SESIONES MULTIDISCIPLINARES HBP 2023-24

Cirugía Mínimamente Invasiva HBP
LAPAROSCOPIA y ROBÓTICA

29 DE ENERO

SERGIO ESTÉVEZ

Unidad de cirugía HBP, Sarcomas y Carcinomatosis Peritoneal.

Servicio de Cirugía General y Digestiva
Complejo Hospitalario Universitario de Vigo

Fundación Biomédica Galicia Sur

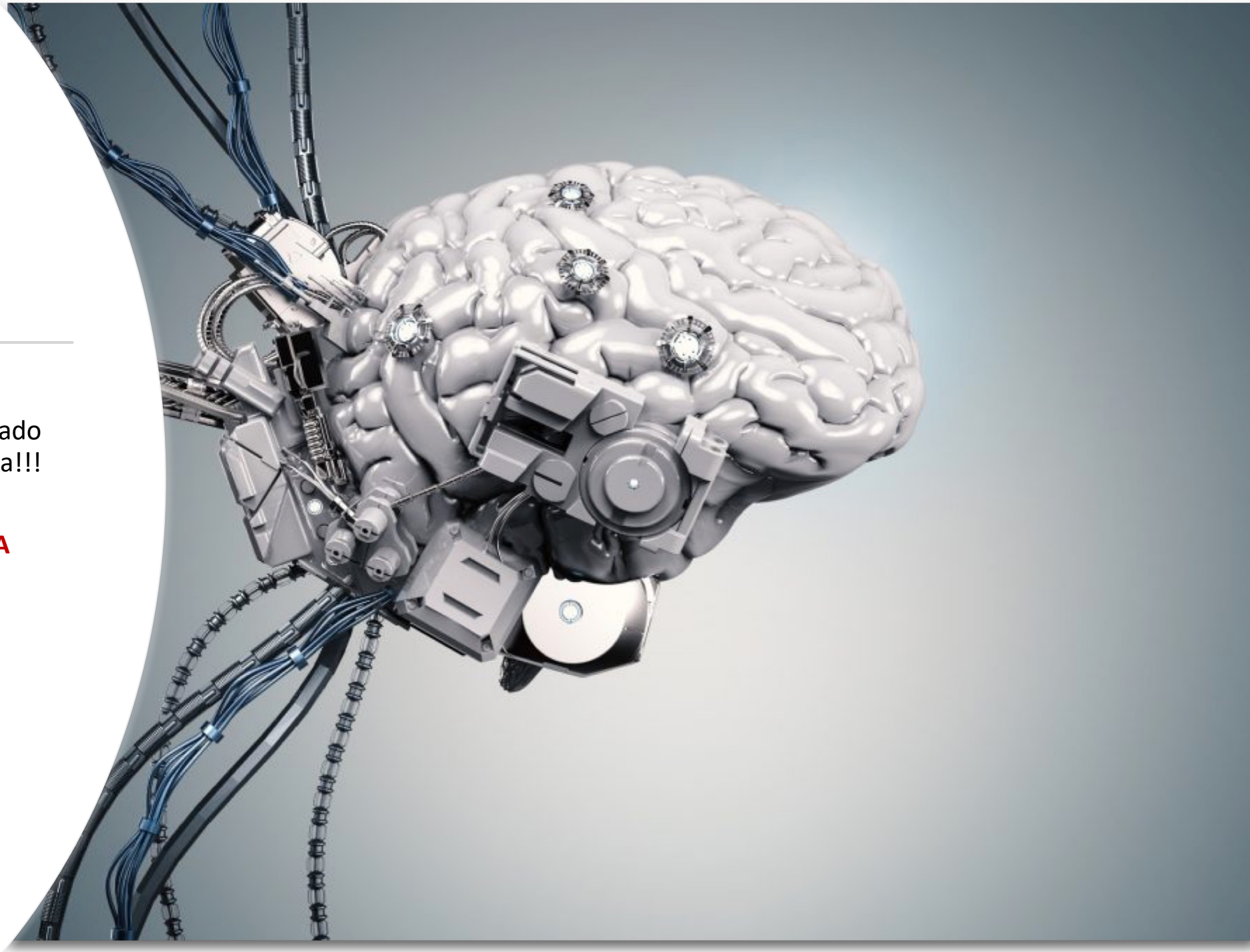
IIS Galicia Sur

…que la indicación laparoscopia / laparotomía no implique un resultado subóptimo en la resección hepática!!!

MANTENER LOS PRINCIPIOS DE LA CIRUGÍA ONCOLÓGICA

…que la indicación laparoscopia / laparotomía no implique poner en riesgo la seguridad del paciente!!!

SEGURIDAD DEL PACIENTE

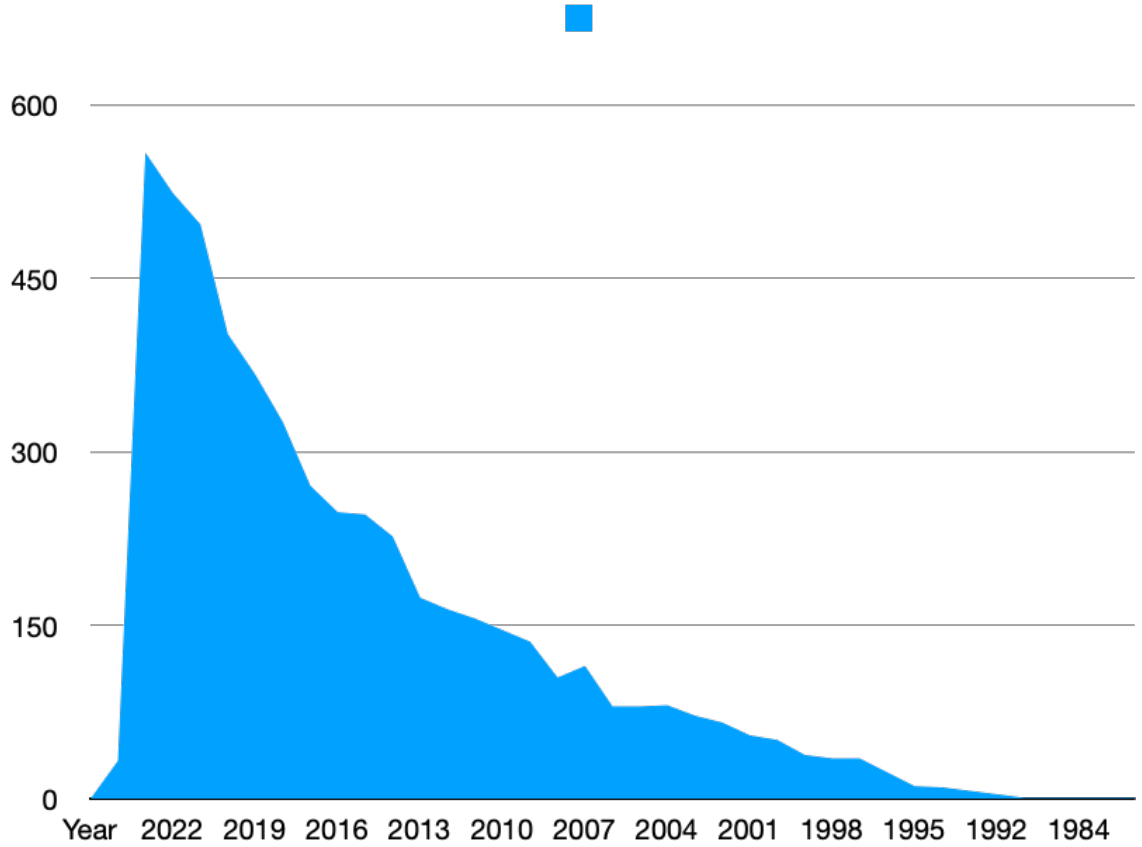


“Datos”

Minimally Invasive Liver Surgery

PubMed_Timeline_Results_by_Year-3

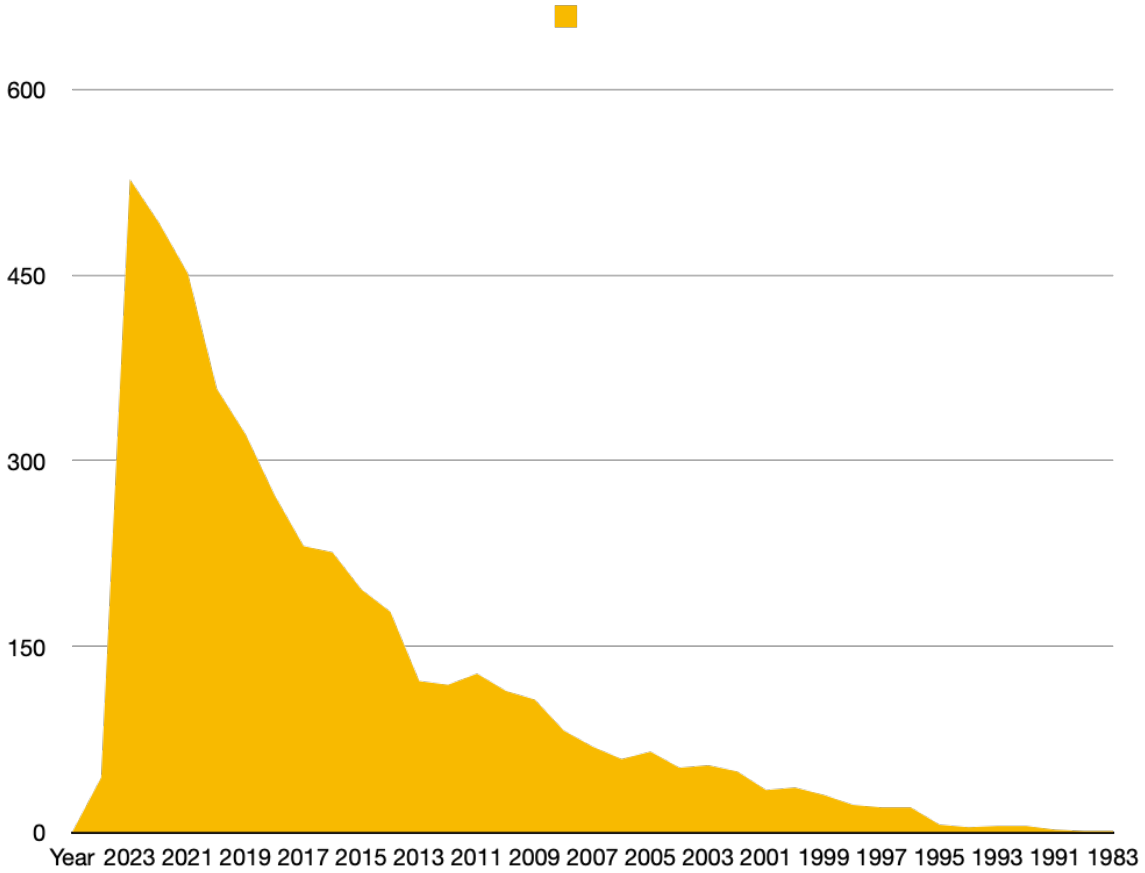
Search query: minimally invasive liver surgery	
Year	Count
2024	33
2023	559
2022	524
2021	497
2020	402
2019	367
2018	326
2017	271
2016	248
2015	246
2014	227
2013	174
2012	164
2011	156
2010	146
2009	136
2008	105
2007	115
2006	80
2005	80
2004	81
2003	72
2002	66
2001	55
2000	51
1999	38
1998	35
1997	35
1996	23
1995	11
1994	10
1993	7
1992	4
1991	1
1987	1
1984	1
1983	1
1980	1



Minimally Invasive Pancreatic Surgery

PubMed_Timeline_Results_by_Year-4

Search query: minimally invasive pancreatic surgery	
Year	Count
2024	44
2023	527
2022	492
2021	451
2020	358
2019	321
2018	272
2017	231
2016	226
2015	196
2014	178
2013	122
2012	119
2011	128
2010	114
2009	107
2008	82
2007	69
2006	59
2005	65
2004	52
2003	54
2002	49
2001	34
2000	36
1999	30
1998	22
1997	20
1996	20
1995	6
1994	4
1993	5
1992	5
1991	2
1987	1
1983	1



“Los pioneros”

Antes de los pioneros están los INNOVADORES

Azagra, J.S., Goergen, M., Gilbart, E. *et al.* Laparoscopic anatomical (hepatic) left lateral segmentectomy—technical aspects. *Surg Endosc* **10**, 758–761 (1996). https://doi.org/10.1007/BF00193052

Received	Accepted	Issue Date
01 November 1994	09 August 1995	July 1996

DOI
https://doi.org/10.1007/BF00193052

Cirugía laparoscópica

Laparoscopic surgery

JS. Azagra[a]

[a] Jefe del Servicio de Cirugía Digestiva. CHU A. Vésale. Bélgica.

Este artículo ha recibido

64532

Visitas

"El título de este artículo podría ser tildado de PROVOCATIVO, la cirugía laparoscópica del cáncer está considerada actualmente en stand-by, cuando no simple y llanamente RECHAZADA."

"La generalización del uso de estos métodos por la mayoría de los cirujanos es, hoy por hoy, MÁS UN DESEO QUE UNA REALIDAD."

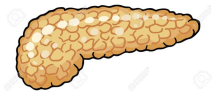
NIH Public Access
Author Manuscript
Surgery. Author manuscript; available in PMC 2015 February 04.

Published in final edited form as:
Surgery. 2014 September ; 156(3): 538–547. doi:10.1016/j.surg.2014.03.046.

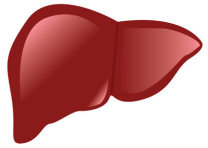
A comparison of open and minimally invasive surgery for hepatic and pancreatic resections using the nationwide inpatient sample

Aslam Ejaz, MD, MPH, **Teviah Sachs, MD, MPH**, **Jin He, MD**, **Gaya Spolverato, MD**, **Kenzo Hirose, MD**, **Nita Ahuja, MD**, **Christopher L. Wolfgang, MD**, **Martin A. Makary, MD**, **Matthew Weiss, MD**, and **Timothy M. Pawlik, MD, MPH, PhD**
Department of Surgery, The Johns Hopkins University School of Medicine, Baltimore, MD

2002-2011. **USA**



Páncreas – *34367 / 1828*
5,3%



Hígado – *28035 / 988*
3,7%

Procedure type stratified by operative approach

	Open (n = 62,192)	All MIS (n = 2,841)	Laparoscopic assisted (n = 2,578)	Robotic assisted (n = 263)	P value
Pancreas	34,367 (55.3)	1,828 (64.3)	1,638 (63.5)	190 (72.2)	.001
Partial pancreatectomy					.54
Proximal	538 (0.9)	27 (1.0)	25 (1.0)	2 (0.8)	.77
Distal	11,371 (18.3)	646 (22.7)	530 (20.6)	116 (44.1)	.05
Subtotal	337 (0.5)	18 (0.6)	15 (0.6)	3 (1.1)	.99
Other	2,467 (4.0)	105 (3.7)	94 (3.7)	11 (4.2)	.02
Total pancreatectomy	2,041 (3.3)	59 (2.1)	55 (2.0)	4 (1.5)	.001
Whipple	17,613 (28.3)	973 (34.2)	919 (35.6)	54 (20.5)	.10
Liver	27,047 (43.5)	988 (34.8)	915 (35.5)	74 (27.8)	.001
Lobectomy	8,341 (13.4)	229 (8.1)	215 (8.3)	14 (5.3)	.001
Partial hepatectomy	18,060 (29.0)	711 (25.0)	656 (25.4)	55 (20.9)	.001
Marsupialization	646 (1.0)	48 (1.7)	44 (1.8)	4 (1.5)	.001
Combined pancreas/liver	778 (1.2)	25 (0.9)	25 (1.0)	0	

All percentages (in parentheses) reflect proportion of cases within the given column (total open or MIS cases as indicated). *MIS*, Minimally invasive surgery.

The database contains discharge data from 1,045 hospitals in 46 states representing an approximate 20% sample of US hospitals.

2012 – USA
12560 hepatectomías
685 laparoscopicas (5,6%)

RANGO
4,6 - 20 %

Article in Press

A national assessment of the utilization, quality and cost of laparoscopic liver resection

Faiz Gani[1], Aslam Ejaz[2], Mary Dillhoff[2], Jin He[1], Matthew Weiss[1], Christopher L. Wolfgang[1], Jordan Cloyd[2], Allan Tsung[2], Fabian M. Johnston[1], Timothy M. Pawlik[2,*]

DOI: https://doi.org/10.1016/j.hpb.2019.02.005

- 2007-2012
- 14,1% de 39.236

"..laparoscopic liver resection in France is still mainly performed by innovators.."

Journal of Visceral Surgery (2015) 152, 107—112

ELSEVIER MASSON

Available online at ScienceDirect www.sciencedirect.com

Elsevier Masson France EM|consulte www.em-consulte.com/en

REVIEW

An update on laparoscopic liver resection: The French Hepato-Bilio-Pancreatic Surgery Association statement

C. Goumard, O. Farges, A. Laurent, D. Cherqui, O. Soubrane, B. Gayet, P. Pessaux, F.-R. Pruvot, O. Scatton*, French Association for Hepatobiliary and Pancreatic Surgery

Service de chirurgie hépatobiliaire et transplantation hépatique, hôpital de la Pitié-Salpêtrière, UPMC, Assistance Publique—Hôpitaux de Paris, 47-83, boulevard de l'Hôpital, 75013 Paris, France

Available online 7 March 2015

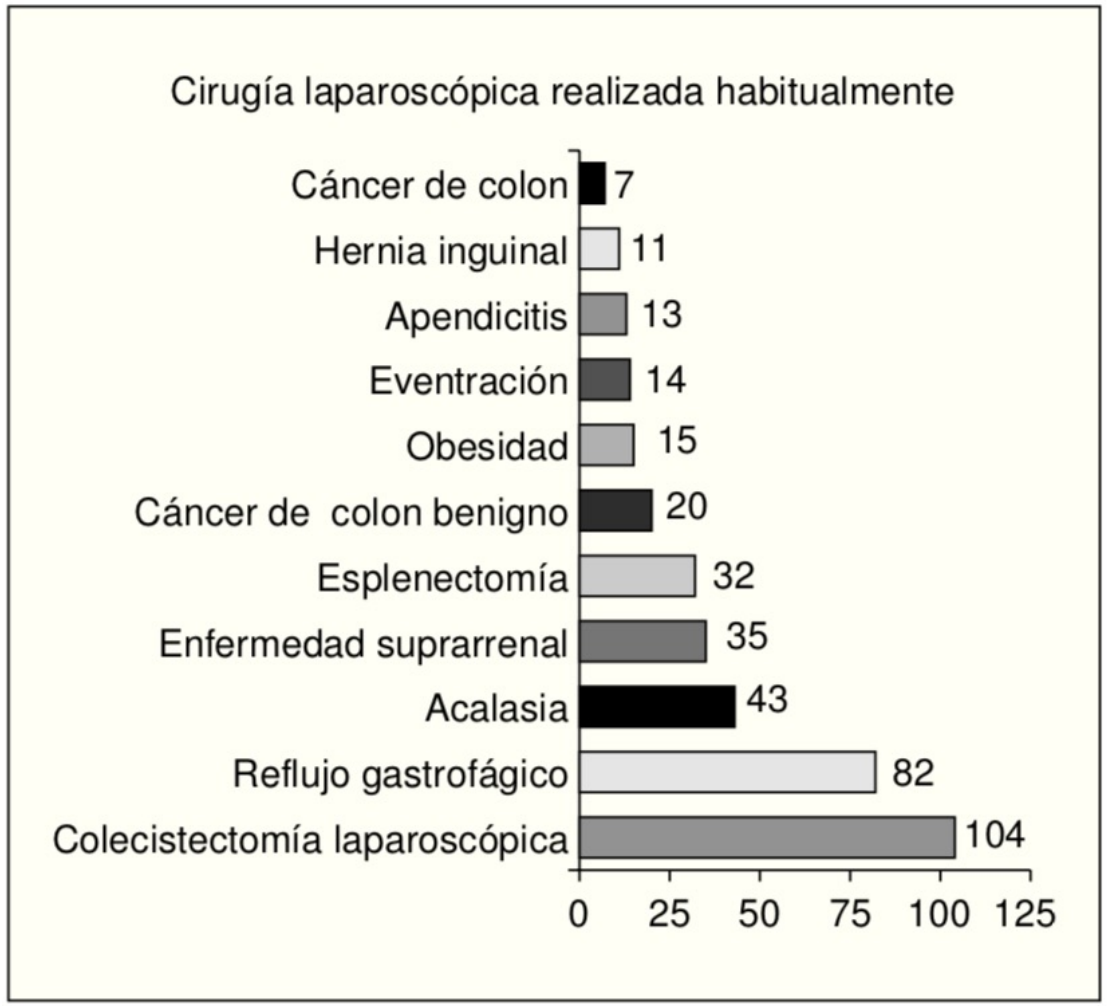


Figura 4. Cirugía laparoscópica realizada habitualmente en los 106 hospitales encuestados.

Originales

Localizador web
Artículo 60.316

La cirugía laparoscópica en España. Resultados de la encuesta nacional de la Sección de Cirugía Endoscópica de la Asociación Española de Cirujanos

Xavier Feliu, Eduardo M. Targarona, Ana García, Albert Pey, Angel Carrillo, Antonio María Lacy, Salvador Morales-Conde, Jose Luis Salvador, Antonio Torres, Enrique Veloso
Sección de Cirugía Endoscópica. Asociación Española de Cirujanos. Madrid. España.

2003

La cirugía laparoscópica de órganos sólidos se consideraba

ANECDÓTICA

2014

Respecto a la cirugía hepática, el abordaje laparoscópico lo hace habitualmente sólo el 16%.

El abordaje de las lesiones de la cola del páncreas por vía laparoscópica es frecuente en cirujanos HBP pero sólo 31% habitualmente y 31% ocasionalmente.

RAZONES PARA NO REALIZAR CL AVANZADA:

- Insuficiencia de casuística (46%)
- Problemas de acceso a formación (24%),
- Evitar la curva de aprendizaje (24%)
- Considerar que la CL no ofrece ventajas sobre el abordaje tradicional (13%).

ELSEVIER DOYMA

CIRUGÍA ESPAÑOLA

www.elsevier.es/cirugia

Artículo especial

25 años de cirugía laparoscópica en España

Carlos Moreno-Sanz [a,*], *Jose María Tenías-Burillo* [b], *Salvador Morales-Conde* [c], *Carmen Balague-Ponz* [d], *Hermógenes Díaz-Luis* [e], *Pablo Enriquez-Valens* [f], *Juan Carlos Manuel-Palazuelos* [g], *Sagrario Martínez-Cortijo* [h], *Jorge Olsina-Kissler* [i], *María Socas-Macias* [c], *Miguel Toledano-Trincado* [j], *Óscar Vidal-Pérez* [k], *Juan Francisco Noguera-Aguilar* [l], *José Luis Salvador-Sanchís* [m], *Xavier Feliu-Pala* [n] y *Eduard M. Targarona-Soler* [d]

[a] *Servicio de Cirugía General y Aparato Digestivo, Hospital General Mancha Centro, Alcázar de San Juan, Ciudad Real, España*
[b] *Unidad de Apoyo a la Investigación, Hospital General Mancha Centro, Alcázar de San Juan, Ciudad Real, España*
[c] *Servicio de Cirugía General y Aparato Digestivo, Hospitales Universitarios Virgen del Rocío, Sevilla, España*
[d] *Servicio de Cirugía General y Aparato Digestivo, Hospital Santa Creu y San Pau, Barcelona, España*
[e] *Servicio de Cirugía General y Aparato Digestivo, Hospital Universitario de Canarias, Tenerife, España*
[f] *Servicio de Cirugía General y Aparato Digestivo, Hospital General de Alicante, Alicante, España*
[g] *Servicio de Cirugía General y Aparato Digestivo, Hospital Marqués de Valdecilla, Santander, España*
[h] *Servicio de Cirugía General y Aparato Digestivo, Hospital Nuestra Señora del Prado, Talavera de la Reina, Toledo, España*
[i] *Servicio de Cirugía General y Aparato Digestivo, Hospital Universitario Arnau de Vilanova, Lérida, España*
[j] *Servicio de Cirugía General y Aparato Digestivo, Hospital de Medina del Campo, Medina del Campo, Valladolid, España*
[k] *Servicio de Cirugía General y Aparato Digestivo, Hospital Clinic, Barcelona, España*
[l] *Servicio de Cirugía General y Aparato Digestivo, Hospital General Universitario de Valencia, Valencia, España*
[m] *Servicio de Cirugía General y Aparato Digestivo, Hospital General Universitario de Castellón, Castellón, España*
[n] *Servicio de Cirugía General y Aparato Digestivo, Hospital de Igualada, Igualada, Barcelona, España*

Los ”Early adopters”

- "…with specific training, ''early adapting'' laparoscopic liver surgeons were able to overcome the learning curve for minor and major liver resections FASTER than the ''pioneers'' who were self-taught in LLS. "

ORIGINAL ARTICLE

A Comparison of the Learning Curves of Laparoscopic Liver Surgeons in Differing Stages of the IDEAL Paradigm of Surgical Innovation

Standing on the Shoulders of Pioneers

Mark Christopher Halls, MBBS, Adnan Alseidi, MD,† Giammauro Berardi, MD,‡ Federica Cipriani, MD,§ Marcel Van der Poel, MD,¶ Diego Davila, MD,|| Ruben Ciria, PhD,** Marc Besselink, PhD,¶ Mathieu D'Hondt, MD,†† Ibrahim Dagher, PhD,‡‡ Luca Alrdrighetti, PhD,§ Roberto Ivan Troisi, PhD,‡§§ and Mohammad Abu Hilal, MD, PhD, DocEur, FRCS, FACS**

TABLE 1. IDEAL Stages of Surgical Innovation

	1	2a	2b	3	4
Stage	Idea	Development	Exploration	Assessment	Surveillance
Type of cases	Highly selected cases	Limited to selected cases	Many, with broadening indication	Many, expansion of indications	Limited exclusion criteria
Publication of results	Case reports	Case series	Non-randomized comparative studies	Randomized controlled trials	National/International databases
Evolution	Inception of concept	Procedure development	Procedure refinement	Stable, minor optimization of procedure	Stable
Role of surgeon	Innovator	Pioneer		Early adopter	Established practice

Adapted from McCulloch et al.[2]

Editorial

Laparoscopic liver resection—education and training

Giammauro Berardi[1,2], Kazuharu Igarashi[1], Go Wakabayashi[1]

[1]Center for Advanced Treatment of HBP Diseases, Ageo Central General Hospital, Tokyo, Japan; [2]Department of Structure and Recovery of Man, Gent University Hospital, Belgium

Correspondence to: Go Wakabayashi. Center for Advanced Treatment of HBP Diseases, Ageo Central General Hospital, Tokyo, Japan. Email: go324@mac.com.

Received: 08 January 2019; Accepted: 25 January 2019; Published: 18 February 2019.
doi: 10.21037/tgh.2019.01.10
View this article at: http://dx.doi.org/10.21037/tgh.2019.01.10

Observational Study

Medicine®

OPEN

The single surgeon learning curve of laparoscopic liver resection

A continuous evolving process through stepwise difficulties

Federico Tomassini, MD[a], Vincenzo Scuderi, MD[a], Roos Colman, MD[b], Marco Vivarelli, MD[c], Roberto Montalti, MD, PhD[c], Roberto Ivan Troisi, MD, PhD[a,*]

Review Article

A learning curve for laparoscopic liver resection: an effective training system and standardization of technique

Yu Saito, Shinichiro Yamada, Satoru Imura, Yuji Morine, Tetsuya Ikemoto, Shuichi Iwahashi, Mitsuo Shimada

Department of Surgery, Tokushima University, 3-18-15 Kuramoto-cho, Tokushima, Japan

Contributions: (I) Conception and design: Y Saito, M Shimada; (II) Administrative support: T Ikemoto, Y Morine, S Imura; (III) Provision of study materials or patients: Y Saito; (IV) Collection and assembly of data: S Yamada, Y Saito; (V) Data analysis and interpretation: S Yamada, S Iwahashi; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

Correspondence to: Yu Saito, MD, PhD, FACS. Department of Surgery, Tokushima University, 3-18-15 Kuramoto-cho, Tokushima, 770-8503, Japan. Email: saito.yu.1001@tokushima-u.ac.jp.

30 casos

- Complicaciones
- Estancia hospitalaria
- Sangrado

Single-Surgeon Learning Curve in 111 Laparoscopic Distal Pancreatectomies: Does Operative Time Tell the Whole Story?

Thijs de Rooij, MSc, Federica Cipriani, MD, Majd Rawashdeh, MD, Susan van Dieren, PhD, Salvatore Barbaro, MD, Mahmoud Abuawwad, MD, Jony van Hilst, MD, Martina Fontana, MD, Marc G Besselink, MD, PhD, MSc, Mohammed Abu Hilal, MD, PhD, FACS, FRCS

OXFORD

BJS, 2021, **108**, 351–358
DOI: 10.1093/bjs/znaa118
Advance Access Publication Date: 29 March 2021
Systematic Review

Learning curves in minimally invasive hepatectomy: systematic review and meta-regression analysis

Darren Chua [1], Nicholas Syn [1,2], Ye-Xin Koh[1] and Brian K. P. Goh [1,3,*]

[1]Department of Hepatopancreatobiliary and Transplant Surgery, Singapore General Hospital, Singapore
[2]Yong Loo Lin School of Medicine, National University of Singapore, Singapore
[3]Duke–National University of Singapore (NUS) Medical School, Singapore

The overall learning curve for MIH decreased steadily over time, and appeared less steep for RLR compared with LLR.

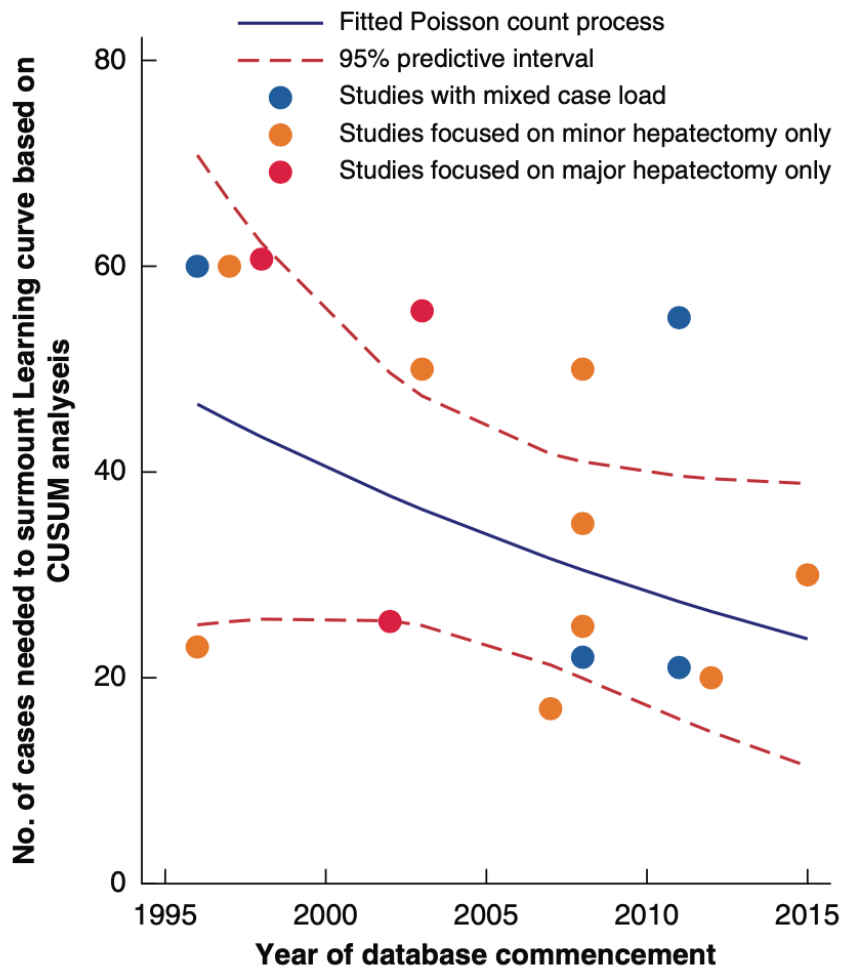
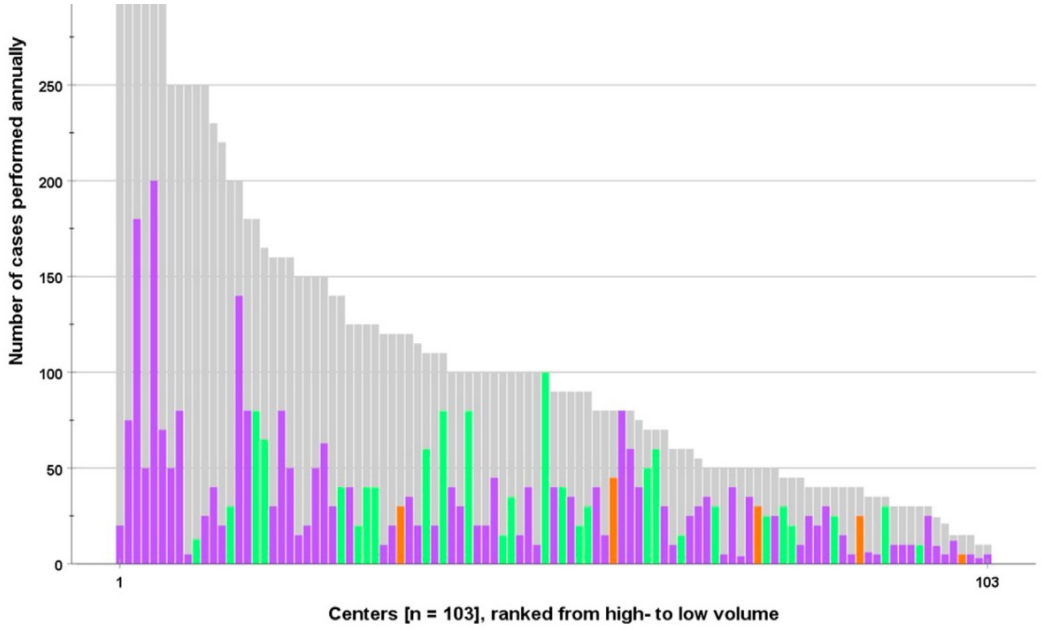


Fig. 2 Mixed-effects Poisson regression of the number of cases needed to surmount the learning curve *versus* year of study publication



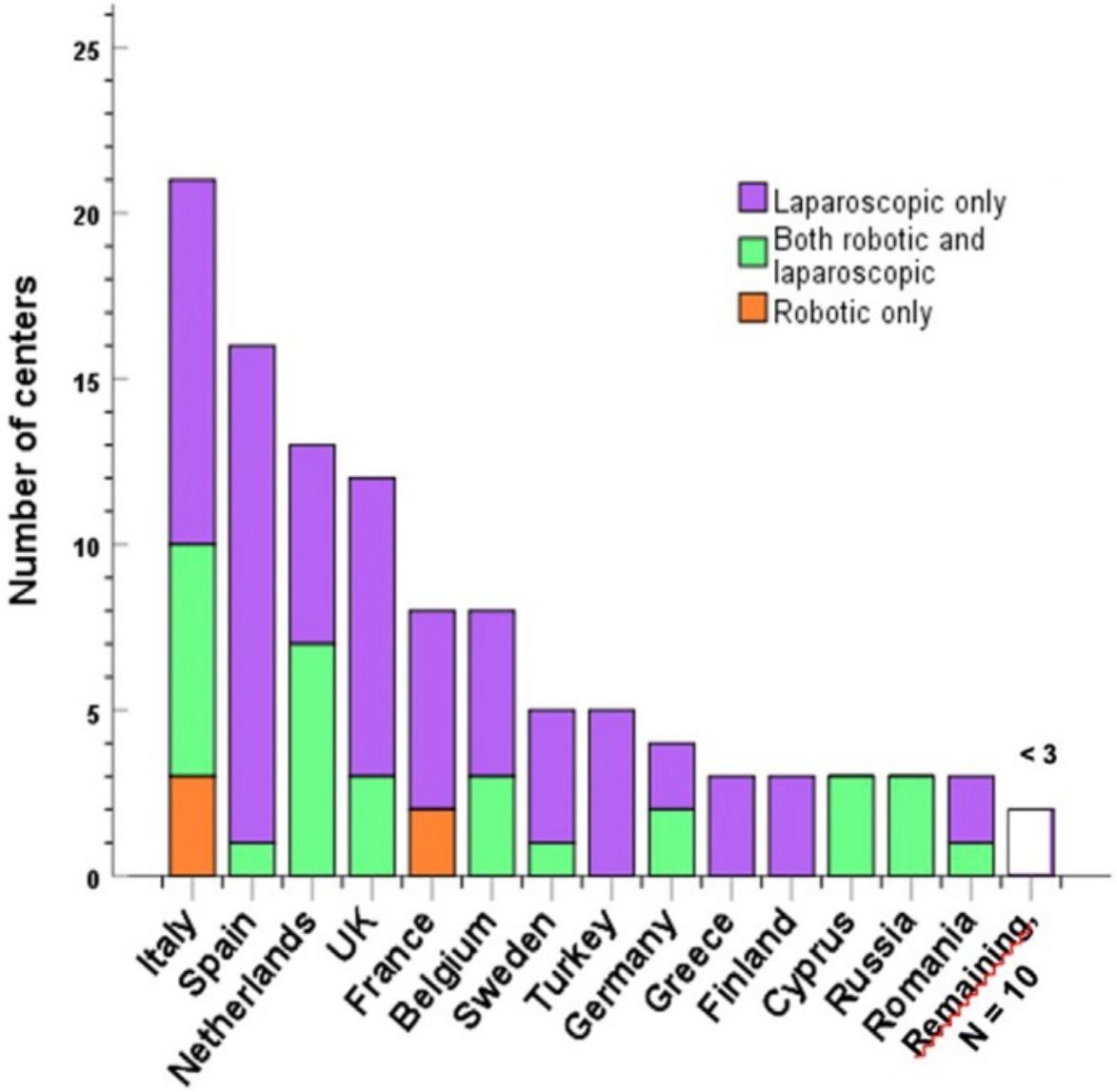
https://doi.org/10.1016/j.hpb.2021.08.939 HPB

ORIGINAL ARTICLE

Pan-European survey on the implementation of robotic and laparoscopic minimally invasive liver surgery

Maurice J.W. Zwart[1,*], Burak Görgec[1,2,*], Abdullah Arabiyat[3], Carolijn L.M. Nota[4], Marcel J. van der Poel[1], Robert S. Fichtinger[5], Frederik Berrevoet[6], Ronald M. van Dam[5,7], Luca Aldrighetti[8], David Fuks[9], Emir Hoti[10], Bjørn Edwin[11], Marc G. Besselink[1], Mohammed Abu Hilal[2,†], Jeroen Hagendoorn[4,†], Rutger-Jan Swijnenburg[1,†] for the Dutch Liver Collaborative Group and E-AHPBA Innovation & Development Committee

[1]Department of Surgery, Amsterdam UMC, University of Amsterdam, Cancer Center Amsterdam, the Netherlands, [2]Department of Surgery, Istituto Fondazione Poliambulanza, Brescia, Italy, [3]Department of Surgery, The Royal Lancaster Infirmary, University Hospitals of Morecambe Bay, United Kingdom, [4]Department of Surgery, UMC Utrecht Cancer Center/Regional Academic Cancer Center Utrecht (RAKU), Utrecht, [5]Department of Surgery, Maastricht University Medical Center, Maastricht, the Netherlands, [6]Department of General and HPB Surgery and Liver Transplantation, University Hospital Ghent, Ghent, Belgium, [7]Department of General, Visceral and Transplant Surgery, University Hospital Aachen, Aachen, Germany, [8]Department of Surgery, Hepatobiliary Surgery Unit, San Raffaele Hospital, Vita-Salute San Raffaele University, Milan, Italy, [9]Department of Digestive Surgery, Institut Mutualiste Montsouris, Paris, France, [10]Department of Surgery, Saint Vincent's University Hospital, Dublin, Ireland, and [11]Interventional Centre and Department of Hepato-pancreato-biliary Surgery, Oslo University Hospital and Institute for Medicine, University in Oslo, Norway

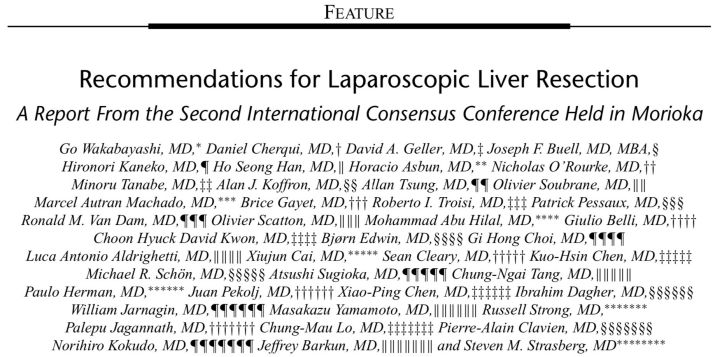


Evidencias

TOTALMENTE ADMITIDAS LAS VENTAJAS A CORTO PLAZO Y LA NO INFERIORIDAD RESPECTO A LOS RESULTADOS ONCOLÓGICOS

Tres GUÍAS DE CONSENSO;

* 2008
* 2015
* 2019



FEATURE

Recommendations for Laparoscopic Liver Resection

A Report From the Second International Consensus Conference Held in Morioka

Go Wakabayashi, MD, Daniel Cherqui, MD,† David A. Geller, MD,‡ Joseph F. Buell, MD, MBA,§ Hironori Kaneko, MD,¶ Ho Seong Han, MD,‖ Horacio Asbun, MD,** Nicholas O'Rourke, MD,†† Minoru Tanabe, MD,‡‡ Alan J. Koffron, MD,§§ Allan Tsung, MD,¶¶ Olivier Soubrane, MD,‖‖ Marcel Autran Machado, MD,*** Brice Gayet, MD,††† Roberto I. Troisi, MD,‡‡‡ Patrick Pessaux, MD,§§§ Ronald M. Van Dam, MD,¶¶¶ Olivier Scatton, MD,‖‖‖ Mohammad Abu Hilal, MD,**** Giulio Belli, MD,†††† Choon Hyuck David Kwon, MD,‡‡‡‡ Bjørn Edwin, MD,§§§§ Gi Hong Choi, MD,¶¶¶¶ Luca Antonio Aldrighetti, MD,‖‖‖‖ Xiujun Cai, MD,***** Sean Cleary, MD,††††† Kuo-Hsin Chen, MD,‡‡‡‡‡ Michael R. Schön, MD,§§§§§ Atsushi Sugioka, MD,¶¶¶¶¶ Chung-Ngai Tang, MD,‖‖‖‖‖ Paulo Herman, MD,****** Juan Pekolj, MD,†††††† Xiao-Ping Chen, MD,‡‡‡‡‡‡ Ibrahim Dagher, MD,§§§§§§ William Jarnagin, MD,¶¶¶¶¶¶ Masakazu Yamamoto, MD,‖‖‖‖‖‖ Russell Strong, MD,******* Palepu Jagannath, MD,††††††† Chung-Mau Lo, MD,‡‡‡‡‡‡‡ Pierre-Alain Clavien, MD,§§§§§§§ Norihiro Kokudo, MD,¶¶¶¶¶¶¶ Jeffrey Barkun, MD,‖‖‖‖‖‖‖ and Steven M. Strasberg, MD*********

ORIGINAL ARTICLE

The Southampton Consensus Guidelines for Laparoscopic Liver Surgery

From Indication to Implementation

Mohammad Abu Hilal, MD, PhD, Luca Aldrighetti, MD, PhD,† Ibrahim Dagher, MD, PhD,‡ Bjorn Edwin, MD, PhD,§ Roberto Ivan Troisi, MD, PhD,¶ Ruslan Alikhanov, MD, PhD,‖ Somaiah Amori, MD, PhD,** Giulio Belli, MD, PhD,†† Marc Besselink, MD, PhD,‡‡ Javier Briceno, MD, PhD,§§ Brice Gayet, MD, PhD,¶¶ Mathieu D'Hondt, MD, PhD,‖‖ Mickael Lesurtel, MD, PhD,*** Krishna Menon, MS,††† Peter Lodge, MD, PhD,‡‡‡ Fernando Rotellar, MD, PhD,§§§ Julio Santoyo, MD, PhD,¶¶¶ Olivier Scatton, MD, PhD,‖‖‖ Olivier Soubrane, MD, PhD,**** Robert Sutcliffe, MD,†††† Ronald Van Dam, MD, PhD,‡‡‡‡ Steve White, MD, PhD,§§§§ Mark Christopher Halls, MBBS,* Federica Cipriani, MD,† Marcel Van der Poel, MD,‡‡ Ruben Ciria, MD, PhD,§§ Leonid Barkhatov, MD,§ Yrene Gomez-Luque, MD,§§ Sira Ocana-Garcia, MD,§§ Andrew Cook, MBBS,¶¶¶¶ Joseph Buell, MD,‖‖‖‖ Pierre-Alain Clavien, MD, PhD,***** Christos Dervenis, MD, PhD,††††† Giuseppe Fusai, MS,‡‡‡‡‡ David Geller, MD,§§§§§ Hauke Lang, MD,¶¶¶¶¶ John Primrose, MD, PhD,* Mark Taylor, MD, PhD,‖‖‖‖‖ Thomas Van Gulik, MD, PhD,‡‡ Go Wakabayashi, MD, PhD,****** Horacio Asbun, MD,†††††† and Daniel Cherqui, MD, PhD‡‡‡‡‡‡*

ORIGINAL ARTICLES

The International Position on Laparoscopic Liver Surgery

The Louisville Statement, 2008

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TOTALMENTE ADMITIDAS LAS VENTAJAS A CORTO PLAZO Y
LA NO INFERIORIDAD RESPECTO A LOS RESULTADOS
ONCOLÓGICOS

Tres GUÍAS DE CONSENSO;

Multitud de revisiones retrospectivas y meta-análisis

TOTALMENTE ADMITIDAS LAS VENTAJAS A CORTO PLAZO Y LA NO INFERIORIDAD RESPECTO A LOS RESULTADOS ONCOLÓGICOS

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Un “Randomized Controlled Trial” publicado

SA-CME Article

Laparoscopic Versus Open Resection for Colorectal Liver Metastases

The OSLO-COMET Randomized Controlled Trial

Åsmund Avdem Fretland, MD,†‡ Vegar Johansen Dagenborg, MD,§‡¶ Gudrun Maria Waaler Bjørnelv, MPhil,*†††*
*Airazat M. Kazaryan, MD, PhD,** Ronny Kristiansen,*†† Morten Wang Fagerland, MSc, PhD,‡‡*
John Hausken, MD,§§ Tor Inge Tønnessen, MD, PhD,‡§§ Andreas Abildgaard, MD, PhD,¶¶
Leonid Barkhatov, MD,||||‡ Sheraz Yaqub, MD, PhD,† Bård I. Røsok, MD, PhD,†*
*Bjørn Atle Bjørnbeth, MD, PhD,† Marit Helen Andersen, RN, PhD,***††† Kjersti Flatmark, MD, PhD,¶§‡*
Eline Aas, MPhil, PhD,††† and Bjørn Edwin, MD, PhD,†‡*

Objective: To perform the first randomized controlled trial to compare laparoscopic and open liver resection.

Summary Background Data: Laparoscopic liver resection is increasingly used for the surgical treatment of liver tumors. However, high-level evidence to conclude that laparoscopic liver resection is superior to open liver resection is lacking.

Methods: Explanatory, assessor-blinded, single center, randomized superiority trial recruiting patients from Oslo University Hospital, Oslo, Norway from February 2012 to January 2016. A total of 280 patients with resectable liver metastases from colorectal cancer were randomly assigned to undergo laparoscopic (n = 133) or open (n = 147) parenchyma-sparing liver resection. The primary outcome was postoperative complications within 30 days (Accordion grade 2 or higher). Secondary outcomes included cost-effectiveness, postoperative hospital stay, blood loss, operation time, and resection margins.

Results: The postoperative complication rate was 19% in the laparoscopic-surgery group and 31% in the open-surgery group (12 percentage points difference [95% confidence interval 1.67–21.8; $P = 0.021$]). The postoperative hospital stay was shorter for laparoscopic surgery (53 vs 96 hours, $P < 0.001$), whereas there were no differences in blood loss, operation time, and resection margins. Mortality at 90 days did not differ significantly from the laparoscopic group (0 patients) to the open group (1 patient). In a 4-month perspective, the costs were equal, whereas patients in the laparoscopic-surgery group gained 0.011 quality-adjusted life years compared to patients in the open-surgery group ($P = 0.001$).

Conclusions: In patients undergoing parenchyma-sparing liver resection for colorectal metastases, laparoscopic surgery was associated with significantly less postoperative complications compared to open surgery. Laparoscopic resection was cost-effective compared to open resection with a 67% probability. The rate of free resection margins was the same in both groups. Our results support the continued implementation of laparoscopic liver resection.

Keywords: colorectal liver metastases, cost and cost analysis, hepatectomy, laparoscopic, laparoscopy, liver resection, minimally invasive surgery, parenchyma-sparing liver surgery, randomized clinical trial, randomized controlled trial

(*Ann Surg* 2018;267:199–207)

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AAF, is a staff surgeon and researcher; VJD is a staff surgeon and researcher; GMWB is a health economist and researcher; AMK is a surgeon; RK is a researcher; MWF is the head of the Oslo Centre of Biostatistics and Epidemiology; JH is a staff anesthesiologist; TIT is a professor medicine and staff anesthesiologist; AA is chief of Abdominal Radiology at Oslo University Hospital; LB is a surgeon and researcher; SY is an attending HPB surgeon; BIR is an attending HPB surgeon; BAB is chief of HPB Surgery at the Department of Hepato-Pancreato-Biliary Surgery, Oslo University Hospital; MHA is an associate professor and registered nurse; KF is a professor surgery and attending gastrointestinal surgeon; EA is an associate professor; and BE is professor of surgery and an attending HPB surgeon.

This work was supported by South-East Norway Health Authority, grants 201135 (Å.A.F.) and 201622 (G.M.W.B.), and the Research Council of Norway, grant 218325 (V.J.D.).

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LEARNING OBJECTIVES

After participating in this activity, the reader should be better able to:

1. Perform work-up and appropriately select patients for surgical treatment of colorectal liver metastases.
2. Identify patients that are suitable for laparoscopic liver surgery.
3. Select the appropriate and necessary surgical equipment for laparoscopic liver surgery.
4. Describe the costs and effects of open and laparoscopic liver surgery.
5. Explain to patients what to expect in terms of complications and quality of life after open and laparoscopic parenchyma sparing liver resection.

The liver is the most common site for metastatic colorectal cancer (CRC). Despite advances in oncologic treatment, resection of

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Una SOCIEDAD CIENTÍFICA propia

ADMITIDAS LAS VENTAJAS A CORTO PLAZO Y LA NO INFERIORIDAD RESPECTO A LOS RESULTADOS ONCOLÓGICOS

Menor pérdida sanguínea
Menor número de transfusiones
Menor estancia hospitalaria
“Menor número de complicaciones postqx - COMET - 19 Vs 31%”
Mejor calidad de vida ajustada por la edad (QALY)
No inferior en sobrevida
No inferior en periodo libre de enfermedad

Ventajas sobre el abordaje tradicional en cirugía de cabeza de páncreas es más controvertido.

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The PD-ROBOSCORE: A difficulty score for robotic pancreatoduodenectomy

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[l] Department of General Surgery, Ruijin Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, Shanghai, China

Retrospective observational cohort study on 1,184 RPDs performed at 9 I-MIPS centers between 2008 and 2020

	Yes	No	
High Body Mass Index	+ 2.3933047235	- 2.393304724	+
ASA ≥3	+ 1.5938845396	- 1.59388454	+
Uncinate process tumor	+ 1.6900660558	- 1.690066056	+
Hepatic artery from SMA	+ 1.4312802108	- 1.431280211	+
Duct size < 4 mm	+ 1.5898228944	- 1.589822894	+
Borderline resectable tumor	+ 1.9795579382	- 1.979557938	+ 12.319933924 =
			Risk score

325´-565´

BASICAMENTE CENTRADO EN EL **PANCREAS DISTAL**

Left-sided pancreatectomy: a multicenter comparison of laparoscopic and open approaches.

Kooby DA, Gillespie T, Bentrem D, Nakeeb A, Schmidt MC, Merchant NB, Parikh AA, Martin RC 2nd, Scoggins CR, Ahmad S, Kim HJ, Park J, Johnston F, Strouch MJ, Menze A, Rymer J, McClaine R, Strasberg SM, Talamonti MS, Staley CA, McMasters KM, Lowy AM, Byrd-Sellers J, Wood WC, Hawkins WG

Ann Surg. 2008 Sep; 248(3):438-46.

Reproducible
Beneficios comunes del abordaje laparoscópico
Menor estancia hospitalaria

Review Systematic review of minimally invasive pancreatic resection.

Briggs CD, Mann CD, Irving GR, Neal CP, Peterson M, Cameron IC, Berry DP

J Gastrointest Surg. 2009 Jun; 13(6):1129-37.

Distal pancreatectomy: what is the standard for laparoscopic surgery?

Stutchfield BM, Joseph S, Duckworth AD, Garden OJ, Parks RW

HPB (Oxford). 2009 May; 11(3):210-4.

CENTRADO EN **PÁNCREAS DISTAL**

- Menor estancia hospitalaria
- Menor pérdida sanguínea
- Equiparable en % complicaciones

"In patients with left-sided pancreatic tumors confined to the pancreas, MIDP **reduces time to functional recovery** compared with ODP. Although the overall rate of complications was not reduced, MIDP was associated with **less delayed gastric emptying** and **better quality of life** without increasing costs.

ORIGINAL ARTICLE

Minimally Invasive versus Open Distal Pancreatectomy for Ductal Adenocarcinoma (DIPLOMA)

A Pan-European Propensity Score Matched Study

Jony van Hilst, MD, MSc, Thijs de Rooij, MSc,* Sjors Klompmaker, MD,* Majd Rawashdeh, MD,† Francesca Aleotti, MD,‡ Bilal Al-Sarireh, MD, PhD,§ Adnan Alseidi, MD,¶ Zeeshan Ateeb, MD,|| Gianpaolo Balzano, MD,‡ Frederik Berrevoet, MD, PhD,** Bergthor Björnsson, MD, PhD,†† Ugo Boggi, MD,‡‡ Olivier R. Busch, MD, PhD,* Giovanni Butturini, MD, PhD,§§ Riccardo Casadei, MD, PhD,¶¶ Marco Del Chiaro, MD, PhD,|| Sophia Chikhladze, MD,|||| Federica Cipriani, MD,† Ronald van Dam, MD, PhD,*** Isacco Damoli, MD,††† Susan van Dieren, PhD,* Safi Dokmak, MD,‡‡‡ Bjørn Edwin, MD, PhD,§§§ Casper van Eijck, MD, PhD,¶¶¶ Jean-Marie Fabre, MD, PhD,|||||| Massimo Falconi, MD,‡ Olivier Farges, MD, PhD,‡‡‡ Laureano Fernández-Cruz, MD,**** Antonello Forgione, MD, PhD,†††† Isabella Frigerio, MD,§§ David Fuks, MD, PhD,‡‡‡‡ Francesca Gavazzi, MD,§§§§ Brice Gayet, MD, PhD,‡‡‡‡ Alessandro Giardino, MD,§§ Bas Groot Koerkamp, MD, PhD,¶¶¶ Thilo Hackert, MD,¶¶¶¶ Matthias Hassenpflug, MD,¶¶¶¶ Irfan Kabir, MD,|||||||| Tobias Keck, MD,***** Igor Khatkov, MD, PhD,††††† Masa Kusar, MD,‡‡‡‡‡ Carlo Lombardo, MD,‡‡ Giovanni Marchegiani, MD,††† Ryne Marshall, MD,¶ Krish V. Menon, MD, PhD,§§§§§ Marco Montorsi, MD,§§§§ Marion Orville, MD,‡‡‡ Matteo de Pastena, MD,††† Andrea Pietrabissa, MD,¶¶¶¶¶ Ignaci Poves, MD, PhD,||||||||| John Primrose, MD, PhD,† Raffaele Pugliese, MD,†††† Claudio Ricci, MD,¶¶ Keith Roberts, MD, PhD,****** Bård Røsok, MD, PhD,§§§ Mushegh A. Sahakyan, MD, PhD,§§§ Santiago Sánchez-Cabús, MD, PhD,**** Per Sandström, MD, PhD,†† Lauren Scovel, MD,¶ Leonardo Solaini, MD,‡‡‡‡‡‡ Zahir Soonawalla, MS, FRCS,|||||||| F. Régis Souche, MD,|||||| Robert P. Sutcliffe, MD,****** Guido A. Tiberio, MD,‡‡‡‡‡‡ Aleš Tomazic, MD, PhD,§§§§§ Roberto Troisi, MD, PhD,** Ulrich Wellner, MD,***** Steven White, MD,§§§§§§ Uwe A. Wittel, MD,|||| Alessandro Zerbi, MD,§§§§ Claudio Bassi, MD,††† Marc G. Besselink, MD, MSc, PhD,* and Mohammed Abu Hilal, MD, PhD, FRCS, FACS†, for the European Consortium on Minimally Invasive Pancreatic Surgery (E-MIPS)*

RANDOMIZED CONTROLLED TRIAL

Minimally Invasive Versus Open Distal Pancreatectomy (LEOPARD)

A Multicenter Patient-blinded Randomized Controlled Trial

Thijs de Rooij, MSc, Jony van Hilst, MD,* Hjalmar van Santvoort, MD, PhD,† Djamila Boerma, MD, PhD,† Peter van den Boezem, MD, PhD,‡ Freek Daams, MD, PhD,§ Ronald van Dam, MD, PhD,¶ Cees Dejong, MD, PhD,¶ Eino van Duyn, MD, PhD,|| Marcel Dijkgraaf, PhD,** Casper van Eijck, MD, PhD,†† Sebastiaan Festen, MD, PhD,‡‡ Michael Gerhards, MD, PhD,‡‡ Bas Groot Koerkamp, MD, PhD,†† Ignace de Hingh, MD, PhD,§§¶¶ Geert Kazemier, MD, PhD,§ Joost Klaase, MD, PhD,|| Ruben de Kleine, MD, PhD,|||| Cornelis van Laarhoven, MD, PhD,‡ Misha Luyer, MD, PhD,§§ Gijs Patijn, MD, PhD,*** Pascal Steenvoorde, MD, PhD,*** Mustafa Suker, MD,†† Moh'd Abu Hilal, MD, PhD,††† Olivier Busch, MD, PhD,* and Marc Besselink, MD, PhD*, for the Dutch Pancreatic Cancer Group*

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

19 DPC 8 PD 2 PT
7/56 DPC CMI

"El **90%** de los grupos realizan PD laparoscópica, aunque no se ha podido precisar el porcentaje exacto, y únicamente un **10%** de los grupos realizan DPC laparoscópica."

"Solo un registro nacional de todas las pancreatectomías realizadas en España podrá permitir obtener una información fiable. "

"Pese a estos datos, la PD laparoscópica probablemente no está tan difundida como parece"

CIR ESP. 2019;97(5):254–260

CIRUGÍA ESPAÑOLA

www.elsevier.es/cirugia

Original

Encuesta nacional sobre las Unidades de Cirugía Pancreática

José Manuel Ramia [a,*], *Alejandro Serrablo* [b,c], *Miguel Angel Gomez Bravo* [d,e] *y Grupo Español de Cirugía Pancreática (AEC/CE-IHPBA)* ◇

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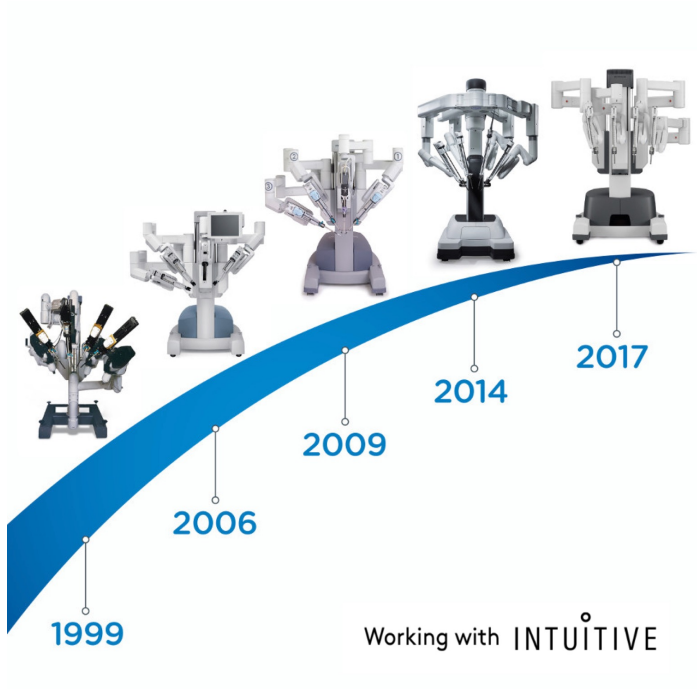
1999
2006
2009
2014
2017
Working with INTUITIVE

- Robotic liver surgery has been shown to be **SAFE**, **FEASIBLE**, and can offer **COMPARABLE** merits over open liver surgery as laparoscopy. Additionally, robotic liver surgery seems to offer a small intraoperative benefit over laparoscopy in technically complex settings in terms of a **<u>small decrease in intraoperative blood loss and lower conversion rates.</u>**

cancers

MDPI

Review

What Is the Current Role and What Are the Prospects of the Robotic Approach in Liver Surgery?

Emre Bozkurt [1,2,*], Jasper P. Sijberden [1,3] and Mohammed Abu Hilal [1,4,*]

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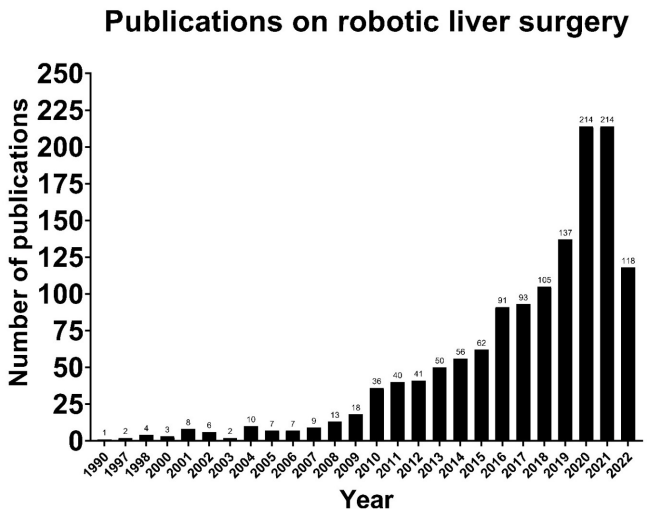

Ruzzenente *et al. Mini-invasive Surg* 2020;4:91
DOI: 10.20517/2574-1225.2020.90

Mini-invasive Surgery

Review

Open Access

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Robotic liver surgery: literature review and current evidence

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2015-2020
29 publicaciones ROBOT
1831 casos

2010-2020
25 comparaban ROBOT/ LAP
1043/1385 casos

"..robotic approach is promising, but **not standardized**"
"..robotic learning curve shorter than the laparoscopic."

Table 1. Robotic liver surgery

Authors	Cases	Age	Location	Major/ minor	EBL	Time	Conversion	Malignant	R0	LoS	Overall/Major complications
Chong *et al.*[1]	91	58.7	LS, Sg1	19/72	274.6*	259.3*	7.7	100	98.9	4.8	9.9/3.3
Montalti *et al.*[2]	36	62	PS	0/36	415*	306*	13.9	69.4	89	6*	19.4/11.1
Marino *et al.*[4]	40	69.4	LS	18/22	260	305	2.5	100	100	7.4	20/12.5
Pesi *et al.*[5]	51	63	LS, PS	13/38	100	300	2	100	100	5	18/9.8
Magistri *et al.*[6]	22	60.8	LS	2/20	400	318*	0	100	95.5	5.1	68.2/9
Nota *et al.*[11]	51	59	PS	0/51	180	198	8	88.2	84	4	-/6
Daskalaki *et al.*[12]	67	52.5	LS	29/39	438*	293.4*	8.8	55.8	-	6.8*	22/4.4
Hu *et al.*[13]	58	52.2	LS	0/58	80.1*	107*	0	62	100	4.3	1.7/-
Lee *et al.*[14]	70	58	LS	14/56	100	251.5	5.7	74.2	98.2	5	11.4/-
Felli *et al.*[15]	20	64.6	LS, PS	2/18	50	141.5*	0	85	-	-	-
Lai *et al.*[16]	95	62.1	LS, PS	27/75	334.6*	207.4	4	100	96	7.3*	14/1
Li *et al.*[17]	48	62.4	LS, Sg1	48/0	150	276	-	100	72.9	9	58.3/10.4
Guerra *et al.*[18]	59	64	LS, PS	4/78	200	210	12	100	92	6.7	27/5
Goel *et al.*[19]	27	54	LS	0/27	200	295	14.8	100	100	4	3.7/3.7
Khan *et al.*[20]	61	66	LS	8/53	100	240	11.5	100	85.2	5	37.7/11.4
Efanov *et al.*[21]	40	45	PS	2/49	465*	407	0	28	-	11	20/-
Choi *et al.*[22]	69	53	LS	64/16	170	491	9.1	76.8	100	8	43.5/10.6
Sham *et al.*[23]	71	54.8	LS, Sg1	17/54	495*	284*	5.7	98.6	-	3.9*	14.3/4.3
Fruscione *et al.*[24]	57	58.1	LS	57/0	250	194	-	64.9	91.9	4	28.1/25.1
Lim *et al.*[25]	61	66	LS, PS	9/52	-	277	0	100	89	9	25/2
Beard *et al.*[26]	115	61	LS, PS	17/98	-	272*	5.2	93.9	73.7	5	31.3/10.4
Quijano *et al.*[27]	21	59.3	LS, PS	4/17	-	262*	4.75	65	-	12*	19/4.7
Chen *et al.*[28]	183	60.8	LS, PS	92/91	249	361	1.6	67.2	-	7.5	4.4/2.1
Kingham *et al.*[29]	64	64	LS	6/65	100	163	6.3	78.2	-	-	10.9/4.4
Sucandy *et al.*[30]	75	64	LS	25/50	125	227	0	81	-	3	11/-
Wang *et al.*[31]	92	54.1	LS	92/0	243*	195.5*	1	66.3	-	7.4*	13/1.1
Melstrom *et al.*[32]	97	62	LS, PS	13/84	144*	197*	9.7	85.5	-	-	9.7/-
Ceccarelli *et al.*[33]	70	67	LS, PS	2/89	25	115*	10	70	94.3	3	10.1/1.4
Guadagni *et al.*[34]	20	66	LS	0/20	250*	198.5*	0	20	100	4.7	25/0

Table 2. Robotic *vs*. laparoscopic liver resections

Authors	Cases		Location		Major/minor		EBL		Time		Conversion		LoS		Overall/major complications	
	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L
Chong *et al.*[1]	91	92	LS, Sg1	LS, Sg1	19/72	4/88	275*	212*	259*,#	217*,#	7.7	12	4.8	4.9	9.8/3.3	5.4/0
Montalti *et al.*[2]	36	72	PS	PS	0/36	0/72	415*	437*	306*	295*	14	9.7	6*	4.9*	19.4/11.1	19.4/6.9
Magistri *et al.*[6]	22	24	LS, PS	LS, PS	2/20	0/24	400	328	318*,#	211*,#	0#	16.7#	5.1	6.2	68.1/9	100/12.5
Hu *et al.*[13]	58	54	LLS	LLS	0/58	0/54	80*	109*	107*	96*	0	1.9	4.3	4.4	1.7/-	3.7/-
Lee *et al.*[14]	70	66	LS	LS	14/70	2/66	100	100	251#	215#	5.7	12.1	5	5	11.4/-	4.5/-
Lai *et al.*[16]	95	35	LS, PS	LS	27/75	1/34	335	336	207*,#	134*,#	4	5.7	7.3*	7.1*	14.7/1	20/-
Efanov *et al.*[21]	40	91	LS, PS	LS, PS	2/40	11/91	465	302	407#	296#	0	0	11#	9#	20/-	16.4/-
Fruscione *et al.*[24]	57	116	LS	LS	57/0	116/0	250	400	194	204	-	-	4	5	28/7	35.3/9.4
Lim *et al.*[25]	55	55	LS, PS	LS, PS	4/51	8/47	-	-	254	257	0	0	9	7	21.8/1.8	12.7/0
Beard *et al.*[26]	115	115	LS, PS	LS, PS	97/18	94/21	-	-	272*	253*	5.2#	12#	5	4	31.3/10.4	27.8/14.7
Wang *et al.*[31]	92	48	LS	LS	92/0	48/0	243*,#	346*,#	195*	199*	1#	10.4#	7.4*	7*	13/1	10.4/0
Spampinato *et al.*[36]	25	25	LS	LS	25/0	25/0	250	400	430	360	4	4	8	7	16/4	48/12
Kim *et al.*[37]	12	31	LLS	LLS	0/12	0/31	225	150	404#	246#	-	1	7	7	-/16.6	-/9.6
Packiam *et al.*[38]	11	18	LLS	LLS	0/11	0/18	30	30	175	188	0	0	4#	3#	27.2/0	0
Salloum *et al.*[39]	14	14	LLS	LLS	0/14	0/14	265*	121*	203*,#	140*,#	14	0	6*	6*	7.1/0	7.1/21.4
Croner *et al.*[40]	10	19	LS	LS	0/10	-	306	356	321	242	-	-	7	8	10/0	15.7/5.2
Ji *et al.*[41]	13	20	LS, Sg1	LS	9/4	4/16	280	350	338	130	0	10	6.7	5.2	7.7/-	10/-
Wu *et al.*[42]	52	69	LS	LS	20/52	10/69	325°,*,#	173°,*,#	380°,#	227°,#	5°	12°	7.9°	7.2°	5.7/0°	5.7/-°
Troisi *et al.*[43]	40	223	LS, PS	LS, PS	0/40	82/223	330#	174#	271	262	20	7.6	6.1	5.9	12.5/10	12.5/8.9
Tsung *et al.*[44]	57	114	LS	LS	21/36	42/72	200	100	253#	198#	7	8.8	4	4	19.2/1.7	25.4/0.8
Tranchart *et al.*[45]	28	28	LS, PS	LS, PS	0/28	0/28	200	150	210#	176#	14	7.1	6	5.5	17.8/10.7	17.8/10.7
Berber *et al.*[46]	9	23	LLS	LLS	0/9	0/12	136*	155*	258*	234*	1	0	-	-	11/-	17/-
Yu *et al.*[47]	13	17	LS	LS	3/10	11/6	388	343	291	241	0	0	7.8*	9.5*	0	11.7/-
Zeng *et al.*[48]	3	5	LS	LS	0/3	0/5	316*	290*	370*	249*	0	20	3	5	-	-
Lin *et al.*[49]	25	11	LS	LS	3/25	2/11	271	295	319	315	-	-	7.5	7	24/-	27.2/-

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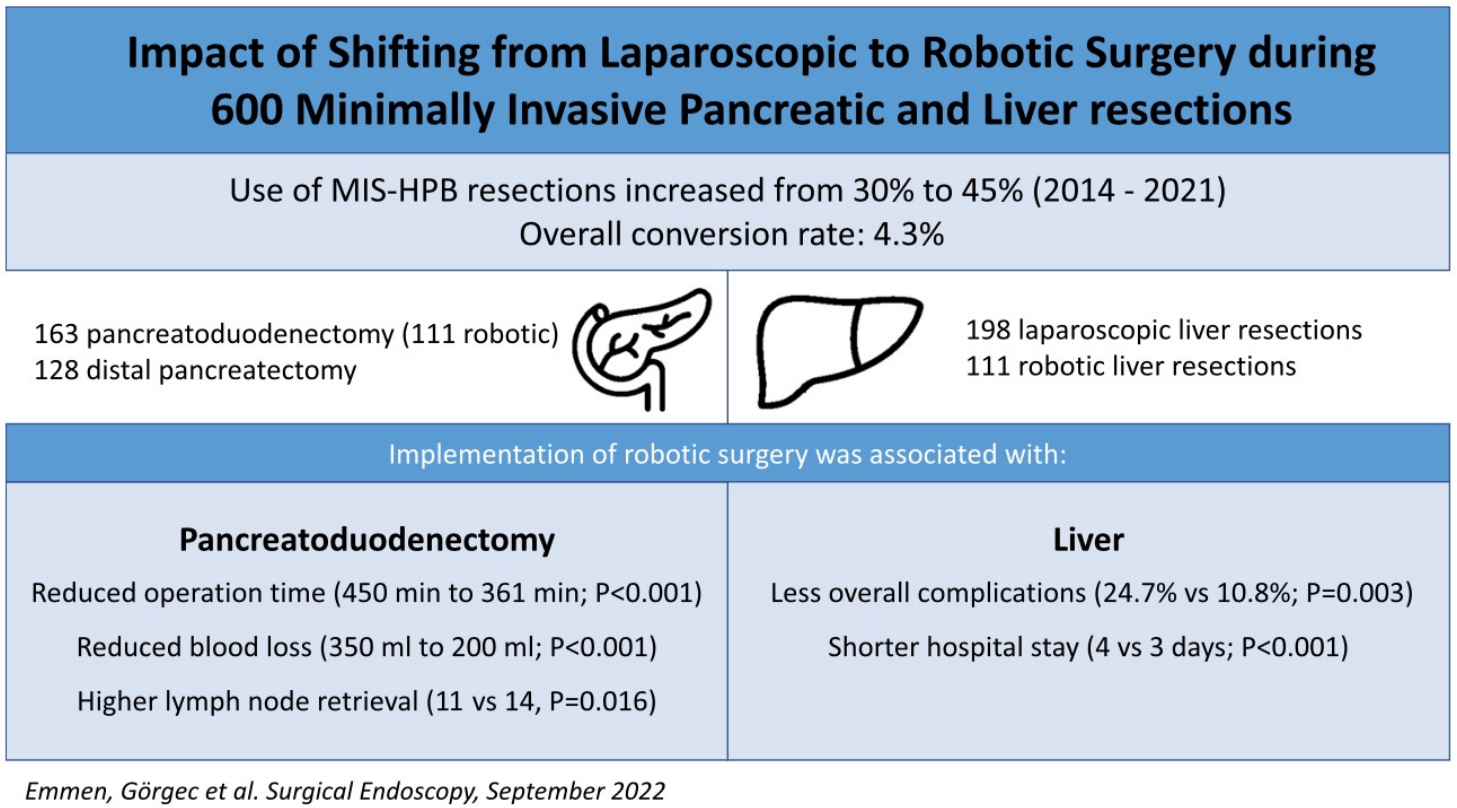
ORIGINAL ARTICLE

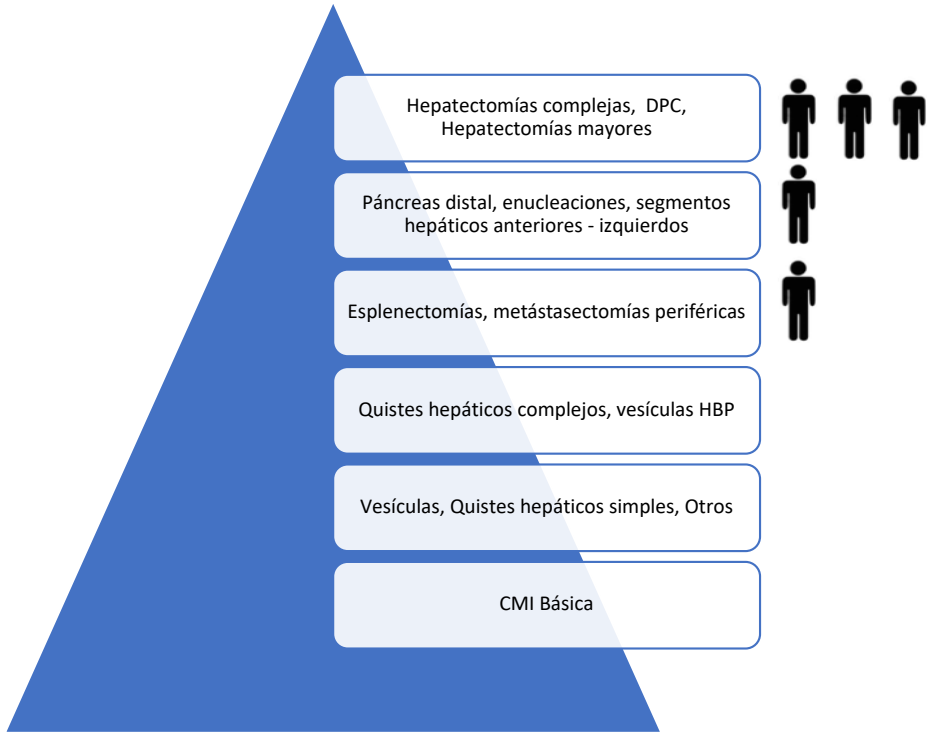
Impact of shifting from laparoscopic to robotic surgery during 600 minimally invasive pancreatic and liver resections

Anouk. M. L. H. Emmen[1,2] · B. Görgec[1,2] · M. J. W. Zwart[1,2] · F. Daams[2,3] · J. Erdmann[1,2] · S. Festen[1,2,4] · D. J. Gouma[1,2] · T. M. van Gulik[1,2] · J. van Hilst[1,2] · G. Kazemier[2,3] · S. Lof[1,2] · S. I. Sussenbach[1,2] · P. J. Tanis[1,2] · B. M. Zonderhuis[2,3] · O. R. Busch[1,2] · R. J. Swijnenburg[1,2,3] · M. G. Besselink[1,2] · for HPB-Amsterdam

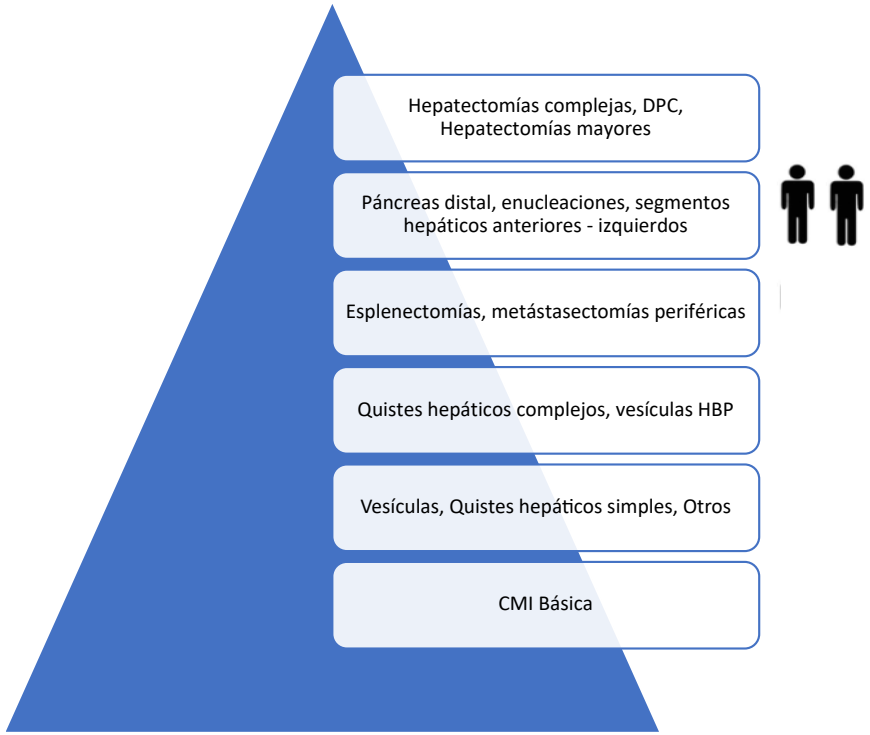


CHUVI

Cirugía Mínimamente Invasiva;
LAPAROSCOPICA (50-60 %)



ROBOT



Intraoperative Ultrasonography of Laparoscopic Hepatectomy: Key Technique for Safe Liver Transection

Kenichiro Araki, MD, PhD, Claudius Conrad, MD, PhD, Satoshi Ogiso, MD, Hiroyuki Kuwano, MD, PhD, FACS, Brice Gayet, MD, PhD

Reports have shown that laparoscopic hepatectomy is a safe procedure and has potential advantages over open surgery with respect to bleeding and postoperative hospital stays.[1,2] However, significant bleeding is more difficult to control during laparoscopic hepatectomy than during an open approach, so prevention of vascular injury is crucial. This should be achieved not only through an excellent preoperative understanding of the vascular anatomy derived from preoperative imaging, but also through real-time image guidance during surgery. Some procedures, such as posterosuperior segmentectomy (Sg7 or Sg8) and limited resection for deeply located liver tumors, require expert laparoscopic hepatectomy techniques. For these procedures, accurate real-time imaging of liver anatomy and a thought-out operative resection plan are necessary, and today this is accomplished with the use of intraoperative ultrasound image.

Intraoperative ultrasonography (IOUS) has been reported as a useful tool for open liver surgery.[3-5] This technique is valuable for intraoperative diagnosis of liver lesions and also for guidance of the parenchymal transection plane. In our experience, the systematic use of IOUS is indispensable for both laparoscopic anatomic and nonanatomic resections. Nevertheless, although several articles have mentioned IOUS as an important technique for laparoscopic hepatectomy, we have found no articles to date describing the laparoscopic IOUS technique. In the accompanying video, we show our IOUS technique for laparoscopic liver resection and highlight specific laparoscopic IOUS techniques to increase the safety of laparoscopic liver resection.

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METHODS

Technical requirement for laparoscopic operative ultrasonography

The operative procedure, including the posi cars, has been described previously.[6-8] The p in a low lithotomy position, and the ope stands in the middle between the patient's or 6 trocars are used in the right upper q abdomen and maintained in position wi optimal triangulation. Although we nor 12-mm (or 10-mm) trocars longitudinall should be considered to use both ultrasound era simultaneously. The liver anatomy is deli atively using a multidetector CT liver-imag

We used the Pro Focus 2202 Ultrasour tem with Laparoscopic Transducer Type Medical). This probe can be adjusted thr of up to 90 degrees in 4 planes by 2 levers, to the handle in its upright position; up, right. So, it can be placed in into the optin obtain the ultrasound image, despite the li secondary trocar position. The ultrasou placed side by side with the laparoscopic m for in-line working during laparoscopic ul We recommend the "Picture in Picture" laparoscopic monitor, which allows the both laparoscopic and ultrasound images o further optimizing ergonomics. Using the of the ultrasound system makes it easier IOUS handling on the patient's abdomen as changing the parameter of the echo m tumor margin, and detecting Doppler's bl

The procedural steps of IOUS are as screening the entire liver, we focus our at future liver remnant in case of cancer more important to rule out any lesions in remnant than to identify liver lesions in resected. The characteristics of known tum tant because known isodense liver lesions p likelihood of missing lesions not identifie tive imaging. The hepatic veins, their bran relationship to the resection line are deter

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# of intraoperative ultrasonography in liver resections due to er metastasis

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TS

ility and identify factors predicting intraoperative detection of new lesions.
only way to evaluate anatomical relationships intraoperatively.
detecting occult CRLM is highly dependent on the number of detected tumors.
itional influential factors.

NFO

e 2015

ABSTRACT

Introduction: Intraoperative ultrasonography (IOUS) of the liver has been used both as an aid for operative anatomical definition and for the detection of new lesions. The present study aimed to ev the impact of IOUS and to identify factors that can predict the detection of new lesions intraoper

Methods: In this observational and prospective study, with a cross-sectional design, patient colorectal cancer metastases who underwent hepatectomy were selected. Abdominal comput mography, magnetic resonance imaging, and positron emission tomography were the preop evaluation tests. All patients underwent IOUS performed by the same surgeon. The intraop findings were compared with the preoperative tests results.

Results: In total, 56 hepatectomies were evaluated. Half of the patients were men, with a mean ag (30–85) years. New lesions were found intraoperatively in 12 patients (21.4% of cases) and were de on both palpation and ultrasonography in 11 of these patients. Ultrasonography helped to rev surgical plans by providing additional information in 35.7% of cases. On multivariate analys presence of more than 4 preoperative nodules was predictive of the intraoperative occurrence lesions.

Conclusions: IOUS remains the only way to evaluate the relationships between tumors, liver v structures, and bile ducts intraoperatively. Alone, IOUS was not useful for identifying new intraoperatively, as all new lesions were also detected on palpation. The number of lesions diagno preoperative tests influenced the probability of identifying new lesions intraoperatively. There additional influential factors.

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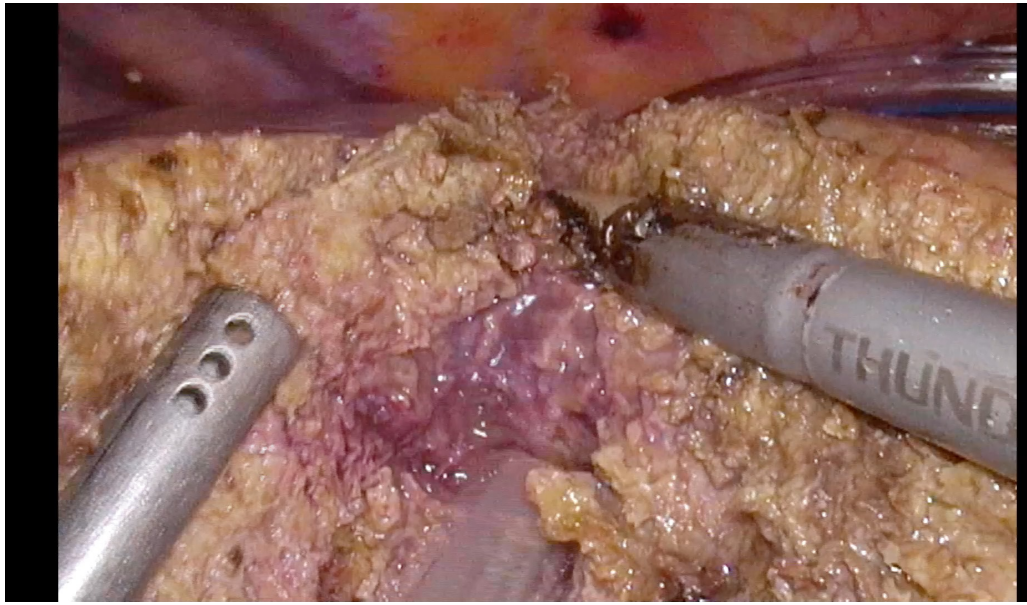
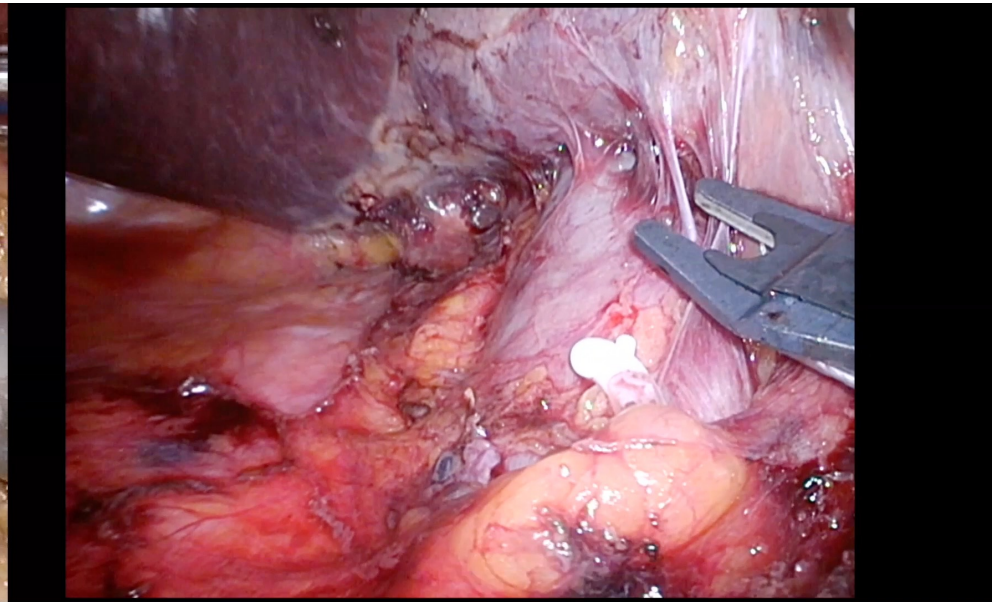
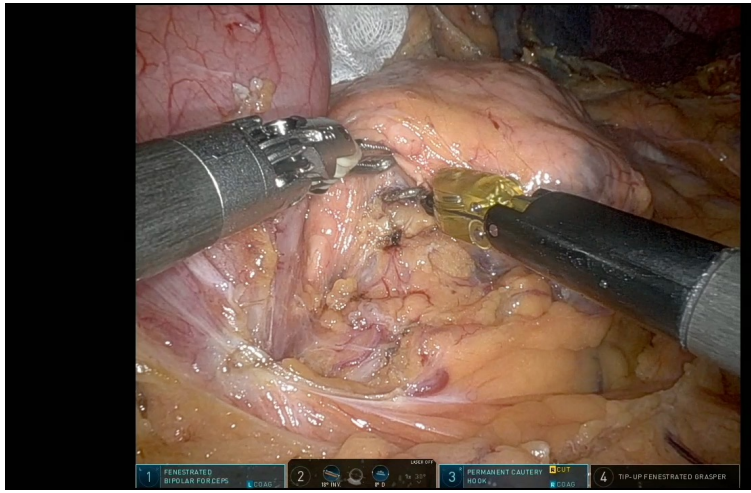
16/j.ijsu.2015.06.053



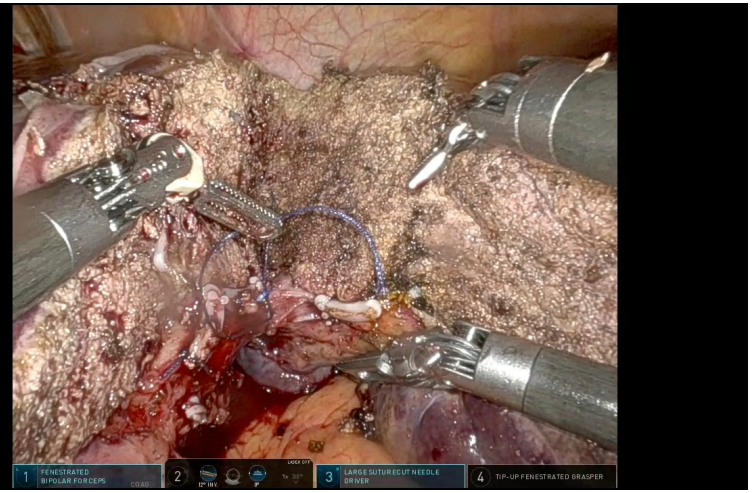


DISPOSITIVOS MECÁNICOS y DE ENERGÍA

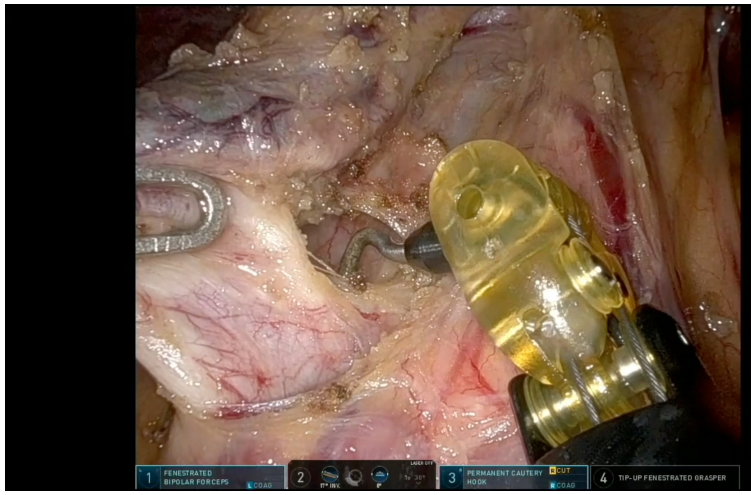

1
2
3
4



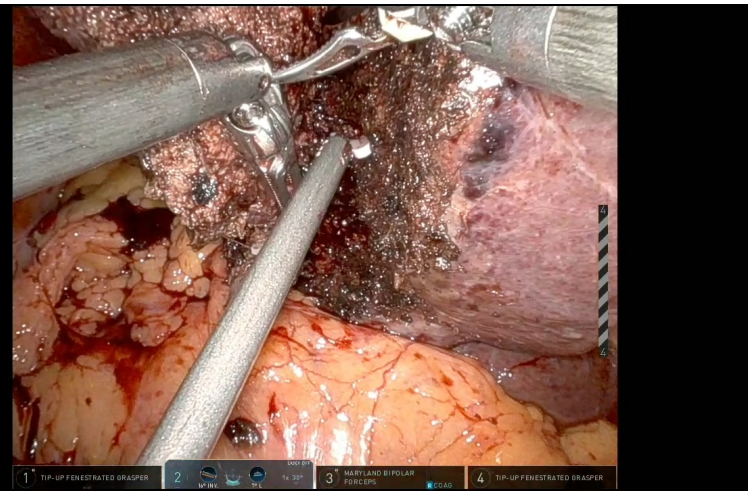
Esplenopancreatectomía córporo-caudal



Seccionectomía Lateral Izquierda



Resección vía biliar



Segmentectomía VI

N 78

PANCREAS CÓRPORO CAUDAL	12
HEPATECTOMÍAS	37
ESPLENECTOMIAS	8
OTROS	21

CURVA “INDIVIDUAL”

FORMACIÓN EN CIRUGÍA HBP PREVIA

MENTOR

FELLOWS

NºCASOS

ESTANCIAS FORMATIVAS

HABILIDADES PROPIAS

PREPARACIÓN TEÓRICA

FORMACIÓN LAPAROSCOPICA PREVIA


¿TE FALTA MUCHO?

”Established practice”?

Annals of Surgery • Volume 277, Number 5, May 2023

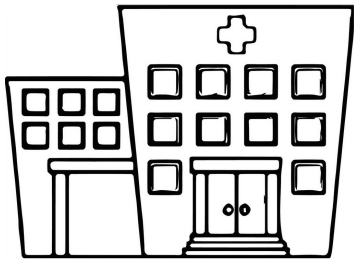
ORIGINAL ARTICLE

OPEN

An International Expert Delphi Consensus on Defining Textbook Outcome in Liver Surgery (TOLS)

Burak Görgec, MD,†‡§ Andrea Benedetti Cacciaguerra, MD,*§‖ Timothy M. Pawlik, MD, MPH, PhD,¶ Luca A. Aldrighetti, MD, PhD,# Adnan A. Alseidi, MD, EdM,** Umberto Cillo, MD, PhD,†† Norihiro Kokudo, MD, PhD,‡‡ David A. Geller, MD,§§ Go Wakabayashi, MD, PhD,‖‖ Horacio J. Asbun, MD, PhD,¶¶ Marc G. Besselink, MD, PhD, MSc,†‡ Daniel Cherqui, MD, PhD,## Tan To Cheung, MD, PhD,*** Pierre-Alain Clavien, MD, PhD,††† Claudius Conrad, MD, PhD,‡‡‡ Mathieu D'Hondt, MD,§§§ Ibrahim Dagher, MD, PhD,‖‖‖ Christos Dervenis, MD, PhD,¶¶¶ John Devar, MD, PhD,###**** Elijah Dixon, MD, MSc,†††† Bjørn Edwin, MD, PhD,‡‡‡‡§§§§ Mikhail Efanov, MD, PhD,‖‖‖‖ Giuseppe M. Ettore, MD, PhD,¶¶¶¶ Alessandro Ferrero, MD, PhD,#### Constantino Fondevilla, MD, PhD,***** David Fuks, MD, PhD,††††† Felice Giuliante, MD, PhD,‡‡‡‡‡ Ho-Seong Han, MD, PhD,§§§§§ Goro Honda, MD, PhD,‖‖‖‖‖ Oscar Imventarza, MD, PhD,¶¶¶¶¶##### David A. Kooby, MD, PhD,****** Peter Lodge, MD, PhD,†††††† Santiago Lopez-Ben, MD,‡‡‡‡‡‡ Marcel A. Machado, MD, PhD,§§§§§§ Hugo P. Marques, MD, PhD,‖‖‖‖‖‖ Nick O'Rourke, MD, PhD,¶¶¶¶¶¶ Juan Pekolj, MD, PhD,###### Antonio D. Pinna, MD, PhD,******* Nazario Portolani, MD, PhD,††††††† John Primrose, MD, PhD,§ Fernando Rotellar, MD, PhD,‡‡‡‡‡‡‡ Andrea Ruzzenente, MD, PhD,§§§§§§§ Erik Schadde, MD, PhD,‖‖‖‖‖‖‖‖‖‖¶¶¶¶¶¶¶####### Ajith K. Siriwardena, MD, FRCS,******** Sameer Smadi, MD, PhD,††††††††† Olivier Soubrane, MD, PhD,‡‡‡‡‡‡‡‡ Kenneth K. Tanabe, MD, PhD,§§§§§§§§ Catherine S.C. Teh, MD,‖‖‖‖‖‖‖‖‖‖‖‖ Guido Torzilli, MD, PhD,¶¶¶¶¶¶¶¶ Thomas M. Van Gulik, MD, PhD,†‡ Marco Vivarelli, MD, PhD,‖ Stephen J. Wigmore, MD, PhD,######### and Mohammad Abu Hilal, MD, FRCS, FACS, PhD*§✉*

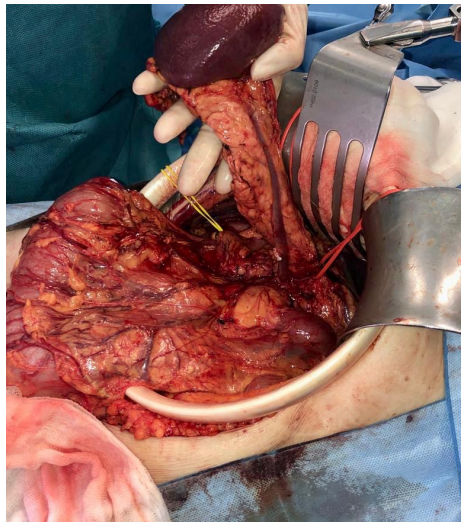
Annual hospital volume of MILR, median (IQR)	60 (30–88)
Annual hospital volume of open liver surgery, median (IQR)	100 (50–154)
Annual individual volume of MILR, median (IQR)	30 (10–54)
Annual individual volume of open liver surgery, median (IQR)	40 (20–68)

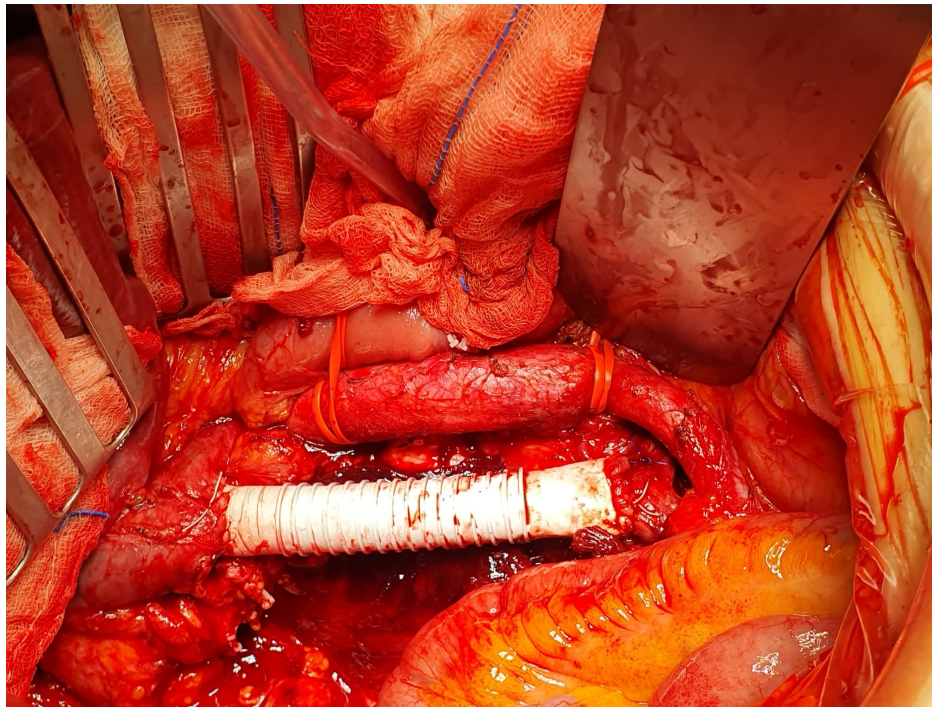


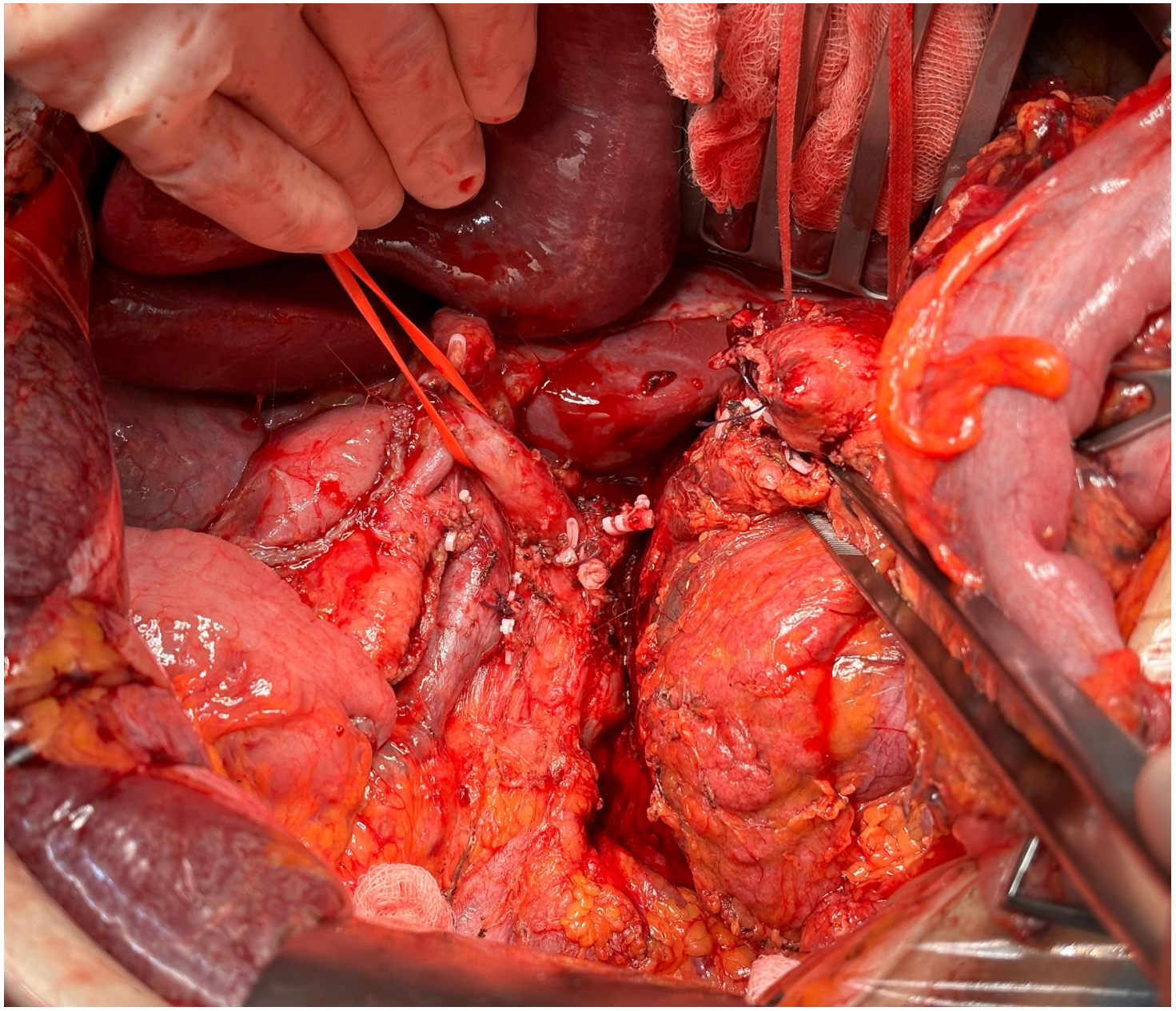
37,7%

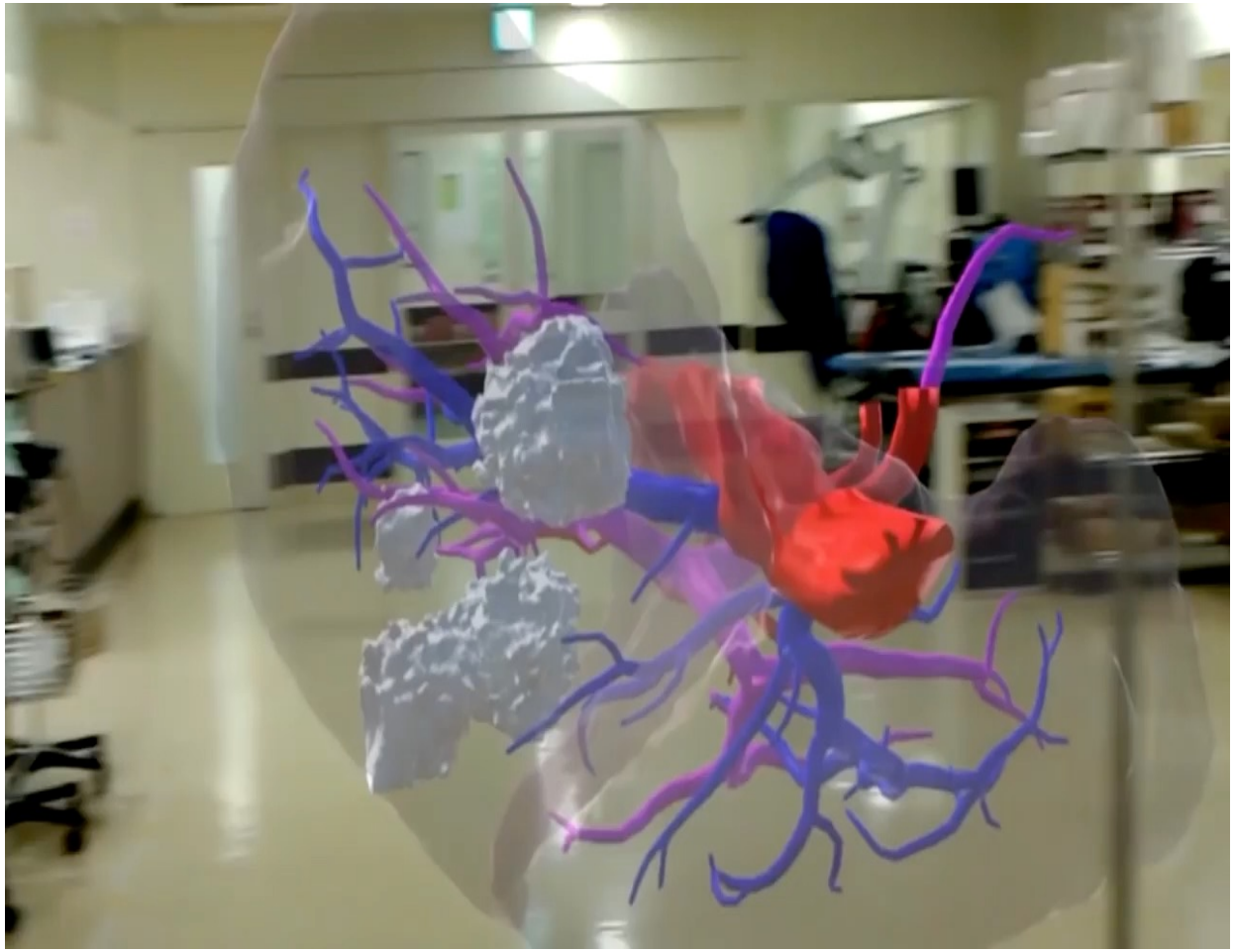
42,8%

"…the individual experience with MILR and the annual hospital volume of MILR and OLR are self-reported and may be overestimated. Therefore, these numbers should be interpreted carefully. "









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En el año 2023, ha obtenido subvención mediante concurrencia competitiva por parte del Ministerio de Ciencia e Innovación - Convocatoria 2022 Generación del Conocimiento: 450.000 Euros (Código: PID2022-142709OA-C22).

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USC
UNIVERSIDADE DE SANTIAGO DE COMPOSTELA

Unidad de Cirugía Hepato-Bilio-Pancreática, Sarcomas y Carcinomatosis Peritoneal

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