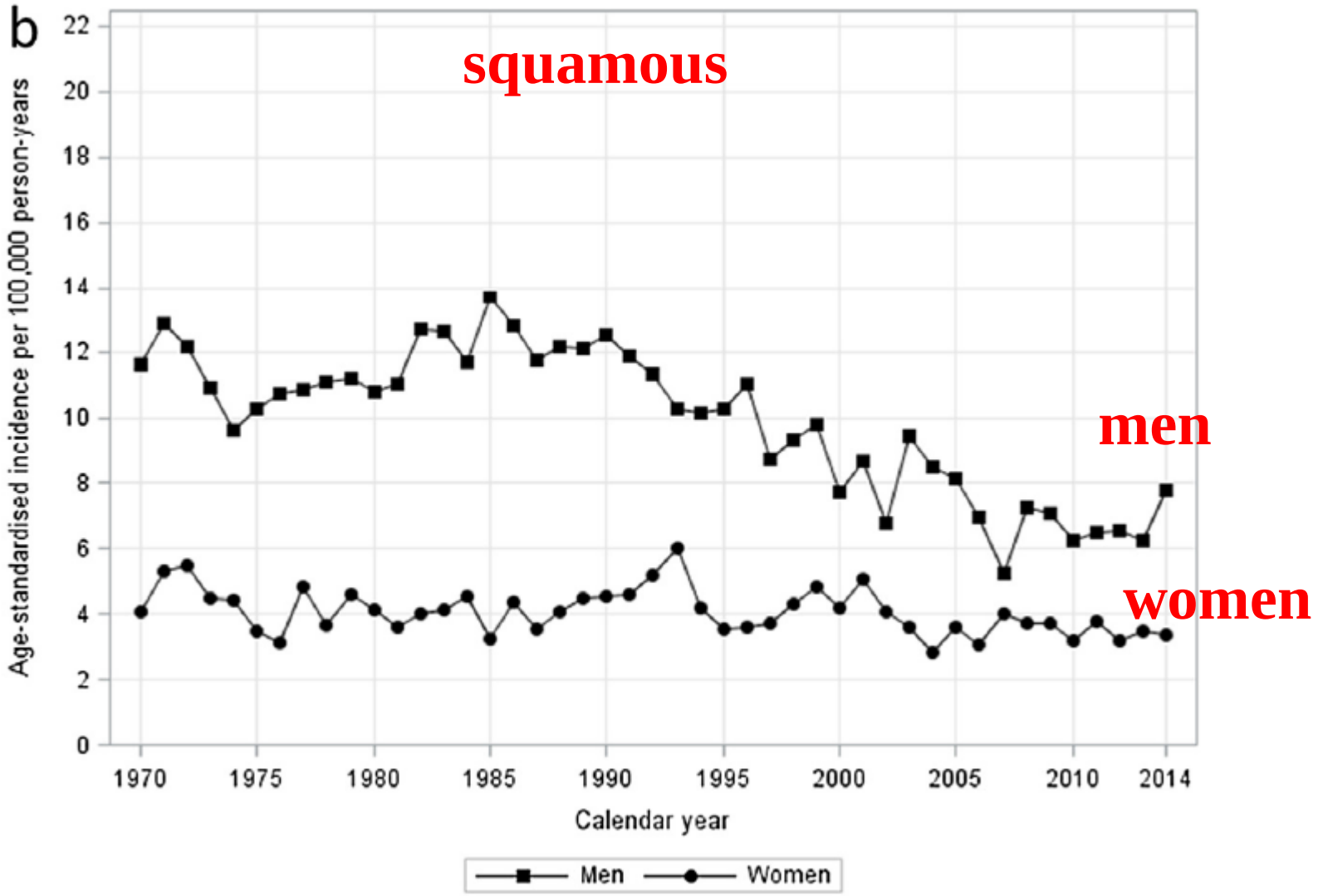
journal homepage: www.cancerepidemiology.net

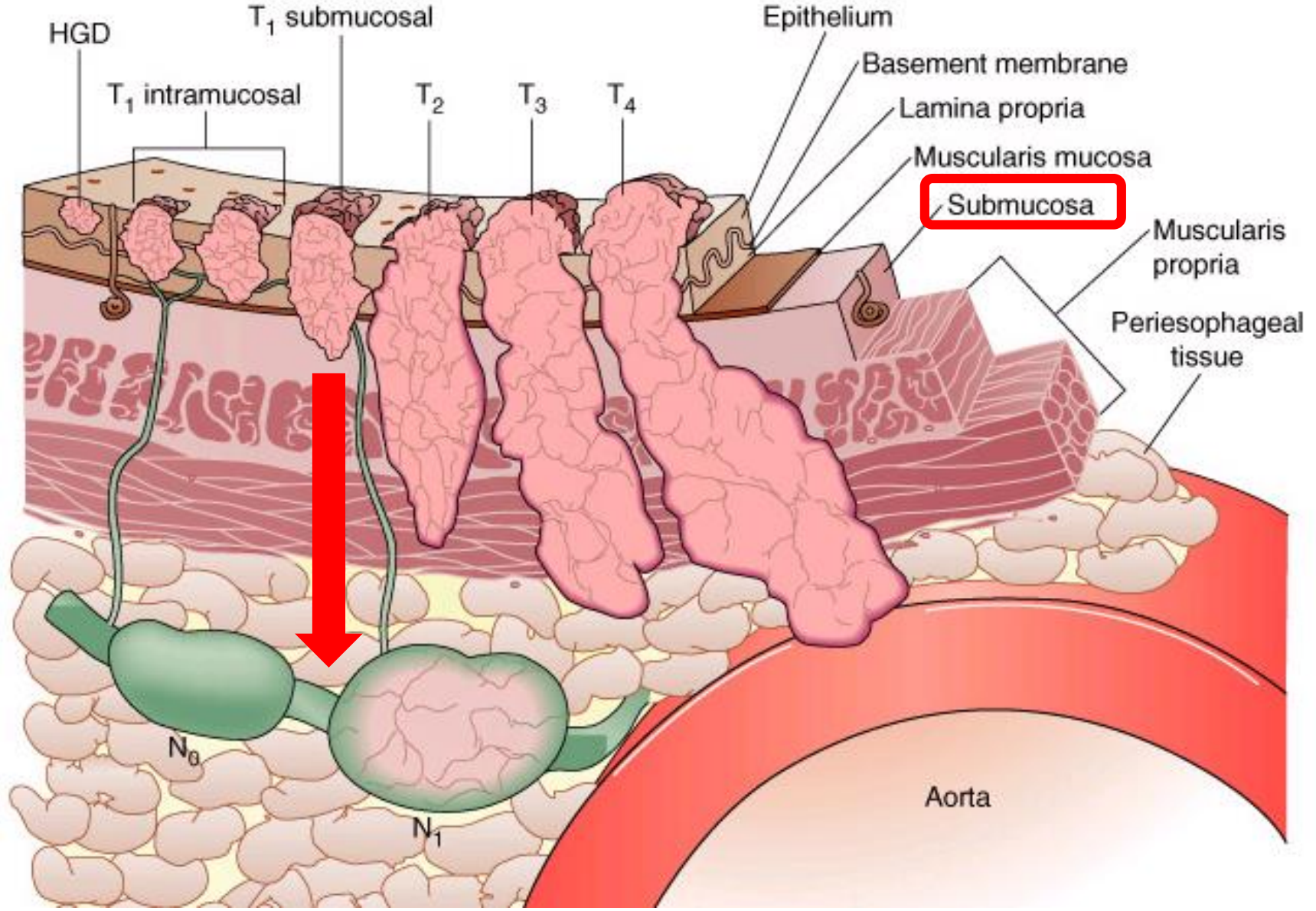
Incidence trends in oesophageal cancer by histological type: An updated analysis in Sweden

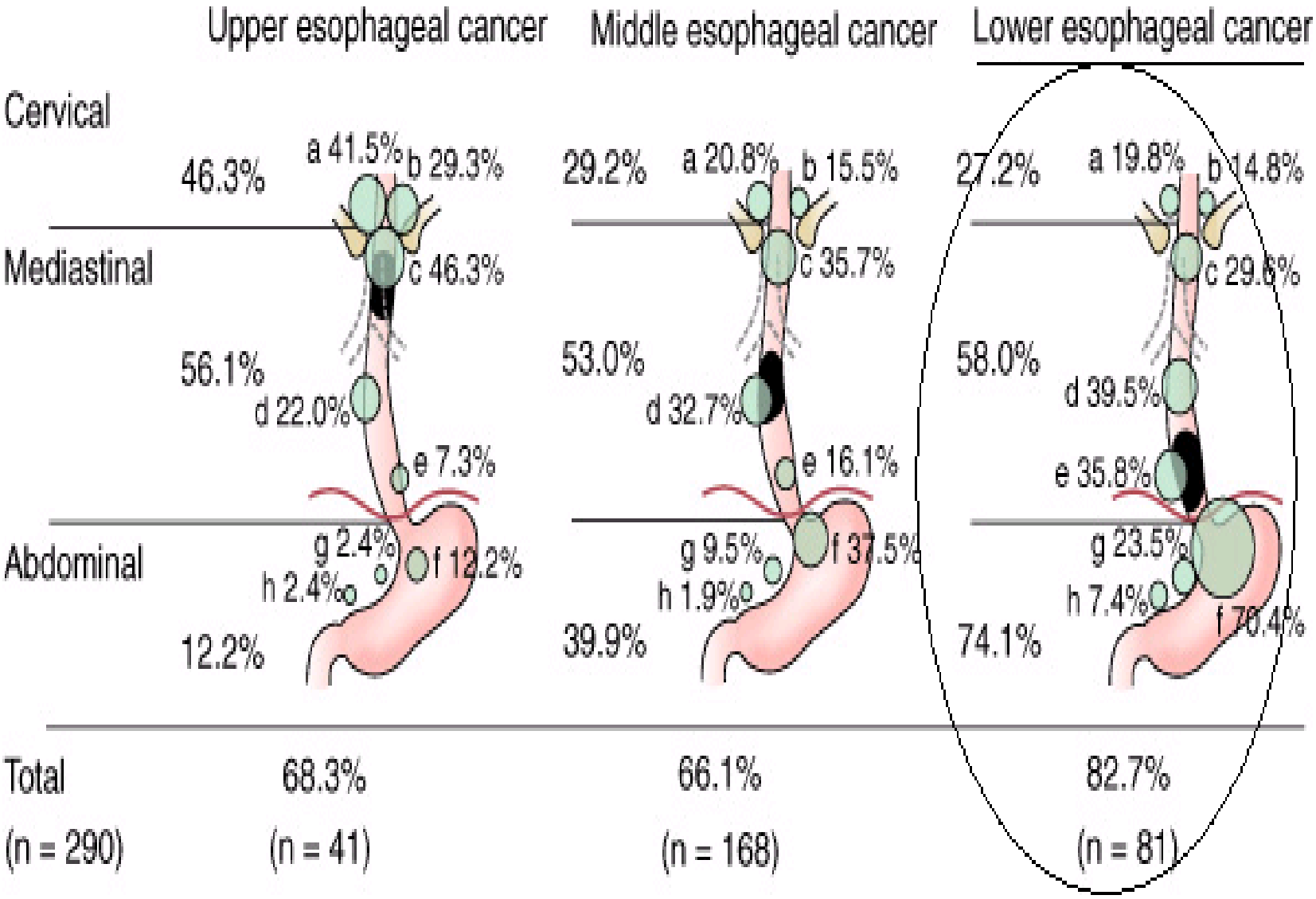
Shao-Hua Xie[a,*], Fredrik Mattsson[a], Jesper Lagergren[a,b]

[a] Upper Gastrointestinal Surgery, Department of Molecular medicine and Surgery, Karolinska Institutet, Karolinska University Hospital, Stockholm, Sweden
[b] Division of Cancer Studies, King's College, London, United Kingdom




b
squamous
men
women
Age-standardised incidence per 100,000 person-years
0
2
4
6
8
10
12
14
16
18
20
22
1970
1975
1980
1985
1990
1995
2000
2005
2010
2014
Calendar year
Men
Women


HGD
T1 submucosal
T1 intramucosal
T2
T3
T4
Epithelium
Basement membrane
Lamina propria
Muscularis mucosa
Submucosa
Muscularis propria
Periesophageal tissue
N0
N1
Aorta


Upper esophageal cancer
Middle esophageal cancer
Lower esophageal cancer
Cervical
Mediastinal
Abdominal
46.3%
a 41.5%
b 29.3%
c 46.3%
56.1%
d 22.0%
e 7.3%
g 2.4%
h 2.4%
f 12.2%
12.2%
29.2%
a 20.8%
b 15.5%
c 35.7%
53.0%
d 32.7%
e 16.1%
g 9.5%
h 1.9%
39.9%
27.2%
a 19.8%
b 14.8%
c 29.6%
58.0%
d 39.5%
e 35.8%
g 23.5%
h 7.4%
74.1%
Total
68.3%
66.1%
82.7%
(n = 290)
(n = 41)
(n = 168)
(n = 81)

	Adenocarcinoma	Squamous Cancer
Location	Distal esophagus and esophago-gastric junction	Proximal, mid-thoracic or distal esophagus
Median age	64 years	56 years
Comorbidity	- Obesity - Metabolic syndrome - Coronary heart disease	- Malnutrition - Chronic obstructive lung disease - Liver cirrhosis - Simultaneous lung / head and neck cancers and other alcohol-tobacco associated cancers
Lymphatic spread	Early (when the submucosal layer is reached by the tumour)	Even earlier than in adenocarcinoma
Prognosis	Poor	Very poor

ΔΙΑΓΝΩΣΗ

Οισοφαγογαστροσκόπηση
(βιοψίες)
+
CT θώρακος-ΑΚΚ:

- ✓ απομακρυσμένες μεταστάσεις (M1)
- ✓ διόγκωση απομακρυσμένων λεμφαδένων
- ✓ διήθηση καρδιάς/τραχείας/αορτής/σπονδύλων (T4b)

TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Tis	High grade dysplasia
T1	Tumor invades the lamina propria, muscularis mucosae, or submucosa
T1a	Tumor invades the lamina propria or muscularis mucosae
T1b	Tumor invades the submucosa
T2	Tumor invades the muscularis propria
T3	Tumor invades the adventitia
T4	Tumor invades adjacent structures
T4a	Resectable tumor invading the pleura, pericardium, or diaphragm
T4b	Unresectable tumor invading the other adjacent structures such as aorta, vertebral body, trachea, etc.
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in 1–2 regional lymph nodes
N2	Metastasis in 3–6 regional lymph nodes
N3	Metastasis in 7 or more regional lymph nodes
M0	No distant metastasis
M1	Distant metastasis (no longer M1a and M1b)

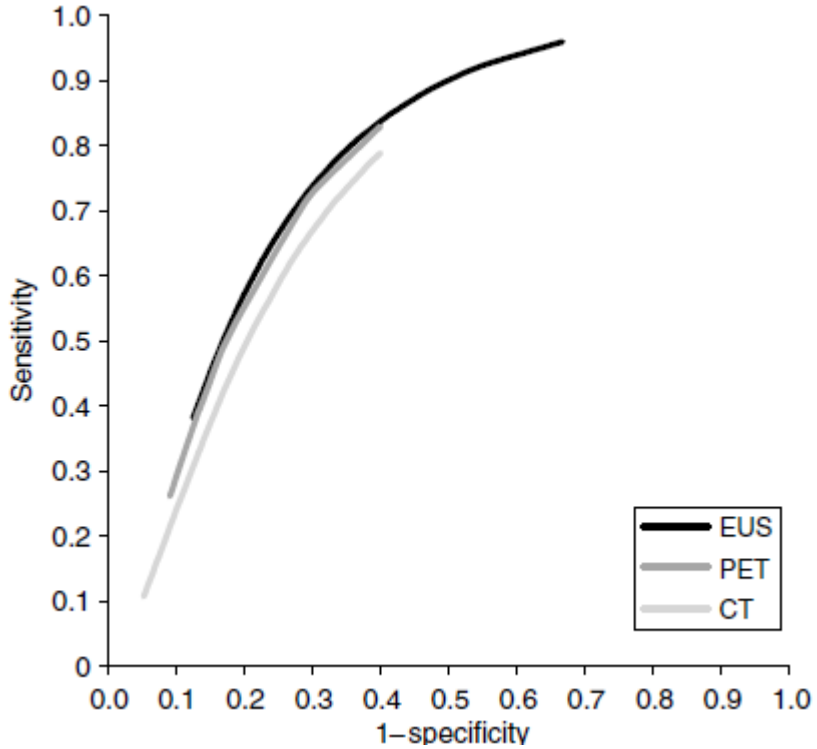
Additional changes
Esophagogastric junction (EGJ) cancers are redefined, separate stage groupings for adenocarcinoma and squamous cell carcinoma, Histologic grade is factored into stage groupings, tumor location included in staging for squamous cell carcinoma

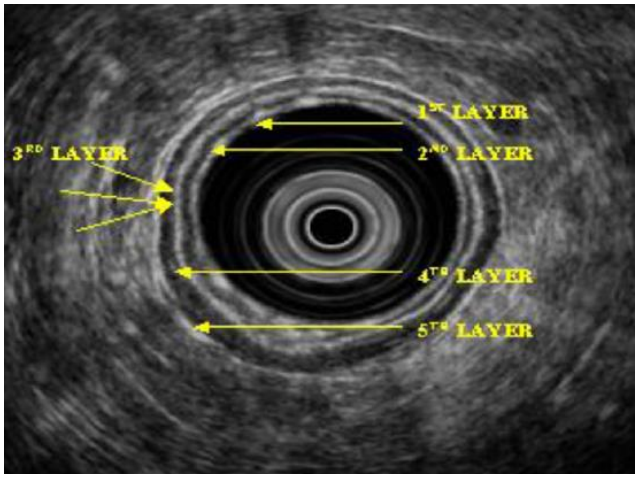
Preoperative evaluation of oesophageal adenocarcinoma

Lauren G. Khanna, MD, MS [a, *],
Frank G. Gress, MD, Professor of Medicine [b, 1]

[a] *Division of Digestive & Liver Diseases, Columbia University Medical Center, 630 West 168th Street, New York, NY 10032, USA*
[b] *Division of Digestive & Liver Diseases, Columbia University Medical Center, 161 Fort Washington Avenue, Herbert Irving Pavilion 13, New York, NY 10032, USA*

L.G. Khanna, F.G. Gress / Best Practice & Research Clinical Gastroenterology 29 (2015) 179–191





ΠΡΩΙΜΗ ΝΟΣΟΣ

•EUS

ΕΚΤΕΤΑΜΕΝΗ

•CT

•PET

Ann Thorac Surg 2013;96:346–56

ESMO DIAGNOSTIC GUIDELINES

Table 1. Diagnostic and staging investigations in oesophageal cancer

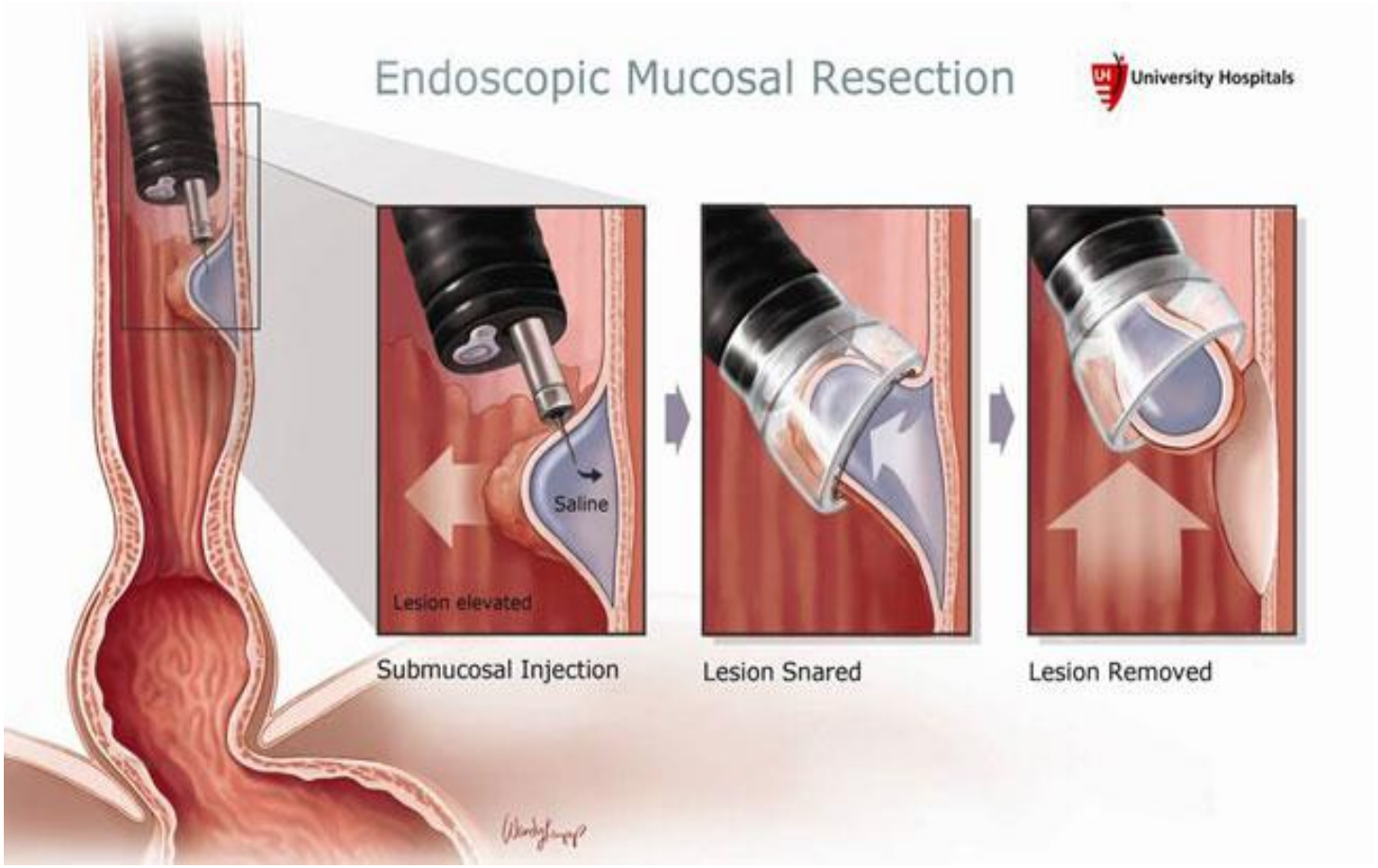
Procedure	Purpose
FBC	Assess for iron-deficiency anaemia
Renal and liver function	Assess renal and liver function to determine appropriate therapeutic options
Endoscopy and biopsy	Obtain tissue for diagnosis, histological classification and molecular biomarkers, e.g. PD-L1 and HER2 status (AC)
EUS	Accurate assessment of T and N stage in potentially resectable tumours
Bronchoscopy with endobronchial ultrasonography	Assess tumour growth towards central airways; complementary to EUS, especially when tumour stricture precludes EUS
CT of thorax + abdomen ± pelvis	Staging of tumour to detect local/distant lymphadenopathy and metastatic disease
PET–CT, if available	Staging of tumour to detect local/distant lymphadenopathy and metastatic disease
Laparoscopy ± washings	Exclude occult metastatic disease involving peritoneum/diaphragm, especially in locally advanced (T3/T4) ACs of the OGJ infiltrating the anatomical cardia

Πρώιμος Καρκίνος

T1aN0
T1bN0

Παραδοσιακά:
Οισοφαγεκτομή

✓Ελάχιστα επεμβατική εκτομή-ογκολογικό αποτέλεσμα
✓Ογκολογικό αποτέλεσμα-κίνδυνος λεμφαδενικής διασποράς

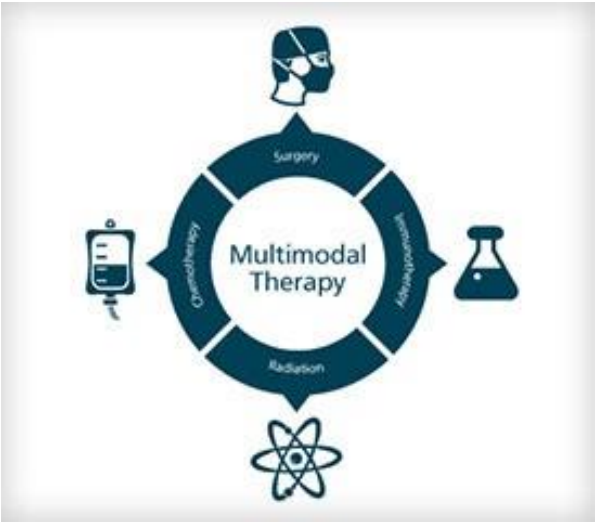

Endoscopic Mucosal Resection
University Hospitals
Saline
Lesion elevated
Submucosal Injection
Lesion Snared
Lesion Removed

Ιστολογικά χαρακτηριστικά

- ✓Βάθος διήθησης
- ✓Λεμφαγγειακές διηθήσεις
- ✓Μέγεθος βλάβης
- ✓Περινευρικές διηθήσεις
- ✓Βαθμός διαφοροποίησης
- ✓Εξέλκωση
- ✓Όρια εκτομής

Προσέγγιση
MULTIMODALITY

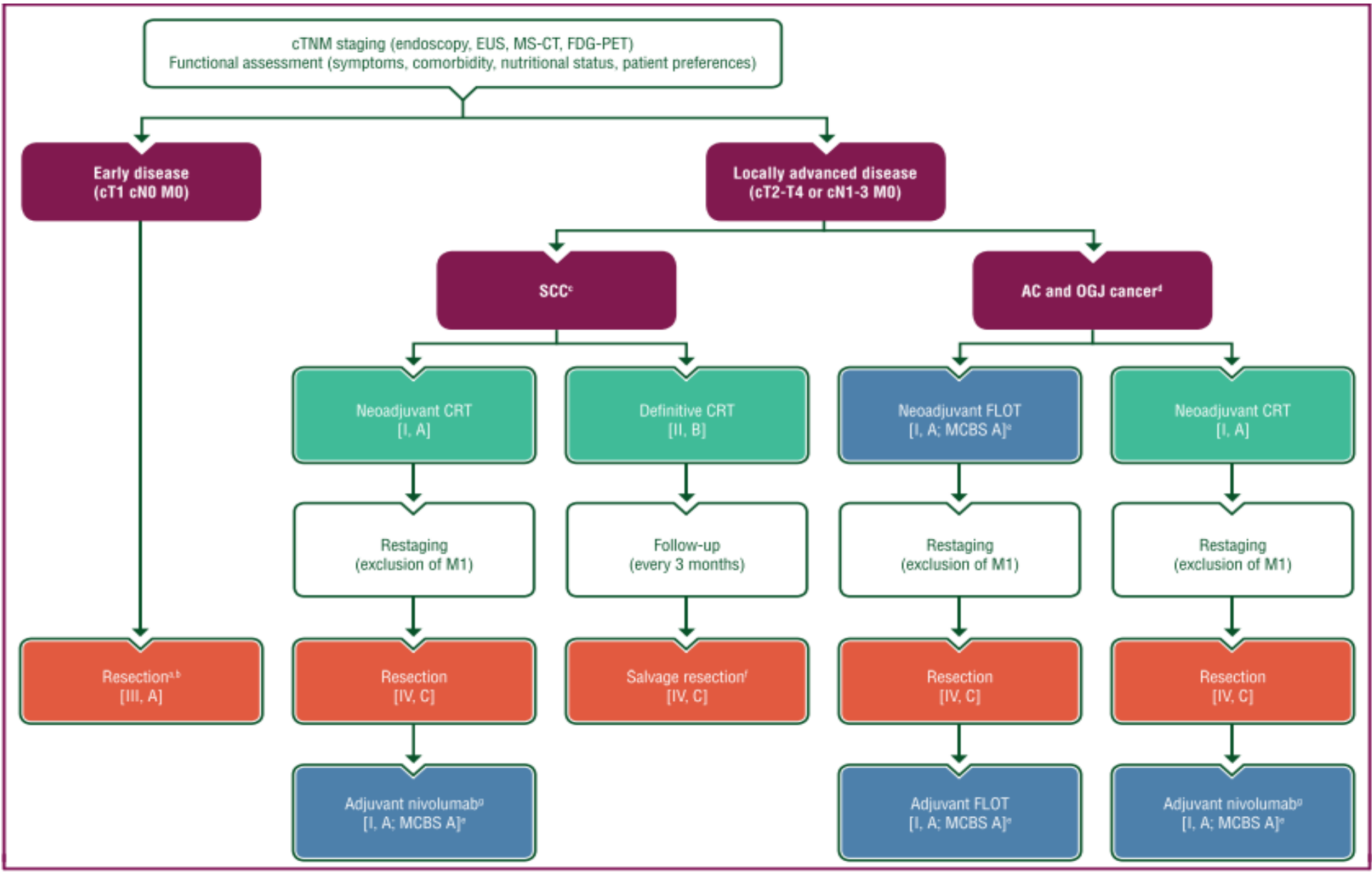
- ✓Χειρουργική
- ✓Χημειοθεραπεία
- ✓Ακτινοθεραπεία




SURGERY


CHEMOTHERAPY

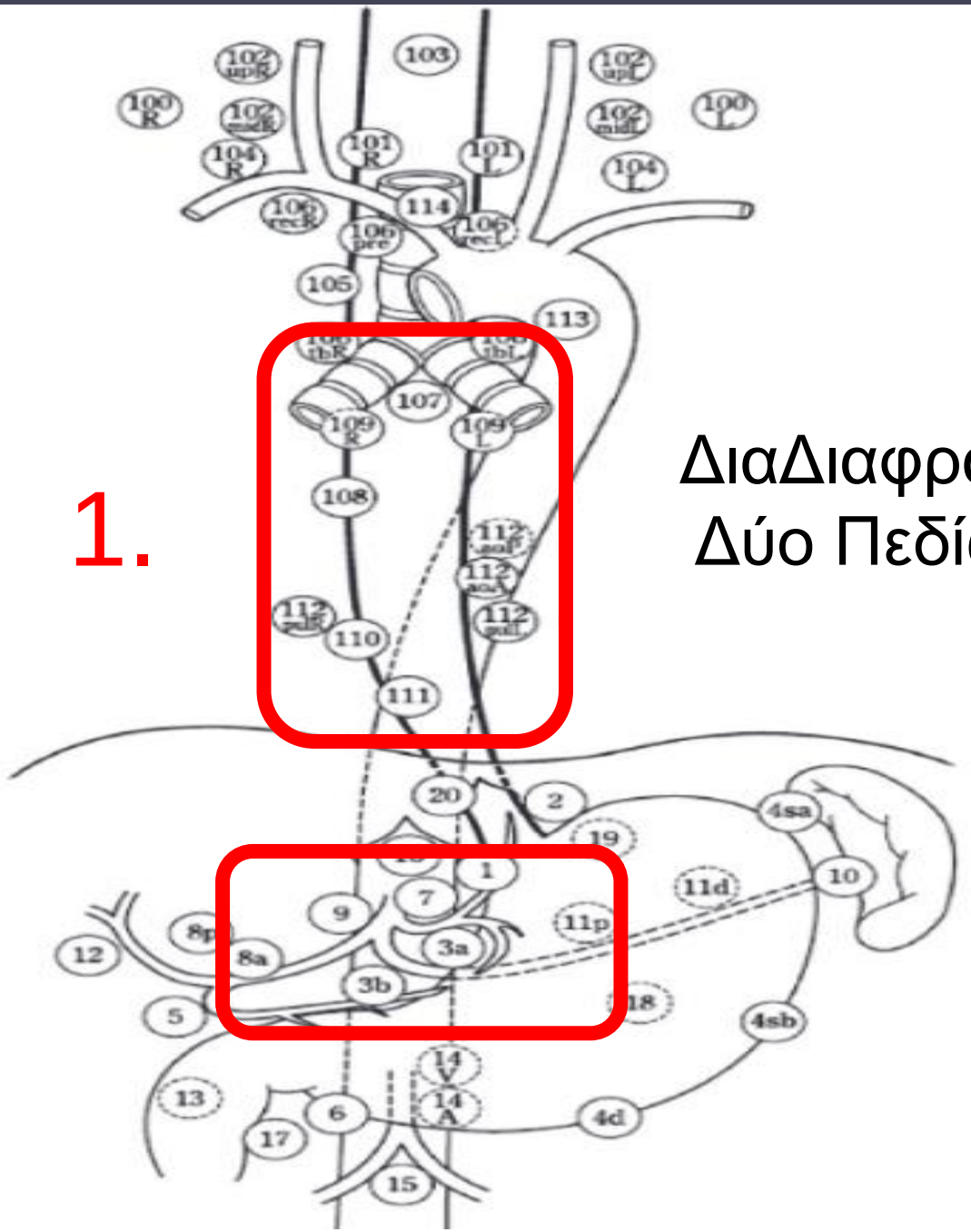

RADIATION THERAPY


cTNM staging (endoscopy, EUS, MS-CT, FDG-PET)
Functional assessment (symptoms, comorbidity, nutritional status, patient preferences)
Early disease (cT1 cN0 M0)
Locally advanced disease (cT2-T4 or cN1-3 M0)
SCC[c]
AC and OGJ cancer[d]
Neoadjuvant CRT [I, A]
Definitive CRT [II, B]
Neoadjuvant FLOT [I, A; MCBS A][e]
Neoadjuvant CRT [I, A]
Restaging (exclusion of M1)
Follow-up (every 3 months)
Restaging (exclusion of M1)
Restaging (exclusion of M1)
Resection[a,b] [III, A]
Resection [IV, C]
Salvage resection[f] [IV, C]
Resection [IV, C]
Resection [IV, C]
Adjuvant nivolumab[g] [I, A; MCBS A][e]
Adjuvant FLOT [I, A; MCBS A][e]
Adjuvant nivolumab[g] [I, A; MCBS A][e]

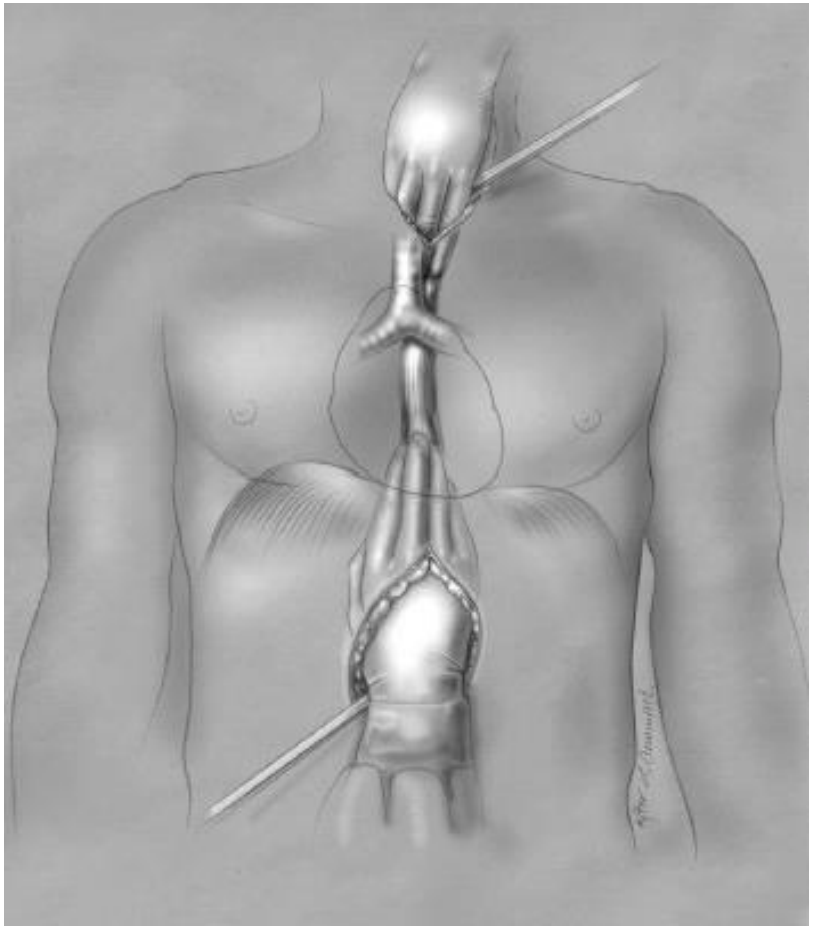
Ποιες είναι οι υπάρχουσες τεχνικές;

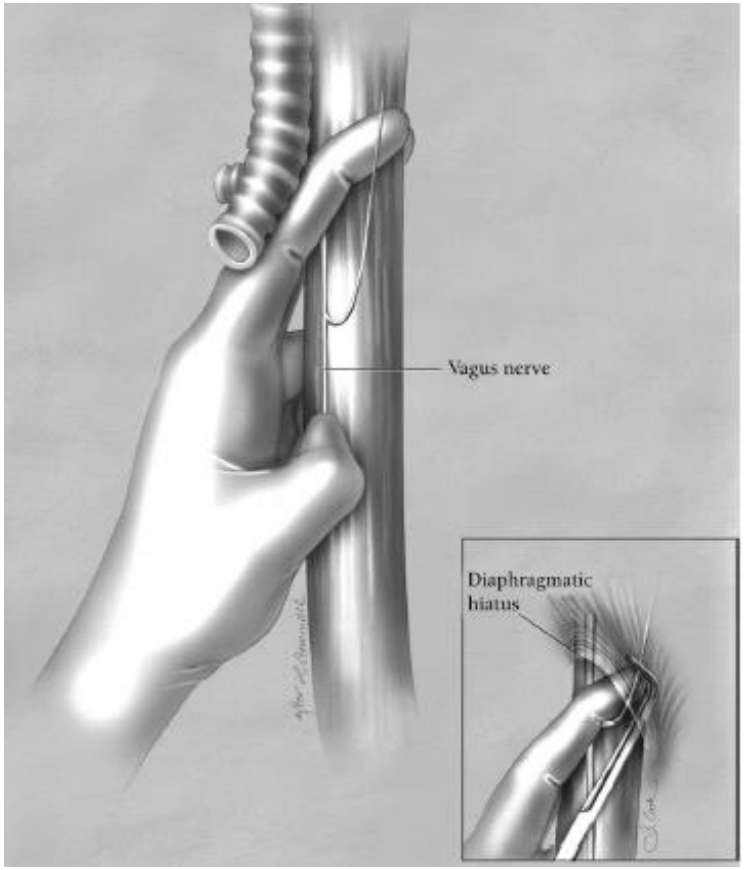
•ΔιαΔιαφραγματική Οισοφαγεκτομή ΔΔΟ
(Λεμφαδενικός 1 πεδίου)

•ΔιαΘωρακική Οισοφαγεκτομή ΔΘΟ
(Λεμφαδενικός 2 πεδίων, τραχηλική αναστόμωση)


1.
2.
ΔιαΔιαφραγματική
Δύο Πεδίων
JES classification 11th edition

ΔιαΔιαφραγματική Οισοφαγεκτομή ΔΔΟ





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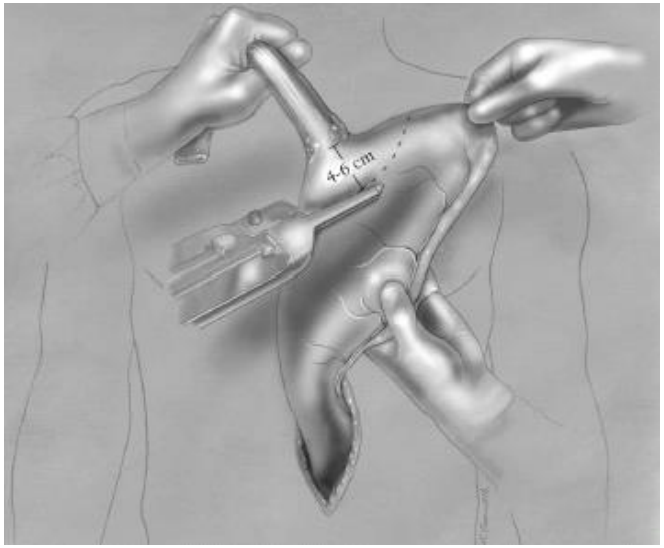

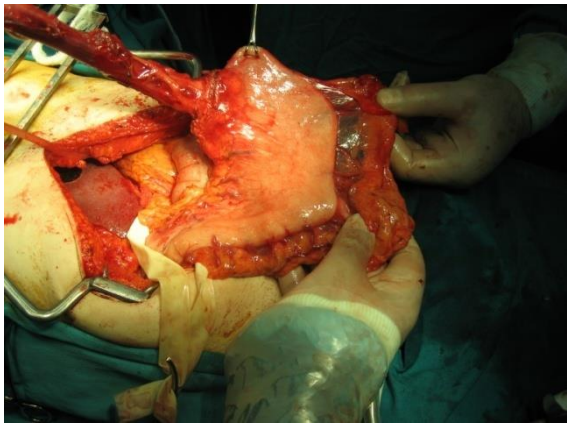

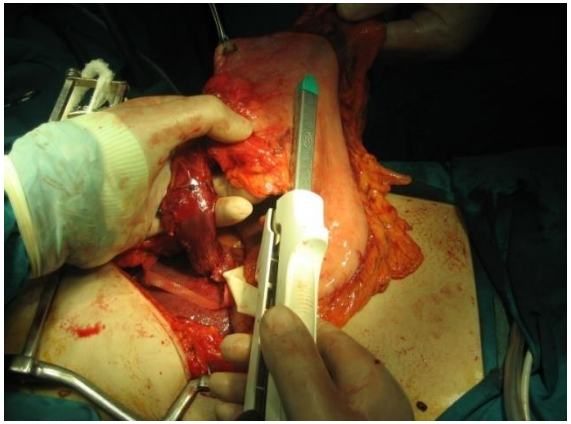

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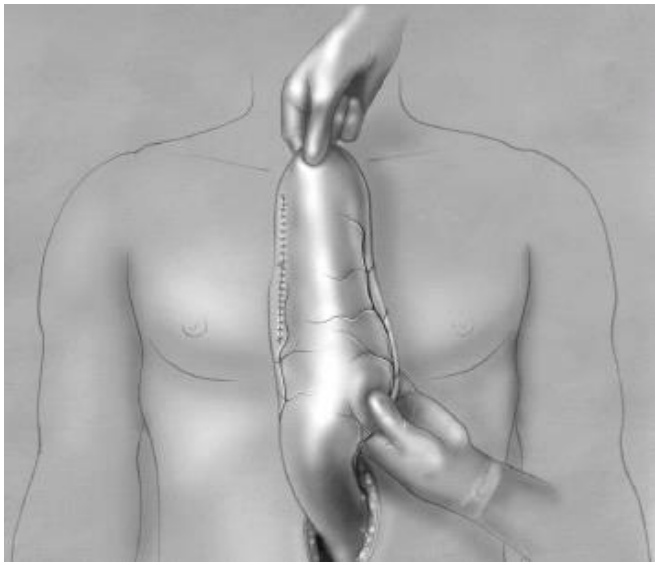

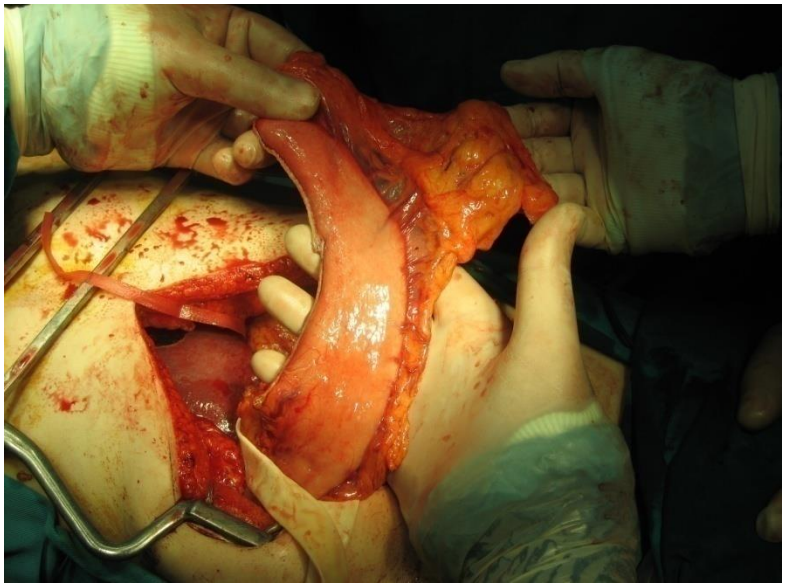

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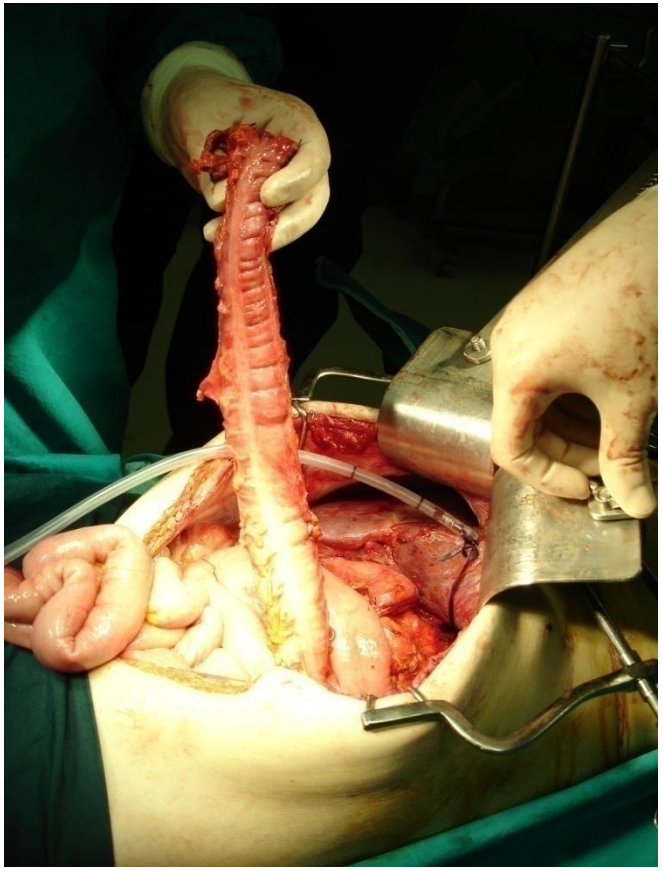
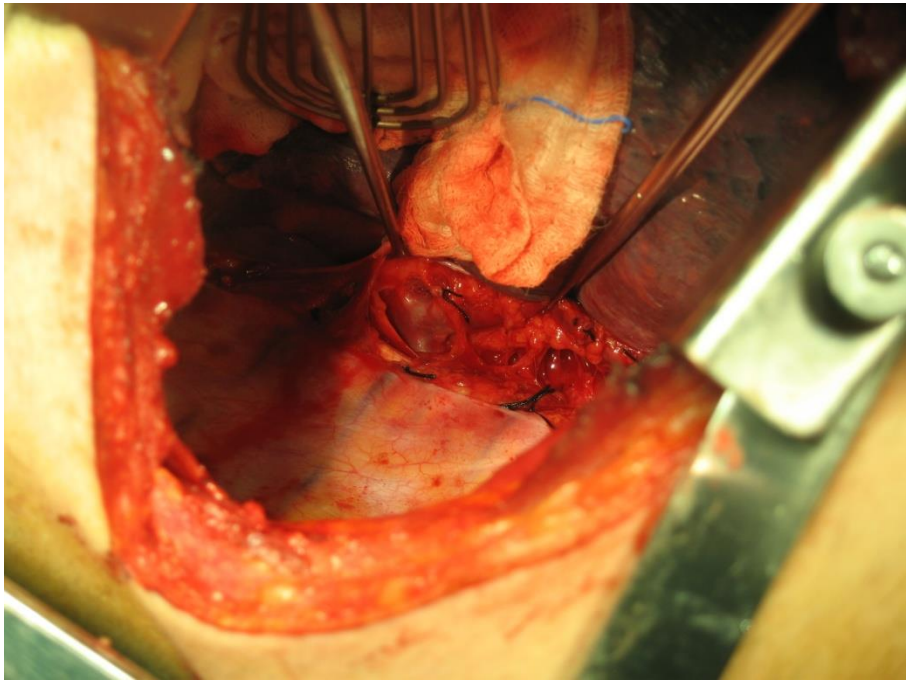
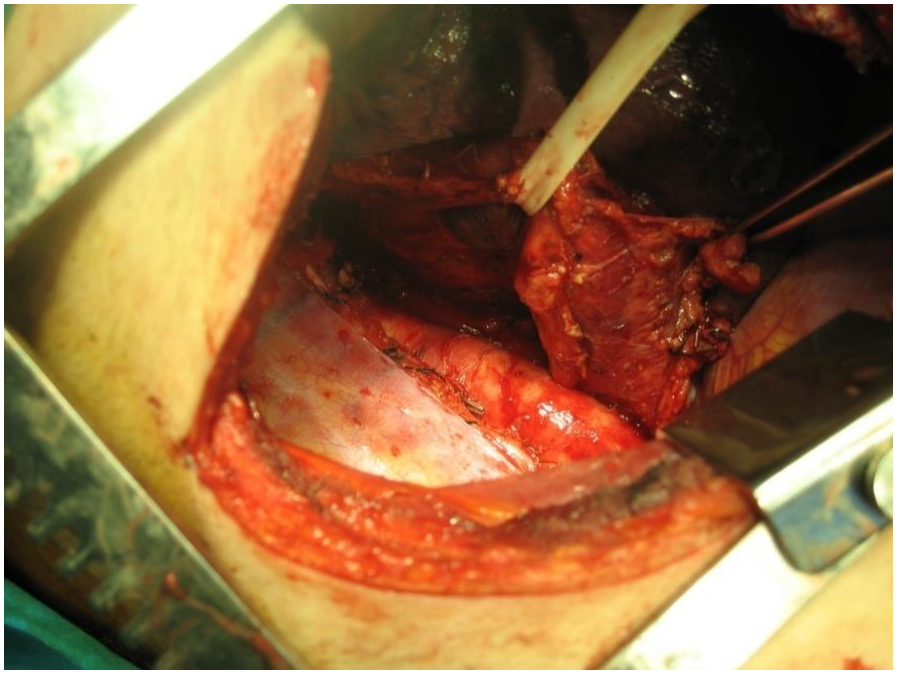


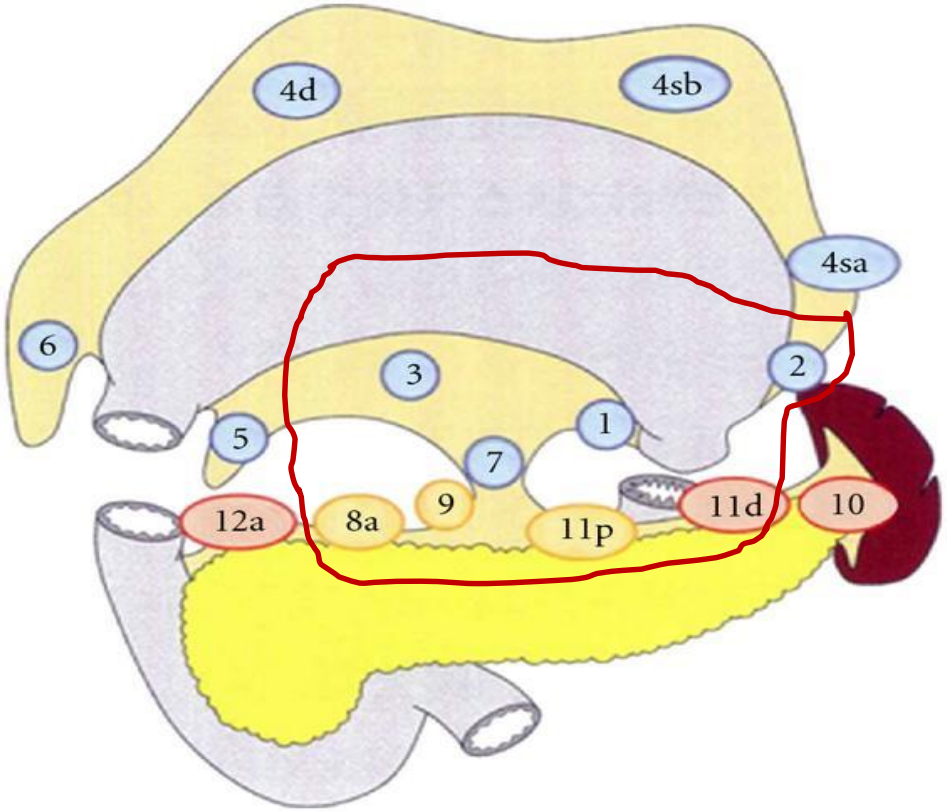
ΔιαΘωρακική Οισοφαγεκτομή ΔΘΟ





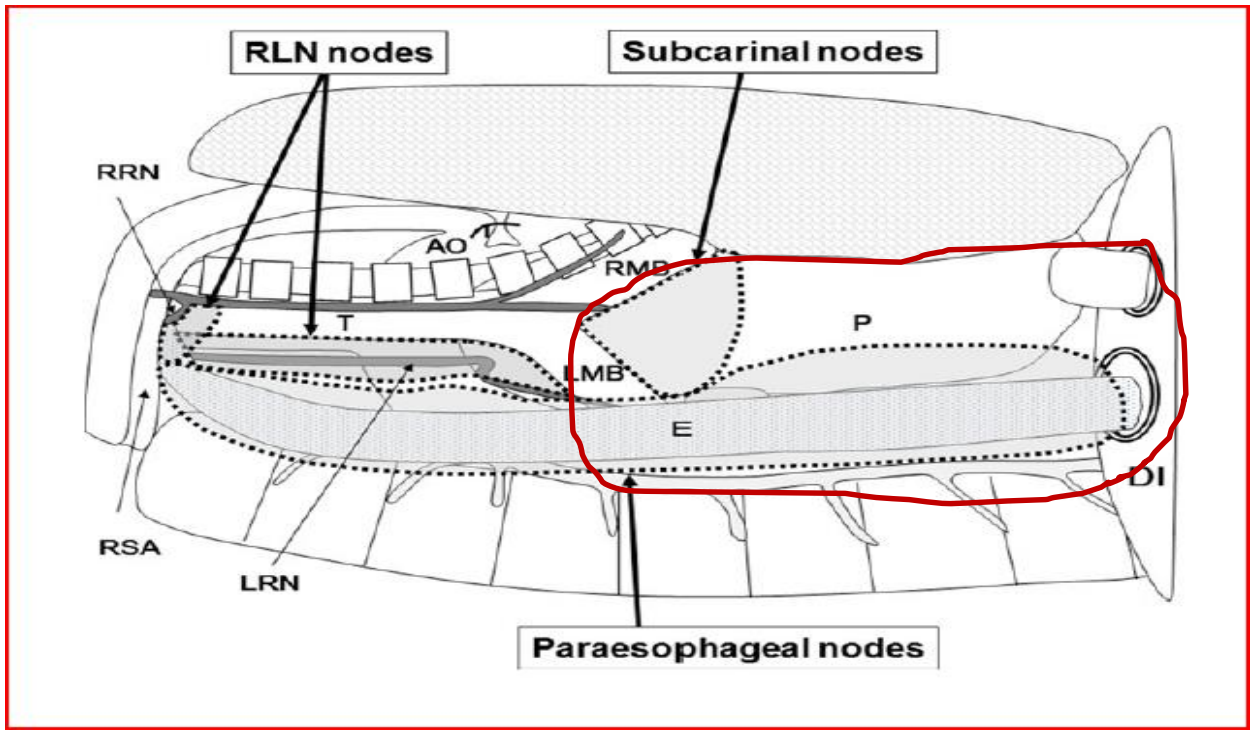
Ενός Πεδίου : Κοιλιάς

Σταθμοί 1,2,3,7,8,9,11 κοιλιά



Δυο Πεδίων : Κοιλιάς Μεσοθωρακίου

Σταθμοί 1,2,3,7,8,9,11 κοιλιά
Μέσοι και κατώτεροι μεσοθωρακικοί

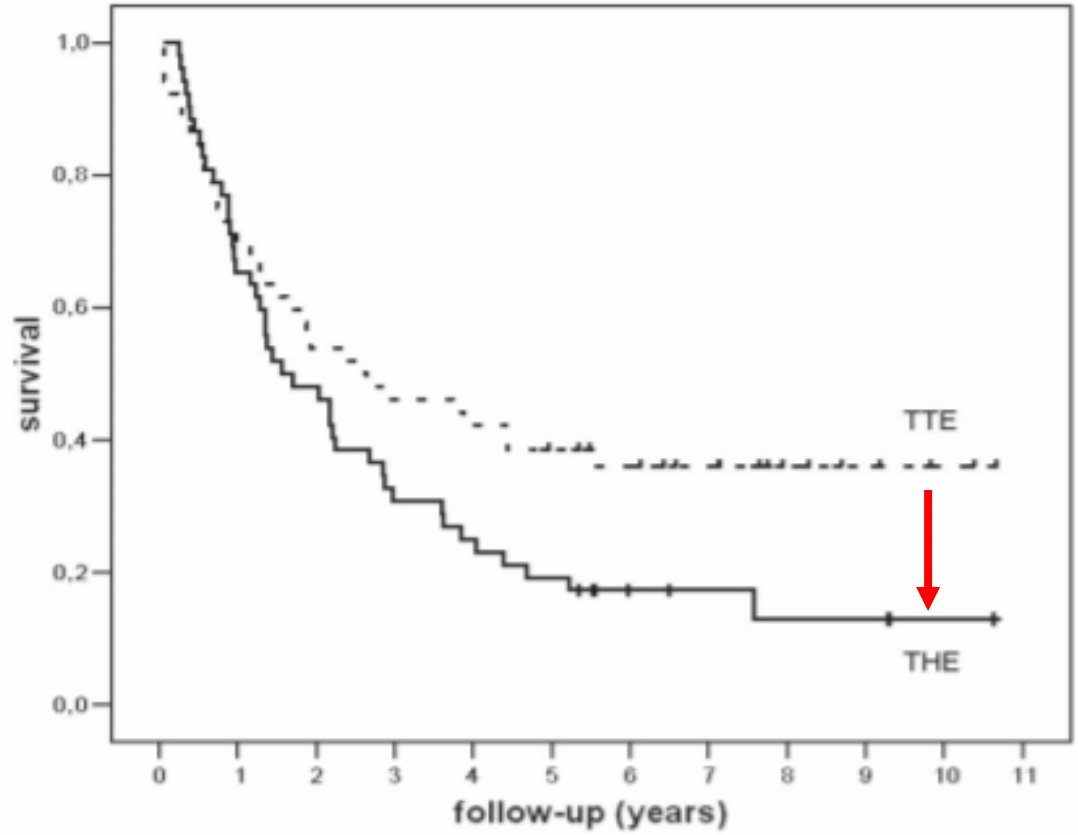


Extended Transthoracic Resection Compared With Limited Transhiatal Resection for Adenocarcinoma of the Mid/Distal Esophagus

Five-Year Survival of a Randomized Clinical Trial

Jikke M. T. Omloo, MD, Sjoerd M. Lagarde, MD,* Jan B. F. Hulscher, MD,* Johannes B. Reitsma, MD, PhD,† Paul Fockens, MD, PhD,‡ Herman van Dekken, MD, PhD,§ Fiebo J. W. ten Kate, MD,¶ Huug Obertop, MD,‖ Hugo W. Tilanus, MD, PhD,‖ and J. Jan B. van Lanschot, MD‖*

Annals of Surgery • Volume 246, Number 6, December 2007



x3!!!

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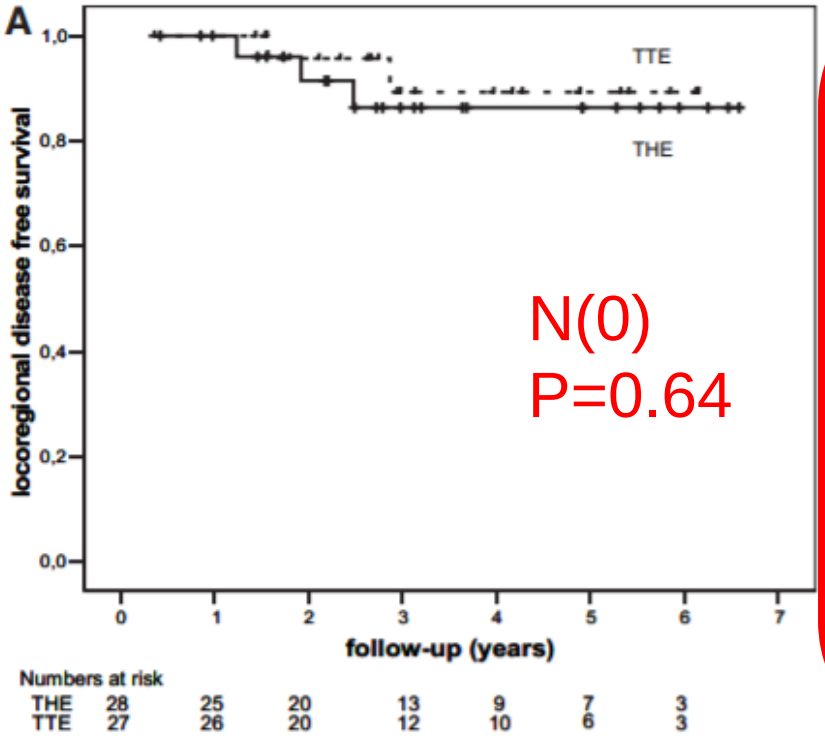
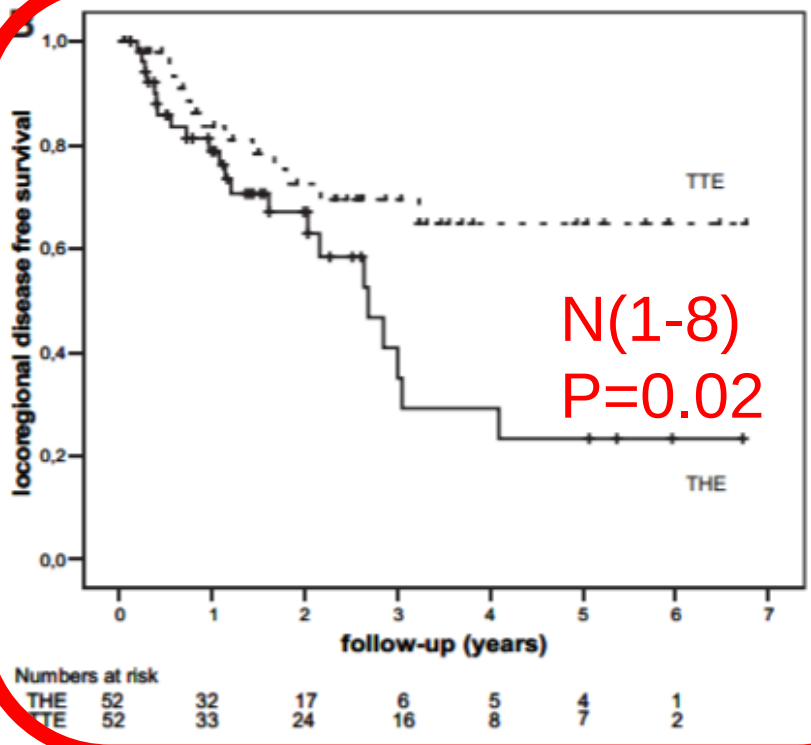
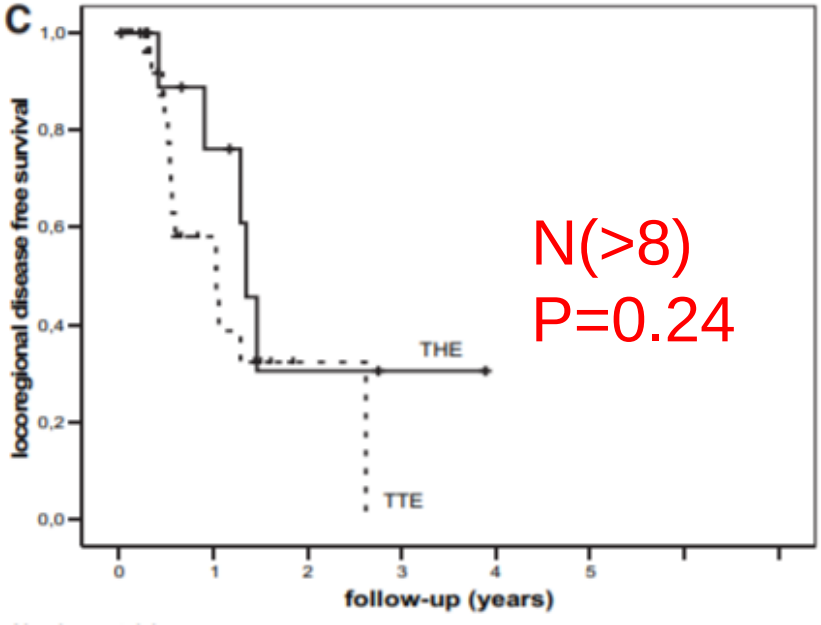

A
locoregional disease free survival
1,0
0,8
0,6
0,4
0,2
0,0
TTE
THE
N(0)
P=0.64
0
1
2
3
4
5
6
7
follow-up (years)
Numbers at risk
THE 28 25 20 13 9 7 3
TTE 27 26 20 12 10 6 3


B
locoregional disease free survival
1,0
0,8
0,6
0,4
0,2
0,0
TTE
THE
N(1-8)
P=0.02
0
1
2
3
4
5
6
7
follow-up (years)
Numbers at risk
THE 52 32 17 6 5 4 1
TTE 52 33 24 16 8 7 2


C
locoregional disease free survival
1,0
0,8
0,6
0,4
0,2
0,0
THE
TTE
N(>8)
P=0.24
0
1
2
3
4
5
follow-up (years)

Κυριότερες επιπλοκές οισοφαγεκτομής

Επιπλοκές αναπνευστικού συστήματος

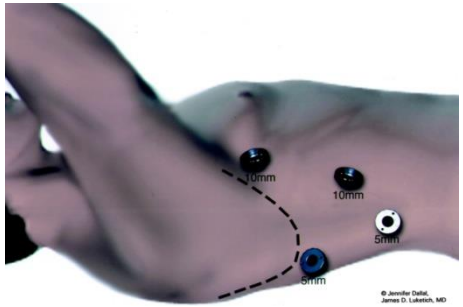
Επιπλοκές καρδιαγγειακού συστήματος

Αναστομωτική διαφυγή

Κάκωση μείζονος θωρακικού πόρου

Κάκωση παλίνδρομου λαρυγγικού νεύρου

ΕΛΑΧΙΣΤΑ ΕΠΕΜΒΑΤΙΚΗ ΟΙΣΟΦΑΓΕΚΤΟΜΗ

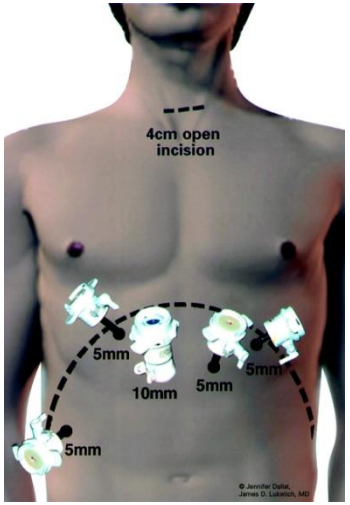


Minimally Invasive Esophagectomy

Outcomes in 222 Patients

James D. Luketich, MD, Miguel Alvelo-Rivera, MD,* Percival O. Buenaventura, MD,* Neil A. Christie, MD,* James S. McCaughan, MD,* Virginia R. Litle, MD,* Philip R. Schauer, MD,* John M. Close, MA,† and Hiran C. Fernando, MD**

1990



Ann Surg. 2018 Oct 10. doi: 10.1097/SLA.0000000000003031. [Epub ahead of print]

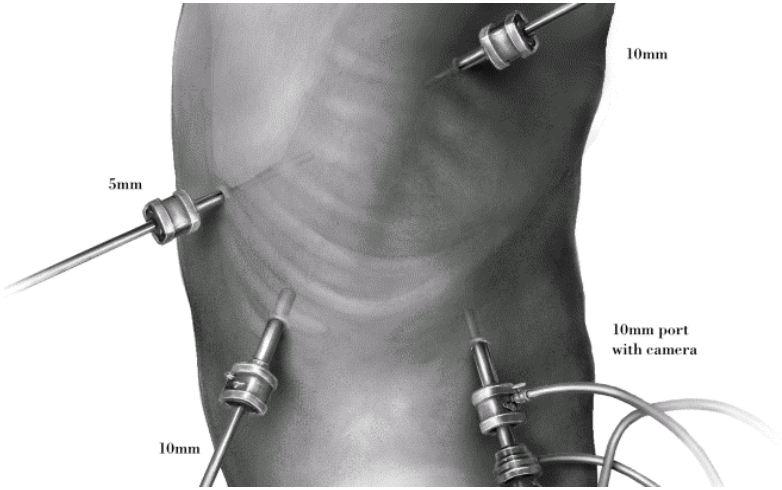
Robot-assisted Minimally Invasive Thoracolaparoscopic Esophagectomy Versus Open Transthoracic Esophagectomy for Resectable Esophageal Cancer: A Randomized Controlled Trial.

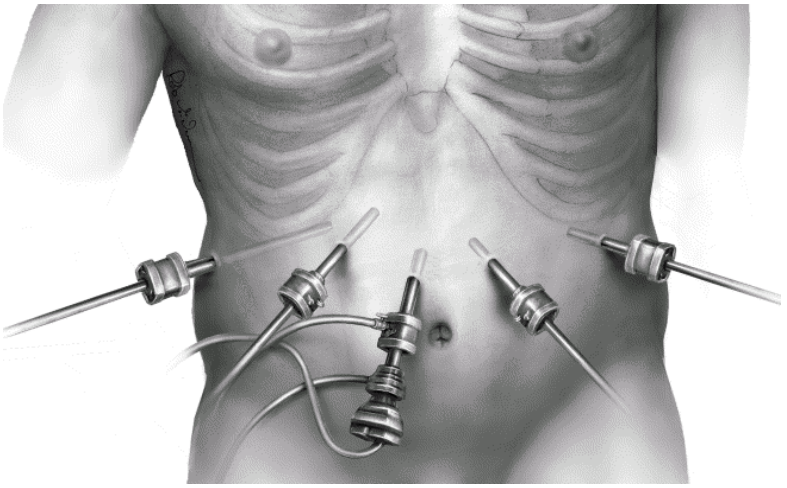
van der Sluis PC[1], van der Horst S[1], May AM[2], Schippers C[1], Brosens LAA[3], Joore HCA[4], Kroese CC[5], Haj Mohammad N[6], Mook S[7], Vleggaar FP[8], Borel Rinkes IHM[1], Ruurda JP[1], van Hillegersberg R[1].

2020

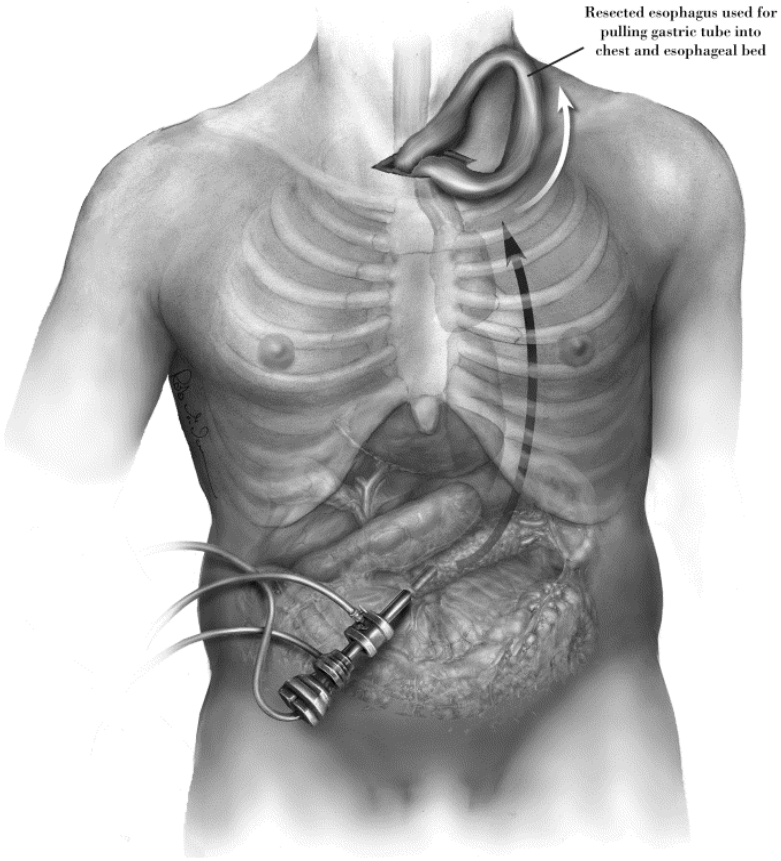
- **Hospital stay**
- **Morbidity**
- **QOL?**
- **Cost?**

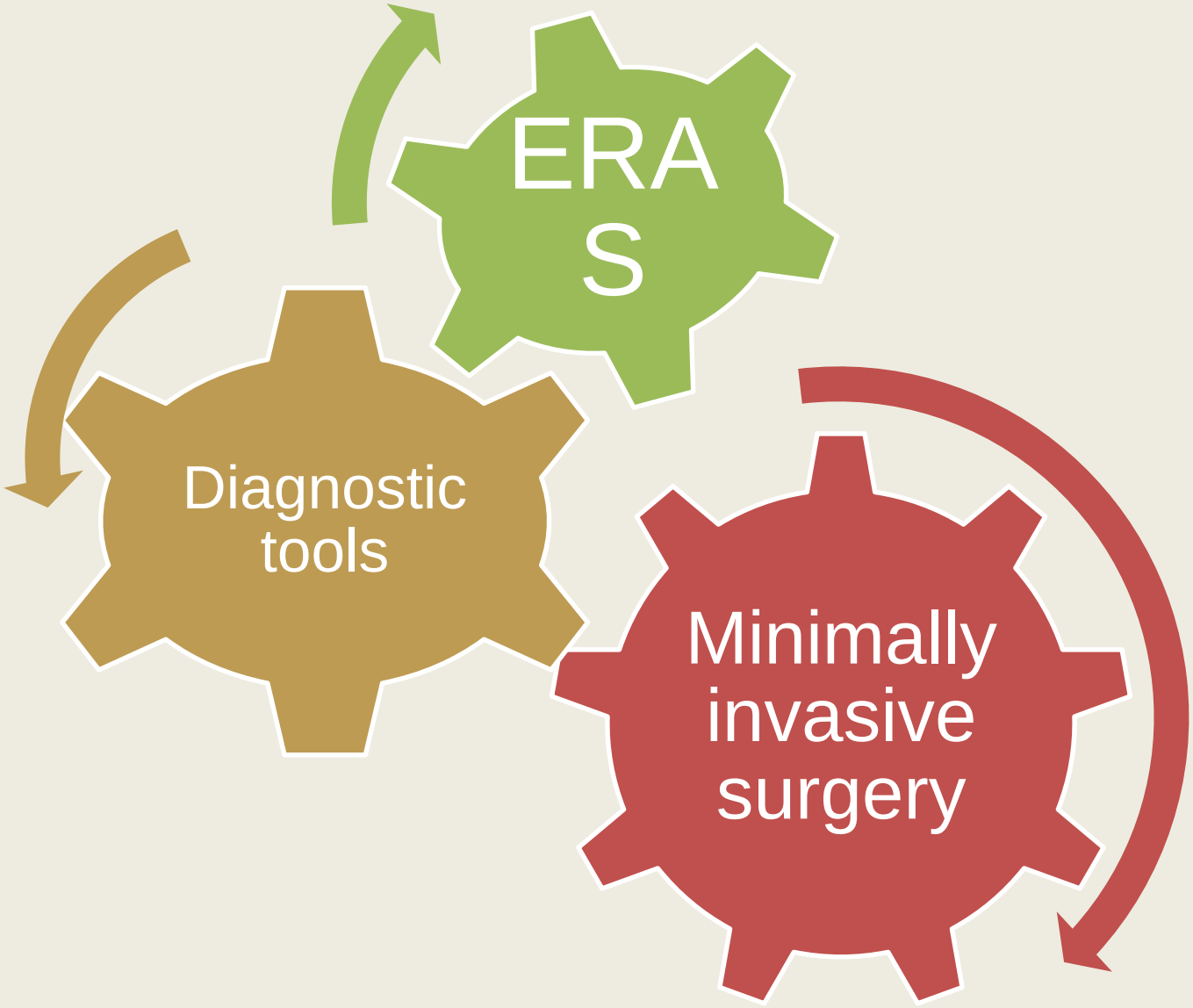
Ελάχιστα Επεμβατική Οισοφαγεκτομή





Ελάχιστα Επεμβατική Οισοφαγεκτομή




ERAS
Diagnostic tools
Minimally invasive surgery