



Best of en chirurgie oeso-gastrique

Dr Mahaut Leconte
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13 05 2023

1

Limiter les **complications respiratoires**

- Techniques chirurgicales **mini-invasives**

2

Limiter les **complications chirurgicales**

- Evaluation de la vascularisation de la plastie
- Repérage du canal thoracique

3

Imagerie

- Détection des complications

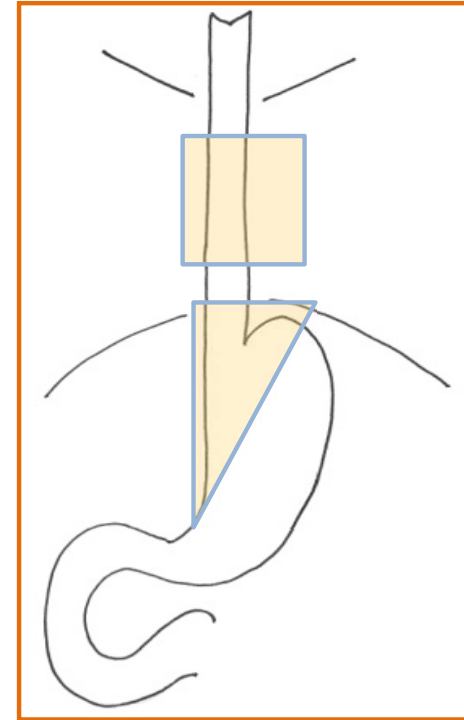
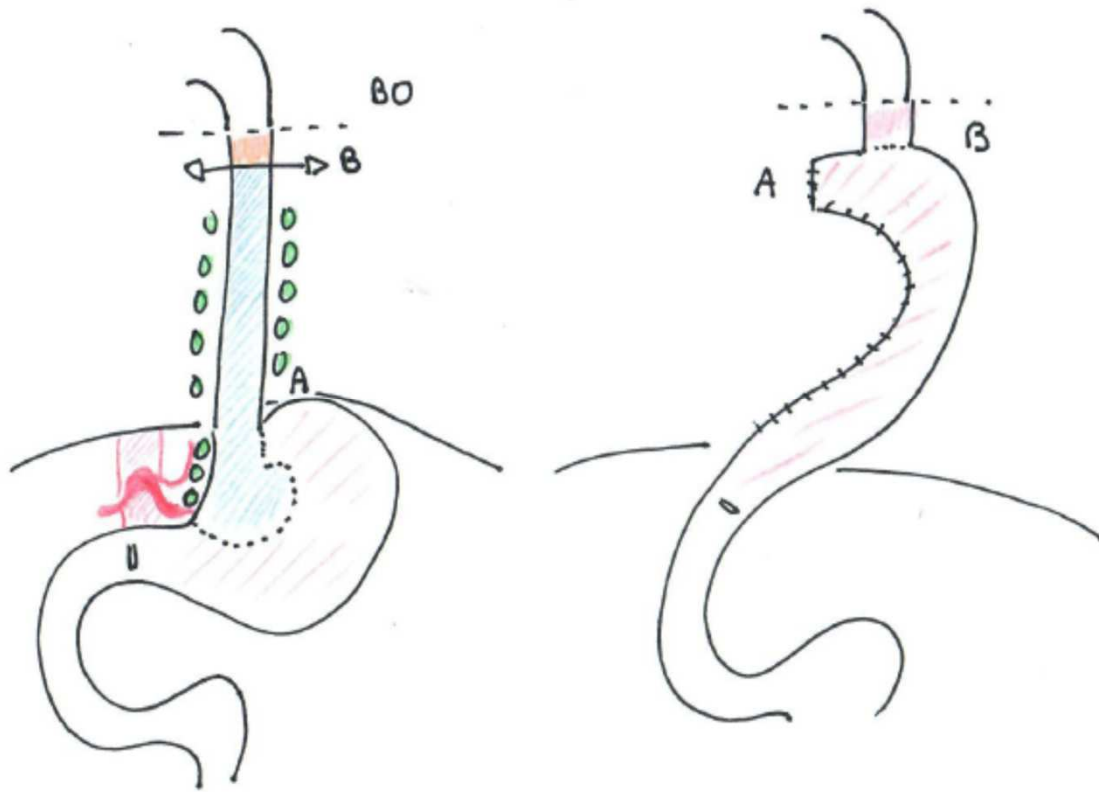
4

Optimisation péri-opératoire

- Pré-habilitation
- Réhabilitation

Oeso-gastrectomie polaire supérieure

OGPS

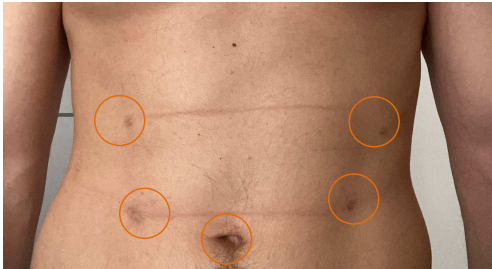


Intervention de Lewis-Santay
Anastomose intra-thoracique

Approche mini-invasive

Chirurgie hybride

- Temps abdominal **coelioscopie**
- Temps thoracique **ouvert**



Chirurgie totalement mini-invasive (TMIE)

- Temps abdominal **coelioscopie**
- Temps thoracique **thoracoscopie**



Hybrid Minimally Invasive Esophagectomy for Esophageal Cancer

C. Mariette,* S.R. Markar, T.S. Dabakuyo-Yonli, B. Meunier, D. Pezet, D. Collet, X.B. D'Journo, C. Brigand, T. Perniceni, N. Carrère, J.-Y. Mabrut, S. Msika, F. Peschaud, M. Prudhomme, F. Bonnetain,* and G. Piessen, for the Fédération de Recherche en Chirurgie (FRENCH) and French Eso-Gastric Tumors (FREGAT) Working Group†






N ENGL J MED 380;2 NEJM.ORG JANUARY 10, 2019

Etude MIRO

↘ complications respiratoires

Approche mini-invasive

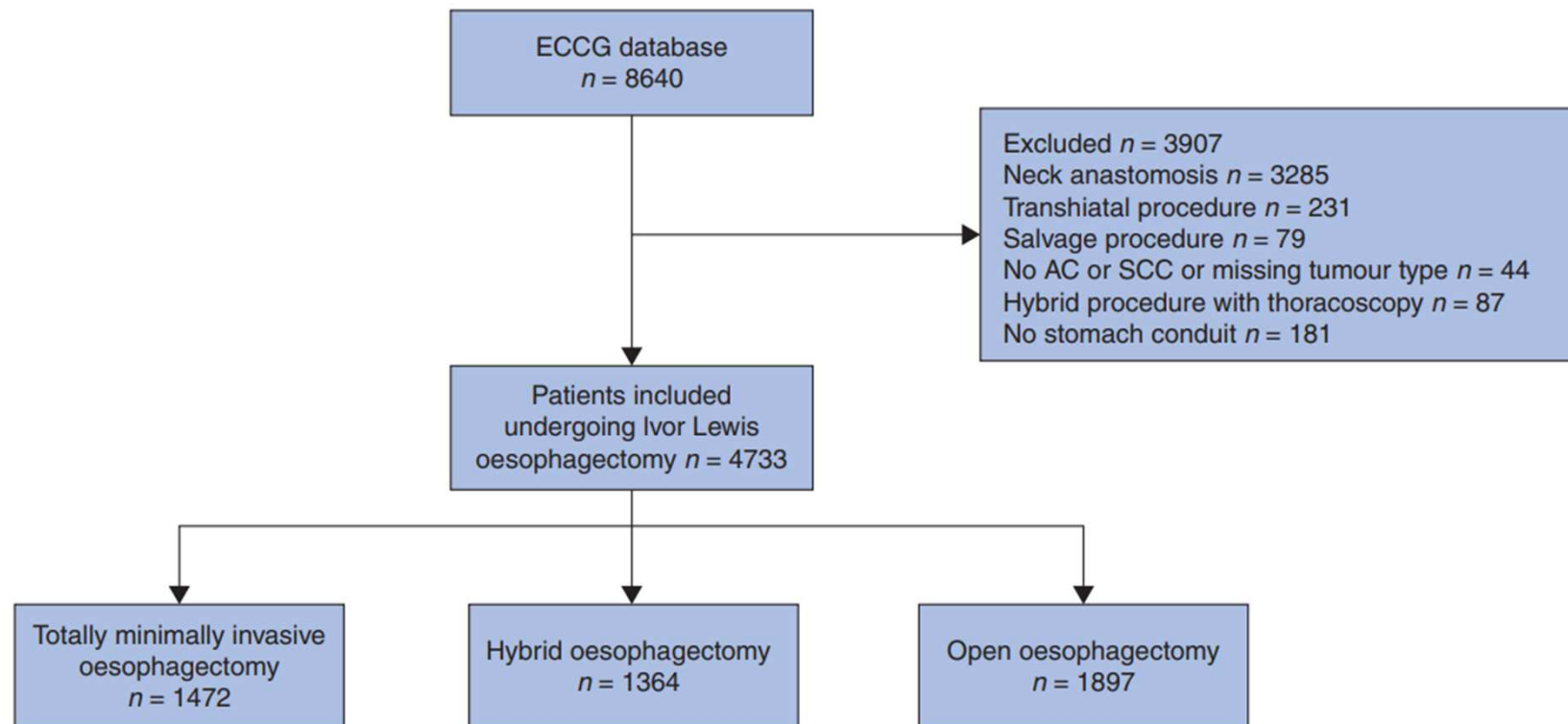
Outcomes after totally minimally invasive versus hybrid and open Ivor Lewis oesophagectomy: results from the International Esodata Study Group

Berend J. van der Wilk ^{1,*}, Eliza R. C. Hagens ², Ben M. Eyck ¹, Suzanne S. Gisbertz², Richard van Hillegersberg ³, 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

BJS, 2022, 109, 283–290



Collaborative Research



Approche mini-invasive

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.

Approche mini-invasive

Chirurgie totalement mini-invasive (TMIE)

Learning Curve and Associated Morbidity of Minimally Invasive Esophagectomy

A Retrospective Multicenter Study

Frans van Workum, MD,* Marianne H. B. C. Stenstra, MD,* Gijs H. K. Berkelmans, MD,†
Annelijn E. Slaman, BSc,‡ Mark I. van Berge Henegouwen, MD, PhD,‡ Suzanne S. Gisbertz, MD, PhD,‡
Frits J. H. van den Wildenberg, MD,§ Fatih Polat, MD,§ Tomoyuki Irino, MD,¶ Magnus Nilsson, MD, PhD,¶
Grard A. P. Nieuwenhuijzen, MD, PhD,† Misha D. Luyer, MD, PhD,† Eddy M. Adang, PhD,||
Gerjon Hannink, PhD,** Maroeska M. Rovers, PhD,†† and Camiel Rosman, MD, PhD*

Annals of Surgery • Volume 269, Number 1, January 2019

119 patients → taux de fistule < 8 %

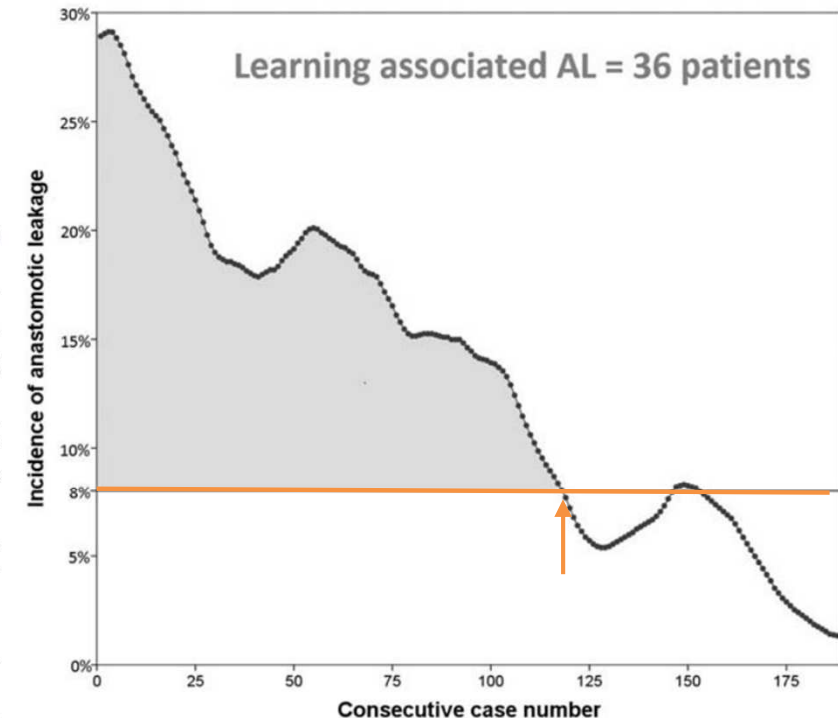


FIGURE 5. Learning associated AL, pooled data from 3 hospitals. Interpretation: The red dotted line is the observed incidence of anastomotic leakage. The horizontal black line represents the plateau incidence of 8%. The yellow plane represents the patients that experienced learning associated anastomotic leakage (calculated with area under the curve analysis). AL indicates anastomotic leakage.

Approche mini-invasive

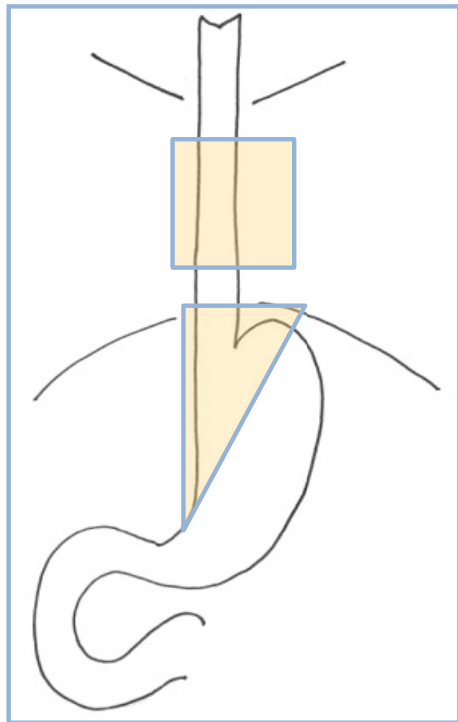
JAMA Surgery | Original Investigation

Intrathoracic vs Cervical Anastomosis After Totally or Hybrid Minimally Invasive Esophagectomy for Esophageal Cancer A Randomized Clinical Trial

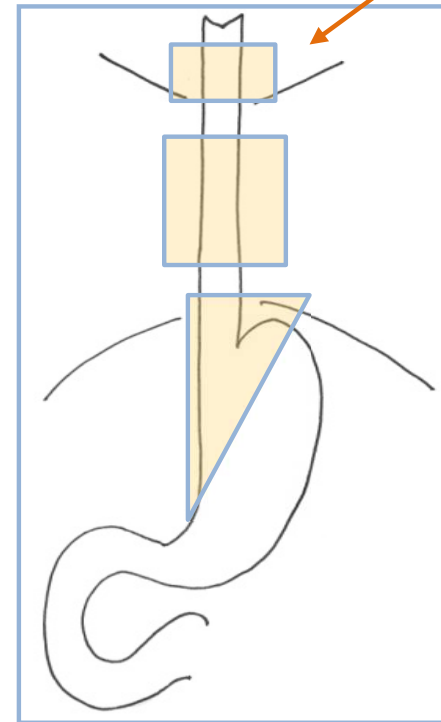
Frans van Workum, MD; Moniek H. P. Verstegen, MD; Bastiaan R. Klarenbeek, MD, PhD; Stefan A. W. Bouwense, MD, PhD; Mark I. van Berge Henegouwen, MD, PhD; Freek Daams, MD, PhD; Suzanne S. Gisbertz, MD, PhD; Gerjon Hannink, PhD; Jan Willem Haveman, MD, PhD; Joos Heisterkamp, MD, PhD; Walther Jansen, MSc; Ewout A. Kouwenhoven, MD, PhD; Jan J. B. van Lanschot, MD, PhD; Grard A. P. Nieuwenhuijzen, MD, PhD; Donald L. van der Peet, MD, PhD; Fatih Polat, MD; Sander Ubels, MD; Bas P. L. Wijnhoven, MD, PhD; Maroeska M. Rovers, PhD; Camiel Rosman, MD, PhD; for the ICAN collaborative research group

JAMA Surgery July 2021 Volume 156, Number 7

Anastomose cervicale



Intervention de Lewis-Santay



Oesophagectomie 3 voies Mac Keown

Thorax

Abdomen

Approche mini-invasive

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

Results From the Multicenter International Registry

B. Feike Kingma, MD, Peter P. Grimmering, MD,†*

Annals of Surgery • Volume 276, Number 5, November 2022



TABLE 3. Anastomotic Techniques and Associated Leakage RBates in RAMIE (n = 856)

	Anastomotic Leakage	
	n	(%)
Ivor Lewis (n = 622)		
Circular stapled intrathoracic anastomosis	(n = 315)	64 (17)
Linear stapled intrathoracic anastomosis	(n = 92)	14 (15)
Hand-sewn intrathoracic anastomosis	(n = 151)	49 (33)
McKeown (n = 234)	(n = 64)	4 (6)
Circular stapled cervical anastomosis		
Linear stapled cervical anastomosis	(n = 66)	12 (18)
Hand-sewn cervical anastomosis	(n = 102)	27 (27)

Approche mini-invasive

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, PhD,* Bin Li, MD, PhD,* Jun Yi, MD, PhD,† Rong Hua, MD, PhD,* Hezhong Chen, MD, PhD,‡ Lijie Tan, MD, PhD,§ Hecheng Li, MD, PhD,¶ Yi He, MD, PhD,* Xufeng Guo, MD, PhD,* Yifeng Sun, MD, PhD,* Bentong Yu, MD, PhD,|| and Zhigang Li, MD, PhD*✉

Annals of Surgery • Volume 275, Number 4, April 2022

Robot-assisted Minimally Invasive Thoracoscopic Esophagectomy Versus Open Transthoracic Esophagectomy for Resectable Esophageal Cancer

A Randomized Controlled Trial

Pieter C. van der Sluis, MD, PhD, MSc,* Sylvia van der Horst, MSc,* Anne M. May, PhD,† Carlo Schippers, MSc,* Lodewijk A. A. Brosens, MD, PhD,‡ Hans C. A. Joore, MD,§ Christiaan C. Kroese, MD,¶ Nadia Haj Mohammad, MD, PhD,|| Stella Mook, MD, PhD,** Frank P. Vleggaar, MD, PhD,†† Inne H. M. Borel Rinkes, MD, PhD,* Jelle P. Ruurda, MD, PhD,* and Richard van Hillegersberg, MD, PhD*

Annals of Surgery • Volume 269, Number 4, April 2019

TABLE 4. Postoperative Outcomes

	RAMIE (n = 181)	MIE (n = 177)	P Value
Total complications [n (%)]	88 (48.6)	74 (41.8)	0.196
C-D classification ≥ III	22 (12.2)	18 (10.2)	0.551
Pulmonary complications [n (%)]	25 (13.8)	26 (14.7)	0.812
Pneumonia	18 (9.9)	21 (11.9)	0.560
Respiratory failure	8 (4.4)	9 (5.1)	0.767
Pleural effusion	10 (5.5)	6 (3.4)	0.328
Pneumothorax	3 (1.7)	5 (2.8)	0.499
Severe cardiac complications [n (%)]	2 (1.1)	1 (0.6)	0.631
Anastomotic leakage [n (%)]	22 (12.2)	20 (11.3)	0.801
Type I (conservative)	8 (4.4)	5 (2.8)	
Type II (nonsurgical intervention)	13 (7.2)	14 (7.9)	
Type III (surgical intervention)	1 (0.6)	1 (0.6)	
Vocal cord paralysis [n (%)]	59 (32.6)	48 (27.1)	0.258
Type I (transient injury requiring no therapy)	55 (30.4)	45 (25.4)	
Type II (requiring elective surgical procedure)	1 (0.6)	1 (0.6)	
Type III (requiring acute surgical intervention)	3 (1.7)	2 (1.1)	
Location (Left/right/bilateral)	49 (27.1)/6 (3.3)/4 (2.2)	41 (23.2)/4 (2.3)/3 (1.7)	0.573
Chylothoraxy [n (%)]	5 (2.8)	2 (1.1)	0.449
Type I (enteric dietary modifications)	4 (2.2)	1 (0.6)	
Type II (total parenteral nutrition)	1 (0.6)	1 (0.6)	
Type III (interventional or surgical therapy)	0 (0)	0 (0)	
Wound infections [n (%)]	3 (1.7)	1 (0.6)	0.623
Postoperative hospital stay (d), median (range)	9 (6–49)	9 (6–82)	0.311
Intensive care unit stay (d), median (range)	1 (0–15)	1 (0–14)	0.990
Readmission intensive care unit [n (%)]	3 (1.7)	3 (1.7)	0.815
In-hospital mortality [n (%)]	0 (0)	0 (0)	
30-d mortality [n (%)]	0 (0)	1 (0.6)	0.633
90-d mortality [n (%)]	1 (0.6)	1 (0.6)	0.909

Downloaded from https://journals.lww.com/annalsurgery by BldMbsen-Hk on 07/26/2021
1010C9W0CX1AWhnYqplil0HHD313D00RFRy77V5FH4C3VC1Y0a809QZx4dmwMhZB1

Approche mini-invasive

Cancers œsophagiens : nouveautés et défis des prises en charge chirurgicales

Bull Cancer 2022;

Thibault Voron¹, Camille Julio¹, Emmanuel Pardo²

L'approche hybride lors d'une OGPS par abord abdominal et thoracique (**Lewis Santy**) **est recommandée** par rapport à l'approche totalement ouverte

L'approche totalement mini-invasive avec anastomose intrathoracique, qu'elle soit robotique ou coelioscopique, **n'est pas encore recommandée** en raison d'une augmentation du **taux de fistule anastomotique** et d'une courbe d'apprentissage importante.

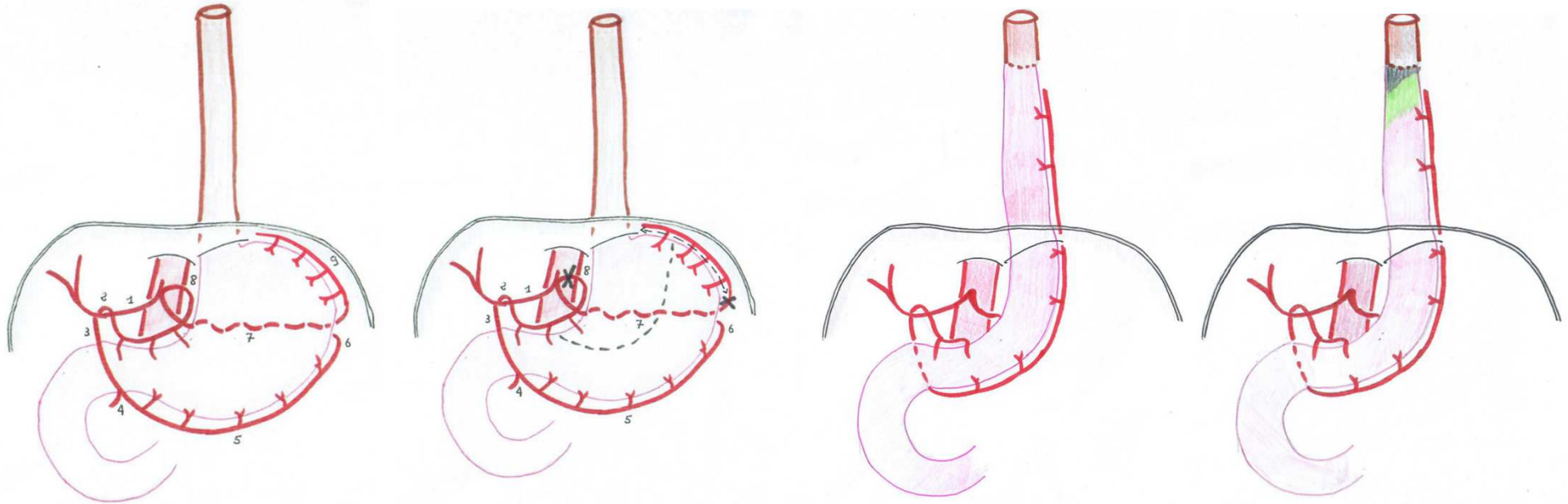
Elle doit être réalisée en **centres experts par des chirurgiens expérimentés**.

Lors d'œsophagectomie triple abord (abdominal, thoracique et cervicale) (**Mac Keown**), **l'approche totalement mini-invasive** (abdominale et thoracique) avec anastomose cervicale **est recommandée** par rapport à une approche totalement ouverte.

Limiter les complications chirurgicales

- Fistule anastomotique / ischémie de la plastie
- Chylothorax

Plastie gastrique



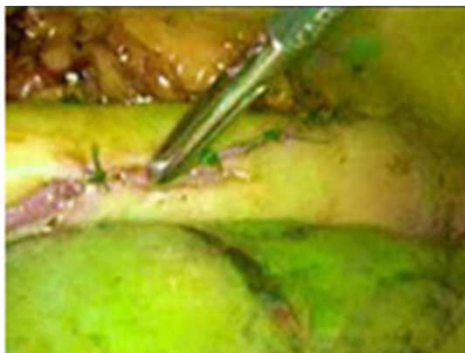
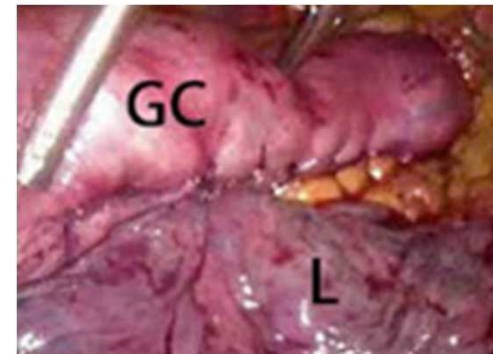
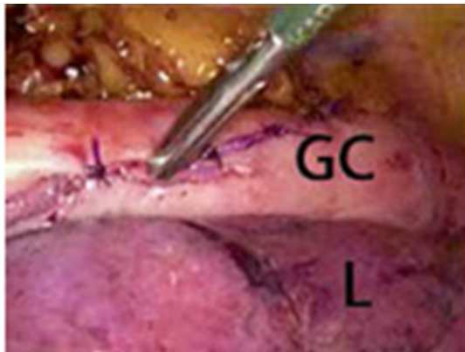
1: a hépatique, 2: a gastrique droite, 3: a gastro-duodénale, 4: a gastro-épiplœique droite, 5: arcade de la grande courbure, 6: a gastro-épiplœique gauche, 7: a splénique, 8 : a gastrique gauche, 9: vaisseaux courts

Evaluation de la vascularisation de la plastie gastrique

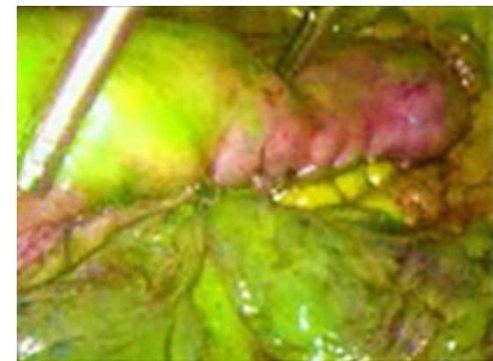
Fluorescent imaging using indocyanine green during esophagectomy to prevent surgical morbidity: a systematic review and meta-analysis

Maxime D. Slooter¹, Wietse J. Eshuis¹, Miguel A. Cuesta², Suzanne S. Gisbertz¹, Mark I. van Berge Henegouwen¹

J Thorac Dis 2019;11(Suppl 5):S755-S765



Vert d'indocyanine
- Système veineux



Pré-conditionnement de la plastie gastrique

Gastric ischemic preconditioning may reduce the incidence and severity of anastomotic leakage after oesophagectomy: a systematic review and meta-analysis

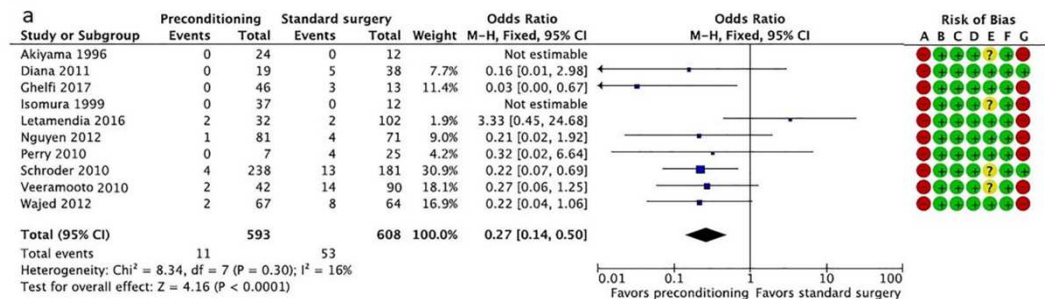
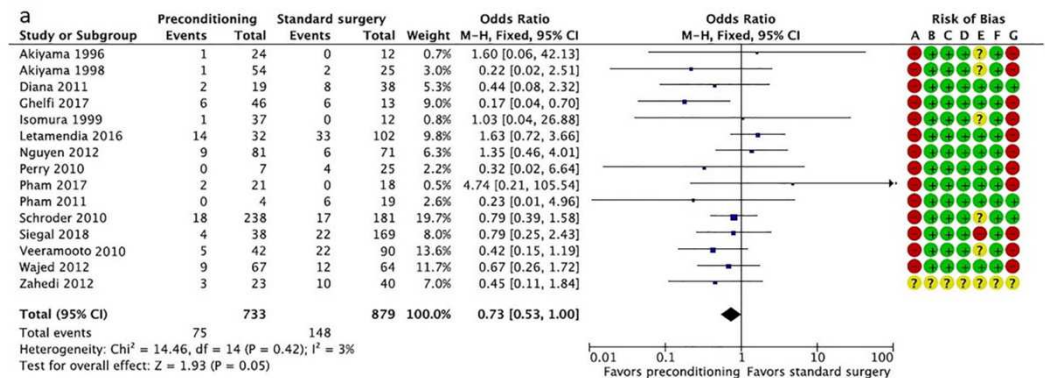
Diseases of the Esophagus (2020)33,1–12

Adamantios Michalinos,¹ Stavros A Antoniou,^{1,2} Dimitrios Ntourakis,¹ Dimitrios Schizas,³ Konstantinos Ekmektzoglou,⁴ Aris Angouridis,⁵ Elizabeth O. Johnson¹

Taux de fistule

Pré conditionnement **10,2%**

Pas de Pré conditionnement **16,8 %**



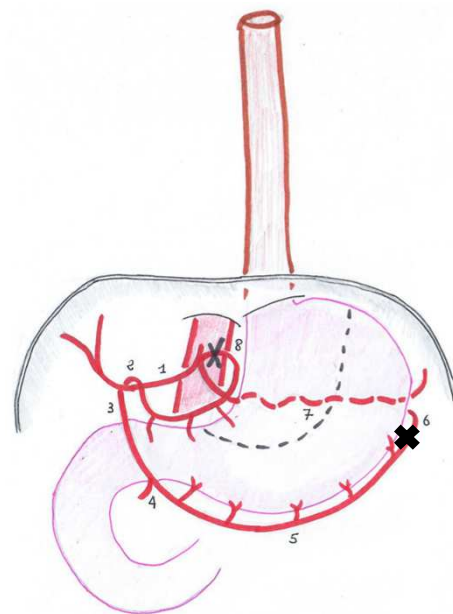
Pré-conditionnement de la plastie gastrique

The ISCON-trial protocol: laparoscopic ischemic conditioning prior to esophagectomy in patients with esophageal cancer and arterial calcifications



Veen et al. *BMC Cancer* (2022) 22:144

A. van der Veen^{1†}, L. M. Schiffmann^{2†}, E. M. de Groot^{1*}, I. Bartella², P. A. de Jong³, A. S. Borggreve¹, L. A. A. Brosens⁴, D. Pinto Dos Santos⁵, H. Fuchs², J. P. Ruurda¹, C. J. Bruns², R. van Hillegersberg^{1*†} and W. Schröder^{2†}



Repérage du canal thoracique

Cancers œsophagiens : nouveautés et défis des prises en charge chirurgicales

Thibault Voron¹, Camille Julio¹, Emmanuel Pardo²

Bull Cancer 2022;

Vert d'indocyanine
- Système lymphatique



FIGURE 3

Lors de la thoracoscopie, la dissection permet pas en lumière blanche de (a)

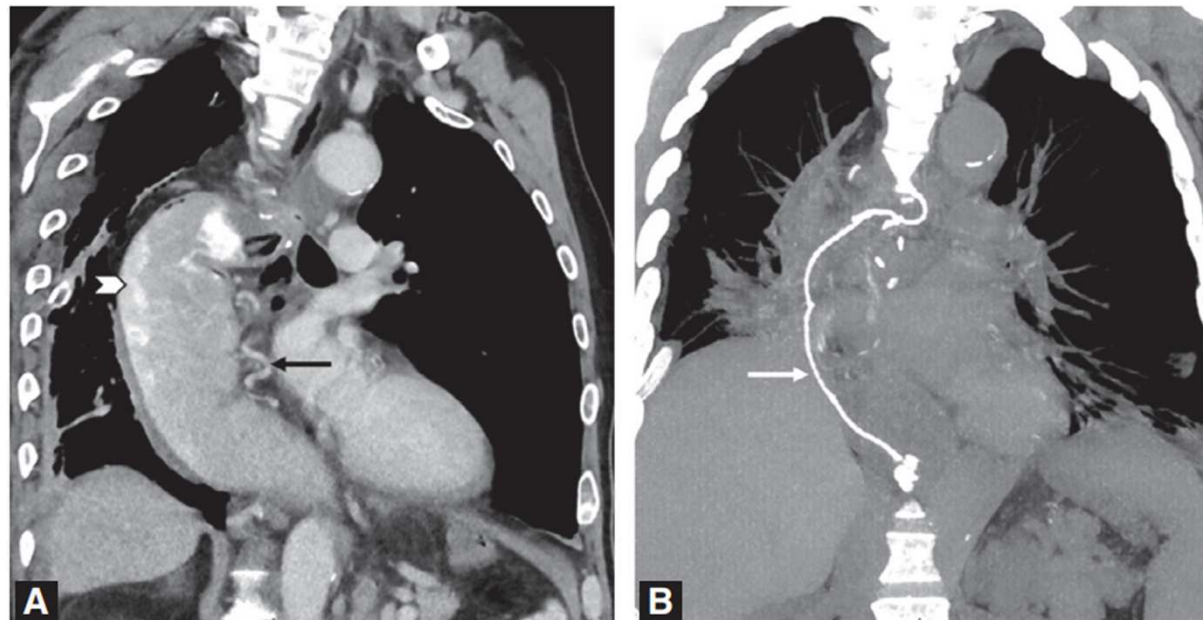
L'injection de vert d'indocyanine dans le réseau quelques minutes avant l'intervention permet de le lier électivement (b et c)

Imagerie

Imaging of postoperative complications following Ivor-Lewis esophagectomy

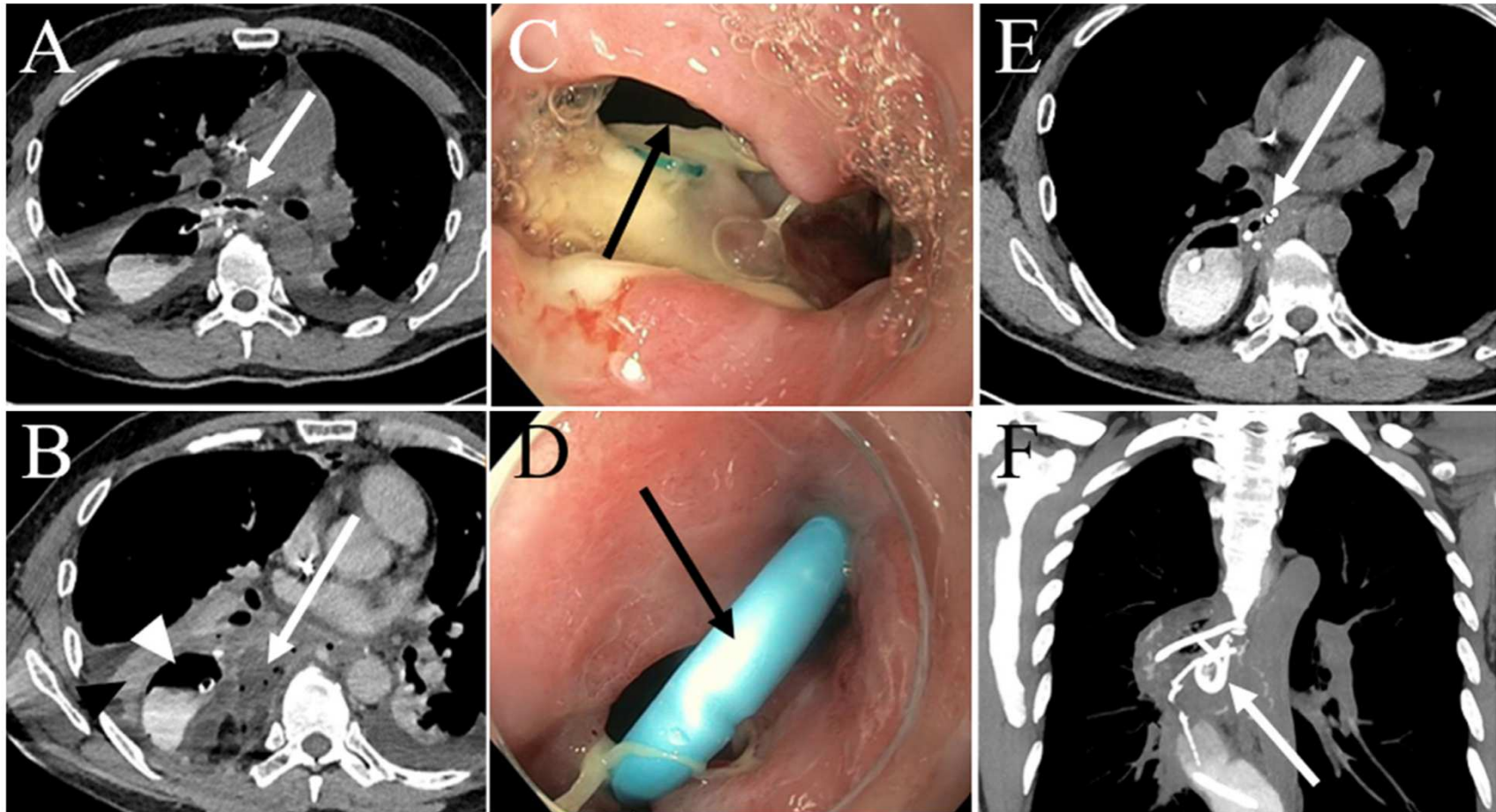
Julie Veziant^{a,b}, Martin Gaillard^{a,b,*}, Maxime Barat^{b,c}, Anthony Dohan^{b,c}, Maximilien Barret^{b,d}, Gilles Manceau^{b,e}, Mehdi Karoui^{b,e}, Stéphane Bonnet^{b,f}, David Fuks^{a,b}, Philippe Soyer^{b,c}

Diagnostic and Interventional Imaging 103 (2022) 67–78



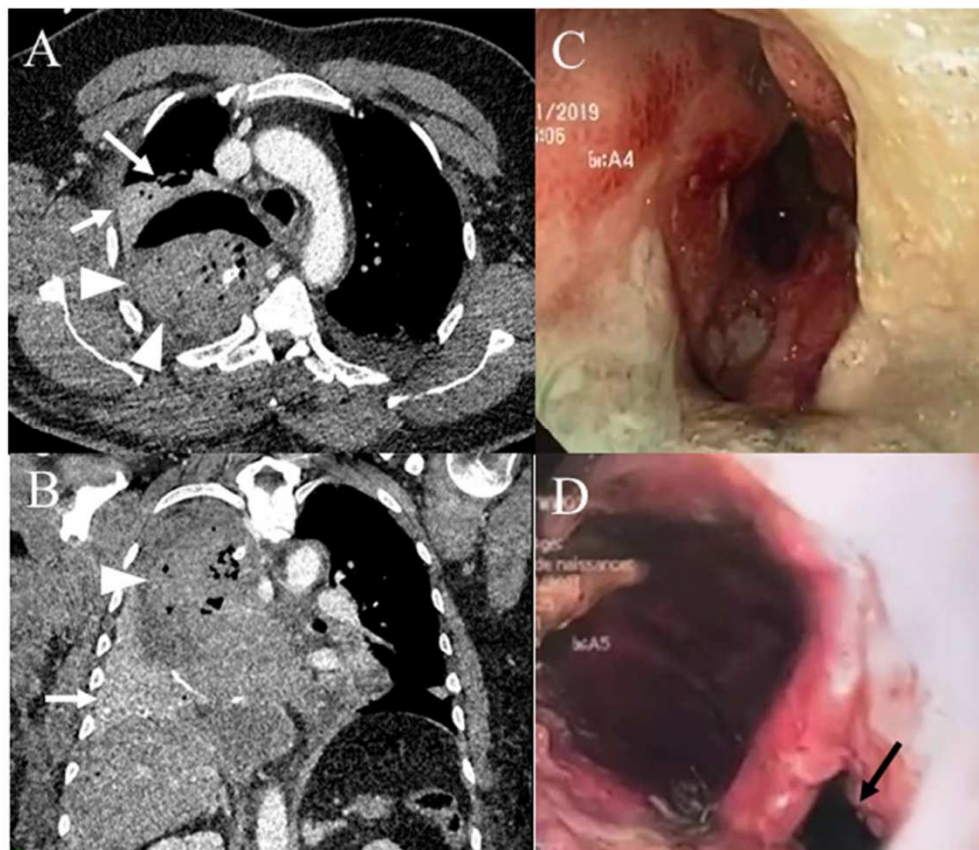
Imagerie

Fistule anastomotique → *Queue de Cochon*



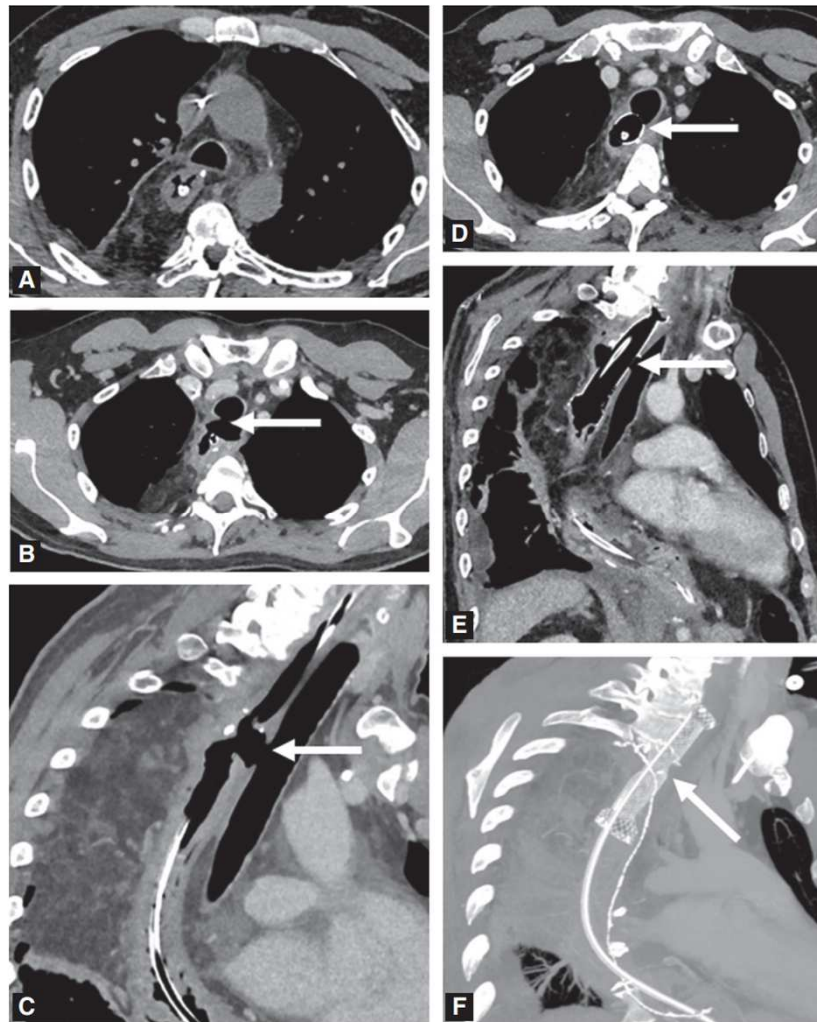
Imagerie

Ischémie de la plastie
→ *Endo VAC* thérapie



Imagerie

Fistule œso-trachéale
→ *prothèse oesophagienne*



Optimisation périopératoire

Pré-habilitation

Kinésithérapie pré-opératoire supervisée

Physiotherapy Regimens in Esophagectomy and Gastrectomy: a Systematic Review and Meta-Analysis

Karina H. Tukanova, BSc, MMed¹, Swathikan Chidambaram, BSc (hons), MBBS (hons), MRCS¹,
Nadia Guidozi, MB BCh², George B. Hanna, PhD, FRCS¹, Alison H. McGregor, PhD, MSc, MCSP¹, and
Sheraz R. Markar, PhD, PhD, MSc, MA, MRCS^{1,3,4,5}

Ann Surg Oncol (2022) 29:3148–3167

- Diminution de l'incidence des pneumopathies
- Diminution de la morbidité Clavien-Dindo \geq II

Optimisation périopératoire

Pré-habilitation

Amélioration de l'état nutritionnel

Guidelines for Perioperative Care in Esophagectomy: Enhanced Recovery After Surgery (ERAS[®]) Society Recommendations

Donald E. Low¹ · William Allum² · Giovanni De Manzoni³ · Lorenzo Ferri⁴ ·
Arul Immanuel⁵ · MadhanKumar Kuppusamy¹ · Simon Law⁶ · Mats Lindblad⁷ ·
Nick Maynard⁸ · Joseph Neal¹ · C. S. Pramesh⁹ · Mike Scott¹⁰ · B. Mark Smithers¹¹ ·
Valérie Addor¹² · Olle Ljungqvist¹³

World J Surg (2019) 43:299–330



Could a Feeding Jejunostomy be Integrated into a Standardized Preoperative Management of Oeso-gastric Junction Adenocarcinoma?

Simone Manfredelli, MD¹, Jean-Baptiste Delhorme, MD^{1,2}, Aina Venkatasamy, MD^{2,3}, Christian Gaiddon, PhD²,
Cécile Brigand, MD, PhD¹, Serge Rohr, MD, PhD¹, and Benoît Romain, MD, PhD^{1,4}

Ann Surg Oncol (2017) 24:3324–3330

Optimisation peri-opératoire

Réhabilitation précoce

Guidelines for Perioperative Care in Esophagectomy: Enhanced Recovery After Surgery (ERAS[®]) Society Recommendations

Donald E. Low¹ · William Allum² · Giovanni De Manzoni³ · Lorenzo Ferri⁴ · Arul Immanuel⁵ · MadhanKumar Kuppusamy¹ · Simon Law⁶ · Mats Lindblad⁷ · Nick Maynard⁸ · Joseph Neal¹ · C. S. Pramesh⁹ · Mike Scott¹⁰ · B. Mark Smithers¹¹ · Valérie Addor¹² · Olle Ljungqvist¹³

World J Surg (2019) 43:299–330

Limiter les complications respiratoires


- **Analgésie post-opératoire efficace**
 - Péridurale thoracique auto-contrôlée
 - Cathéter para-vertébral
 - Lidocaïne IV en continu + analgésie multimodale
- **Mobilisation précoce J1**
- **Kinésithérapie respiratoire**
- **VNI**

- **1 seul drain thoracique**
- **Ablation drain thoracique précoce**
- **Ablation SNG précoce**

Optimisation peri-opératoire

Réhabilitation précoce

Early versus the traditional start of oral intake following esophagectomy for esophageal cancer: a systematic review and meta-analysis

Li-Xiang Mei¹ · Guan-Biao Liang¹ · Lei Dai¹ · Yong-Yong Wang¹ · Ming-Wu Chen¹ · Jun-Xian Mo¹ 

Supportive Care in Cancer (2022) 30:3473–3483

- Durée de séjour plus courte
- Reprise du transit plus précoce
- Sans majoration de la morbi-mortalité

Message

L'ensemble de ces mesures visant à diminuer les complications pulmonaires et chirurgicales ainsi que l'optimisation péri-opératoire des patients contribuent à **améliorer le pronostic** des patients atteints d'un cancer de l'œsophage ou du cardia



Best of en chirurgie oeso-gastrique

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