

IL PAZIENTE CON DISFAGIA

LE NEOPLASIE E I DISORDINI MOTORI DELL'ESOFAGO

Trattamento chirurgico

Massimo Vecchiato

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Udine,
13.05.2025

Torek F. The first successful case of resection of the thoracic portion of the oesophagus for carcinoma. Surg Gynecol Obstet 1913;16:614-7

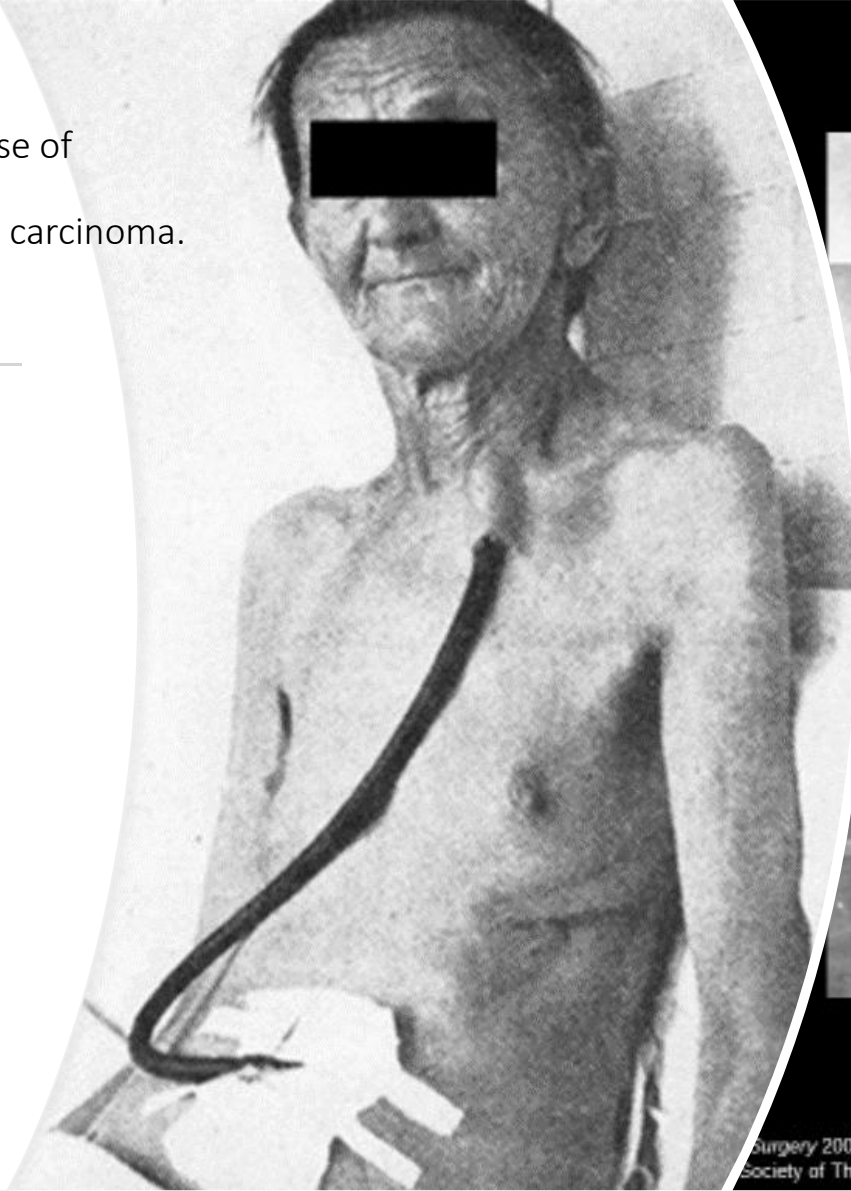


Fig 2



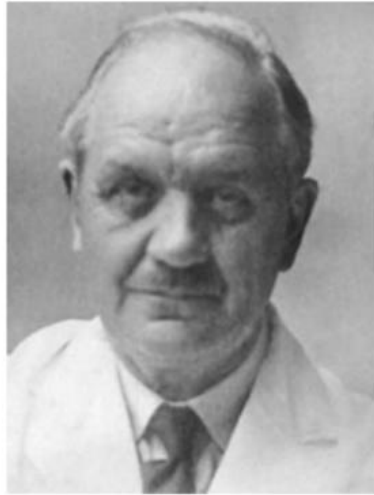


Fig. 1. Ivor Lewis.

THE SURGICAL TREATMENT OF CARCINOMA OF THE ŒSOPHAGUS*

WITH SPECIAL REFERENCE TO A NEW OPERATION FOR GROWTHS
OF THE MIDDLE THIRD

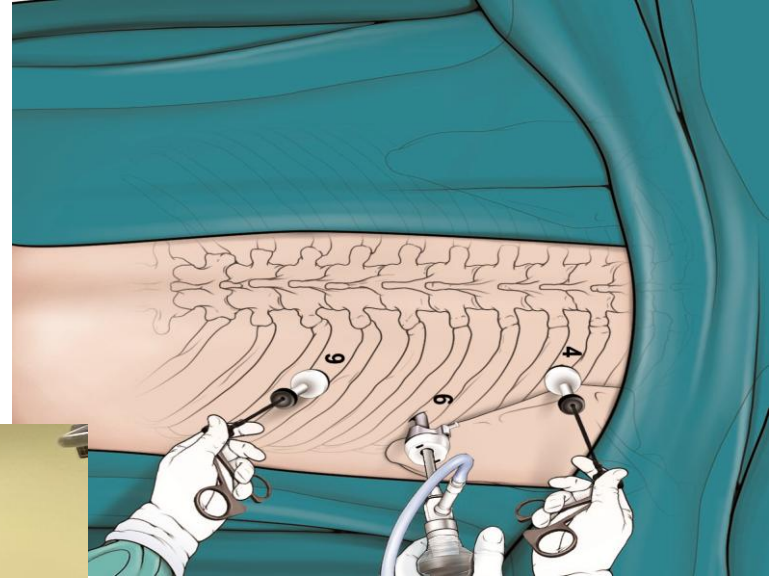
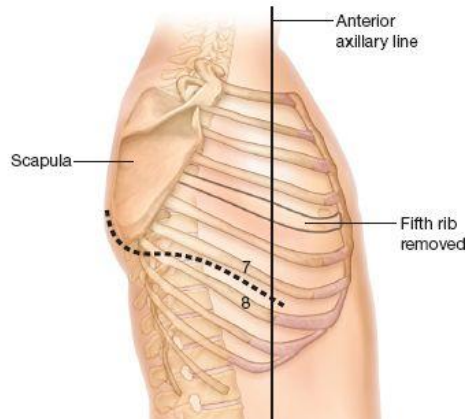
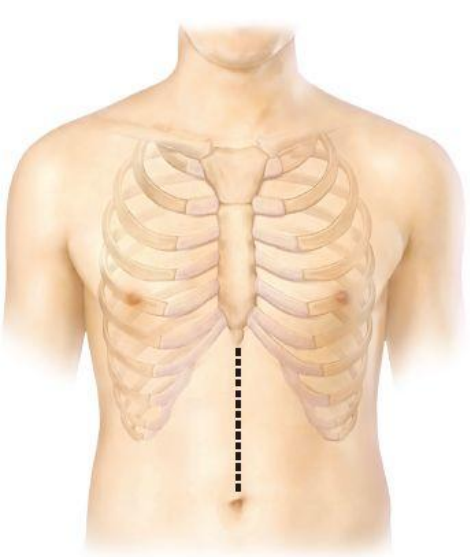
By IVOR LEWIS

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THE Œsophagus is a difficult surgical field for three reasons: its inaccessibility; its lack of a serous coat; and its enclosure in structures where infection is especially dangerous and rapid. In the case of carcinoma of this viscus surgery is still more difficult, for several reasons. It involves an extensive resection in a part of the alimentary canal which not only has no serous covering but also no slack. This in itself renders the ordinary procedures of abdominal surgery well-nigh impossible to apply. Moreover, regarded as a thoracic operation its resection is a formidable undertaking in a usually

old and starved patient, and more than any other thoracic operation it threatens the surgeon with having both pleuræ opened during its course. The arteries of the gullet are largely longitudinal and in its upper thoracic course anastomose precariously with branches of the inferior thyroid. It is the direction of blood flow rather than its longitudinal course which besets the surgeon—mainly in the upper third. The contents are commonly septic in these cases. Because of the loosely-knit muscle, anastomosis of its walls has with some reason been described as “suturing the unsuturable.” The pioneers realized early that, except for a few growths of the cardia, resection with anastomosis seemed out of the question. Attempts at suture of the

* Being the substance of a Hunterian Lecture at the Royal College of Surgeons, London, Jan. 10, 1946.



Benchmarking Complications Associated With Esophagectomy

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 S. Michael Griffin, OBE, MD, FRCSEd, FRCS, ‡‡ Richard Hardwick, MD, FRCS, §§
 Arnulf Hoelscher, MD, FACS, FRCS, ¶¶ Wayne Hofstetter, MD, |||| Blair Jobe, MD, FACS, ***
 Yuko Kitagawa, MD, PhD, FACS, ††† Simon Law, MS, PhD, FRCS, ‡‡‡ Christophe Mariette, MD, PhD, §§§
 Nick Maynard, MS, FRCS, ¶¶¶ Christopher R. Morse, MD, ||||| Philippe Nafteux, MD, PhD, ****
 Manuel Pera, MD, PhD, †††† C. S. Pramesh, MS, FRCS(Edin), ‡‡‡‡ Sonia Puig, MD, §§§§
 John V. Reynolds, MCh, FRCSI, ¶¶¶¶ Wolfgang Schroeder, FACS, ||||| Mark Smithers, FRACS, FRC
 and B. P. L. Wijnhoven, MD, PhD †††††

TABLE 6. Readmissions and Mortality Status Outcomes

| Readmission Within 30 days of discharge | N | N% |
|--|------|------|
| No readmission | 2280 | 84.3 |
| Readmission related to esophagectomy | 275 | 10.2 |
| Unrelated readmission | 28 | 1.0 |
| Readmissions status not known | 47 | 1.8 |
| Not discharged at 30 days or died inpatient | 74 | 2.7 |
| Perioperative mortality | | |
| Alive after 30 days post-op but died before 90 days | 56 | 2.1 |
| Alive after 90 days post-op | 2572 | 95.1 |
| Died within 30 days post-op | 65 | 2.4 |
| Status not known/lost to follow-up after 30 days postdischarge | 11 | 0.4 |
| Total patients = 2704. | | |

TABLE 2. Occurrence of ECCG Complications

| Complications* | N | N% | 95% Lower CL for N% | 95% Upper CL for N% | Standard Error of N% |
|--|------|------|---------------------|---------------------|----------------------|
| No | 1109 | 41.0 | 39.2% | 42.9% | 0.9% |
| Yes | 1595 | 59.0 | 57.0% | 60.8% | 0.9% |
| Number of complications Occurring in each patient | | | | | |
| 0 | 1109 | 41.0 | 39.2% | 42.9% | 0.9% |
| 1 | 690 | 25.5 | 23.9% | 27.2% | 0.8% |
| 2 | 406 | 15.0 | 13.7% | 16.4% | 0.7% |
| 3 | 238 | 8.8 | 7.8% | 9.9% | 0.5% |
| 4 or more | 261 | 9.7 | 8.6% | 10.8% | 0.6% |
| Total patients = 2704. CL indicates confidence limit; ECCG, Esophagectomy Complications Consensus Group. *Incidence of complication as per ECCG complication platform definitions. | | | | | |

TABLE 3. Incidence of Complications and Variation Between Centers According to the ECCG Definitions

| Complication Groups* | N | N% | 95% Lower CL of N % | 95% Upper CL of N % | Stand Error of N % |
|--|----------|-----------|--------------------------------|--------------------------------|-------------------------------|
| Gastrointestinal | 606 | 22.4 | 20.9% | 24.0% | 0.8% |
| Esophagoenteric leak from anastomosis, staple line, or localized conduit necrosis | 307 | 11.4 | 10.2% | 12.6% | 0.6% |
| Conduit necrosis/failure requiring surgery | 34 | 1.3 | 0.9% | 1.7% | 0.2% |
| Ileus defined as small bowel dysfunction preventing or delaying enteral feeding | 46 | 1.7 | 1.3% | 2.2% | 0.2% |
| Small bowel obstruction | 12 | 0.4 | 0.2% | 0.8% | 0.1% |
| Feeding J-tube complication | 27 | 1.0 | 0.7% | 1.4% | 0.2% |
| Pyloromyotomy/Pyloroplasty complication | 5 | 0.2 | 0.1% | 0.4% | 0.1% |
| <i>Clostridium difficile</i> infection | 23 | 0.9 | 0.6% | 1.3% | 0.2% |
| Pancreatitis | 8 | 0.3 | 0.1% | 0.6% | 0.1% |
| GI bleeding requiring intervention or transfusion | 21 | 0.8 | 0.5% | 1.2% | 0.2% |
| Liver dysfunction | 6 | 0.2 | 0.1% | 0.5% | 0.1% |
| Delayed conduit emptying requiring intervention or delaying discharge or requiring maintenance of NG drainage >7 days post-op | 180 | 6.7 | 5.8% | 7.6% | 0.5% |
| Pulmonary | 752 | 27.8 | 26.1% | 29.5% | 0.9% |
| Pneumonia | 396 | 14.6 | 13.4% | 16.0% | 0.7% |
| Pleural effusion requiring additional drainage procedure | 267 | 9.9 | 8.8% | 11.0% | 0.6% |
| Pneumothorax requiring intervention | 91 | 3.4 | 2.7% | 4.1% | 0.3% |
| Atelectasis mucous plugging requiring bronchoscopy | 85 | 3.1 | 2.5% | 3.9% | 0.3% |
| Respiratory failure requiring reintubation | 189 | 7.0 | 6.1% | 8.0% | 0.5% |
| Acute respiratory distress syndrome | 50 | 1.8 | 1.4% | 2.4% | 0.3% |
| Acute aspiration | 27 | 1.0 | 0.7% | 1.4% | 0.2% |
| Tracheobronchial injury | 11 | 0.4 | 0.2% | 0.7% | 0.1% |
| Chest drain requirement for air leak for >10 d post-op | 13 | 0.5 | 0.3% | 0.8% | 0.1% |



Biere *et al.* *BMC Surgery* 2011, 11:2
<http://www.biomedcentral.com/1471-2482/11/2>



STUDY PROTOCOL

Open Access

Traditional invasive vs. minimally invasive esophagectomy: a multi-center, randomized trial (TIME-trial)

Surya SAY Biere¹, Kirsten W Maas¹, Luigi Bonavina³, Josep Roig Garcia⁴, Mark I van Berge Henegouwen⁵, Camiel Rosman⁶, Meindert N Sosef⁷, Elly SM de Lange², H Jaap Bonjer¹, Miguel A Cuesta^{1*}, Donald L van der Peet^{1*}

Minimally invasive versus open oesophagectomy for patients with oesophageal cancer: a multicentre, open-label, randomised controlled trial



Surya S A Y Biere, Mark I van Berge Henegouwen, Kirsten W Maas, Luigi Bonavina, Camiel Rosman, Josep Roig Garcia, Suzanne S Gisbertz, Jean H G Klinkenbijl, Markus W Hollmann, Elly S M de Lange, H Jaap Bonjer, Donald L van der Peet, Miguel A Cuesta

***Lancet* 2012; 379:1887-92**

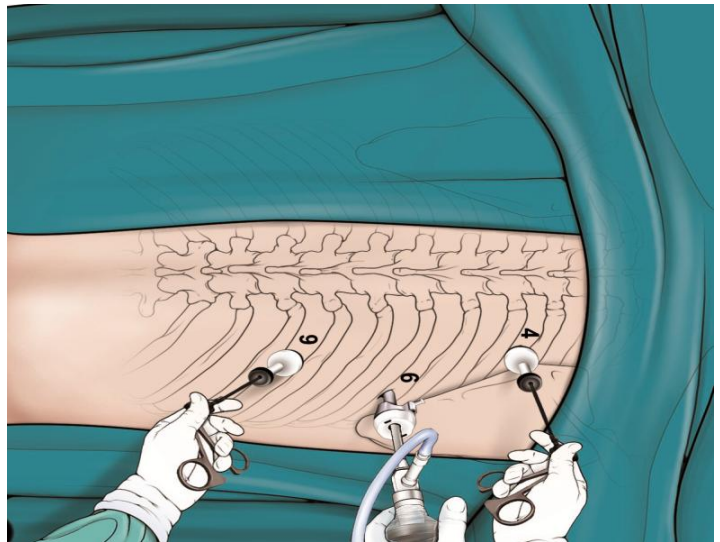
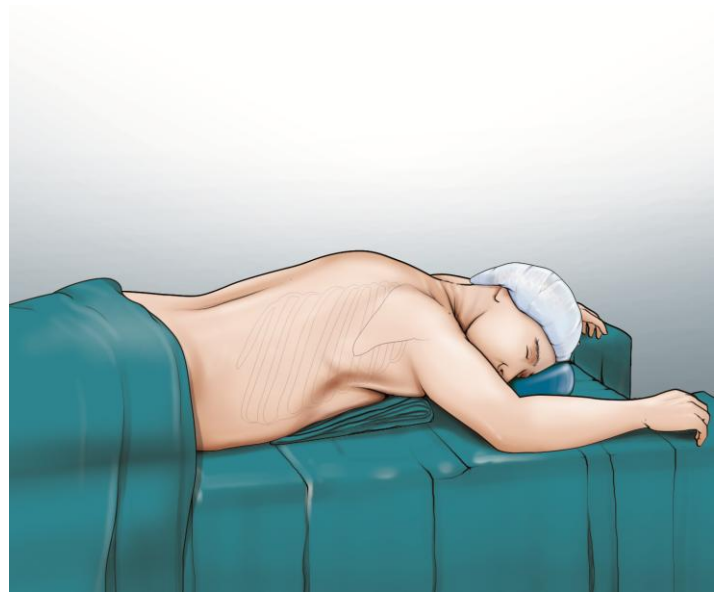
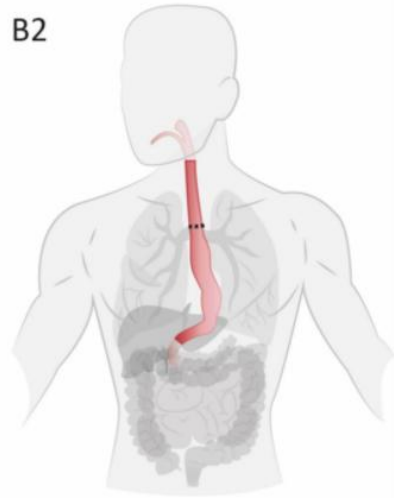
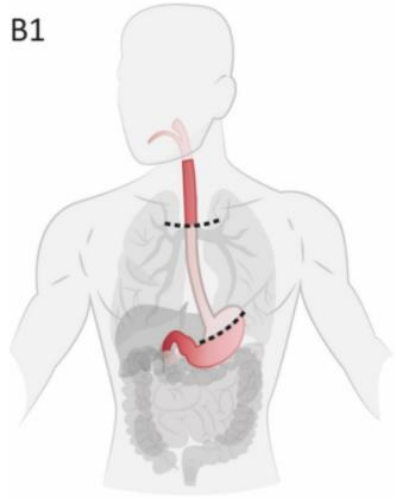
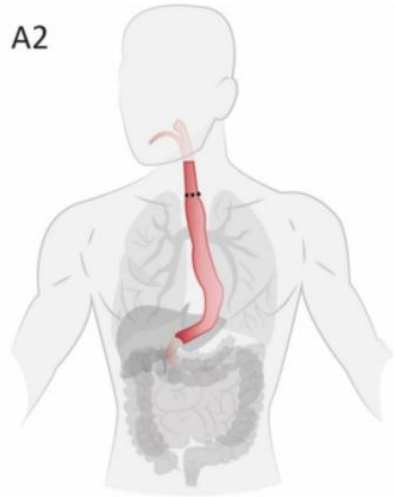
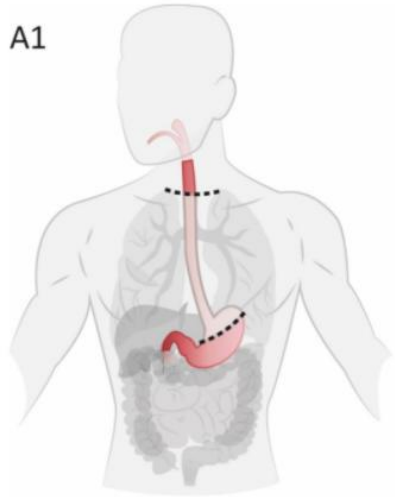
Minimally invasive versus open oesophagectomy for patients with oesophageal cancer: a multicentre, open-label, randomised controlled trial



Lancet 2012; 379:1887-92

Surya S A Y Biere, Mark I van Berge Henegouwen, Kirsten W Maas, Luigi Bonavina, Camiel Rosman, Josep Roig Garcia, Suzanne S Gisbertz, Jean H G Klinkenbijn, Markus W Hollmann, Elly S M de Lange, H Jaap Bonjer, Donald L van der Peet, Miguel A Cuesta

| | OO (N=56) | MIO (N=59) | p value |
|------------------------------------|----------------|----------------|---------|
| Primary outcomes | | | |
| Pulmonary infection within 2 weeks | 16 (29%) | 5 (9%) | 0.005 |
| Pulmonary infection in-hospital | 19 (34%) | 7 (12%) | 0.005 |
| Secondary outcomes | | | |
| Hospital stay (days)* | 14 (1-120) | 11 (7-80) | 0.044 |
| Short-term quality of life† | | | |
| SF 36† | | | |
| Physical component summary | 36 (6; 34-39) | 42 (8; 39-46) | 0.007 |
| Mental component summary | 45 (11; 40-50) | 46 (10; 41-50) | 0.806 |
| EORTC C30† | | | |
| Global health | 51 (21; 44-58) | 61 (18; 56-67) | 0.020 |
| OES 18‡ | | | |
| Talking | 37 (39; 25-49) | 18 (26; 10-26) | 0.008 |
| Pain | 19 (21; 13-26) | 8 (11; 5-11) | 0.002 |
| Total lymph nodes retrieved* | 21 (7-47) | 20 (3-44) | 0.852 |
| Resection margin§ | | | |
| R0 | 47 (84%) | 54 (92%) | .. |
| R1 | 5 (9%) | 1 (2%) | .. |



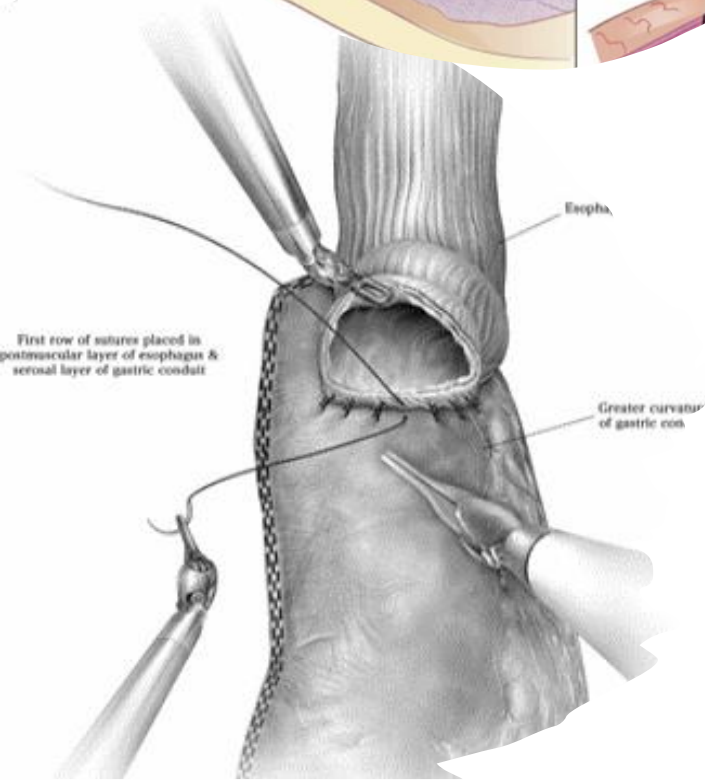
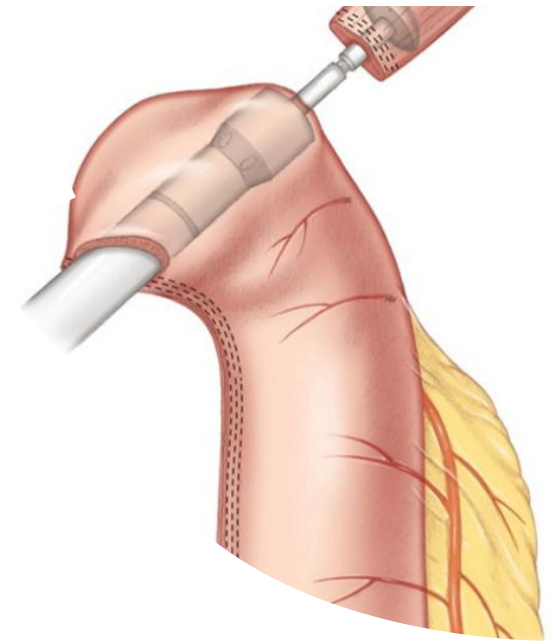
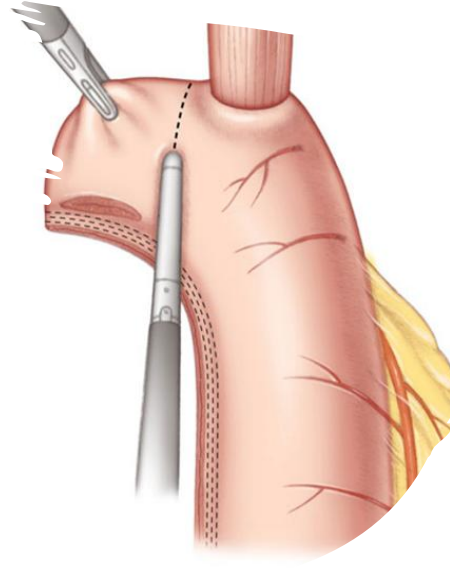
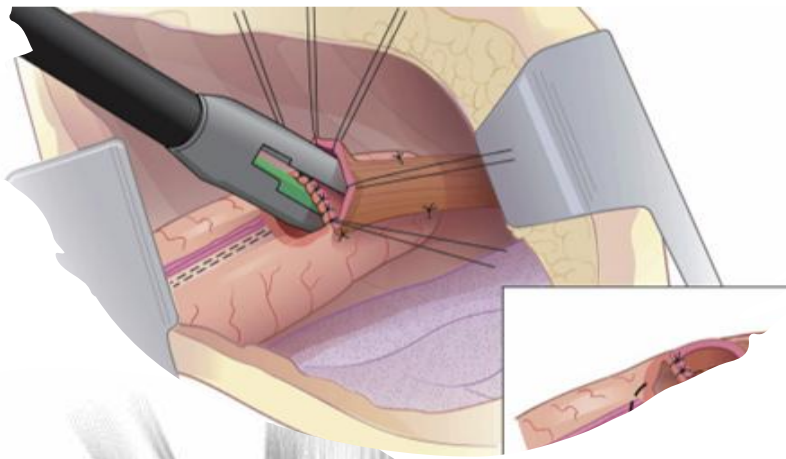
Outcomes After Minimally Invasive Esophagectomy: Review of Over 1000 patients

James D. Luketich et al. *Ann Surg.* 2012 July ; 256(1): 95–103.

Comparison of Postoperative Adverse Outcomes After Elective MIE With Either a Cervical (MIE-Neck) or Intrathoracic (MIE-Chest) Anastomosis

| | MIE-Neck, n = 481 (48%) | MIE-Chest, n = 530 (52%) | Total, n = 1011 | P |
|------------------------------------|-------------------------|--------------------------|-----------------|--------|
| Major morbidity, n (%) | | | | |
| Vocal fold paresis/paralysis | 37 (8) | 5 (1) | 42 (4) | <0.001 |
| Empyema | 31 (6) | 28 (5) | 59 (6) | 0.431 |
| ARDS | 18 (4) | 8 (2) | 26 (3) | 0.026 |
| Myocardial infarction | 9 (2) | 11 (2) | 20 (2) | 0.809 |
| Congestive heart failure | 20 (4) | 10 (2) | 30 (3) | 0.033 |
| Anastomotic leak requiring surgery | 26 (5) | 23 (4) | 49 (5) | 0.439 |
| Gastric tube necrosis | 15 (3) | 9 (2) | 24 (2) | 0.140 |
| Mortality at 30 days, n (%) | 12 (2.5) | 5 (0.9) | 17 (1.7) | 0.083 |

- 30-day mortality 1.68% (Ivor Lewis 0.9%; McKeown 2.5%)
- In-hospital mortality 2.8% (Ivor Lewis 1.7%; McKeown 3.95%)



Ivor Lewis MIE (8.3%) compared with Ivor Lewis open esophagectomy (4.3%).

Sihag S, Kosinski AS, Gaissert HA, Wright CD, Schipper PH. Minimally invasive versus open esophagectomy for esophageal cancer: a comparison of early surgical outcomes from the Society of Thoracic Surgeons National Database. Ann Thorac Surg. 2016;101:1281-8; discussion 1288-9.

The Journal of Thoracic and Cardiovascular Surgery 162,3

Incidence and treatment of mediastinal leakage after esophagectomy: Insights from the multicenter study on mediastinal leaks

Fumagalli U *et al.* MLs after esophagectomy

Table 4 Mediastinal leakage rate by surgical technique

| | Surgical technique | | | Total | P value |
|----------------------------|--------------------|-----------|-------------------|-------|---------|
| | Open IL | Hybrid IL | MIIL ¹ | | |
| Number of TEG | 152 | 244 | 105 | 501 | |
| Number of leaks | 16 | 22 | 21 | 59 | |
| Leakage rate (%) | 10.5 | 9.0 | 20.0 | 11.8 | |
| Necrosis - type I | 1 | 4 | 0 | 5 | |
| Necrosis - type II | 9 | 10 | 11 | 30 | |
| Necrosis - type III | 6 | 8 | 10 | 24 | |
| Hybrid <i>vs</i> MI | | | | | 0.0072 |
| Open <i>vs</i> MI | | | | | 0.0520 |
| Open + hybrid <i>vs</i> MI | | | | | 0.0560 |

¹Minimally invasive Ivor Lewis (MIIL) procedure performed in 4 of the 7 surgical centers. Anastomoses in MIIL are mainly semi-mechanical (highest leaking rate compared to manual and mechanical). TEG: Transthoracic esophagectomy with intrathoracic anastomosis; MIIL: Minimally invasive Ivor Lewis; IL: Ivor Lewis; MI: Minimally invasive.

World J Gastroenterol 2019 January 21; 25(3): 356-366

Outcomes after totally minimally invasive versus hybrid and open Ivor Lewis oesophagectomy: results from the International Esodata Study Group

Berend J. van der Wilk^{1*}, Eliza R. C. Hagens², Ben M. Eyck³, Suzanne S. Gisbertz², Richard van Hillegersberg³, Philippe Nafteux⁴, Wolfgang Schröder⁵, Magnus Nilsson^{6,7}, Bas P. L. Wijnhoven¹, Sjoerd M. Lagarde^{1,*} and Mark I. van Berge Henegouwen²; on behalf of the International Esodata Study Group Collaborators

Conclusion: Compared with hybrid and open Ivor Lewis oesophagectomy, TMIE resulted in a lower pneumonia rate, a shorter duration of hospital stay, but higher anastomotic leakage rates. Therefore, no clear advantage was seen for either TMIE, hybrid or open Ivor Lewis oesophagectomy when performed in daily clinical practice.

BJS, 2022,109, 283–290

Table 2 Incidence of postoperative complications and duration of hospital stay in patients undergoing totally minimally invasive, hybrid or open Ivor Lewis oesophagectomy

| | TMIE (n = 1472) | Hybrid (n = 1364) | Open (n = 1897) |
|--|--------------------|----------------------|--------------------|
| Pneumonia | 160 (10.9) | 222 (16.3) | 331 (17.4) |
| Anastomotic leakage | 222 (15.1) | 146 (10.7) | 139 (7.3) |
| Type I | 39 (2.6) | 19 (1.4) | 51 (2.7) |
| Type II | 113 (7.7) | 79 (5.8) | 51 (2.7) |
| Type III | 70 (4.8) | 48 (3.5) | 37 (1.9) |
| Complications | | | |
| Any | 881 (59.9) | 855 (62.7) | 1100 (58.0) |
| Major (CD ≥ IIIb) | 283 (19.2) | 219 (16.1) | 298 (15.7) |
| Escalation of care | 183 (12.4) | 198 (14.5) | 516 (27.2) |
| Readmission within 30 days | 191 (13.0) | 81 (5.9) | 184 (9.7) |
| Duration of hospital stay (days)* | 10 (8–16) | 14 (11–19) | 11 (9–16) |
| 90-day mortality | 65 (4.4) | 46 (3.4) | 75 (4.0) |

Values in parentheses are percentages unless indicated otherwise; *values are median (i.q.r.). TMIE, totally minimally invasive oesophagectomy; CD, Clavien–Dindo.

Minimally invasive esophagectomy: Direction of the art

Shawn S. Groth, MD, MS, and Bryan M. Burt, MD

TABLE 1. Comparison of perioperative and pathologic outcomes of open, hybrid, and conventional MIE

| Approach | Trial | N | Pneumonia | Leak | 30-d mortality | R0 rate | LN count |
|------------------|-------|-----|-----------|------|----------------|---------|-----------|
| Open | TIME | 56 | 34%* | 7% | 0% | 84% | 21 (4-47) |
| Conventional MIE | TIME | 59 | 12%* | 12% | 2% | 92% | 20 (3-44) |
| Open | MIRO | 104 | 16.5%† | 7% | 1% | 98.1% | 22 (9-64) |
| Hybrid MIE | MIRO | 103 | 12.8%† | 11% | 1% | 95.1% | 21 (7-76) |

LN, Lymph node; TIME, Traditional Invasive Versus Minimally Invasive Esophagectomy; MIRO, Oesophagectomie Pour Cancer par Voie conventionnelle ou Coelio-Assistée; MIE, minimally invasive esophagectomy. *In-hospital pneumonia rate. †30-day pneumonia rate.

Commentary: Minimally invasive esophagectomy (MIE) and robotic-assisted esophagectomy (RAMIE): We need high-volume surgeons, more science, and more robots!

James D. Luketich, MD, Arjun Pennathur, MD, and Inderpal Sarkaria, MD, MBA

The accompanying article by Groth and Burt¹ provides an articulate and timely summary of progress in minimally invasive esophagectomy (MIE). Important references are cited, and it is noted that advances in technology and surgical experiences in other areas made MIE possible.

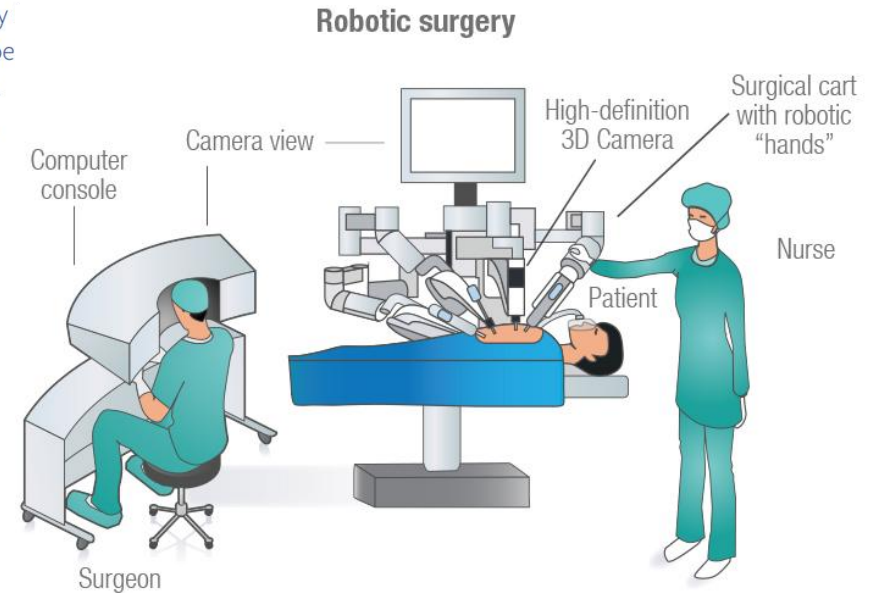
Their acknowledgement of the early work by Luketich and colleagues in Pittsburgh to establish MIE as safe and feasible is noted, but of equal importance was the education



James D. Luketich, MD, Arjun Pennathur, MD, and Inderpal Sarkaria, MD, MBA

CENTRAL MESSAGE

Groth and Burt convincingly summarize that the direction of the art of esophageal surgery lowering the morbidity of open surgery with MIE and RAMIE. Now, additional clinical trials must change.



Robot-assisted minimally invasive thoraco-laparoscopic esophagectomy versus open transthoracic esophagectomy for resectable esophageal cancer, a randomized controlled trial (ROBOT trial)

Pieter C van der Sluis^{1*}, Jelle P Ruurda¹, Sylvia van der Horst¹, Roy JJ Verhage¹, Marc GH Besselink¹, Margriet JD Prins¹, Leonie Haverkamp¹, Carlo Schippers¹, Inne HM Borel Rinkes¹, Hans CA Joore², Fiebo JW ten Kate³, Hendrik Koffijberg⁴, Christiaan C Kroese⁵, Maarten S van Leeuwen⁶, Martijn PJK Lolkema⁷, Onne Reerink⁸, Marguerite El Schipper³, Elles Steenhagen⁴, Frank P Vleggaar⁹, Emile E Voest⁷, Peter D Siersema⁹ and Richard van Hillegersberg^{1*}

Ann Surg 2018

56 Open vs 56 Robot/lap Mc Keown

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Tagkalos et al. *BMC Cancer* (2021) 21:1060
<https://doi.org/10.1186/s12885-021-08780-x>

BMC Cancer

STUDY PROTOCOL

Open Access

Robot-assisted minimally invasive thoraco-laparoscopic esophagectomy versus minimally invasive esophagectomy for resectable esophageal adenocarcinoma, a randomized controlled trial (ROBOT-2 trial)



E. Tagkalos^{1†}, P. C. van der Sluis^{1†}, F. Berlth¹, A. Poplawski², E. Hadzijusufovic¹, H. Lang¹, M. I. van Berge Henegouwen³, S. S. Gisbertz³, B. P. Müller-Stich⁴, J. P. Ruurda⁵, M. Schiesser⁶, P. M. Schneider⁶, R. van Hillegersberg⁵ and P. P. Grimmering^{1†}

Robot-assisted Versus Conventional Minimally Invasive Esophagectomy for Resectable Esophageal Squamous Cell Carcinoma

Early Results of a Multicenter Randomized Controlled Trial: the RAMIE Trial

Yang, Yang MD, PhD¹; Li, Bin MD, PhD²; Yi, Jun MD, PhD³; Hua, Rong MD, PhD⁴; Chen, Hezhong MD, PhD²; Tan, Lijie MD, PhD⁵; Li, Hecheng MD, PhD¹; He, Yi MD, PhD⁶; Guo, Xufeng MD, PhD⁷; Sun, Yifeng MD, PhD⁸; Yu, Bentong MD, PhD¹; Li, Zhigang MD, PhD^{*}

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Annals of Surgery 275(4):p 646-653, April 2022. | DOI: 10.1097/SLA.00000000000005023

183 RAMIE vs 179 MIE

shorter operation time in RAMIE (203.8 vs 244.9 min, $P < 0.001$).

> thoracic lymph node dissection in patients who received neoadjuvant therapy (15 vs 12, $P = 0.016$),

> lymph node dissection along the left recurrent laryngeal nerve (79.5% vs 67.6%, $P = 0.001$).

Overall complications similar in RAMIE (48.6%) MIE (41.8%) (RR, 1.16; 95% CI, 0.92–1.46; $P = 0.196$).

RAMIE vs MIE pulmonary complications (13.8% vs 14.7%; $P = 0.812$),

anastomotic leakage (12.2% vs 11.3%; $P = 0.801$),

vocal cord paralysis (32.6% vs 27.1%, $P = 0.258$)

Conclusions:

RAMIE and MIE are safe and feasible for the treatment of ESCC.

RAMIE better lymph node dissection in patients who received neoadjuvant therapy.



Comparisons of short-term outcomes between robot-assisted and thoraco-laparoscopic esophagectomy with extended two-field lymph node dissection for resectable thoracic esophageal squamous cell carcinoma

Junying Chen^{1,2#}, Qianwen Liu^{1,2#}, Xu Zhang^{1,2}, Hong Yang^{1,2}, Zihui Tan^{1,2}, Yaobin Lin^{1,2}, Jianhua Fu^{1,2}

J Thorac Dis
2019;11(9):3874-3880

Dissezione mediastino superiore
Linfadenectomia del mediastino superiore
Preservazione dei ricorrenti

From McKeown to Ivor Lewis, the learning curve for thoracic lymphadenectomy over the first 100 robotic esophagectomy cases: a retrospective study

Ze-Guo Zhuo^{1#}, Gang Li^{1,2#}, Tie-Niu Song¹, Gu-Ha Alai¹, Xu Shen¹, Yun Wang¹, Yi-Dan Lin¹

J Thorac Dis
2021;13(3):1543-1552 |

Perioperative Outcomes and Learning Curve of Robot-Assisted McKeown Esophagectomy

Hai-Bo Sun , Duo Jiang, Xian-Ben Liu, Wen-Qun Xing, Shi-Lei Liu, Pei-Nan Chen, Peng Li & Ya-Xing Ma

Journal of Gastrointestinal Surgery 27, 17–26 (2023) | [Cite this article](#)

World J Surg (2018) 42:590–598
DOI 10.1007/s00268-017-4179-0



ORIGINAL SCIENTIFIC REPORT WITH VIDEO

Lymph Node Evaluation in Robot-Assisted Versus Video-Assisted Thoracoscopic Esophagectomy for Esophageal Squamous Cell Carcinoma: A Propensity-Matched Analysis

Yin-Kai Chao¹ · Ming-Ju Heieh¹ · Yun-Hen Liu¹ · Hui-Ping Lin¹

Worldwide Techniques and Outcomes in Robot-assisted Minimally Invasive Esophagectomy (RAMIE)

Results From the Multicenter International Registry

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-thoracic and abdominal phase (45%), only thoracic phase (49%), only the abdominal phase (6%)

-mediastinal lymphadenectomy low paraesophageal nodes (95%), subcarinal nodes (90%), and paratracheal nodes (63%).

-when paratracheal lymphadenectomy in Ivor Lewis or in McKeown RAMIE recurrent laryngeal nerve injury occurred in 3% and 11%

Anastomotic technique: Circular stapled (52%), hand-sewn (30%), and linear stapled (18%)

Ivor Lewis RAMIE, robot-assisted hand-sewing > anastomotic leakage rate (33%), circular stapling (17%), linear stapling (15%).

McKeown RAMIE, hand-sewn anastomotic > leakage rate (27%), linear stapling (18%), circular stapling (6%).

Conclusion:

This study is the first to provide an overview of the current techniques and outcomes of transthoracic RAMIE worldwide.

Although these results indicate high quality of the procedure, the optimal approach should be further defined.





Linee guida

**NEOPLASIE DELLO STOMACO E
DELLA GIUNZIONE ESOFAGO-
GASTRICA**

Edizione 2021

«Per i tumori di tipo II di Siewert, non esiste tuttora una standardizzazione dell'intervento chirurgico»

| Qualità globale delle prove | Raccomandazione clinica | Forza della raccomandazione |
|--|---|-----------------------------|
| Bassa | Nei carcinomi di tipo II secondo Siewert la gastrectomia totale trans-istomica con asportazione dei linfonodi del mediastino inferiore e linfadenectomia D2 addominale dovrebbe essere presa in considerazione come prima opzione (81-88) | Forte a favore |
| COI: Nessun conflitto di interesse dichiarato | | |

«necessità di raggiungere la radicalità chirurgica sia in termini di negatività dei margini longitudinali, del margine circonfrenziale che di adeguatezza della linfadenectomia, è possibile selezionare tra questi due tipi di interventi quello più adeguato in relazione alle caratteristiche del tumore (entità di invasione esofagea, estensione delle linfadenopatie) e del paziente»

Mapping of Lymph Node Metastasis From Esophagogastric Junction Tumors

A Prospective Nationwide Multicenter Study

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Kurokawa et al

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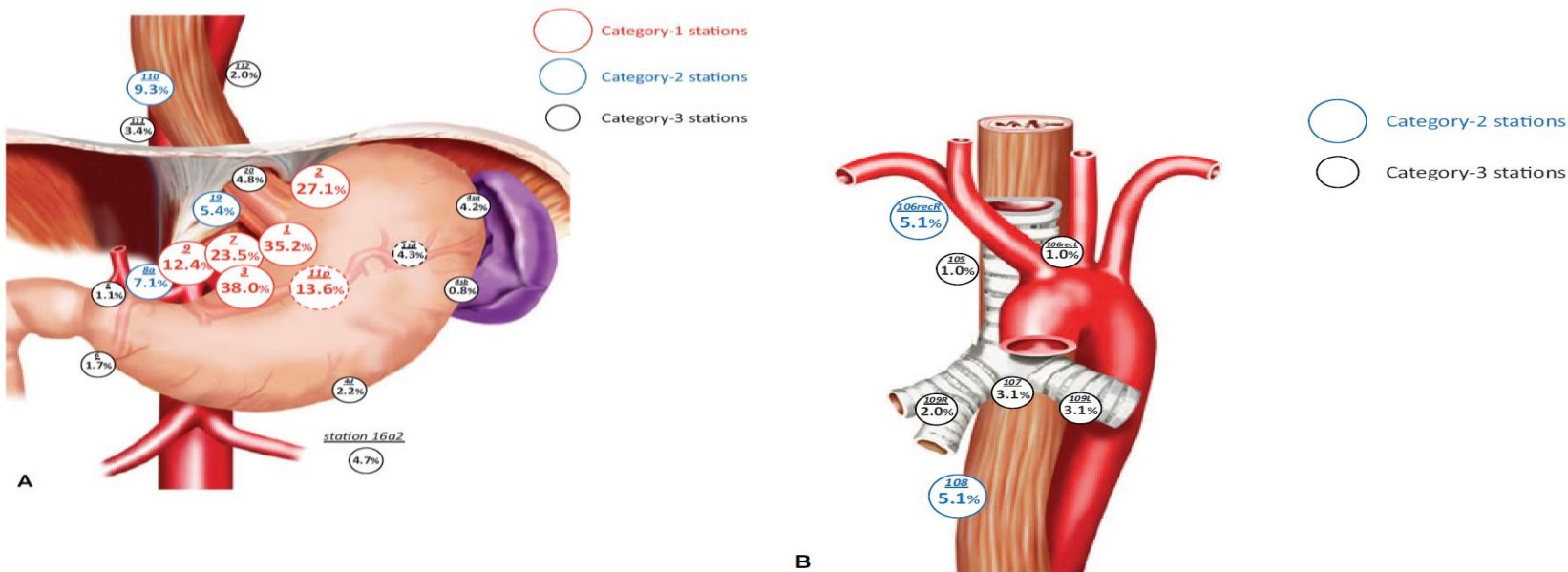
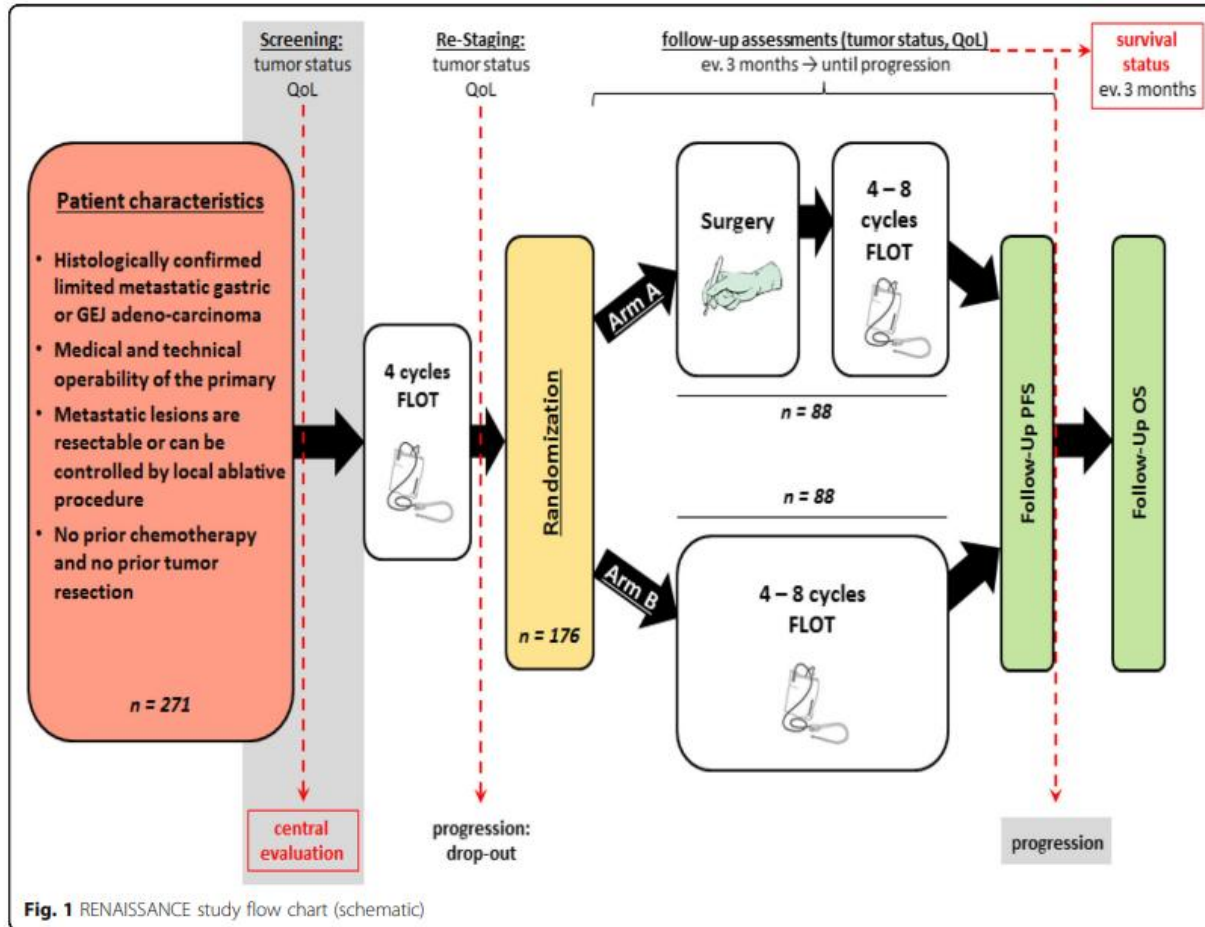


FIGURE 2. A, Metastasis rates in the abdominal and lower mediastinal nodes of the 358 patients who underwent surgical resection. B, Metastasis rates in the upper and middle mediastinal nodes of the 98 patients who had either adenocarcinoma with esophageal involvement of more than 3.0 cm (n = 67) or squamous cell carcinoma (n = 31). Category-1 indicates stations with metastasis rates exceeding 10%; category-2 indicates stations with rates between 5% and 10%; category-3 indicates stations with rates less than 5%.



RENAISSANCE (AIO-FLOT5) trial

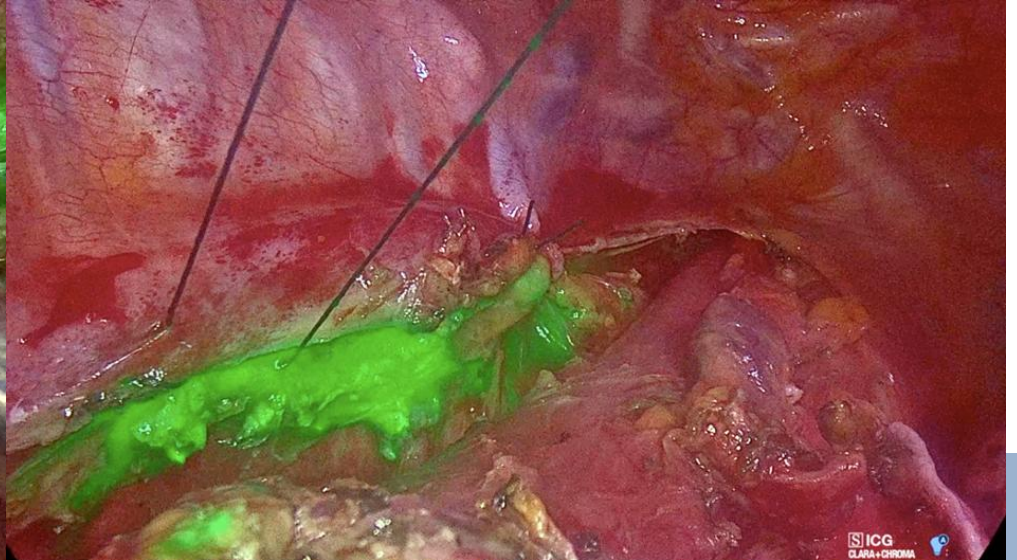
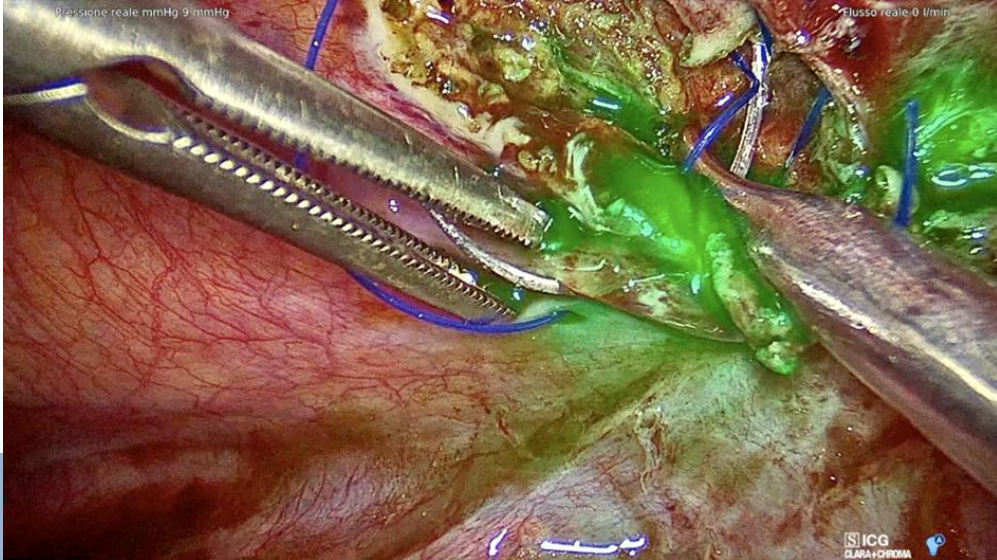
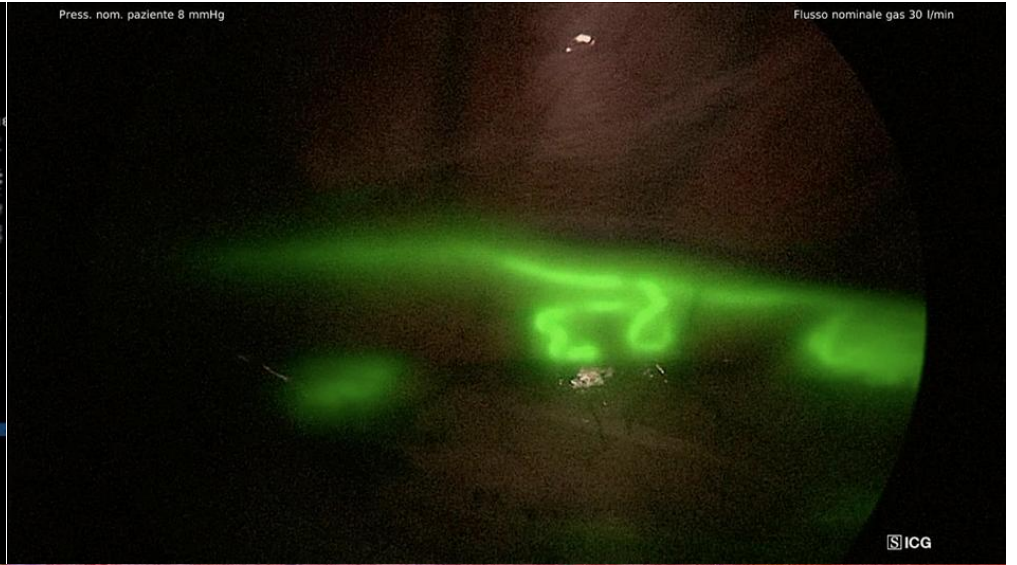
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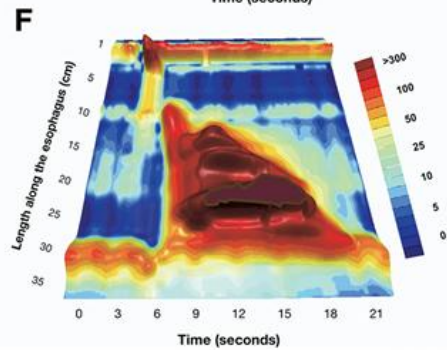
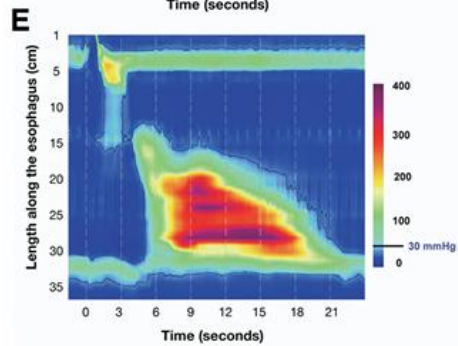
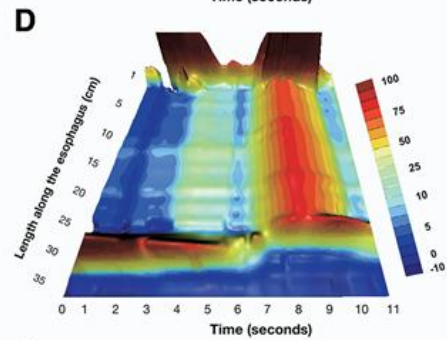
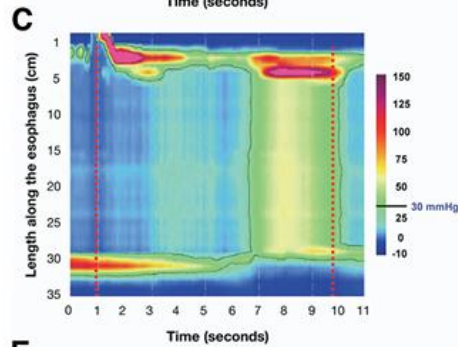
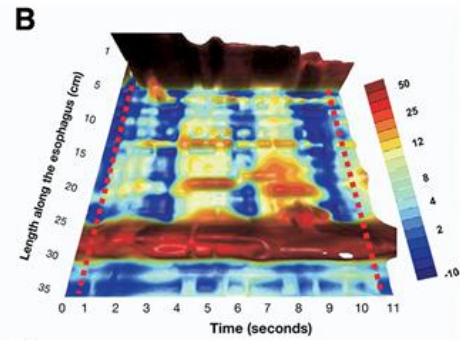
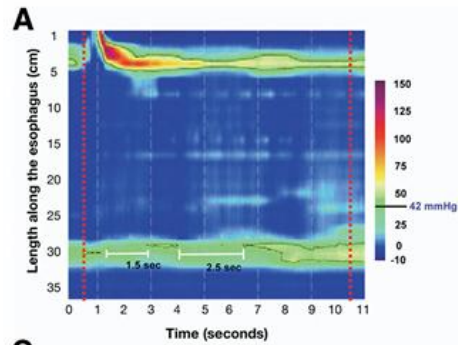
Thoracic duct identification with indocyanine green fluorescence during minimally invasive esophagectomy with patient in prone position

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Antonio Zicarelli,¹ Federico Marchesi,³ Roberto Petri¹

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SUMMARY. Chylothorax is a serious complication of transthoracic esophagectomy. Intraoperative thoracic duct (TD) identification represents a possible tool for preventing or repairing its lesions, and it is most of the time difficult, even during high-definition thoracoscopy. The aim of the study is to demonstrate the feasibility of using near-infrared fluorescence-guided thoracoscopy to identify TD anatomy and check its intraoperative lesions during minimally invasive esophagectomy. A 0.5 mg/kg solution of indocyanine green (ICG) was injected percutaneously in the inguinal nodes of 19 patients undergoing minimally invasive esophagectomy in a prone position, before thoracoscopy. TD anatomy and potential intraoperative lesions were checked with the KARL STORZ OPAL1[®] Technology. In all of the 19 patients where transthoracic esophagectomy was feasible, the TD was clearly identified after a mean of







- Tasso di complicanze 6,3% (range 0–35%), con rilievo clinico 0,7% (range 0–3%)
- Mortalità 0,1%
- Media di successo 89% (76-100%) f.u. medio 35 mesi (8-38)
Successo a 5 anni 65-85%

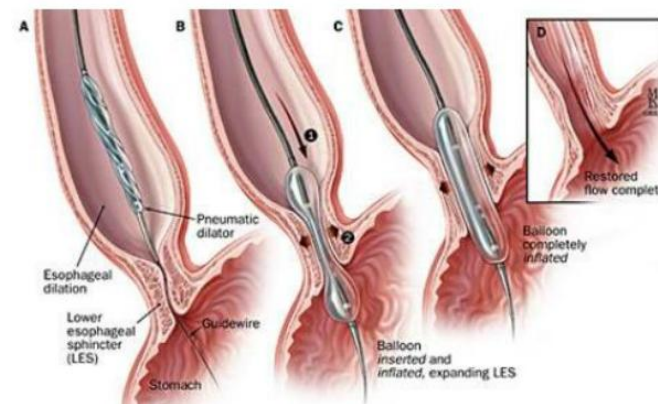
1992 thoracoscopic myotomy

Laparoscopic Heller + partial fundoplication (Dor)



Successo dilatazione

- tipo 2 96%
- tipo 1 56%
- tipo 3 29%



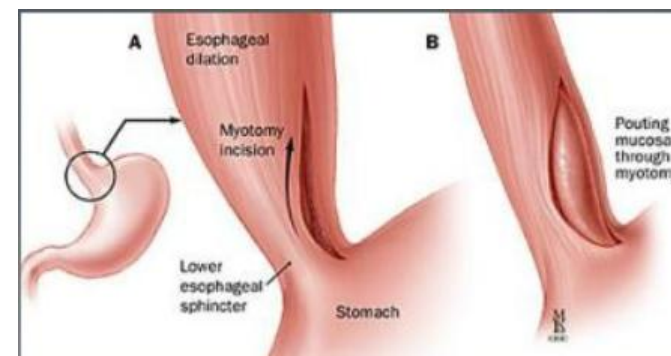
Miotomia vs dilatazione

Successo (disfagia e rigurgito) 98% vs 96% a 6 mesi;

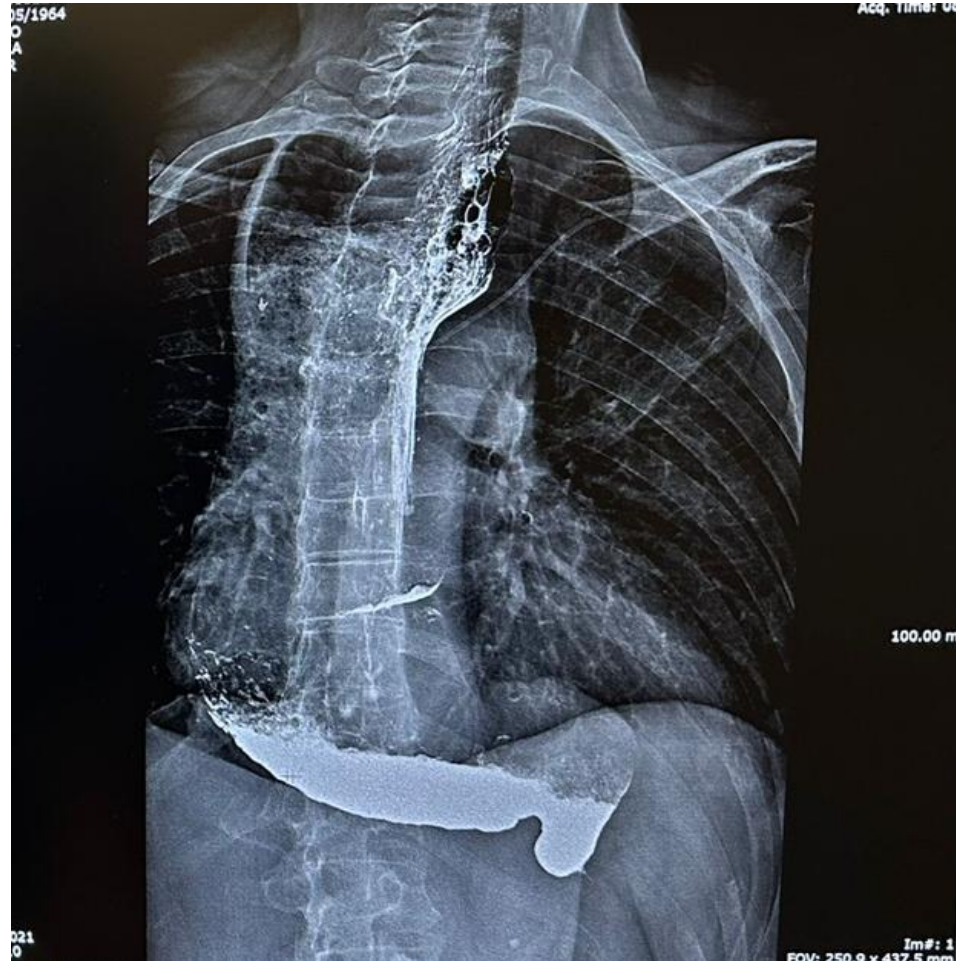
57% vs 44% a 6 anni (*Cleveland Clinic 2006*)

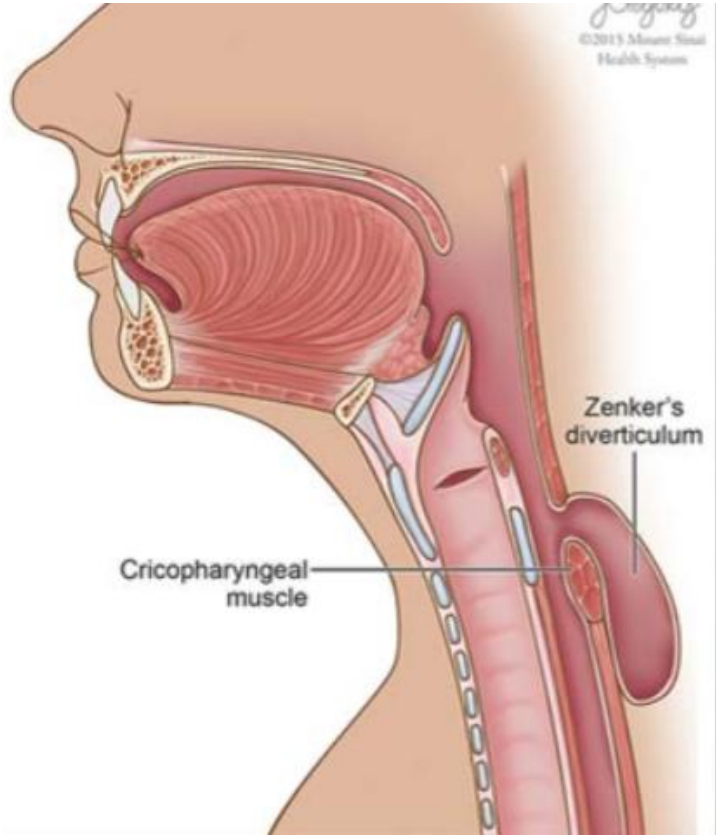
90% vs 86% a 2 anni

(*European Achalasia Trial 2011*)

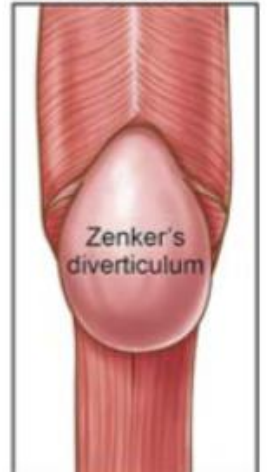


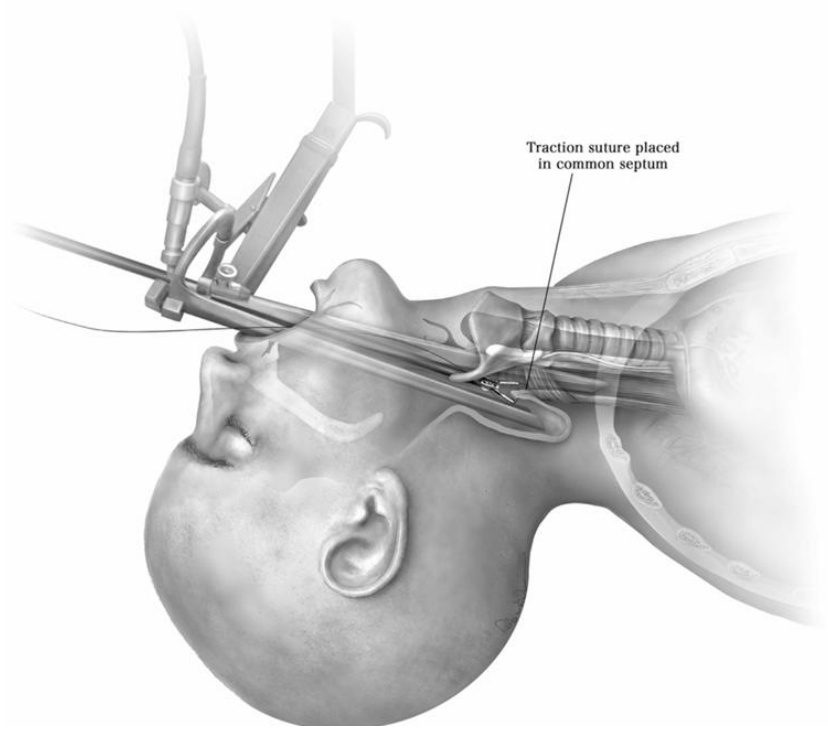
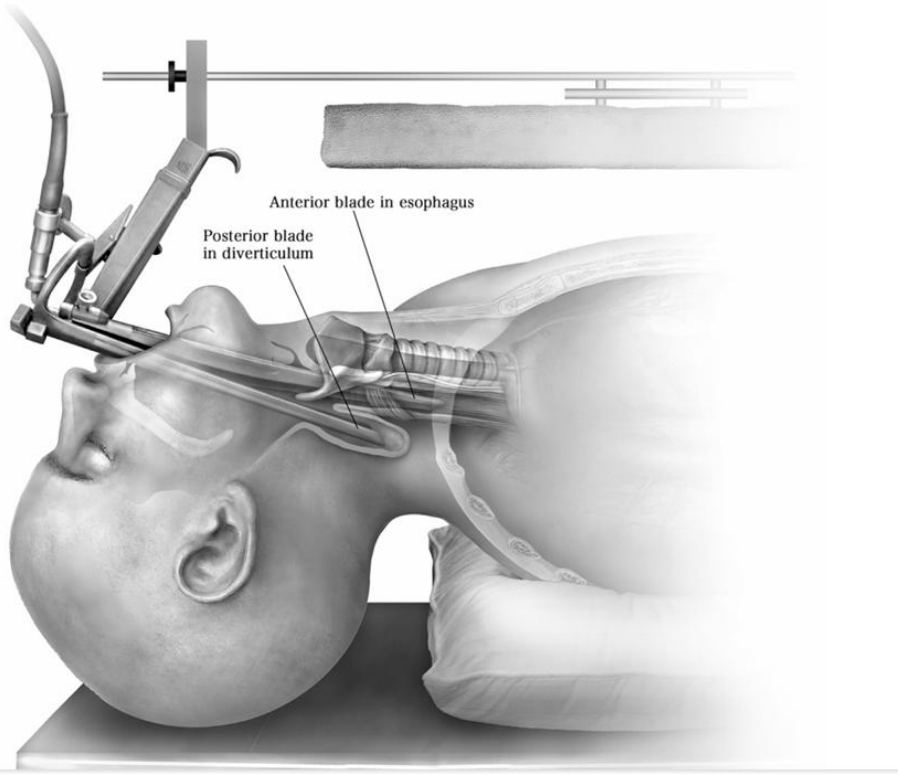
The esophageal pull-down technique improves the outcome of laparoscopic Heller-Dor myotomy in end-stage achalasia

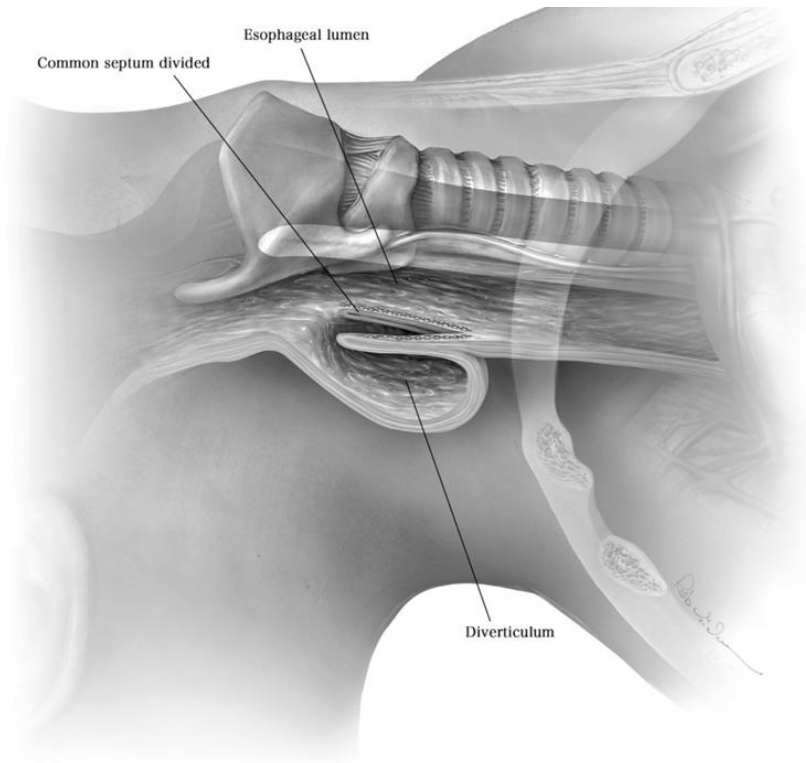
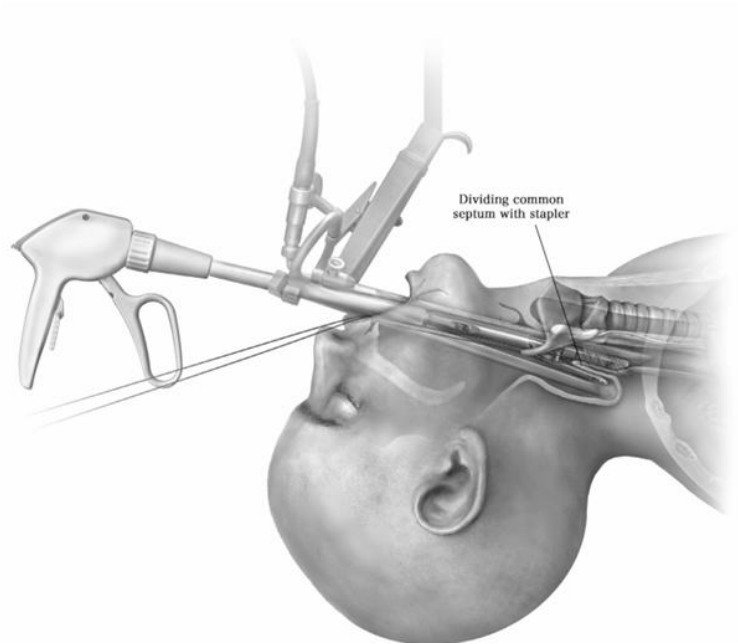




View of esophagus from behind







Risoluzione sintomi nel 95% dei casi

Recidiva 4-5%

Follow up lunghi risoluzione nel 30%; ricomparsa di sintomi minori

Complicanze con perforazione e fistola nel 3%

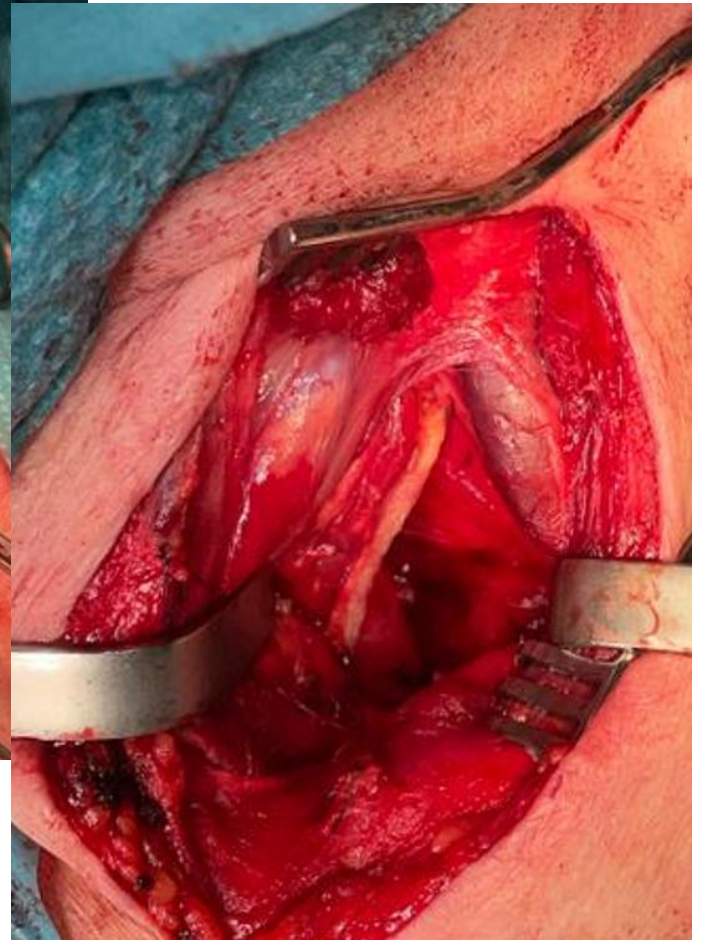
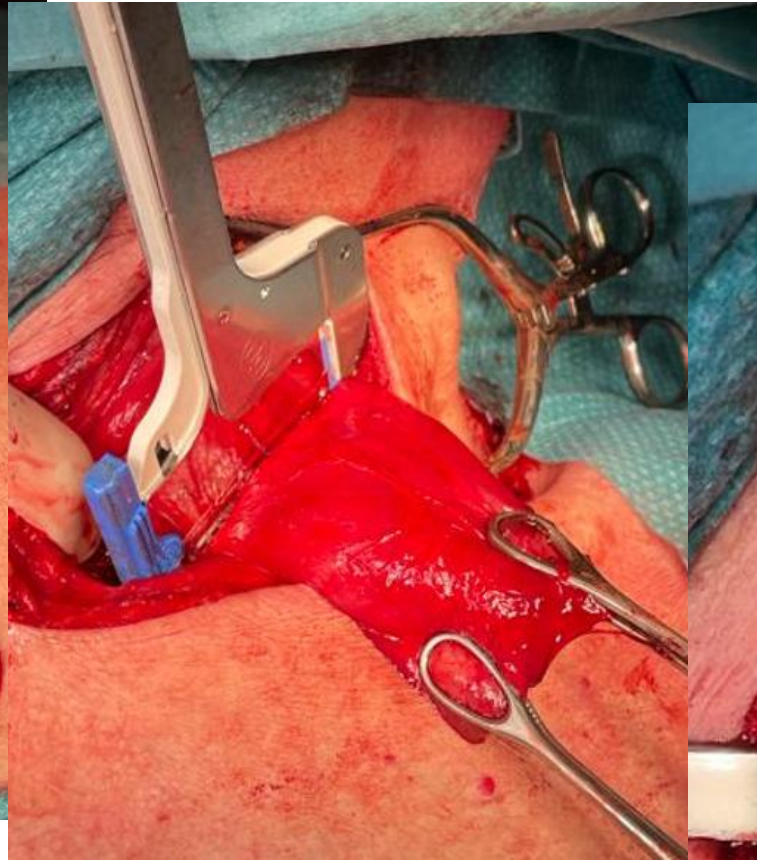
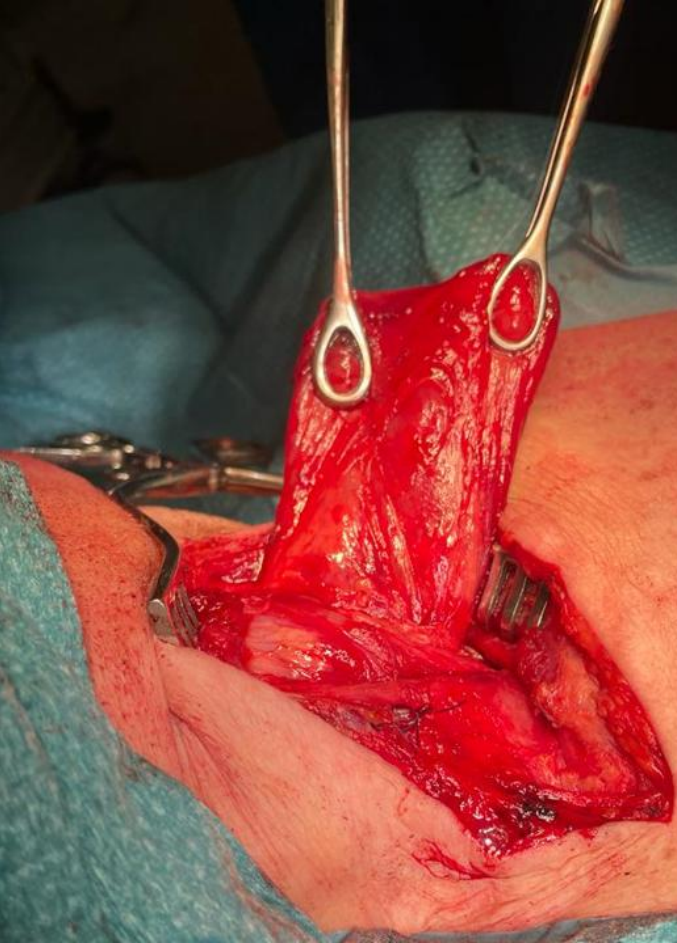
Recidiva

18.9% stapler diverticulotomy,

21.7% laser

4.2% open transcervicale (paralisi ricorrente 3,4%
fistola salivare 3.7%)

Mortalità 0.9%



Ambulatorio “CHIRURGIA ESOFAGO E STOMACO”

Pad 15 piano Terra il Lunedì dalle ore 11 alle 13:30

Alcuni esempi di quesiti diagnostici riportati sull'impegnativa:

- neoformazione, o neoplasia, o tumore dell'esofago, del cardias e dello stomaco*
- carcinoma o adenocarcinoma dell'esofago, del cardias e dello stomaco*
- GIST o leiomioma dell'esofago, del cardias e dello stomaco*
 - ernia jatale, ernia paroesofagea, ernia diaframmatica*
 - malattia da reflusso, MRGE, reflusso gastroesofageo*
 - acalasia esofagea*
 - diverticolo esofageo, diverticolo di Zenker*

