

# Manejo Quirúrgico de la Enfermedad Peritoneal Maligna

## Nuevas Aproximaciones

Dr. Francisco José Izquierdo M.

Equipo Cirugía Oncológica  
Servicio de Cirugía - HSJD

**NO TENGO CONFLICTOS DE INTERES**



# Enfermedad Peritoneal Maligna

- “Siembra peritoneal”
- Presenta dificultades técnicas en cuando a diagnóstico y tratamiento.
- Sinónimo de Enfermedad Avanzada - Cuidados Paliativos
- Gran compromiso de Calidad de Vida / Sobrevida
  - Dolor
  - Ascitis
  - Caquexia
  - Obstrucción Intestinal



# Enfermedad Peritoneal Maligna

- Grupo heterogéneo de patologías
- Primario vs Secundario
- Secundario:
  - C. Colorectal 8 - 10 %
  - C. Gástrico 30%
  - C. Ovario 60 - 70%
  - C. Apendicular 40%





# Carga Anual de Enfermedad Peritoneal Maligna en USA

Tumor Primario	Nuevos Casos / Aco	% metastasis peritoneal	Nuevos Casos / Aco MTT Peritoneal
Cáncer Colorectal	132.700	8-17%	10.620-22.550
Cáncer Apéndice	1.500	40 %	600
Cáncer Gástrico	24.590	20 %	4.920
Cáncer de Ovario	21.290	60 %	12.770
Mesotelioma Peritoneal	350	100 %	350

# 2018 **Chicago Consensus**

on Peritoneal Surface Malignancies

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Supported by:

Annals of Surgical Oncology

Society of Surgical Oncology

Irving Harris Foundation

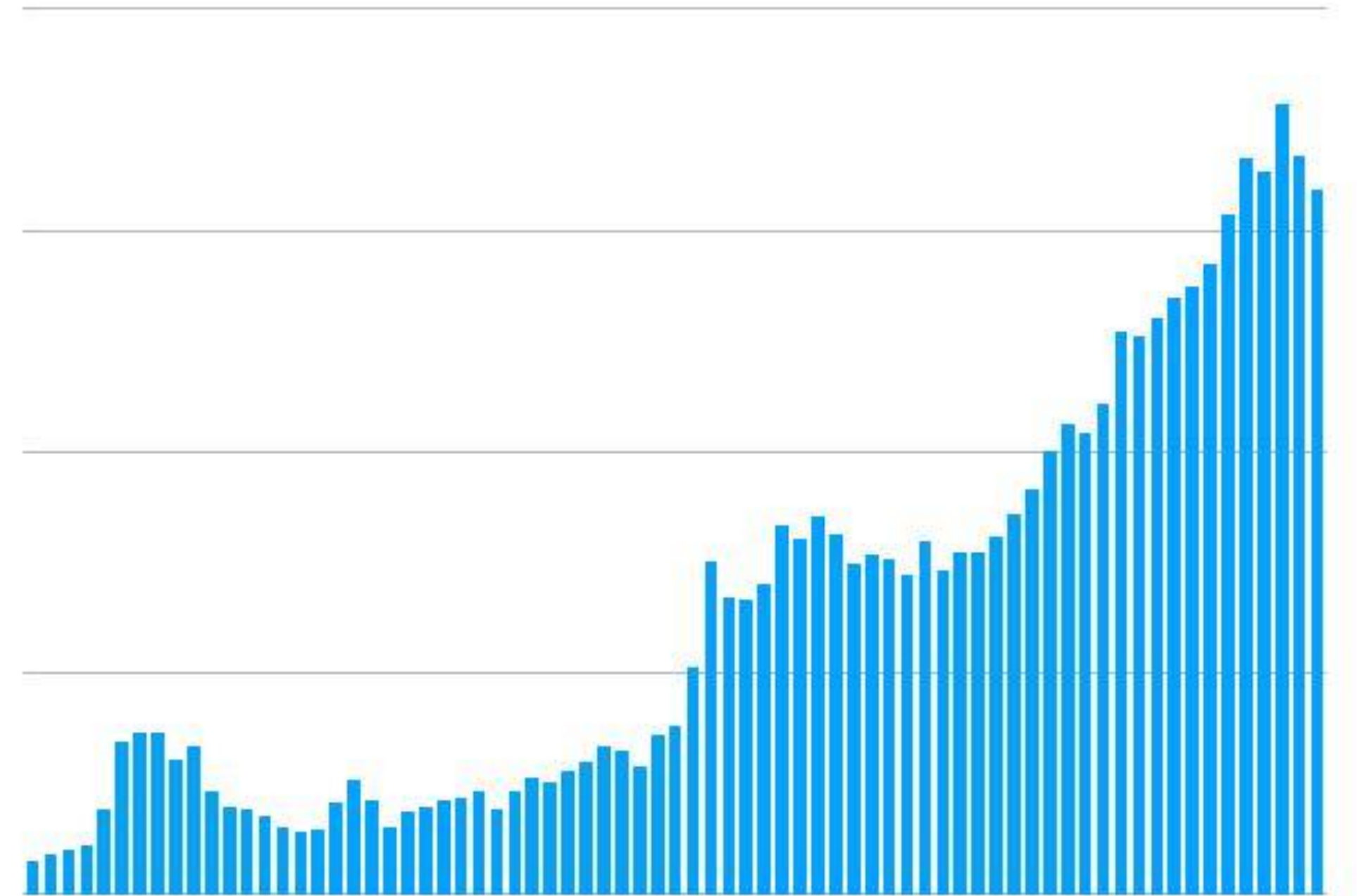


THE UNIVERSITY OF  
**CHICAGO**



# Enfermedad Peritoneal Maligna

- Cambio de Paradigma en el Manejo de EPM
- Oligometástasis
- Cirugía de Citorreducción
- Quimioterapia Intraperitoneal Hipertermica (HIPEC)



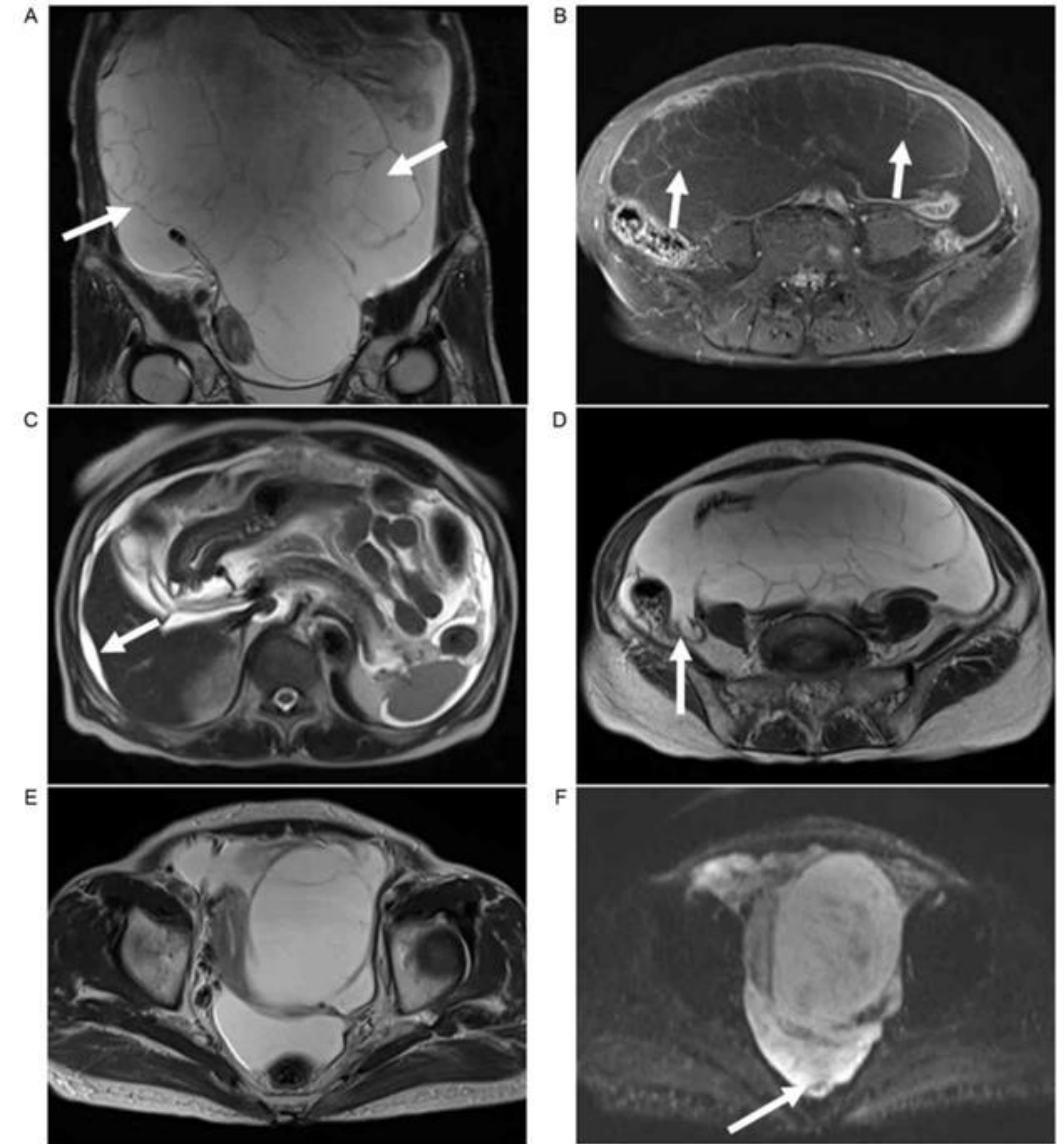


# Selección de Pacientes

Factores del Paciente	Factores de la Enfermedad	Factores Técnicos
Buen Performance Status	Sin enfermedad Extraperitoneal	Escasa enfermedad mesenterica
Bajo Riesgo Anestésico	Histología	Alta Probabilidad de Citoreducción Completa
Sin Comorbilidad Grave	Baja / Moderada Carga Tumoral	Resección Intestinal Limitada (Sd. Intestino Corto)
Adecuada Condición Psicosocial	Biología Tumoral Favorable	Morfología Favorable (Mucinoso)



# Pseudomixoma Peritoneal





# Pseudomixoma Peritonea

Lesion	Criteria
Acellular mucin	<ul style="list-style-type: none"><li>• Mucin within the peritoneal cavity without neoplastic epithelial cells</li></ul>
Low-grade mucinous carcinoma peritonei/DPAM	<ul style="list-style-type: none"><li>• Epithelial component typically scanty</li><li>• Strips, gland-like structures or small clusters of cells</li><li>• Minimal cytological atypia</li><li>• Not more than occasional(sporadic) mitosis</li><li>• Invasion into underlying organs is generally of the 'pushing' type</li></ul>
High-grade mucinous carcinoma peritonei/PMCA	<ul style="list-style-type: none"><li>• Relatively more cellular</li><li>• Fibroblastic growth</li><li>• High-grade cytological atypia</li><li>• Numerous mitoses</li><li>• Destructive infiltrative invasion of underlying organs</li></ul>
High-grade mucinous carcinoma peritonei with signet ring cells/PMCA-S	<ul style="list-style-type: none"><li>• Any lesion with a component of signet ring cells, i.e. round cells with intracytoplasmic mucin pushing the nucleus against the cell membrane</li><li>• (Degenerating cells within pools of mucin that mimic signet ring cells should be discounted)</li></ul>

DPAM: disseminated peritoneal adenomucinosis; PMCA: peritoneal mucinous carcinomatosis; PMCA-S: peritoneal mucinous carcinomatosis signet ring cells.





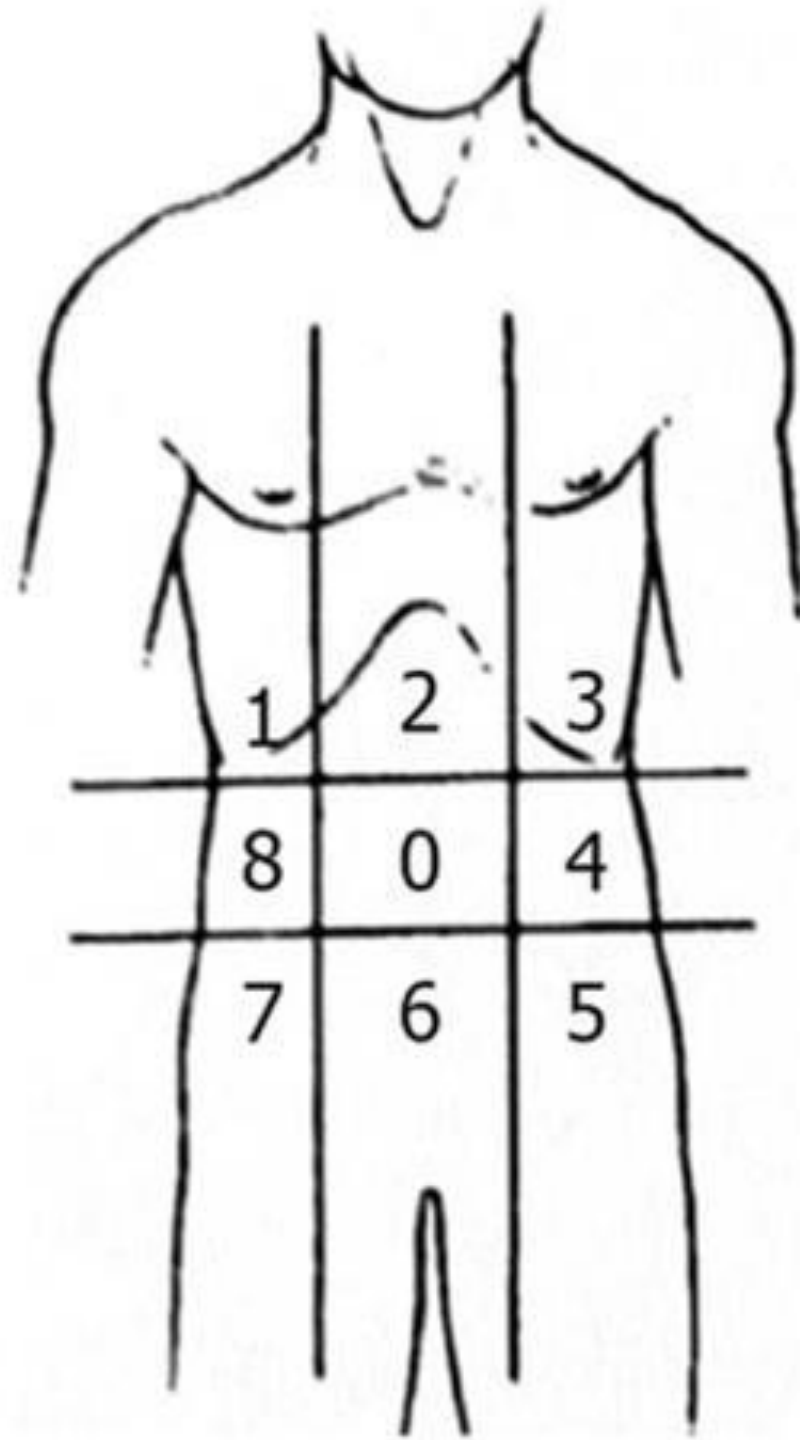






# CIRUGIA PERITONEAL

# Principios de Cirug a - Peritonectom a



## Regions

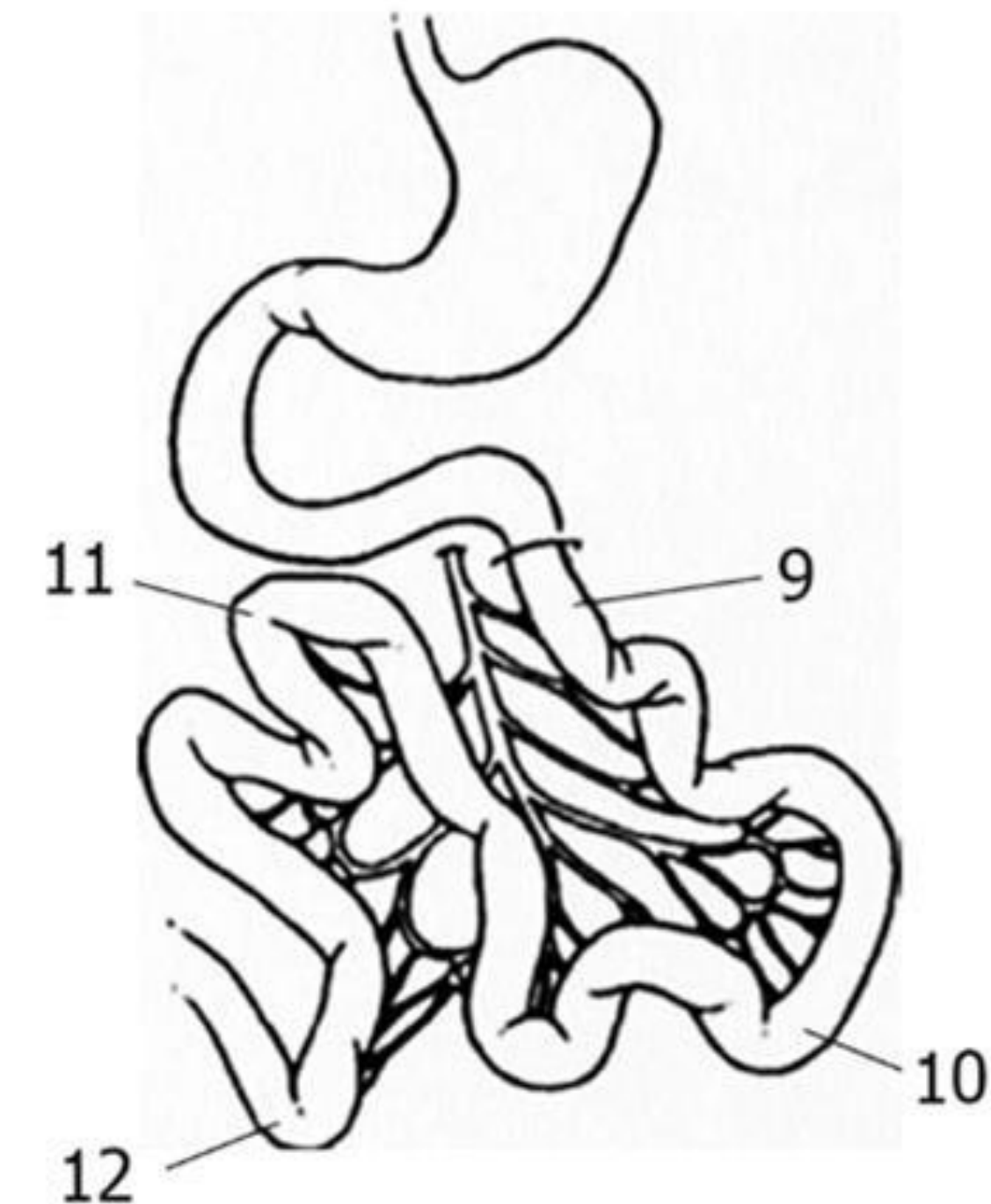
- 0 Central
- 1 Right upper
- 2 Epigastrium
- 3 Left upper
- 4 Left flank
- 5 Left lower
- 6 Pelvis
- 7 Right lower
- 8 Right flank
- 9 Upper jejunum
- 10 Lower jejunum
- 11 Upper ileum
- 12 Lower ileum

## Lesion size

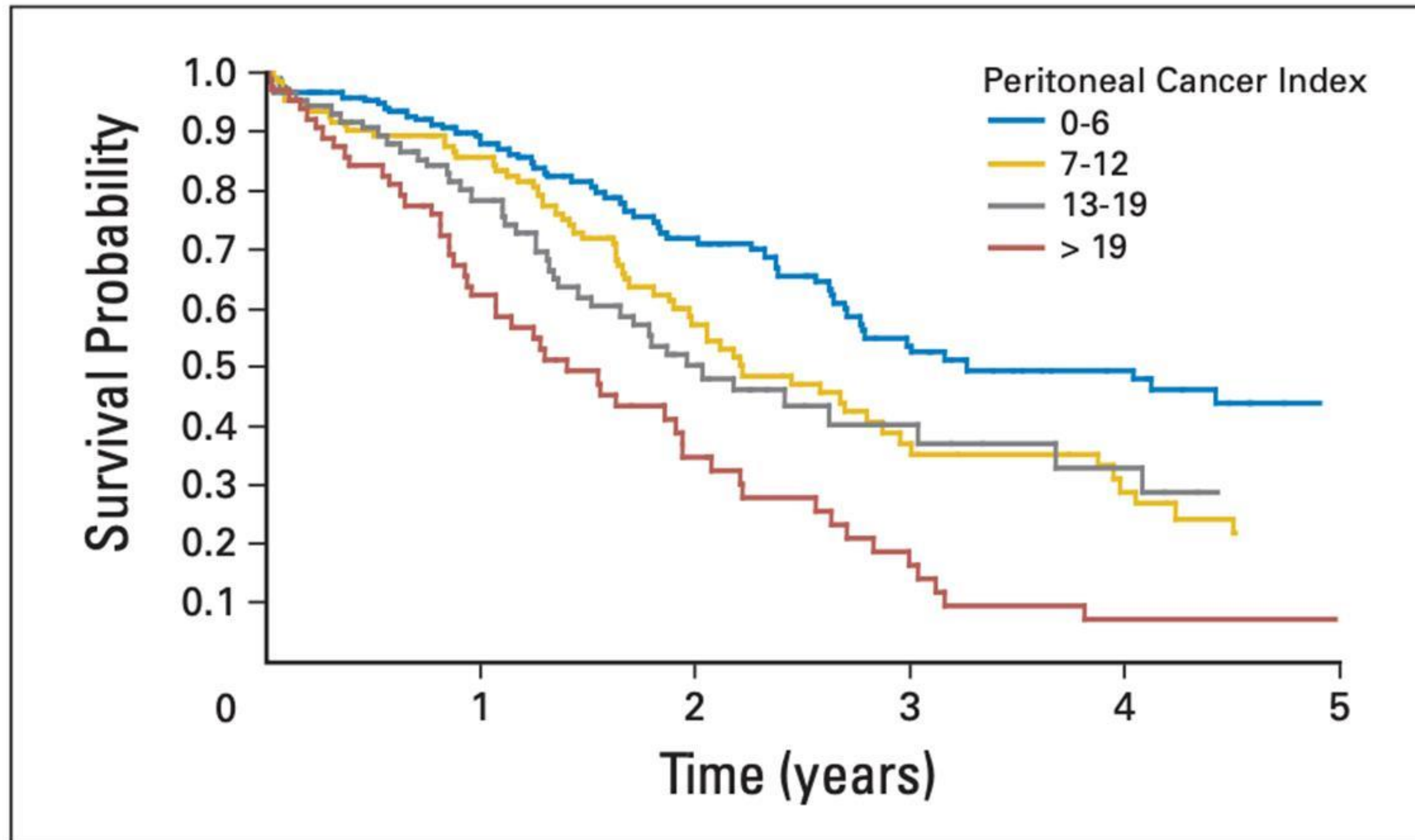
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## Lesion size score

- LS 0 No tumor seen
- LS 1 Tumor up to 0.5 cm
- LS 2 Tumor up to 5.0 cm
- LS 3 Tumor > 5.0 cm or confluence

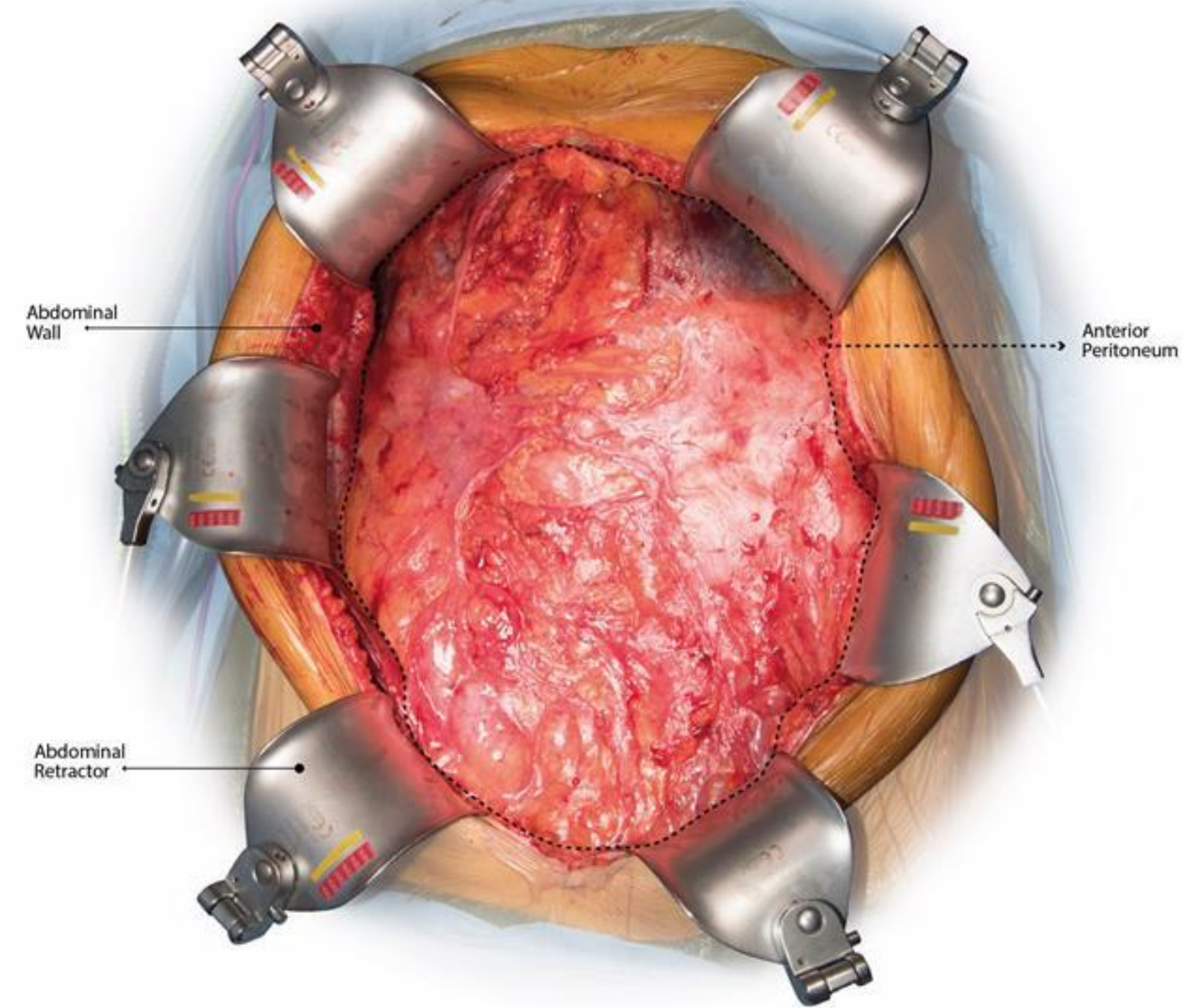
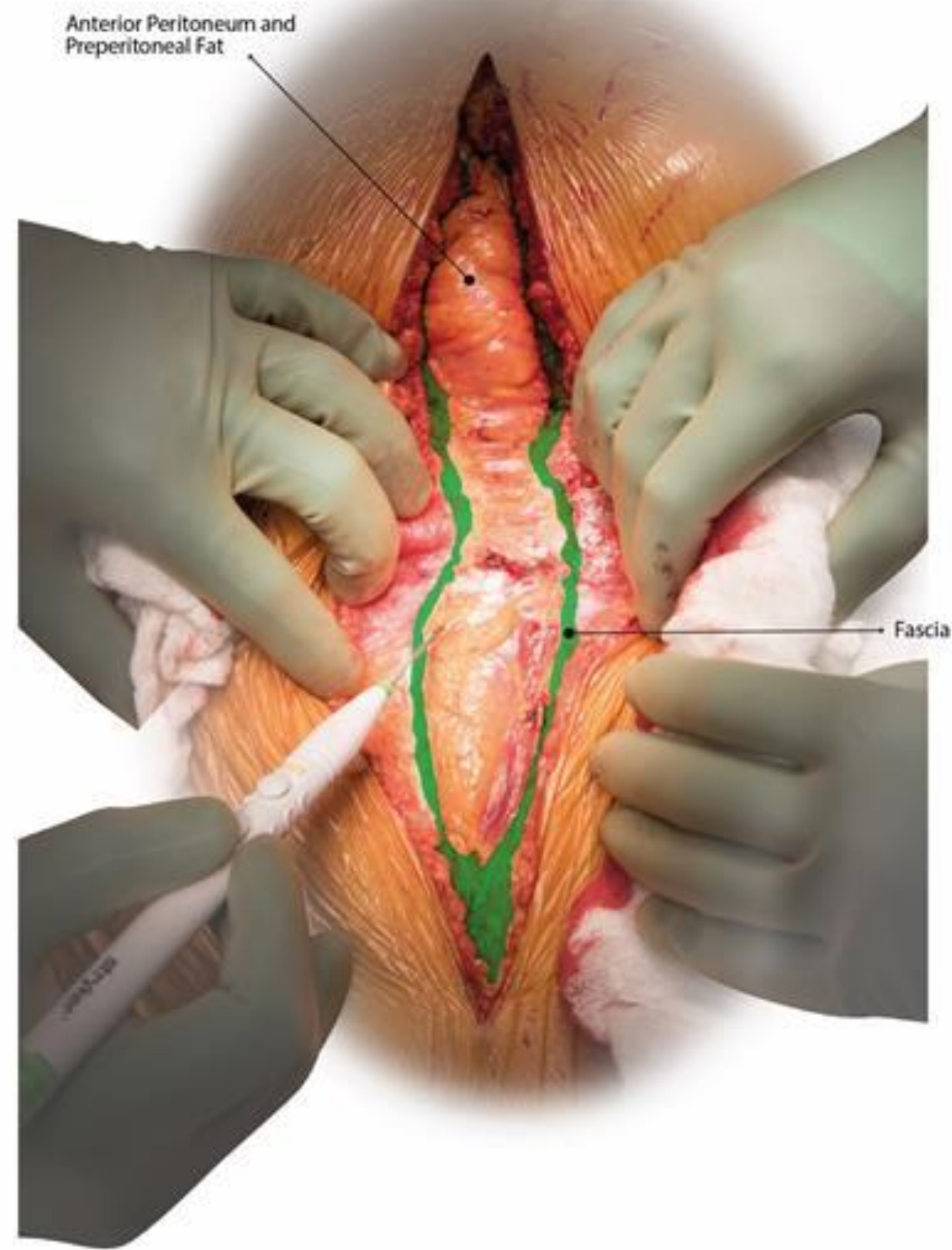




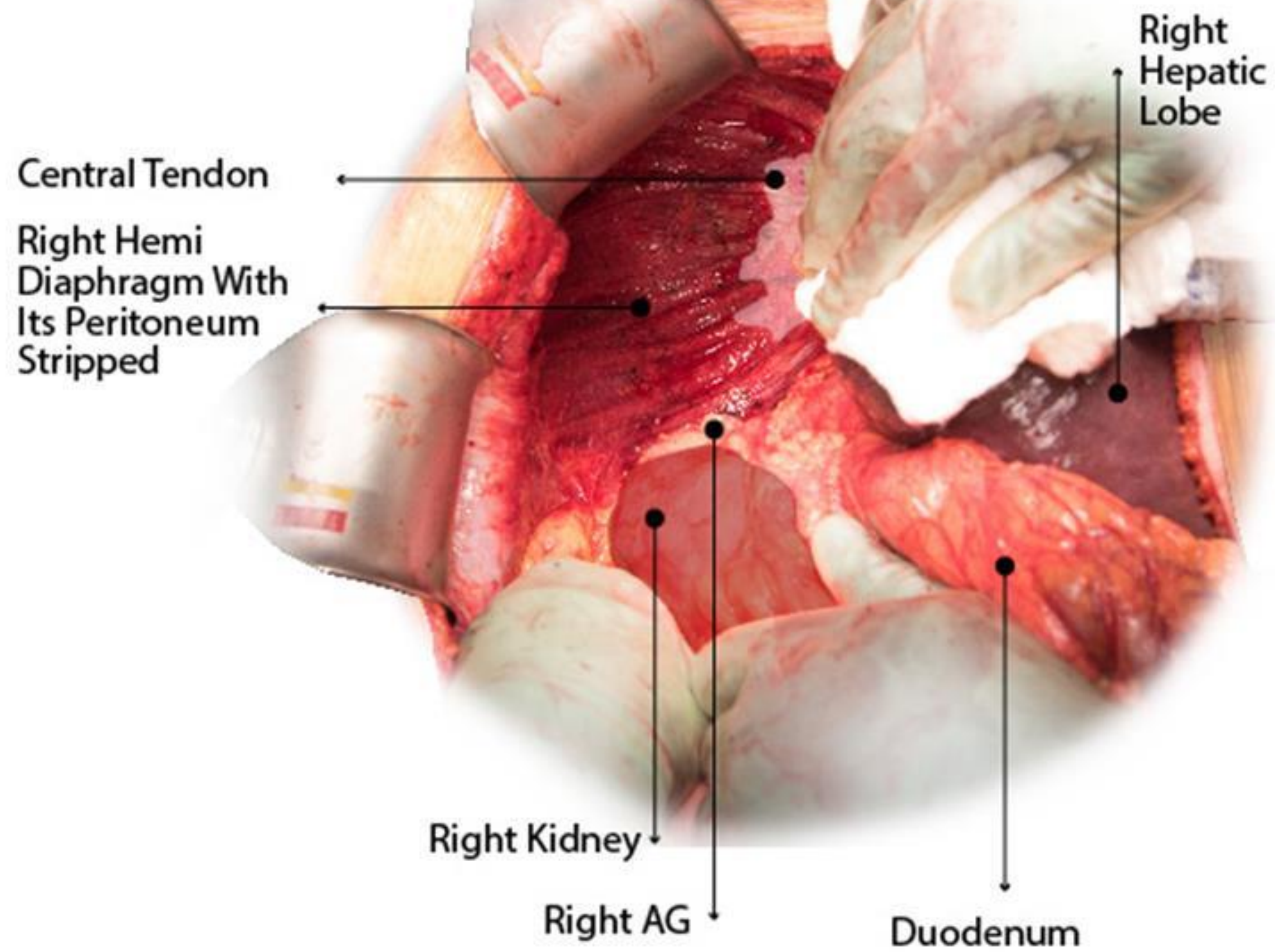




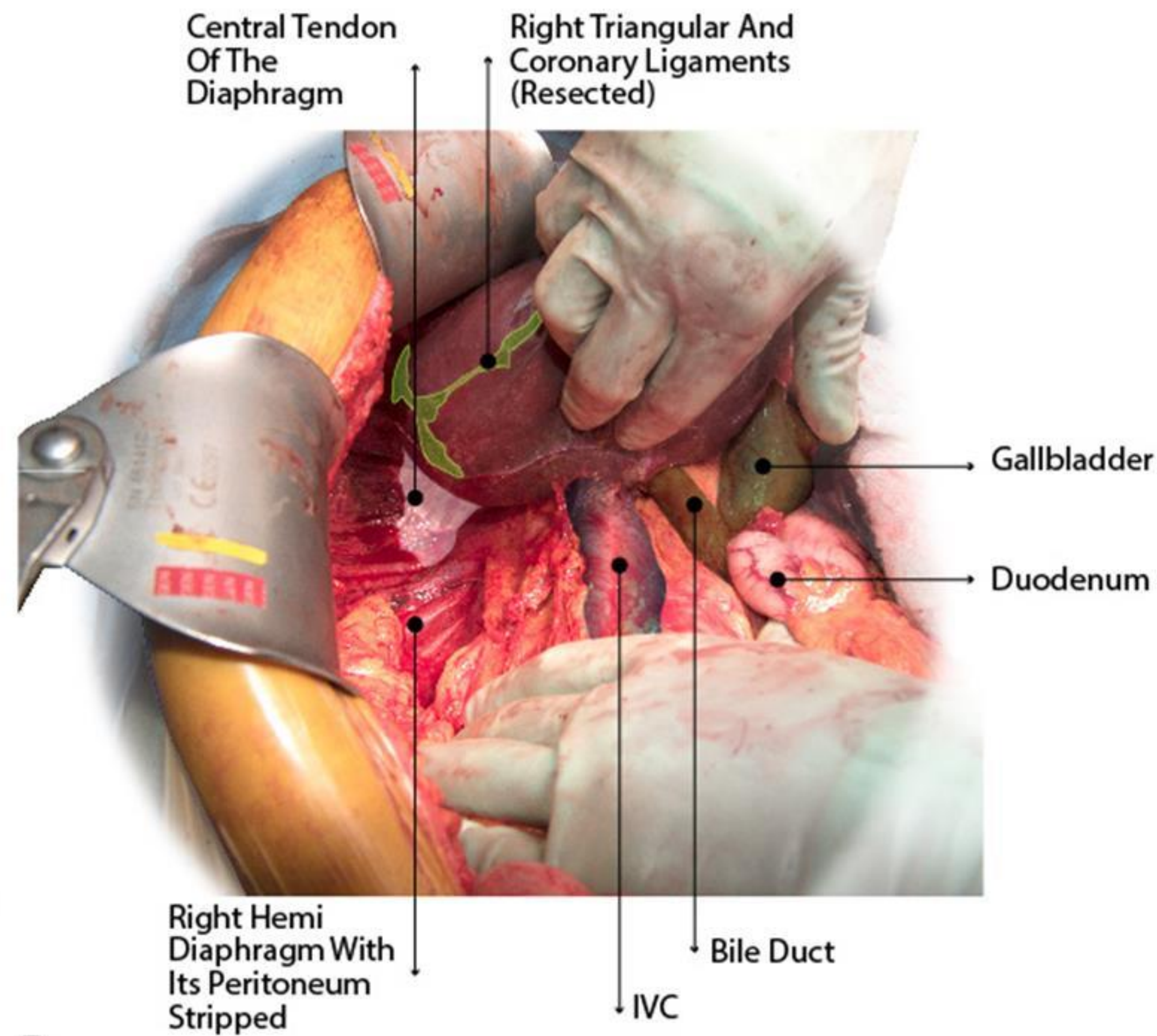
# Principios de Cirugía - Peritonectomía





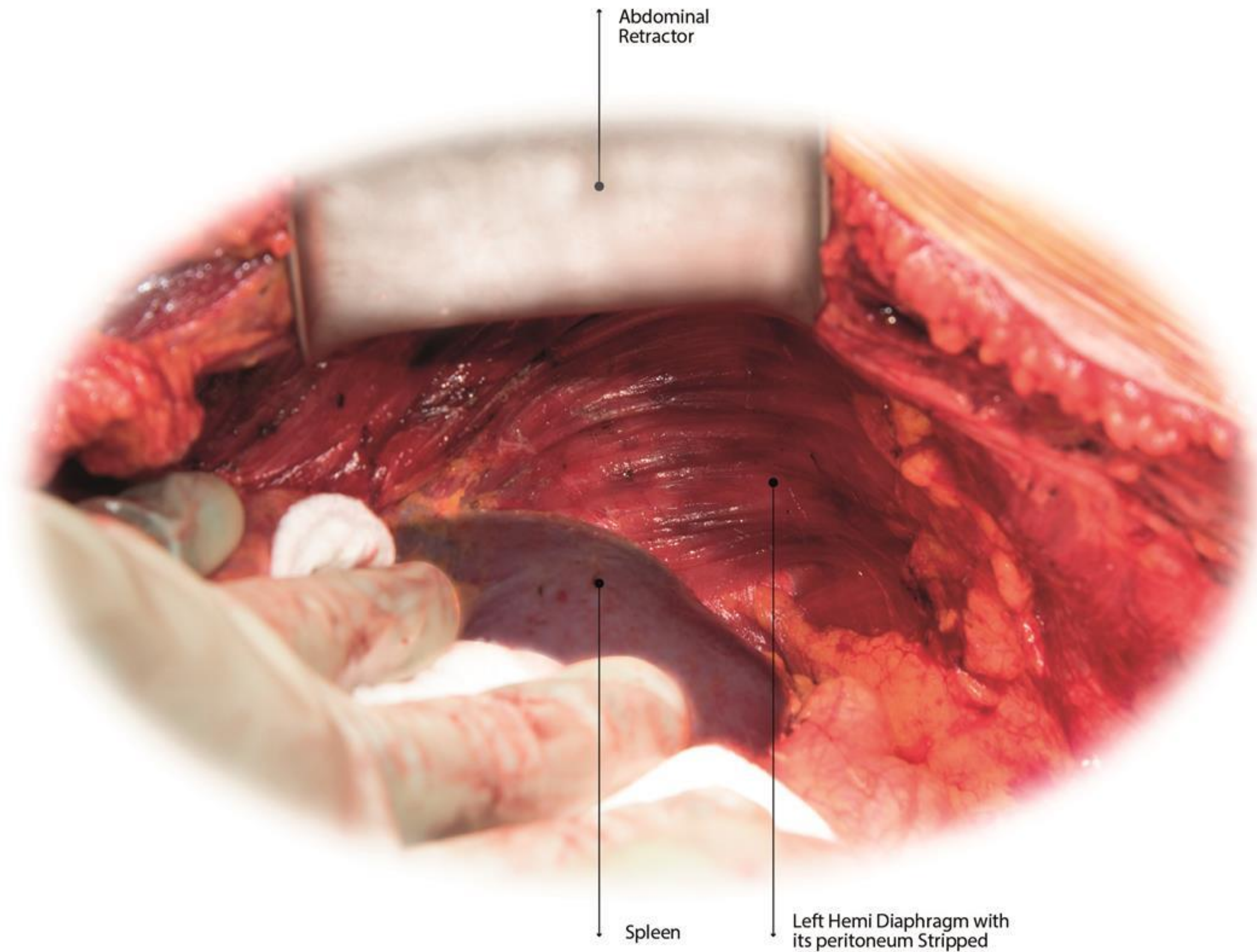


A



B



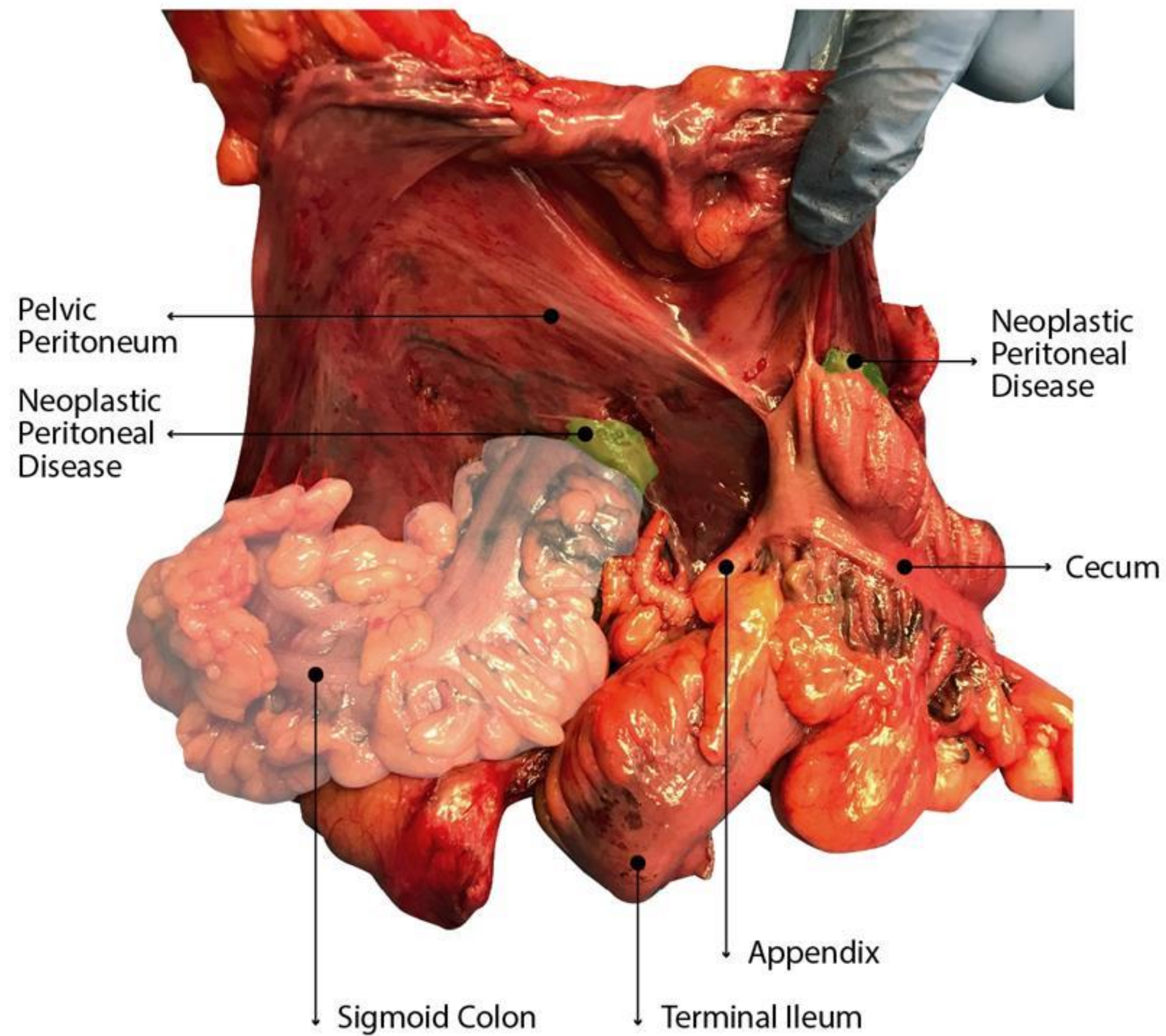


Abdominal  
Retractor

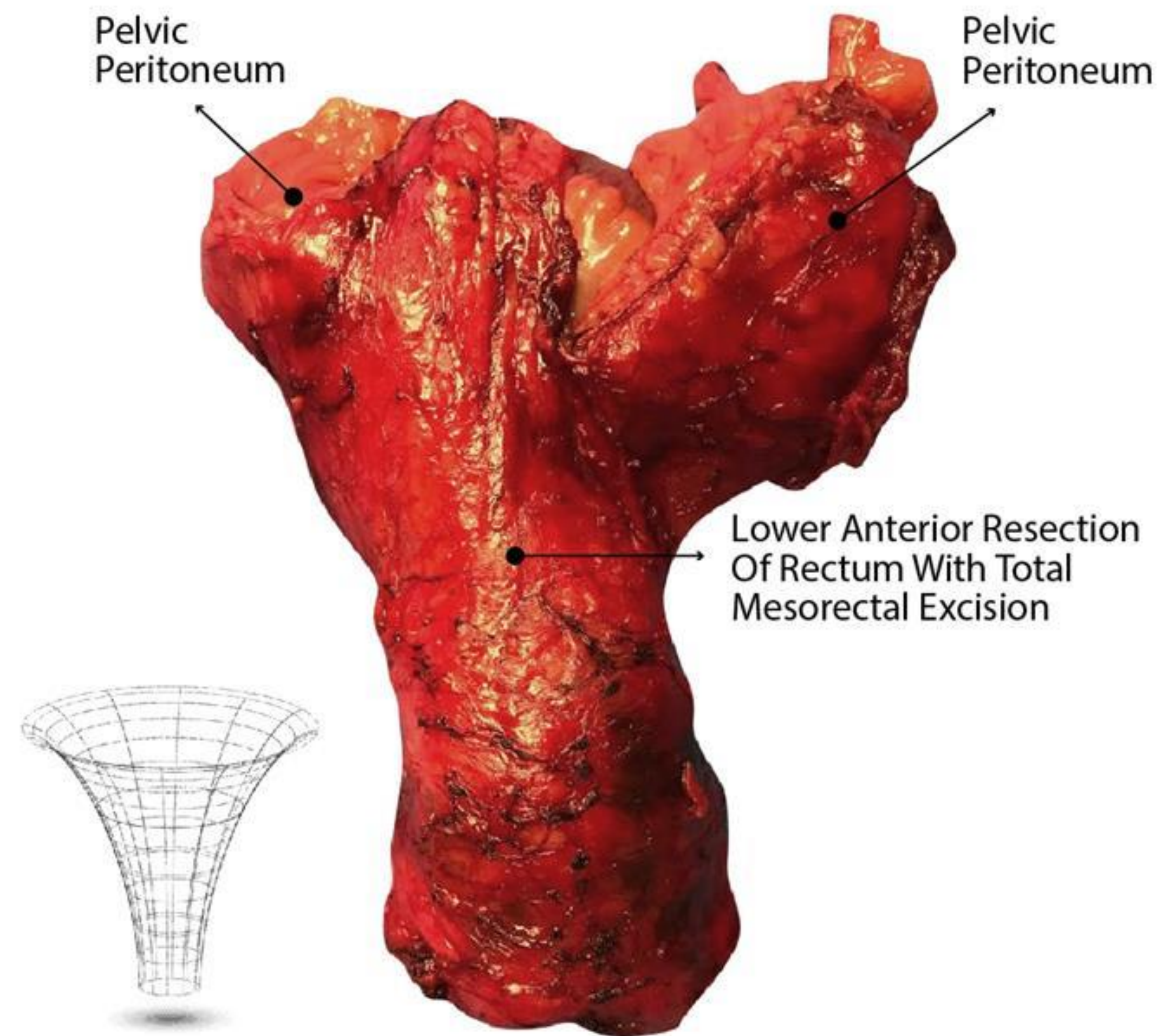
Spleen

Left Hemi Diaphragm with  
its peritoneum Stripped





A



B



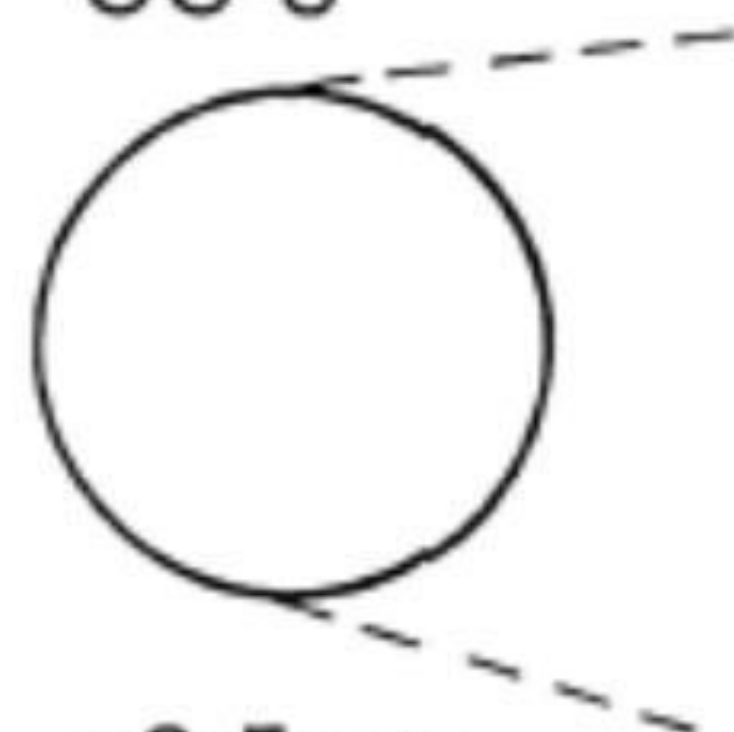
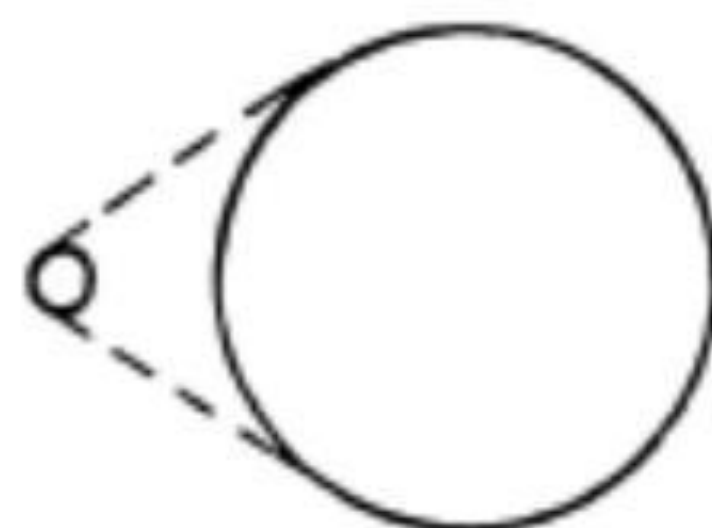
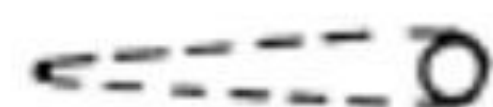
# COMPLETENESS OF CYTOREDUCTION AFTER SURGERY (CC SCORE)

CC-0

CC-1

CC-2

CC-3



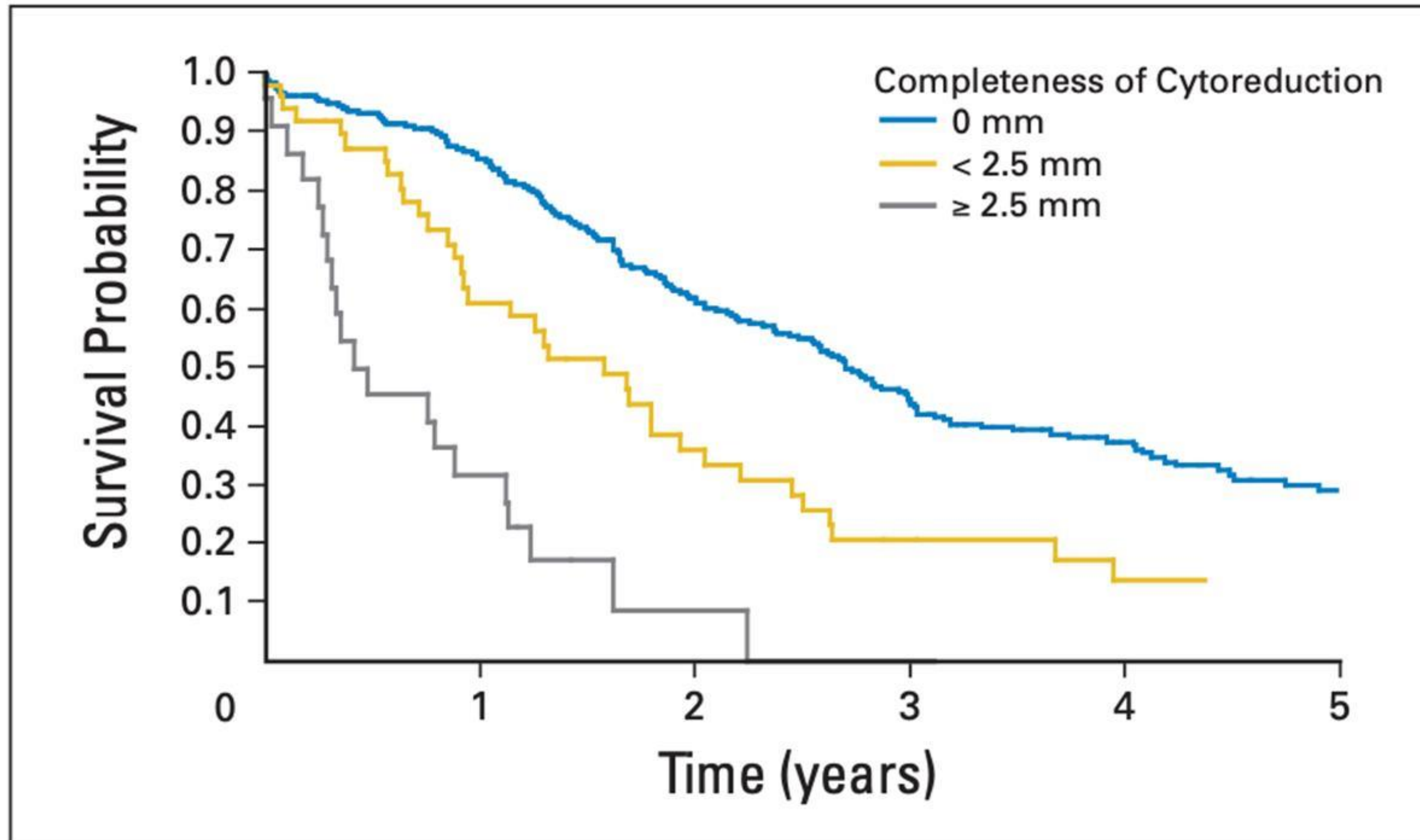
No disease

Present → 0.25cm

0.25cm → 2.5cm

>2.5cm

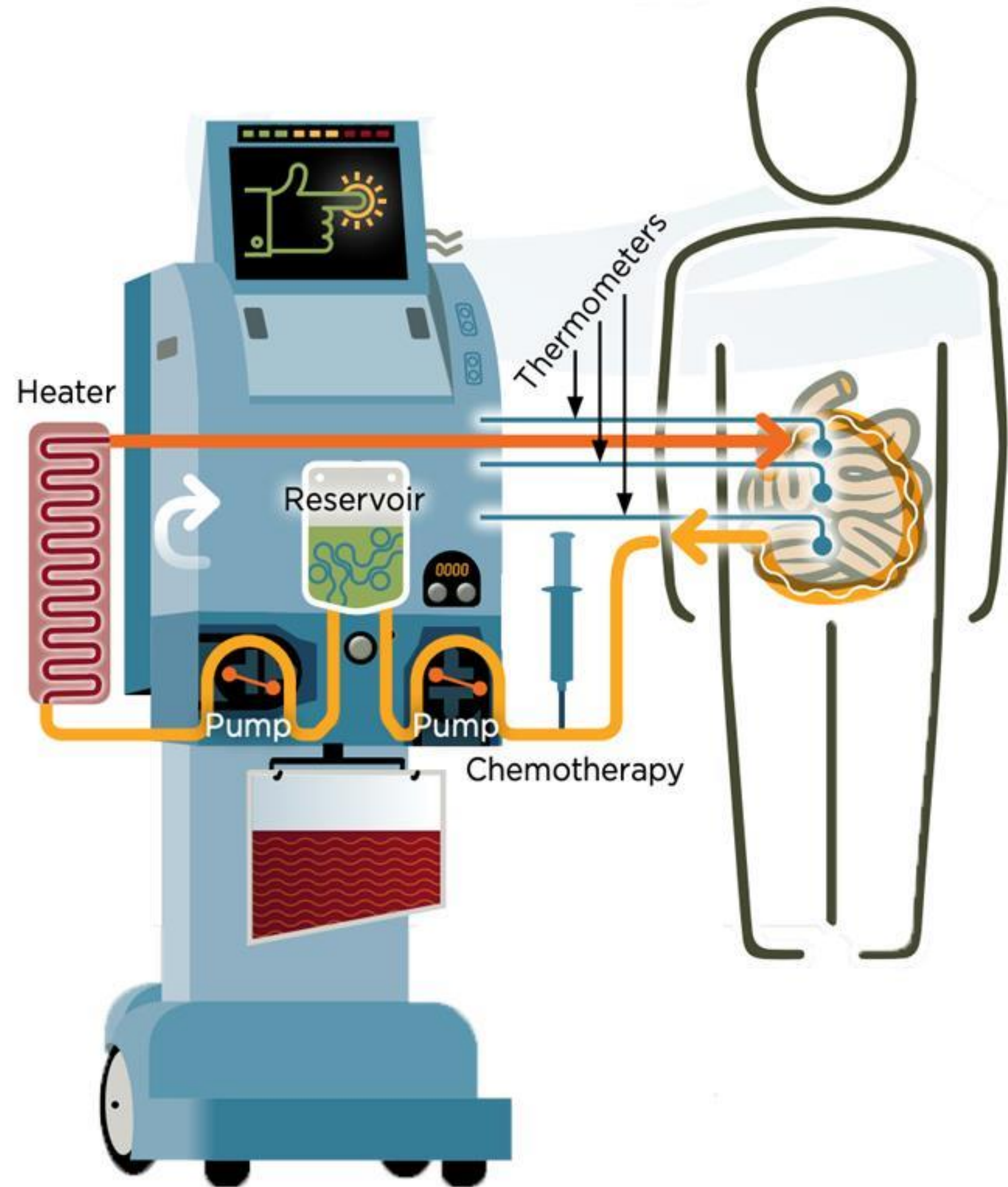




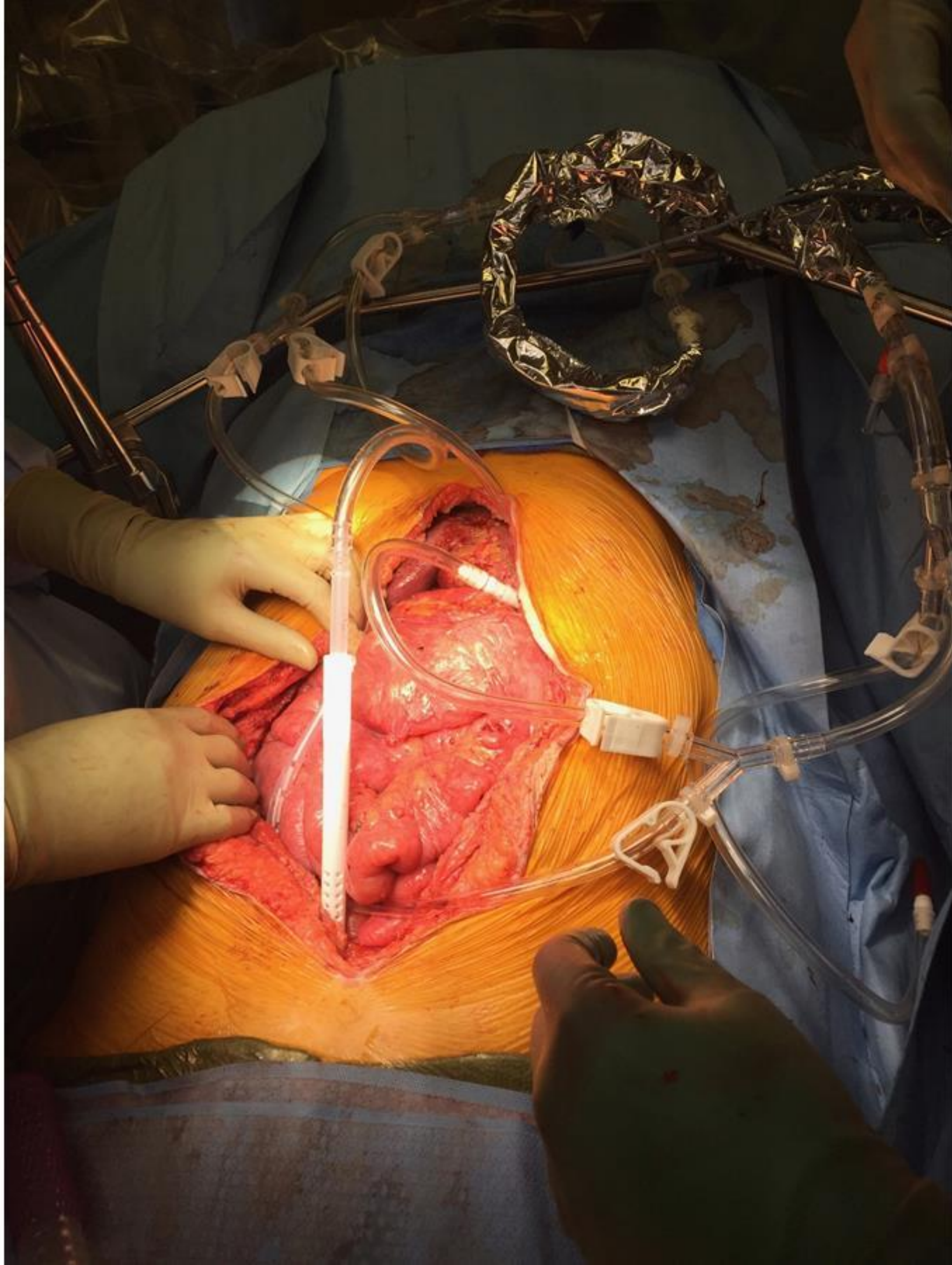


# HIPEC

- Hipertermia VD + Citotoxicidad
- Menos Efectos Adversos
- Mejor penetración de las drogas
- Mayor Efectividad









# Esquemas de Quimioterapia Intraperitoneal:

Chemotherapy Agent	Malignancy type	IV volume/ Concentration	Stability	Preparation Instructions	Monitoring/Lab parameters
Cisplatin	Peritoneal mesothelioma (single agent or w/ doxorubicin), Gastric cancer (w/ mitomycin), Ovarian cancer (w/ paclitaxel)	50-100 mL to achieve final concentration 0.05 – 2 mg/mL	48 hours RT	Dilute in NS, D51/2NS, D5NS  Not stable in D5W.  Do not use aluminum containing IV sets.	CMP, CBC  Addition of sodium thiosulfate is used for renal protection
Carboplatin	Ovarian cancer Peritoneal mesothelioma	50-100 mL to achieve final concentration 0.5 – 4 mg/mL	8 hours RT	Dilute in D5 or NS.	CMP, CBC
Mitomycin C	Peritoneal mesothelioma, Gastric cancer Colon cancer Appendiceal cancer Mucinous ovarian tumors	50-100 mL	7 days RT, 14 days RF	Dilute in NS  Not stable in D5W  Protect from light	CMP, CBC
Oxaliplatin	Appendix Cancer Colon Cancer	50-100 mL	6 hours RT, 24 hours RF	Dilute in D5W  Not stable in NS	CMP, CBC
Doxorubicin	Peritoneal mesothelioma (w/ cisplatin), Ovarian cancer (w/ paclitaxel or mitomycin) Desmoplastic Round cell tumors	50-100 mL	48 hours RT	Dilute in NS or D5W	CMP, CBC
Paclitaxel	Ovarian Cancer (w/ cisplatin)	50-100 mL to achieve a concentration 0.3-1.2 mg/mL	27 hours RT	Dilute in NS or D5W  Dispense in non-PVC containing IV bags and tubing	CMP, CBC  Pre-medication with steroid and anti-histamine is not required for HIPEC.

RT = room temperature; RF = refrigerated; NS = Normal Saline; D51/2NS = Dextrose 5% and 0.45% normal saline; D5NS = Dextrose 5% and normal saline; D5W = Dextrose 5%; CMP = complete metabolic panel; CBC = complete blood count; AUC = area under the curve, as calculated by the Calvert Formula

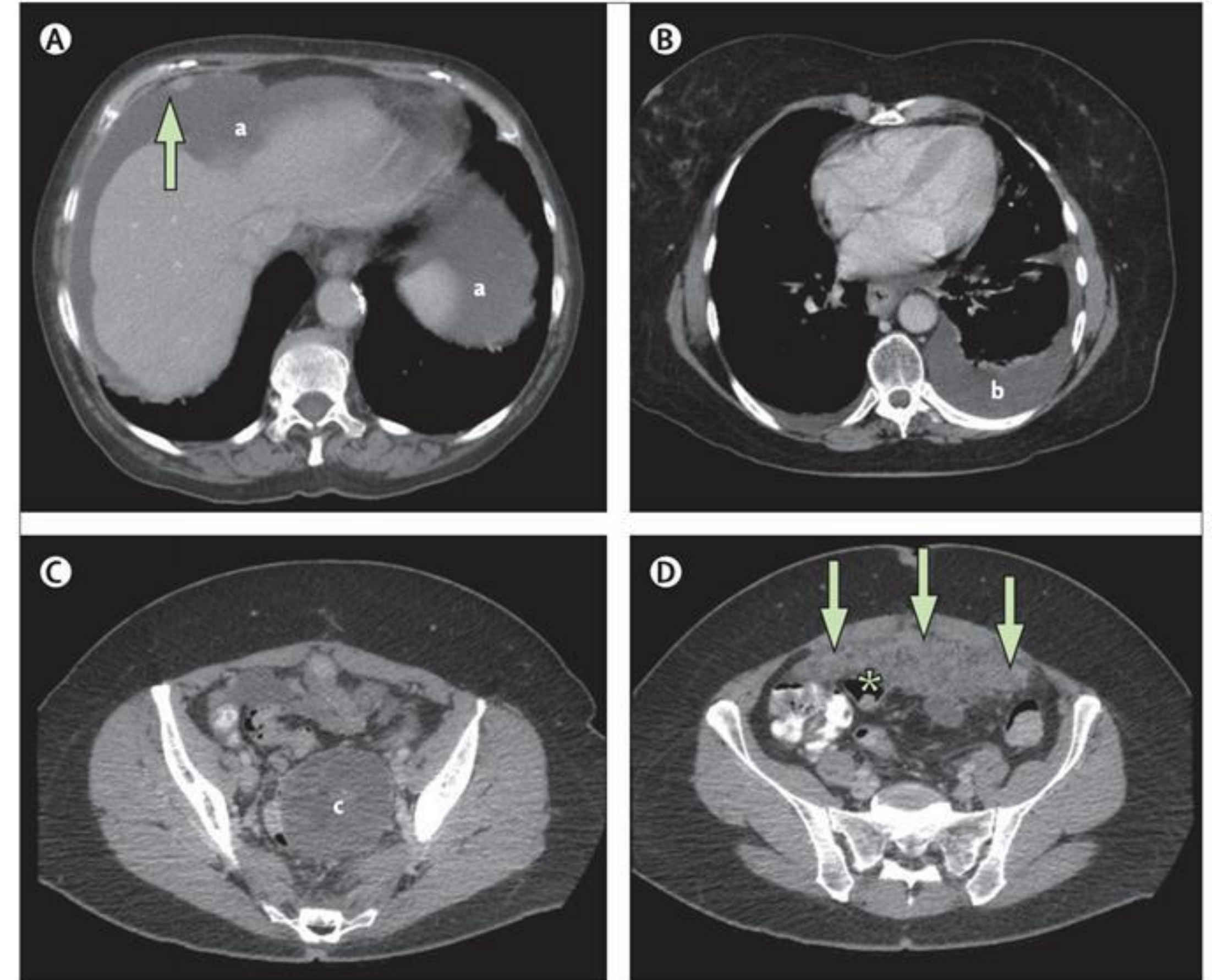


# CÁNCER DE OVARIO



# Cancer Ovárico Epitelial

- Afecta 220.000 mujeres al año en el mundo.
- 85% se presenta en una etapa avanzada.
- Cuarta causa de muerte por cáncer en mujeres.



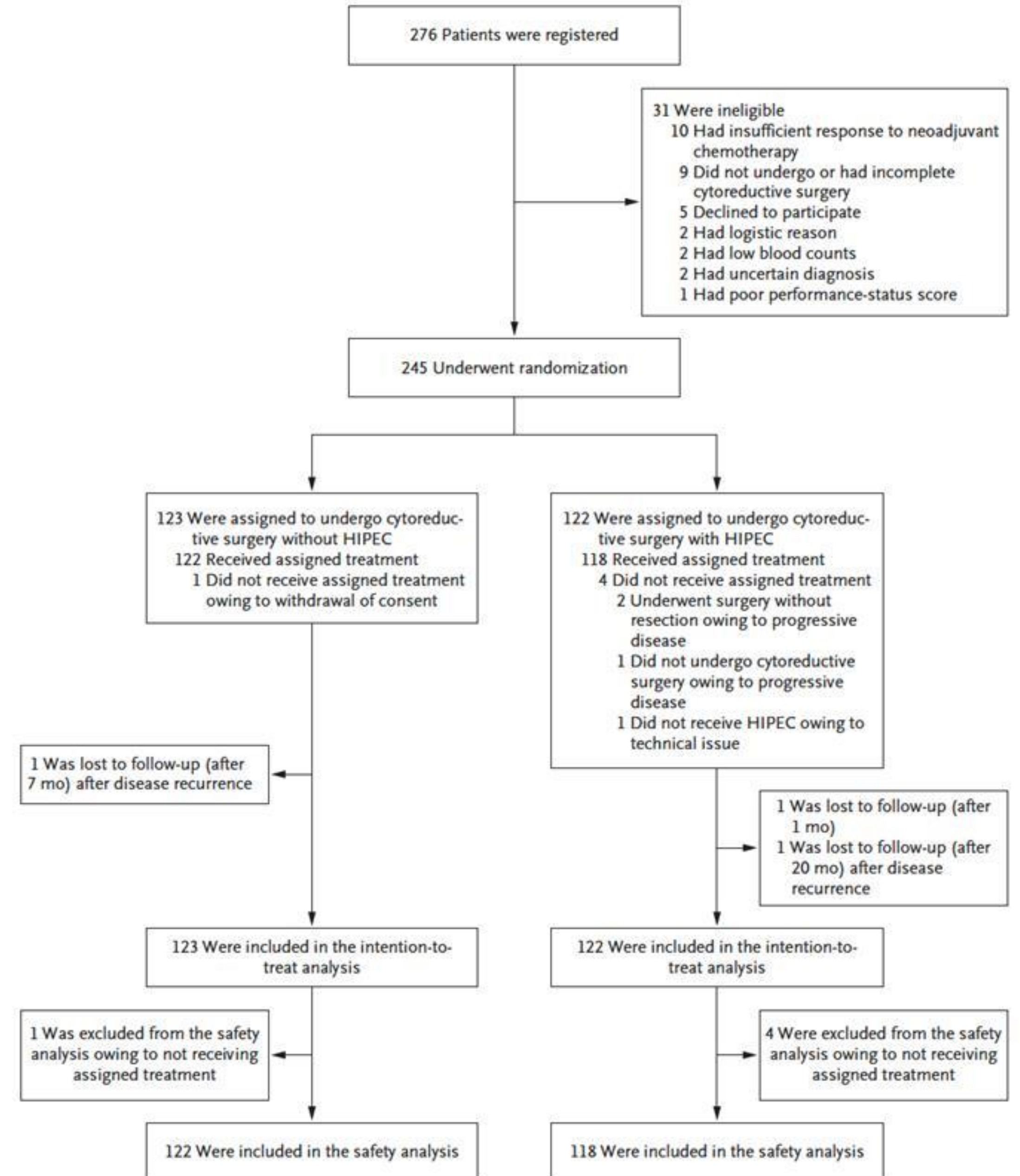


ORIGINAL ARTICLE

# Hyperthermic Intraperitoneal Chemotherapy in Ovarian Cancer

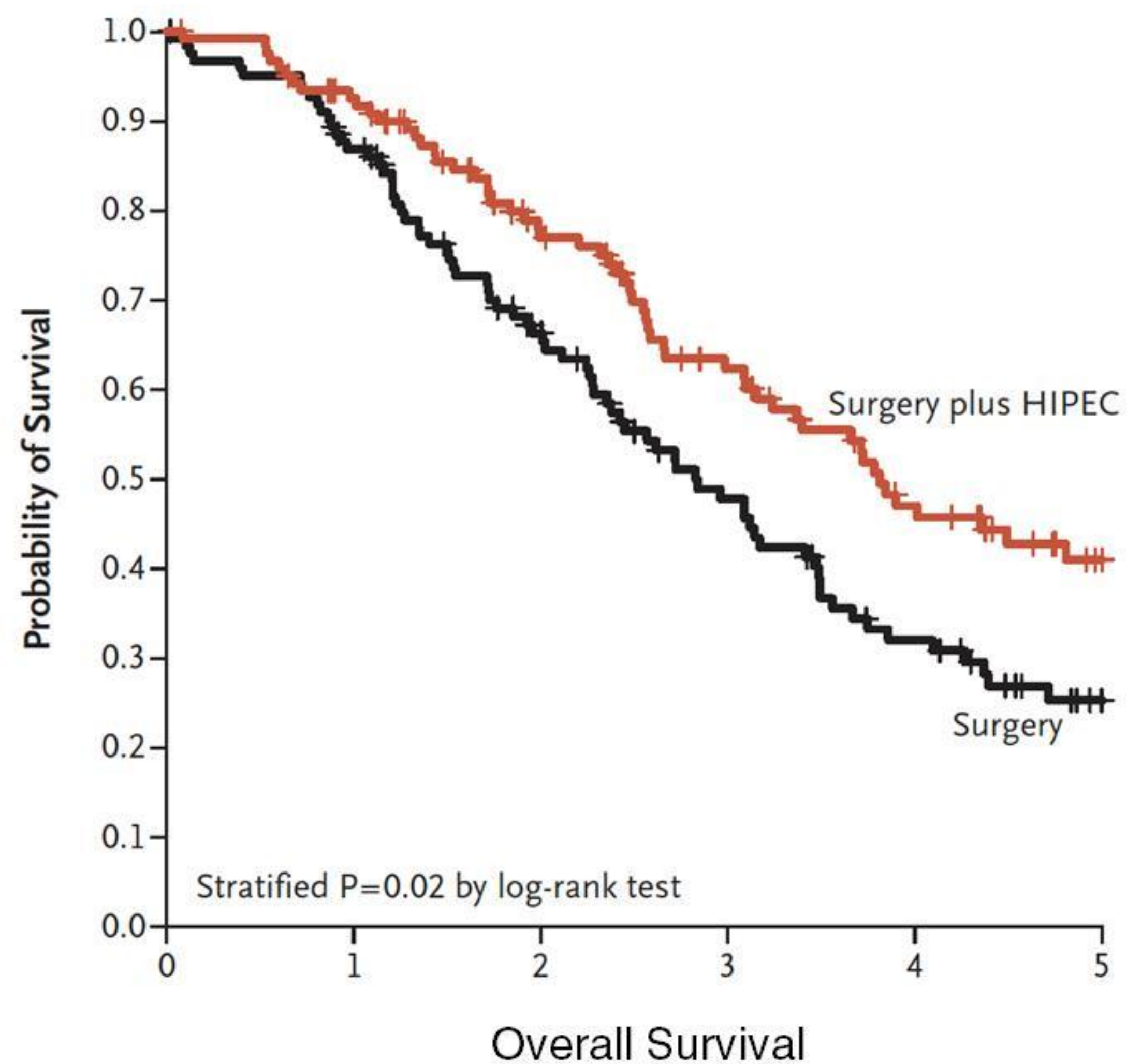
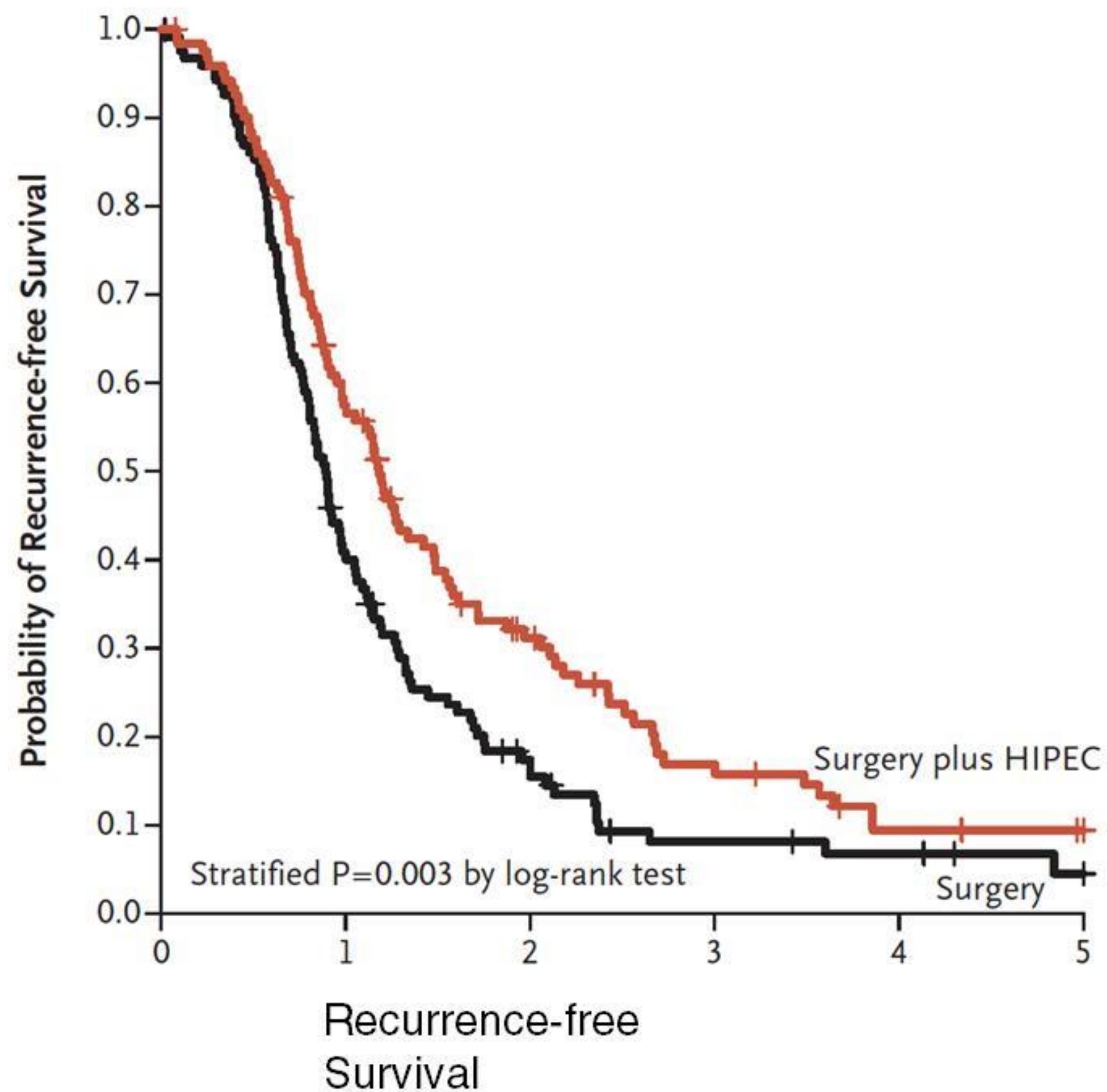
W.J. van Driel, S.N. Koole, K. Sikorska, J.H. Schagen van Leeuwen, H.W.R. Schreuder, R.H.M. Hermans, I.H.J.T. de Hingh, J. van der Velden, H.J. Arts, L.F.A.G. Massuger, A.G.J. Aalbers, V.J. Verwaal, J.M. Kieffer, K.K. Van de Vijver, H. van Tinteren, N.K. Aaronson, and G.S. Sonke

- RCT 245 pacientes
- HIPEC Cisplatino 100 mg/m<sup>2</sup> por 90 min al momento de cirugía de intervalo VS Cirugía.
- 90% completaron 6 ciclos de QMT



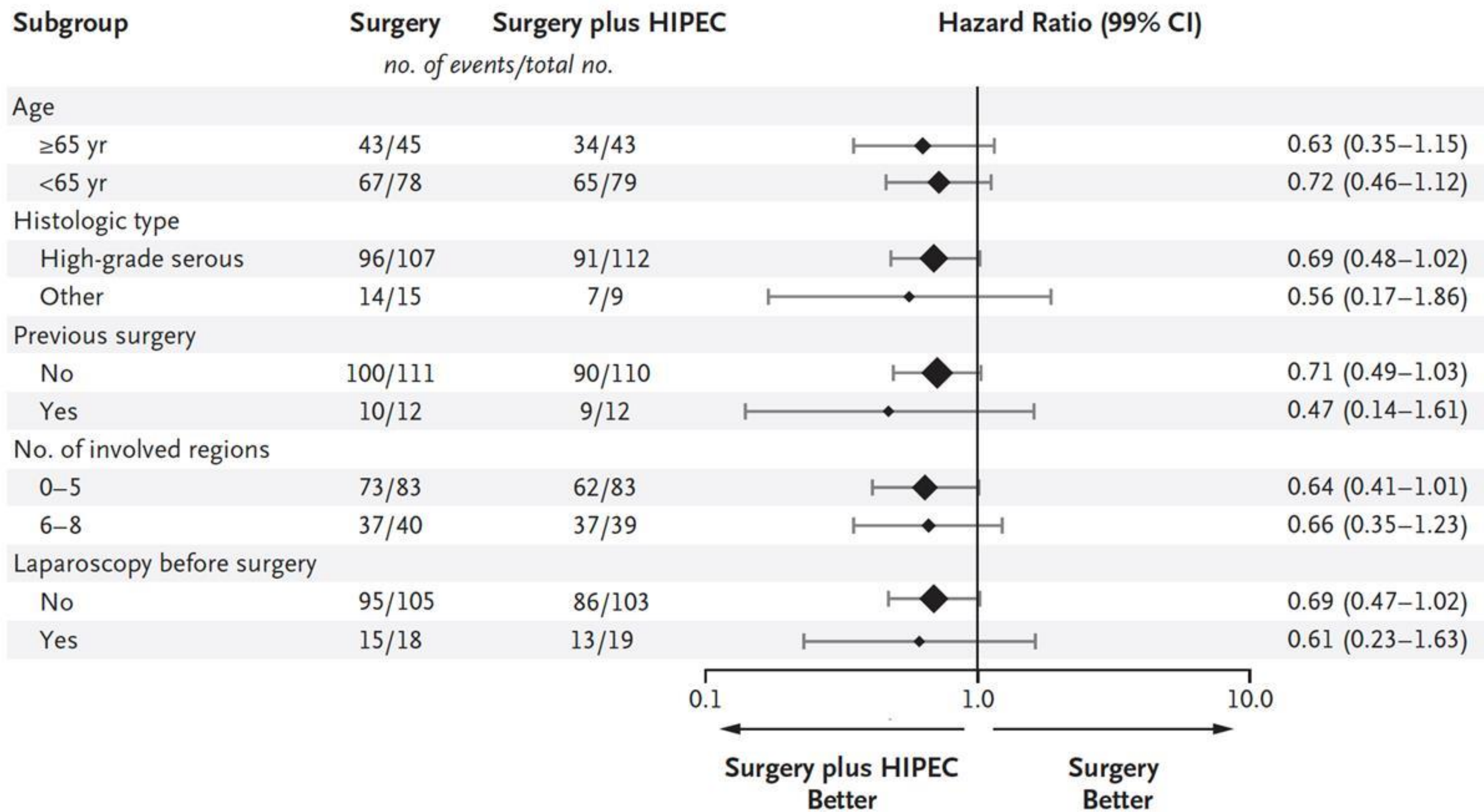


## Kaplan–Meier Estimates of Recurrence-free Survival and Overall Survival



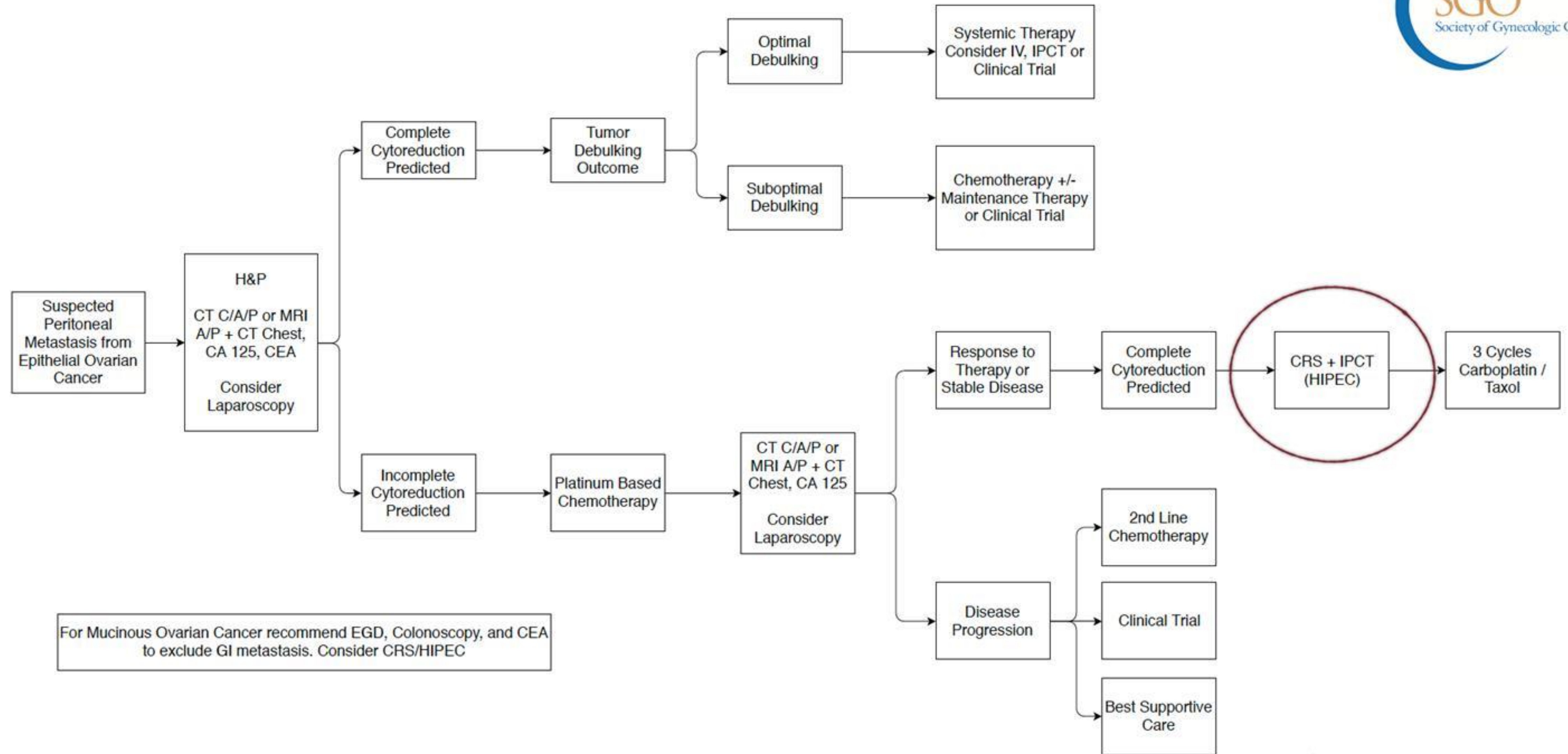
*NEJM 378;3 nejm.org January 18, 2018*







# Peritoneal Metastasis from Epithelial Ovarian Cancer



For Mucinous Ovarian Cancer recommend EGD, Colonoscopy, and CEA to exclude GI metastasis. Consider CRS/HIPEC

CT C/A/P: Computed Tomography of Chest/Abdomen/Pelvis  
MRI A/P: Magnetic Resonance Imaging of Abdomen/Pelvis  
CEA: Carcinoembryonic Antigen  
IPCT: Intraperitoneal Chemotherapy  
CRS: Cytoreductive Surgery  
EGD: Esophagogastroduodenoscopy  
IV: Intravenous



# CÁNCER COLORECTAL



# C6ncer de Colon y Metastasis Peritoneal

A UNICANCER phase III trial of Hyperthermic Intra-peritoneal Chemotherapy (HIPEC) for Colorectal Peritoneal Carcinomatosis.

**Prodige 7 - ACCORD 15 trial.** NCT00769405, N° EudraCT : 2006-006175-20

François Quenet, MD, Dominique Elias, MD, PhD, Lise Roca, M.Sc., Diane Goéré, MD, PhD, Laurent Ghouti, MD, Marc Pocard, MD, PhD, Olivier Facy, MD, PhD, Catherine Arvieux, MD, PhD, Gérard Lorimier, MD, Denis Pezet, MD, PhD, Frédéric Marchal, MD, PhD, Valeria Loi, MD, PhD, Pierre Meeus, MD, Hélène de Forges, PhD, Trevor Stanbury, PhD, Jacques Paineau, MD, PhD, Olivier Glehen, MD, PhD.





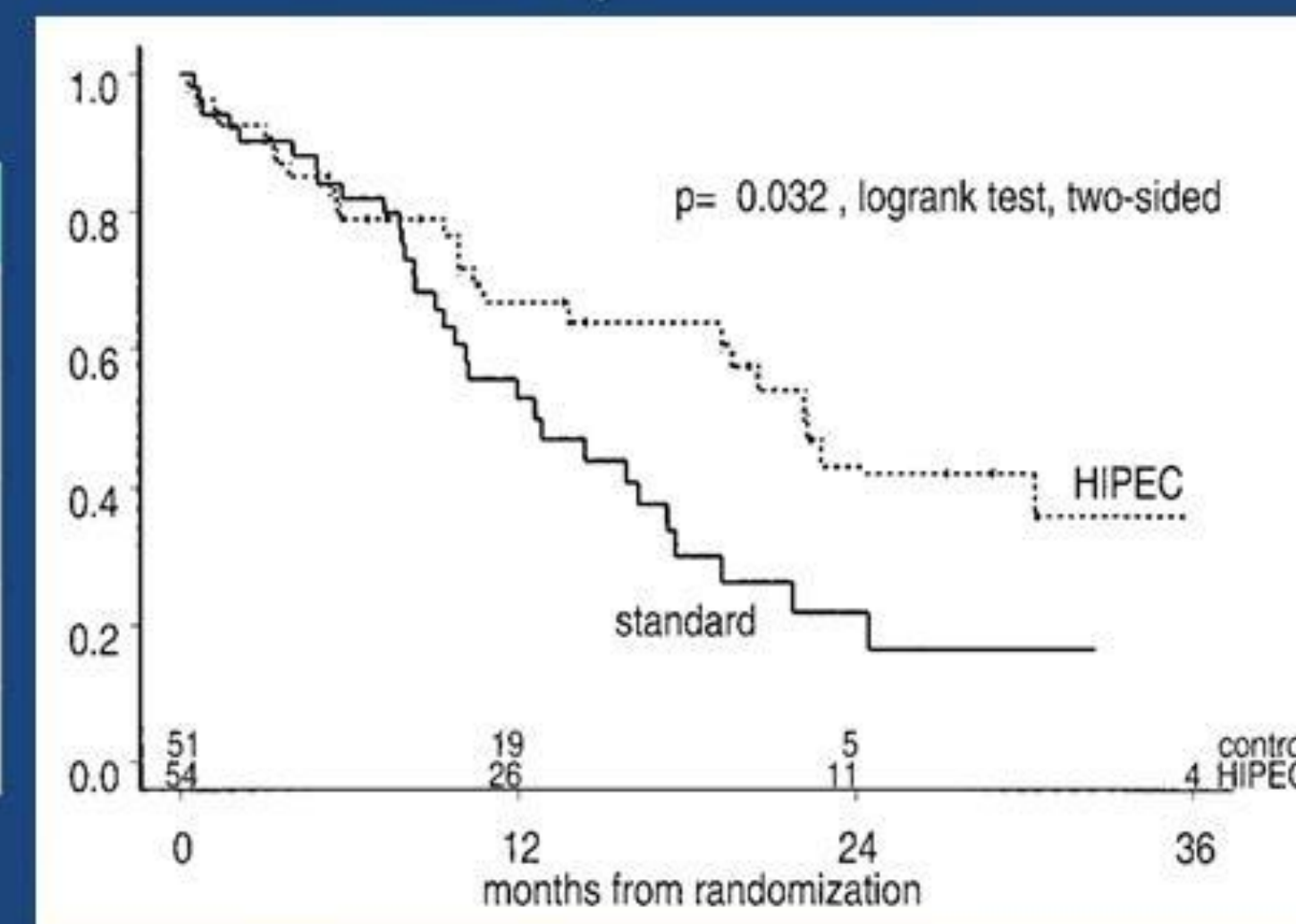
# C6ncer de Colon y Metastasis Peritoneal

## Background

Retrospective studies CRS + HIPEC

Authors	Nb of Patients	Median OS	Source
Glehen	506	32	JCO 2004
Elias	523	33	JCO 2009
Chua	110	38	Ann Surg Oncol 2011
Quenet	146	41	Ann Surg 2011
Prada-Villaverde	539	33	J Surg Oncol 2014

Phase III study

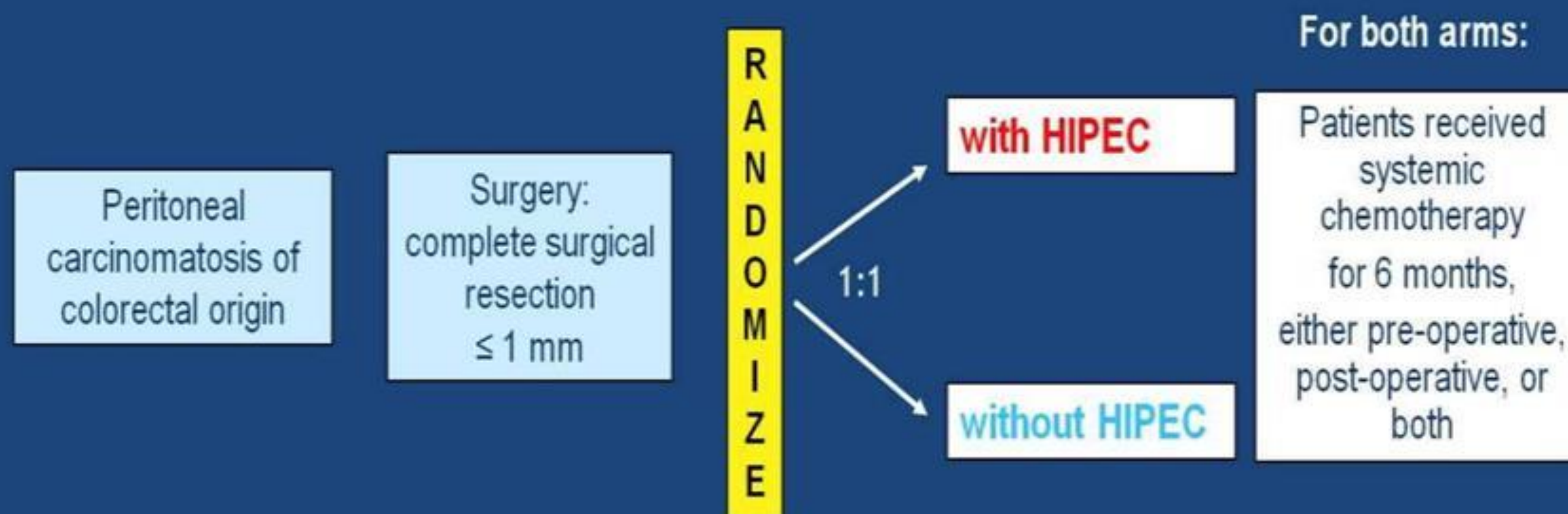


V.Verwaal, Ann Surg Oncol. 2003  
Ann Surg Oncol. 2008



# C6ncer de Colon y Metastasis Peritoneal

## Unicancer Prodiges 7 trial design



### Stratification :

- Centre
- Residual tumor status (R0/R1 vs R2 ≤ 1 mm)
- Prior regimens of systemic chemotherapy
- Neoadjuvant Chemotherapy



# C6ncer de Colon y Metastasis Peritoneal

## HIPEC Arm (open or closed technique)

*After Cytoreductive surgery*

IP → Oxaliplatin 460mg/m<sup>2</sup> in 30 minutes (360mg/m<sup>2</sup> in closed procedures)

IV → Folinic Acid 20mg/m<sup>2</sup>  
5 FU 400mg/m<sup>2</sup> } During HIPEC

*D.Elias Annals of Oncology 2002*

PRESENTED AT: 2018 ASCO  
ANNUAL MEETING

#ASCO18  
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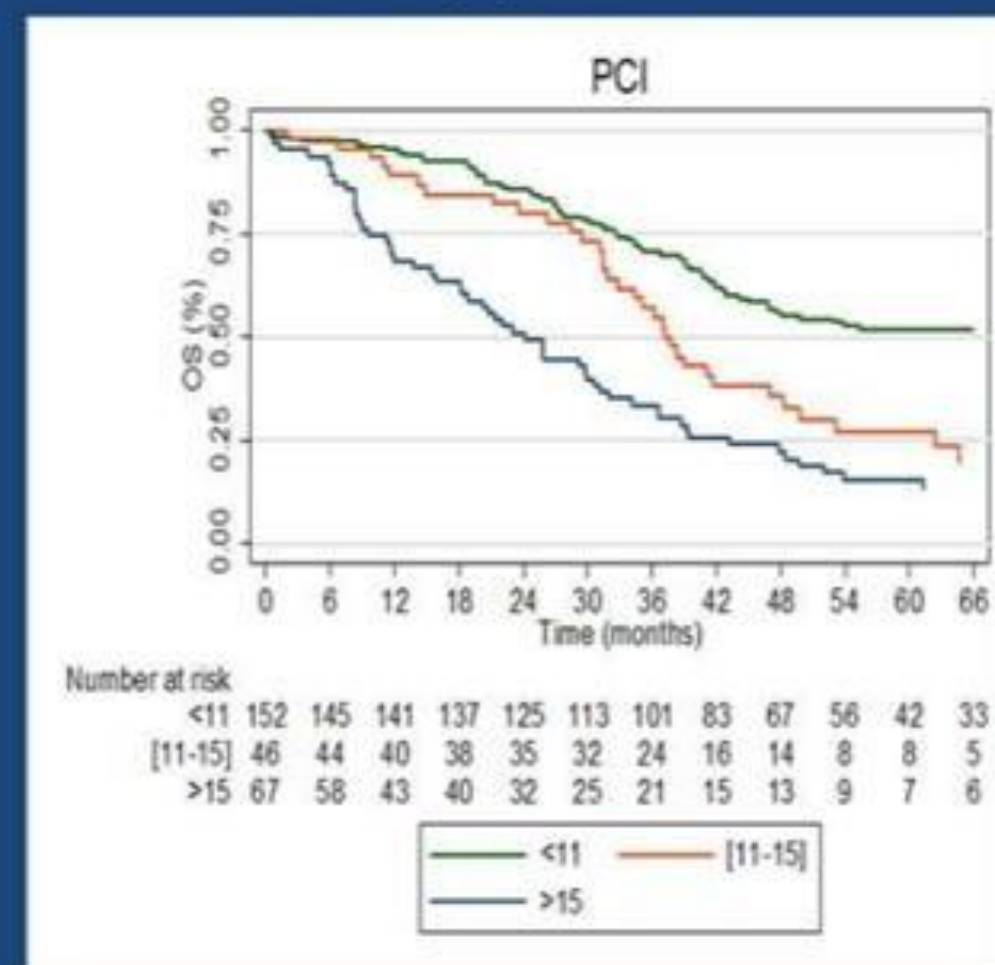
PRESENTED BY: François Quenet



# C6ncer de Colon y Metastasis Peritoneal

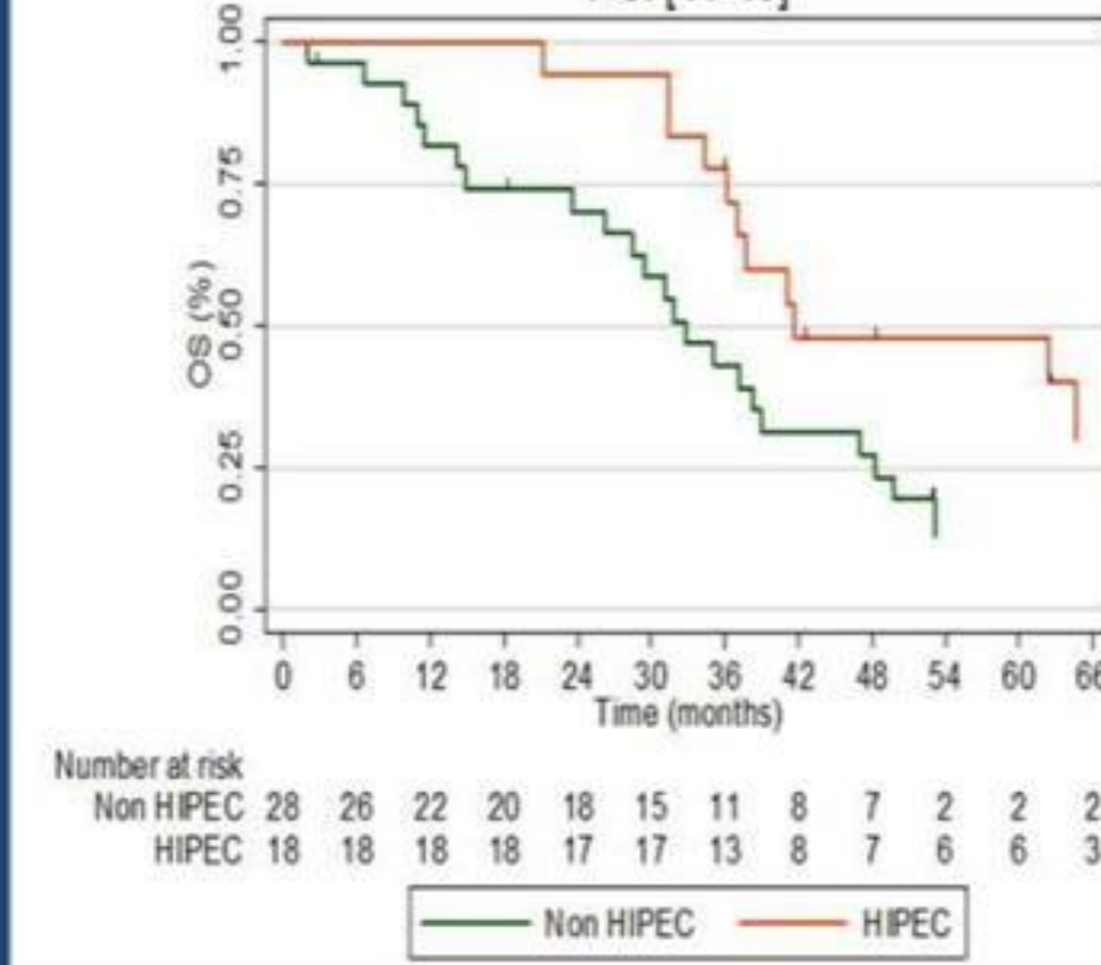
## Overall survival and PCI

Entire population



<11 HR= 1  
 [11-15] HR= 1.88 95%CI [1.25-2.88] p=0.003  
 16-24 HR= 3.57 95%CI [2.43-5.23] p<0.001

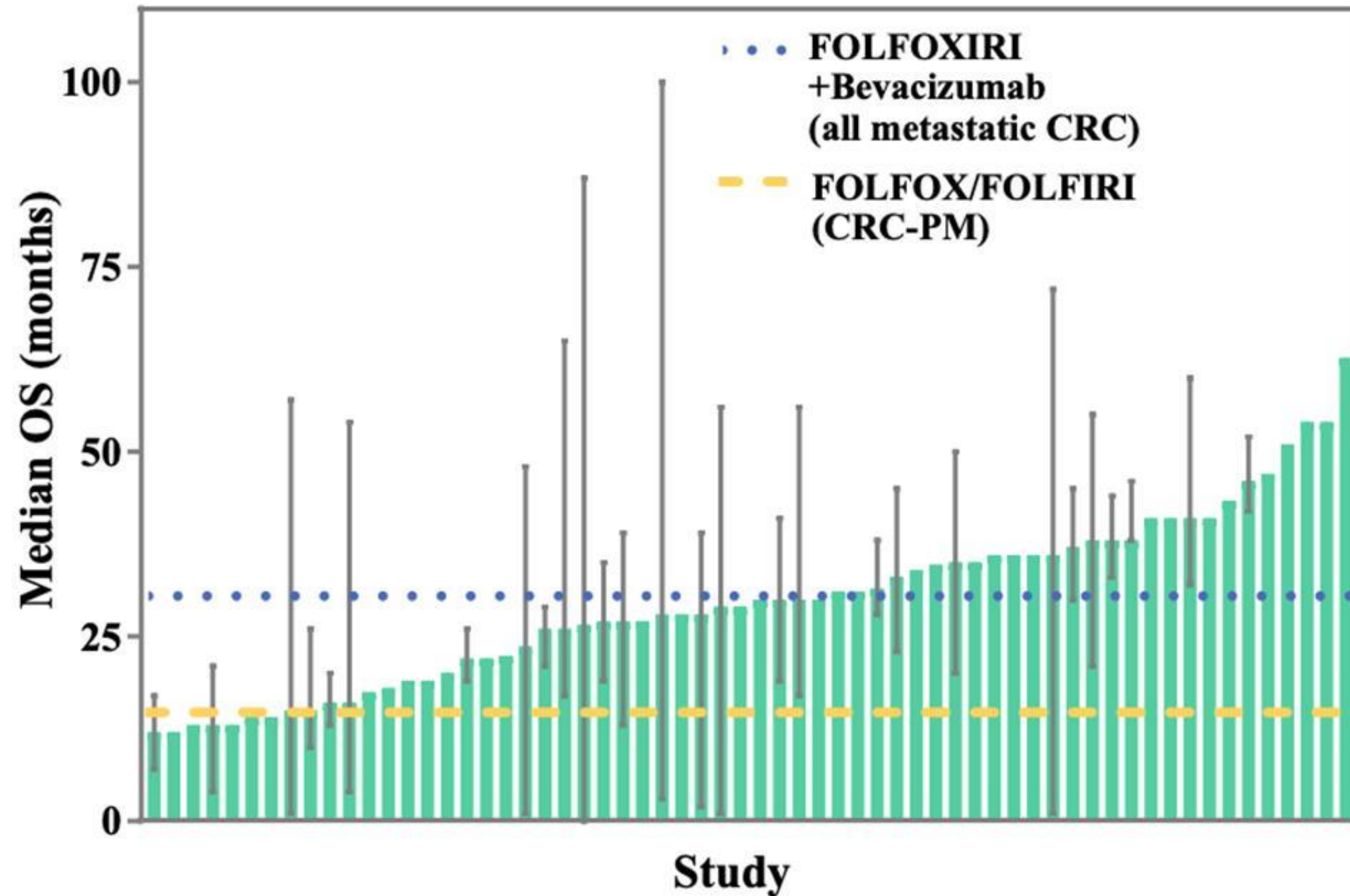
PCI [11-15]



OS PCI [11-15]	HIPEC	Non-HIPEC	HR	P-value
Median Survival (months) [95% CI]	41.6 [36.1-nor reach]	32.7 [23.5-38.9]	0.437 [23.5-38.9]	0.0209



# Cancer Colorectal Metast6sico





# CÁNCER GÁSTRICO



# C6ncer G6strico

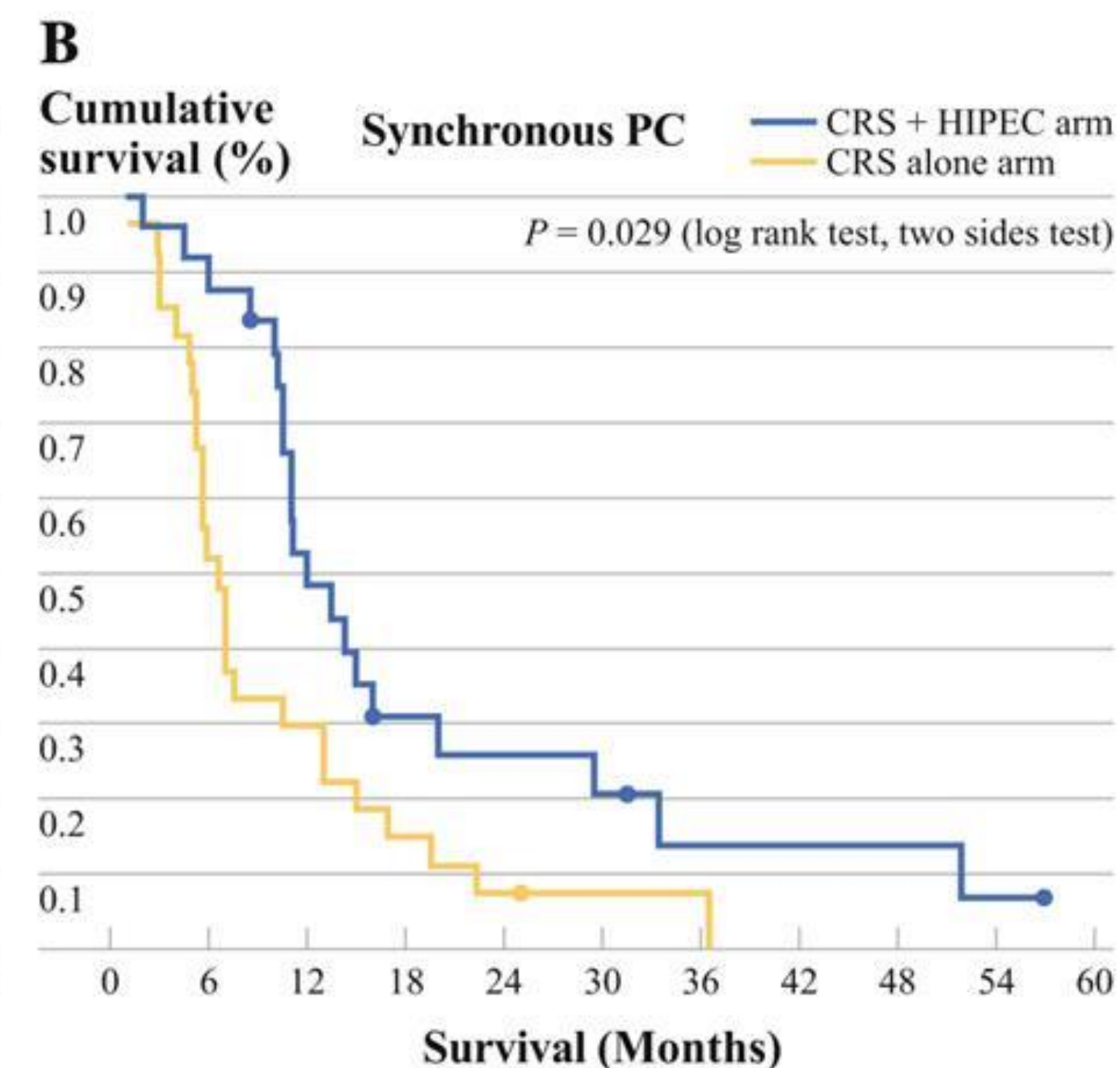
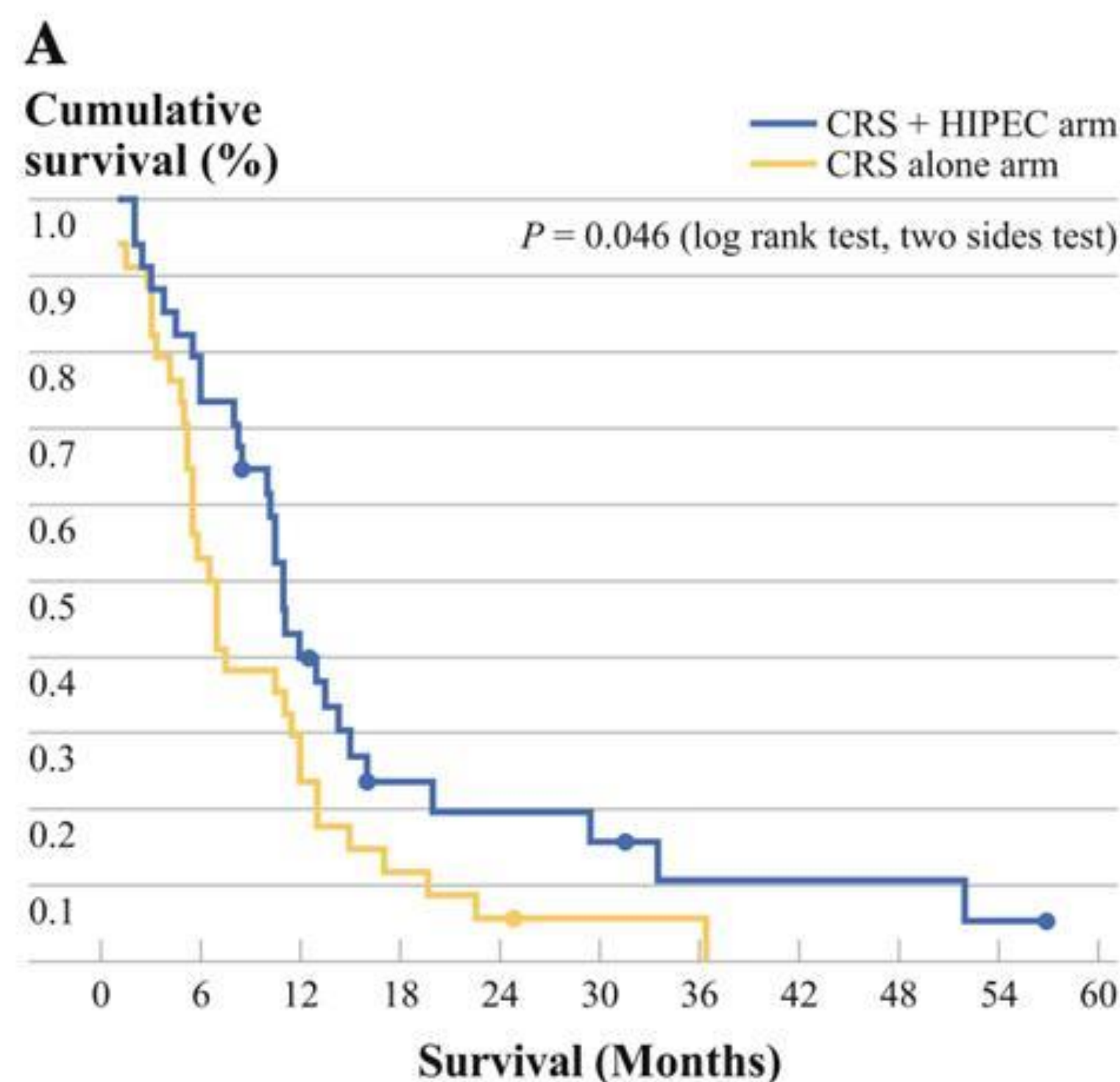
- Primera causa de muerte por c6ncer en Chile.
- Hasta un 30% presenta EPM al momento del diagn6stico.
- Sobrevida 6 - 15 meses con EPM (+).





# Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy Improves Survival of Patients with Peritoneal Carcinomatosis from Gastric Cancer: Final Results of a Phase III Randomized Clinical Trial

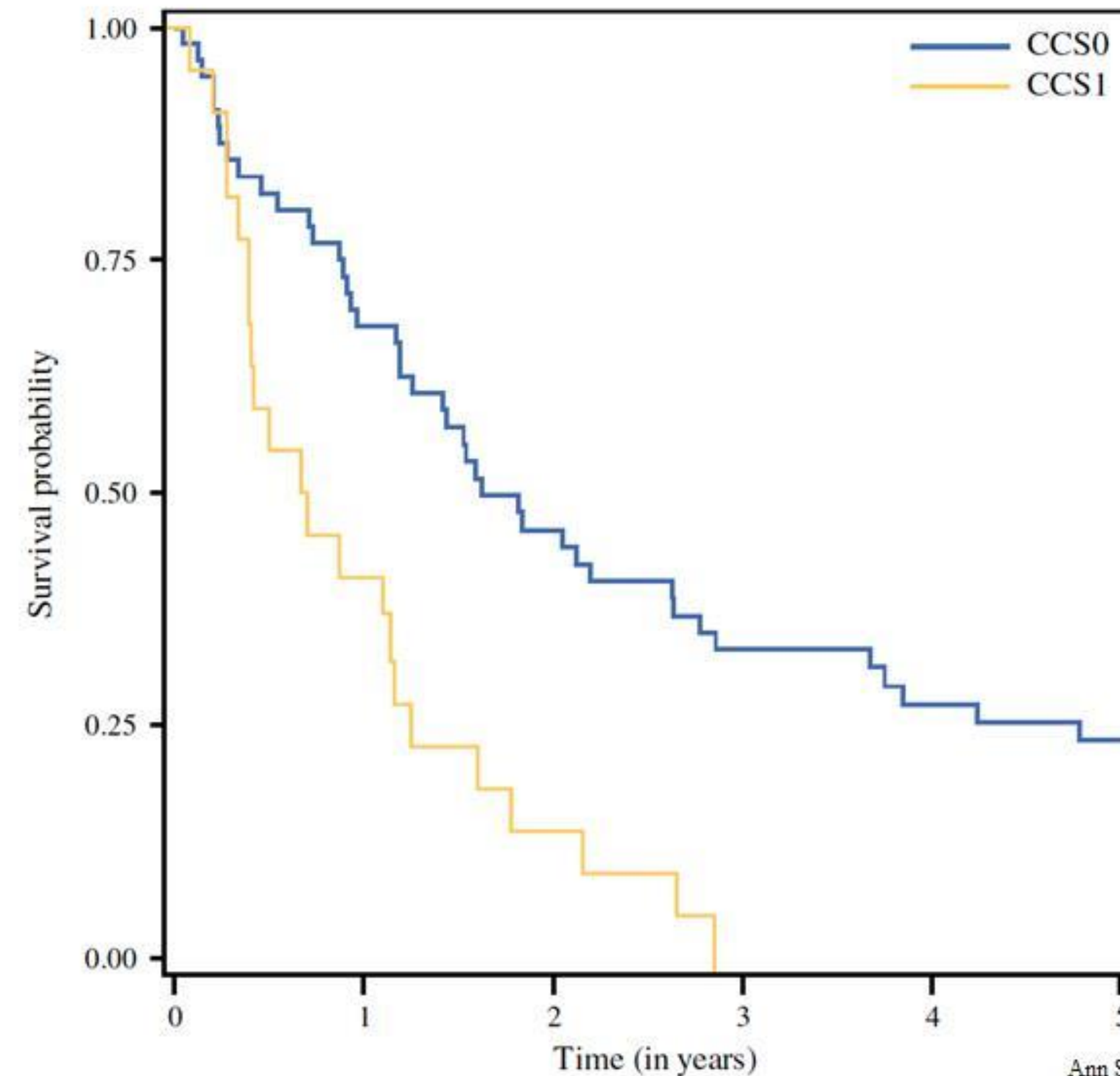
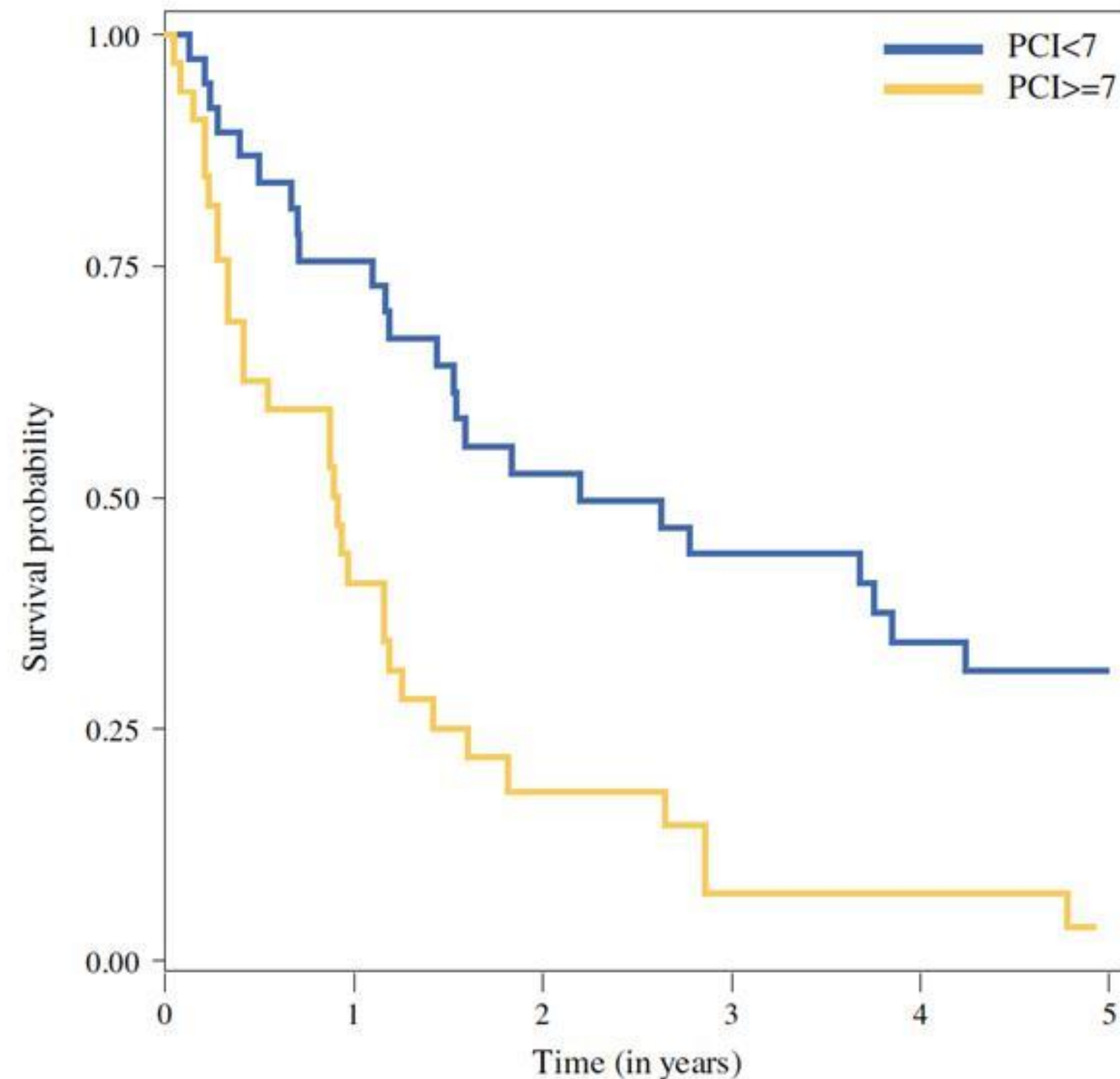
- RCT III 68 pacientes
- Mediana de SV 11 vs 6,5 meses





## Patients with Peritoneal Carcinomatosis from Gastric Cancer Treated with Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy: Is Cure a Possibility?

**BIG RENAPE GROUP**





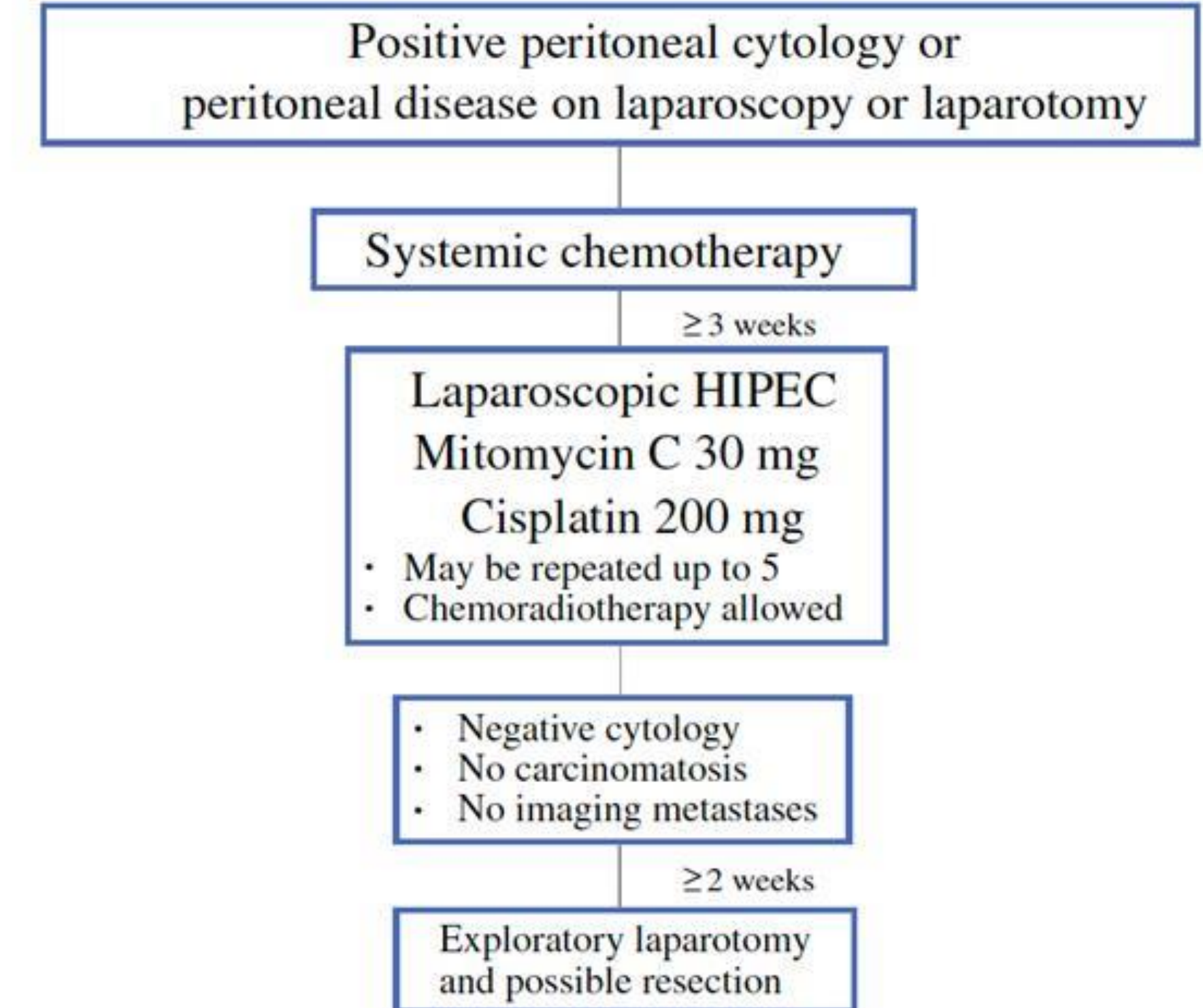


## Phase II Trial of Laparoscopic Hyperthermic Intraperitoneal Chemoperfusion for Peritoneal Carcinomatosis or Positive Peritoneal Cytology in Patients with Gastric Adenocarcinoma

Brian Badgwell, MD, MS<sup>1</sup>, Mariela Blum, MD<sup>2</sup>, Prajnan Das, MD<sup>3</sup>, Jeannelyn Estrella, MD<sup>4</sup>, Xuemei Wang, MS<sup>5</sup>, Linus Ho, MD<sup>2</sup>, Keith Fournier, MD<sup>1</sup>, Richard Royal, MD<sup>1</sup>, Paul Mansfield, MD<sup>1</sup>, and Jaffer Ajani, MD<sup>2</sup>

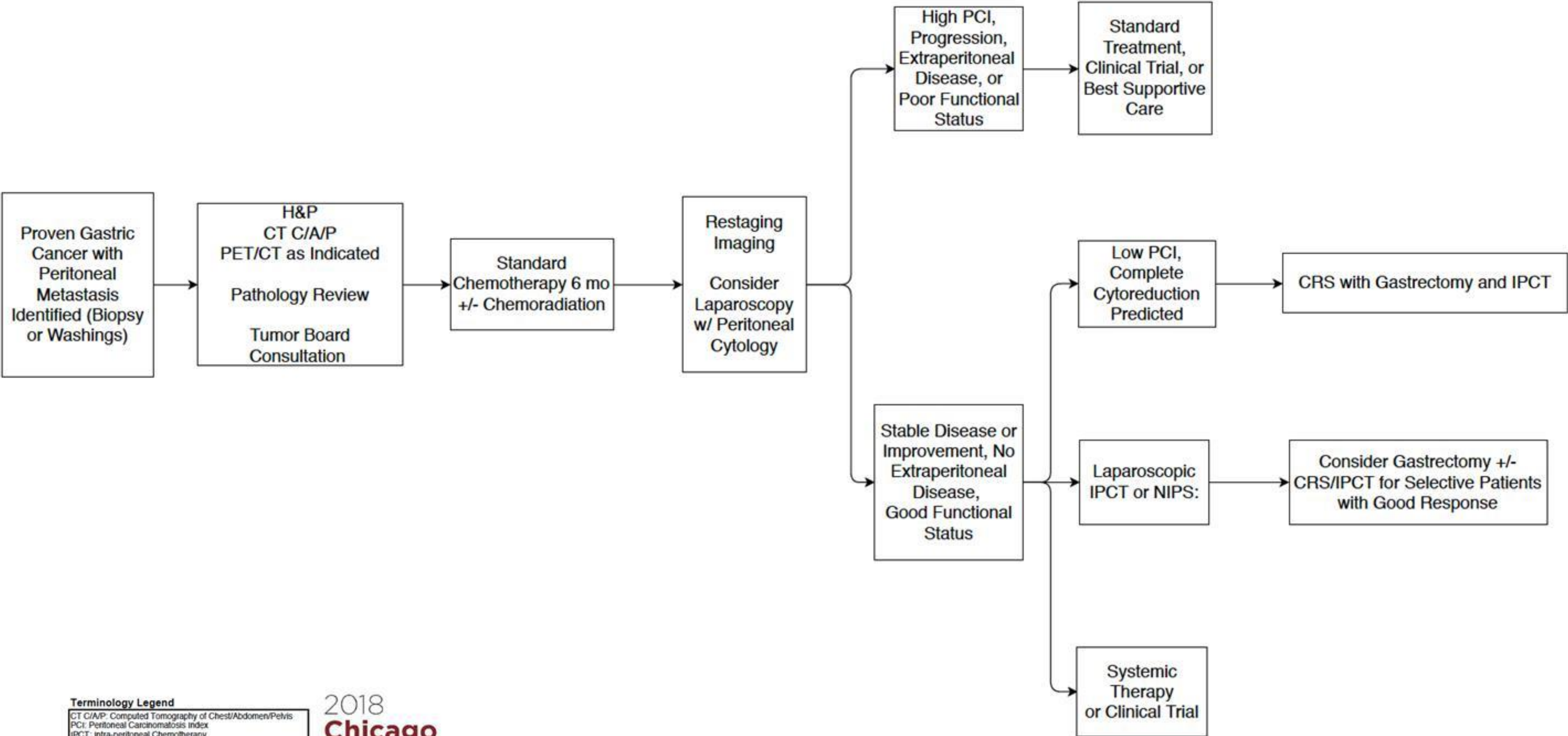


### Single Arm. Phase 2





# Gastric Cancer with Synchronous Peritoneal Metastasis



## Terminology Legend

CT C/A/P: Computed Tomography of Chest/Abdomen/Pelvis  
PCI: Peritoneal Carcinomatosis Index  
IPCT: Intra-peritoneal Chemotherapy  
CRS: Cytoreductive Surgery  
NIPS: Neoadjuvant Intra-peritoneal and Systemic Chemotherapy

2018  
**Chicago  
Consensus**

on Peritoneal Surface Malignancies



[Secpolicirugia.hsjd@redsalud.gov.cl](mailto:Secpolicirugia.hsjd@redsalud.gov.cl)

