



02 a 05 de agosto
de 2015

Tratamento da metástase hepática de origem colo-retal

Orlando Jorge M. Torres
Professor Livre-Docente
Núcleo de Estudos do Fígado - UFMA

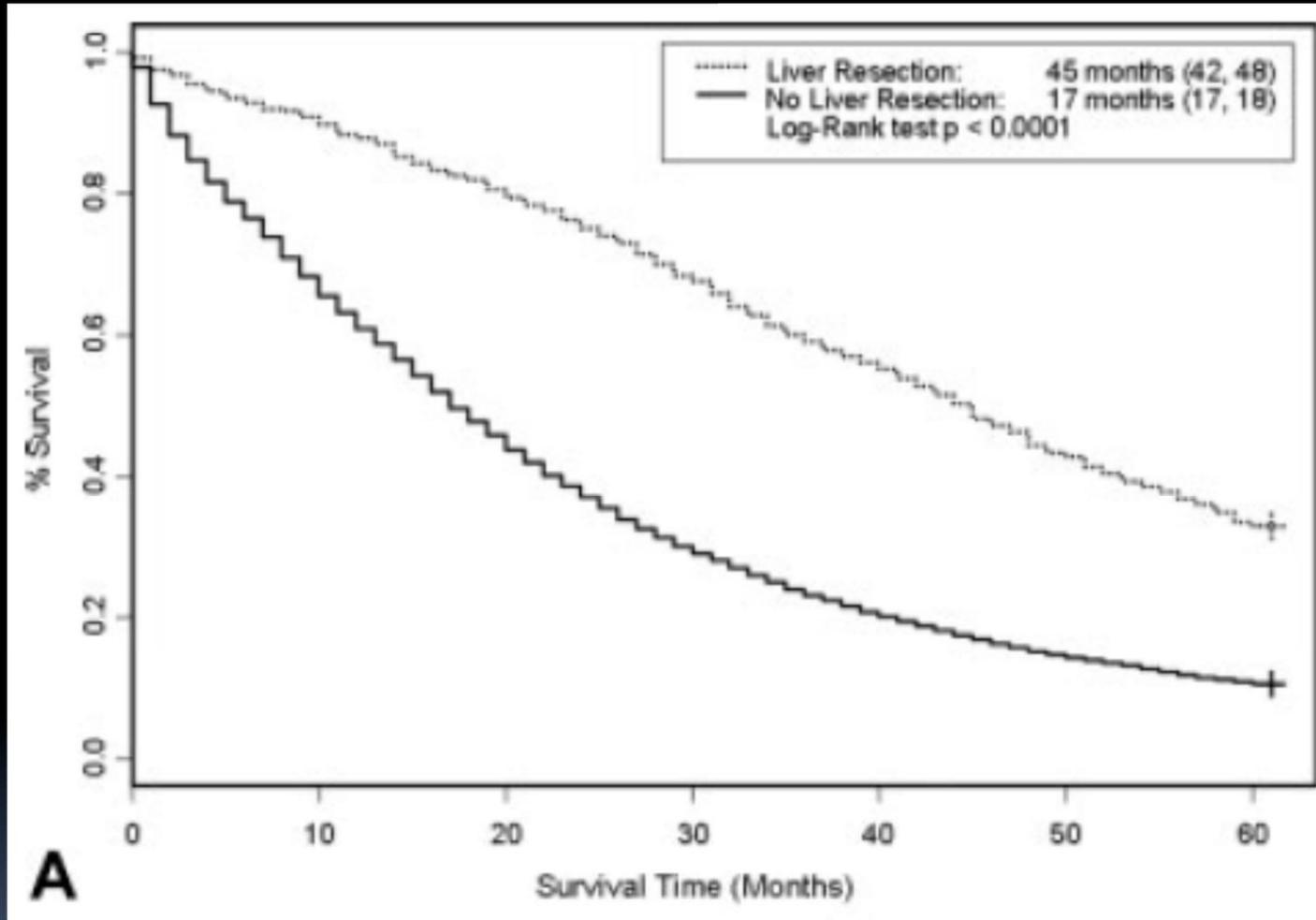
Câncer colo-retal

Metástase hepática colo-retal

- ❑ 150.000 novos casos/ano de câncer colo-retal (EUA)
- ❑ 40% a 70% devem apresentar metástase
- ❑ 35% dos casos é o único local
- ❑ 15 a 25 % tem metástase hepática sincrônica
- ❑ 20 a 30% desenvolve metástase metacrônica em 3 anos
- ❑ Um quarto destes são candidatos a ressecção
- ❑ Um quinto é possível ressecção R0
- ❑ Não tratado a sobrevida é de 6 a 18 meses

10.000 a 15.000 pacientes/ano são candidatos a ressecção

Ressecção hepática



□ A ressecção hepática esteve associada com aumento na sobrevida.

Critérios de irresseccabilidade

Antes

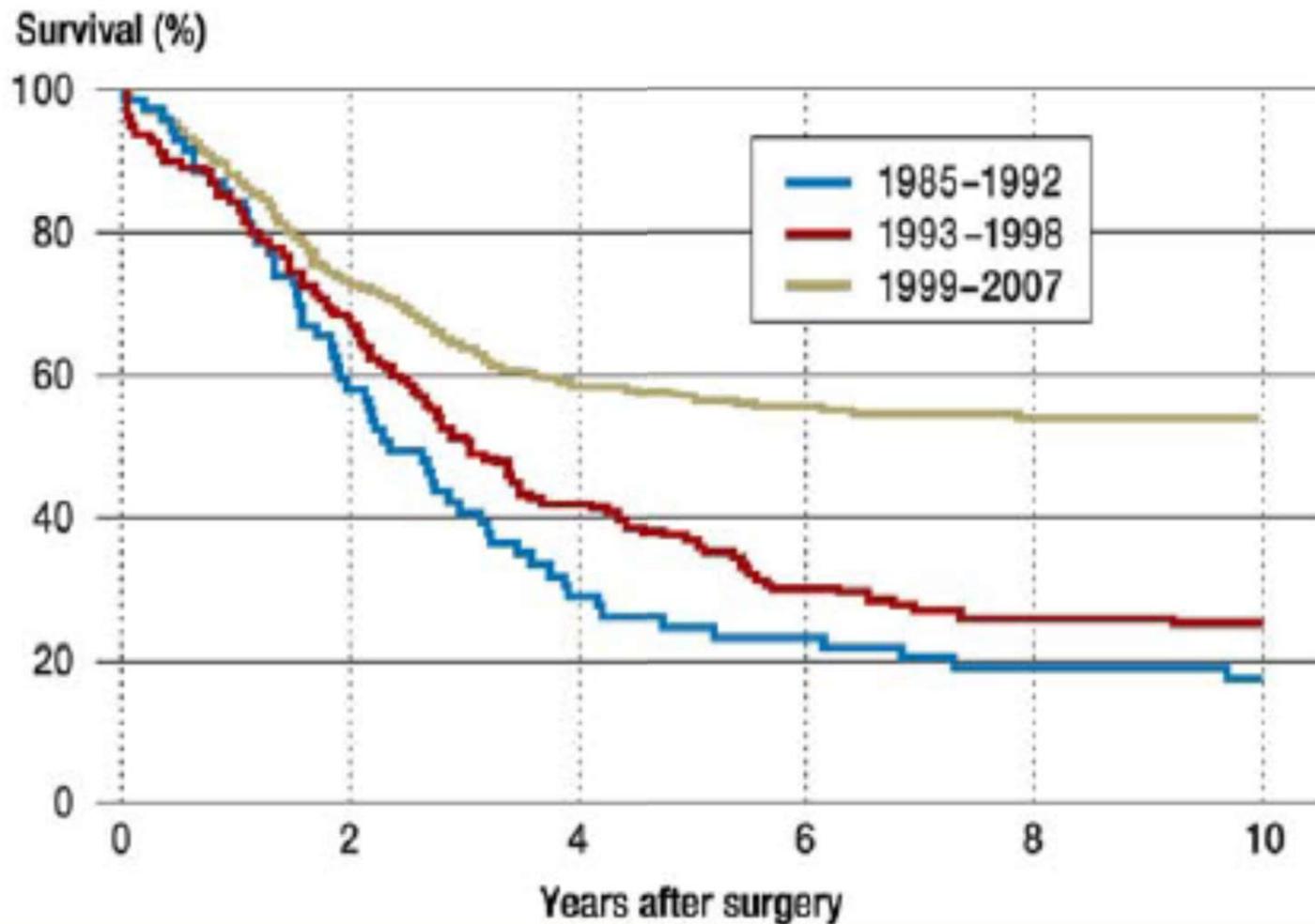
- Quatro ou mais metástases
- Tamanho > 5 cm
- Doença bilateral
- Margem cirúrgica < 1 cm
- Doença extra-hepática
- Escore prognóstico

Depois

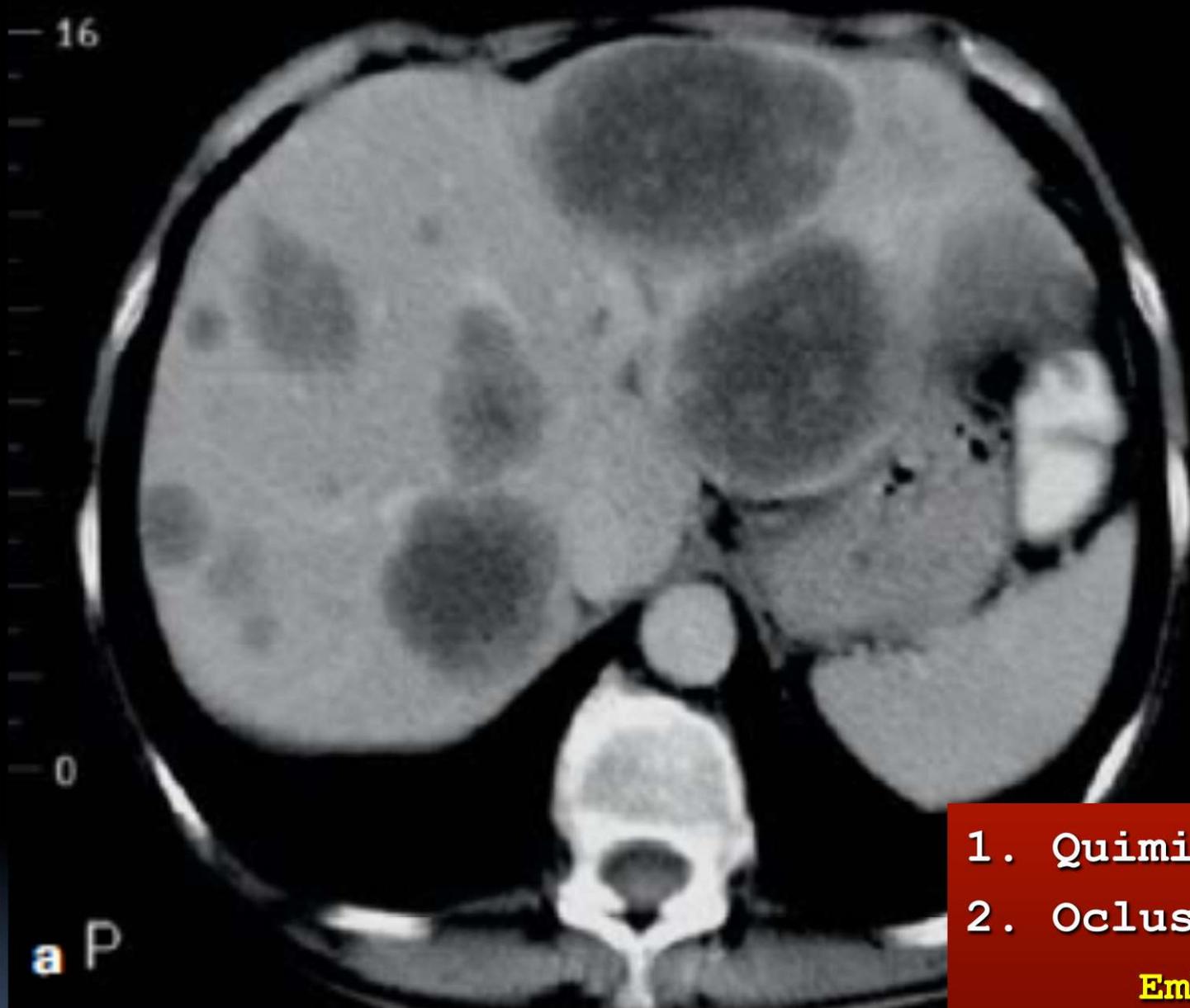
- Incapacidade de ressecção R0
- Margem histológica positiva
- Inabilidade de ressecar toda doença detectável
- Progressão da doença apesar da QT

Resultados em meta colo-retal

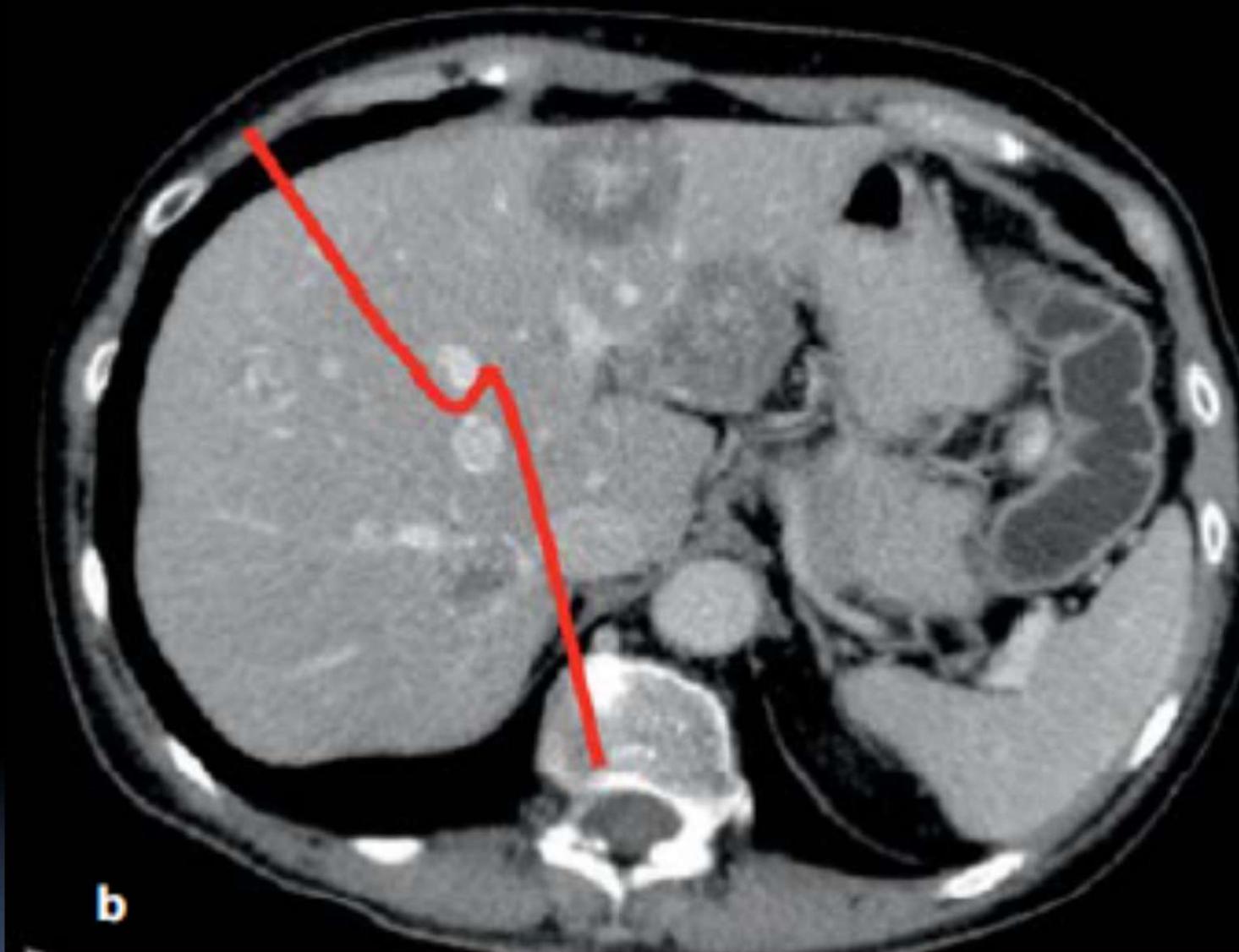
FIGURE 2



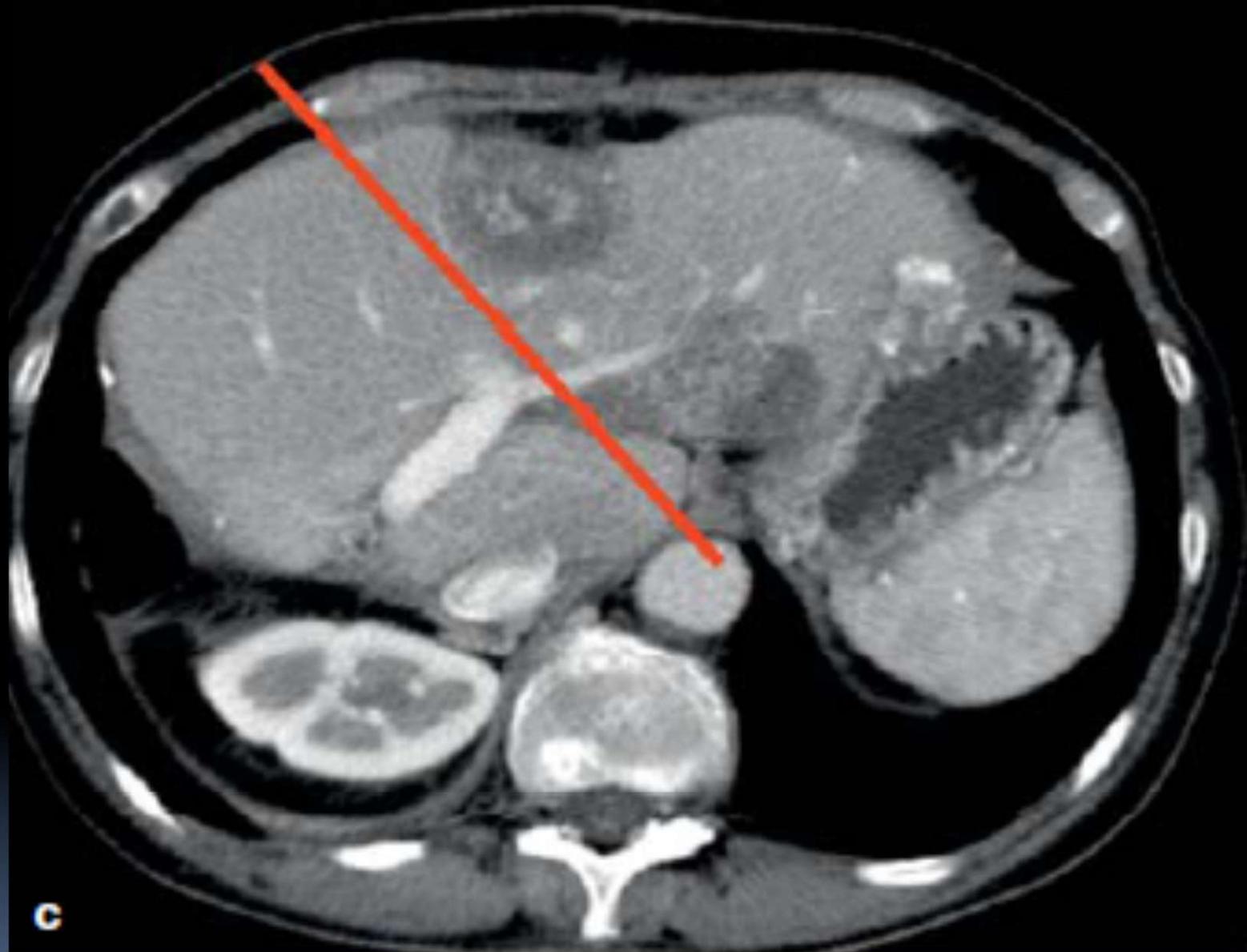
16



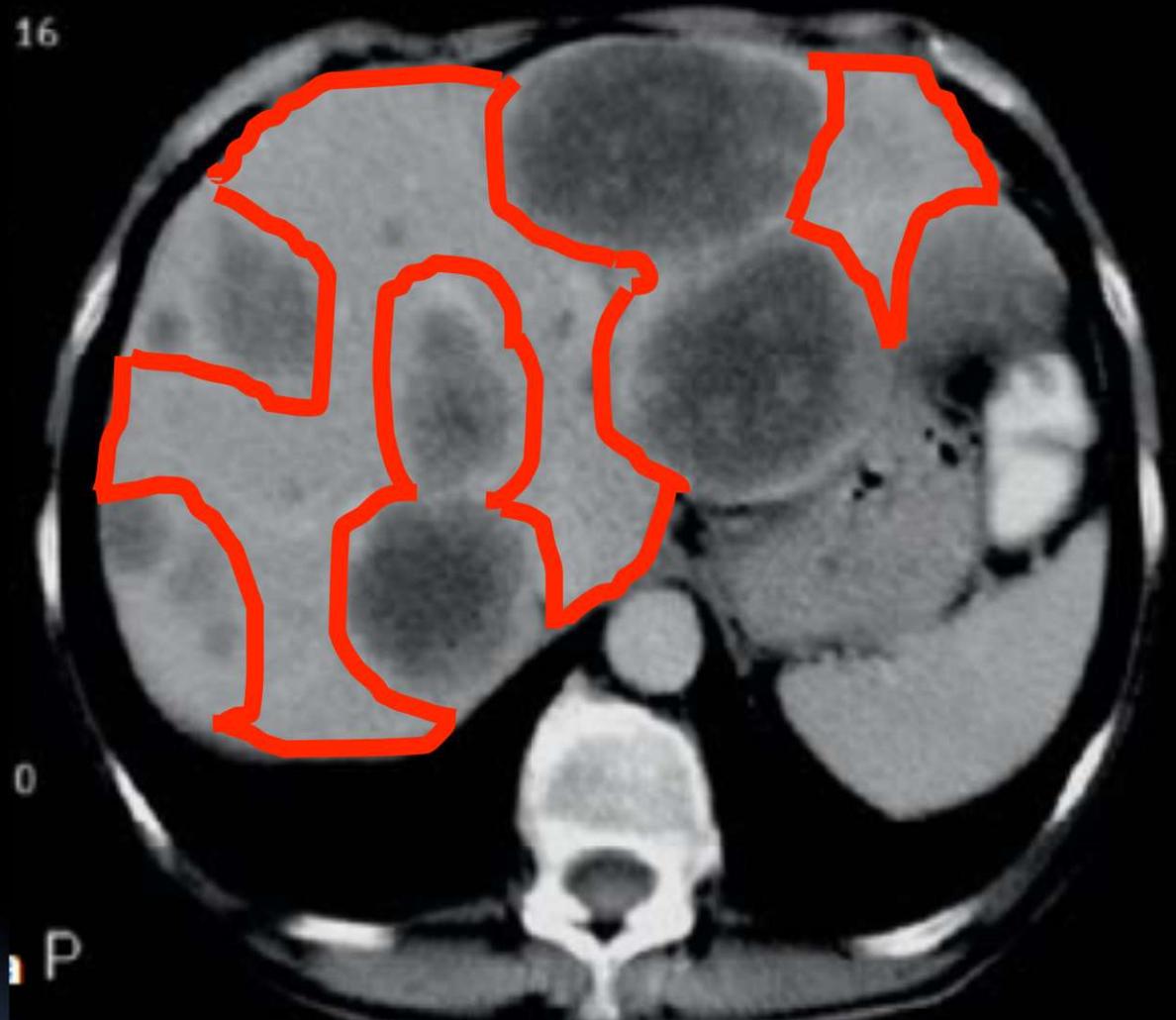
1. Quimioterapia
2. Oclusão da veia porta
Embolização
Ligadura
3. Operações repetidas



b







fígado “Ver a vida pelo lado bom” mor no tumor”

Abdalla EK, et al. Dig Surg 2008;25:421-9

Metástase hepática de origem colo-retal

No diagnóstico

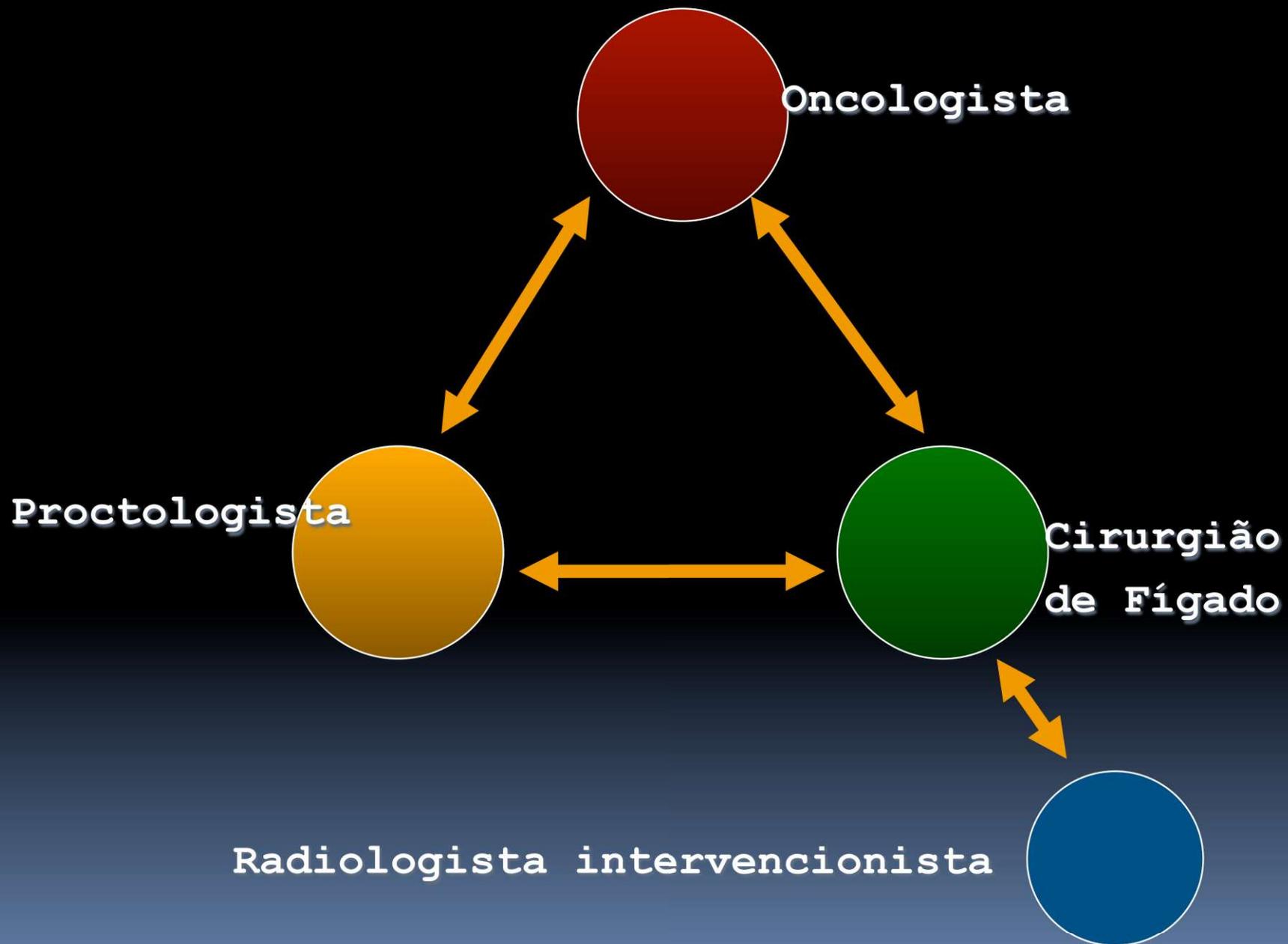
80% irressecáveis

20% ressecáveis

QT

20% Potencial. ressecáveis
80% irressecáveis

40% ressecáveis



CÁLCULO DO VOLUME HEPÁTICO TOTAL (VHT)

$$\text{VHT (cm}^3\text{)} =$$

$$-794,41 + 1.267,28 \times \text{área de superfície corporal (cm}^2\text{)}$$

Ou

Fígado remanescente > 0,5% do peso do paciente

OPÇÕES DE TRATAMENTO EM META COLO-RETAL SINCRÔNICA

1. COLECTOMIA QT HEPATECTOMIA . . . QT
2. (COLECTOMIA + HEPATECTOMIA) . . . QT
3. COLECTOMIA . . QT . . EMBOLIZACAO PORTA . . HEPATECTOMIA . . QT
4. COLECTOMIA . . . QT . . . HEPATECTOMIA . . . HEPATECTOMIA . . . QT
5. COLEC QT HEPATEC . . . EMBOL PORTA . . . HEPATEC QT
6. QT (COLECTOMIA + HEPATECTOMIA) QT
7. QT COLECTOMIA QT HEPATECTOMIA QT
8. QT . . . COLECTOMIA . . . EMBOL PORTA . . . HEPATECTOMIA
9. QT (+ RAD) . . . HEPATECTOMIA . . . QT . . . COLECTOMIA
10. QT . . . EMBOL PORTA . . . HEPATECTOMIA . . . COLECTOMIA
11. QT . . . HEPATECTOMIA . . . HEPATECTOMIA . . . COLECTOMIA
12. (COLECT + HEPAT 1° EST) + EVP . . . QT . . . HEPATEC (2° EST)

Metástase hepática

Facilmente ressecável

Marginalmente ressecável

Definitivamente irressecável

Aumentar ressecabilidade

- Quimioterapia pré-operatória
- Embolização da veia porta
- Ligadura da veia porta
- Terapias ablativas
- Hepatectomia em dois tempos
- ALPPS

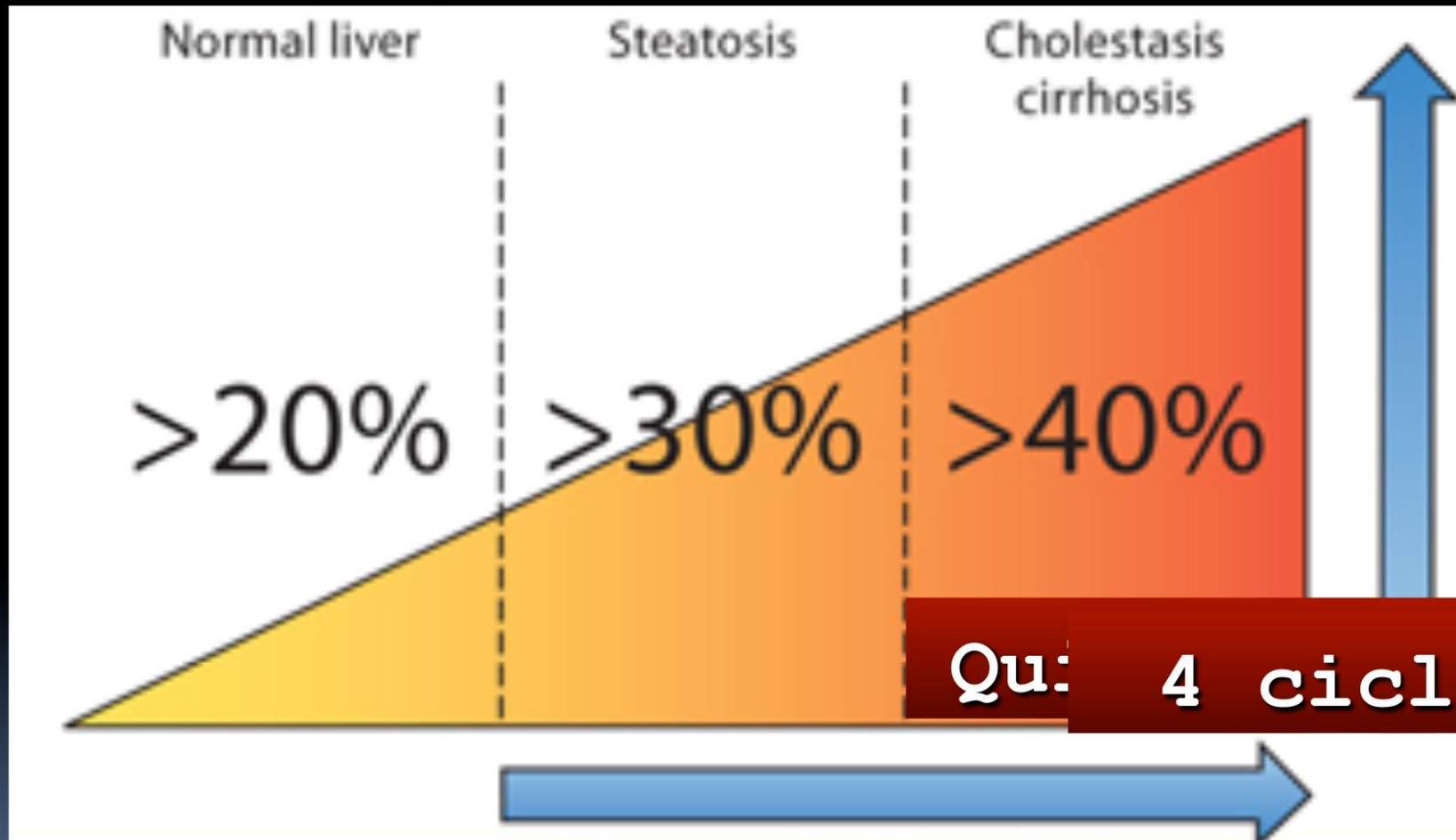
1. Adam et al - Surg Oncol Clin N Am 12:211-220,2004

2. de Santibanes E, et al. World J Surg 2012;36:125-8

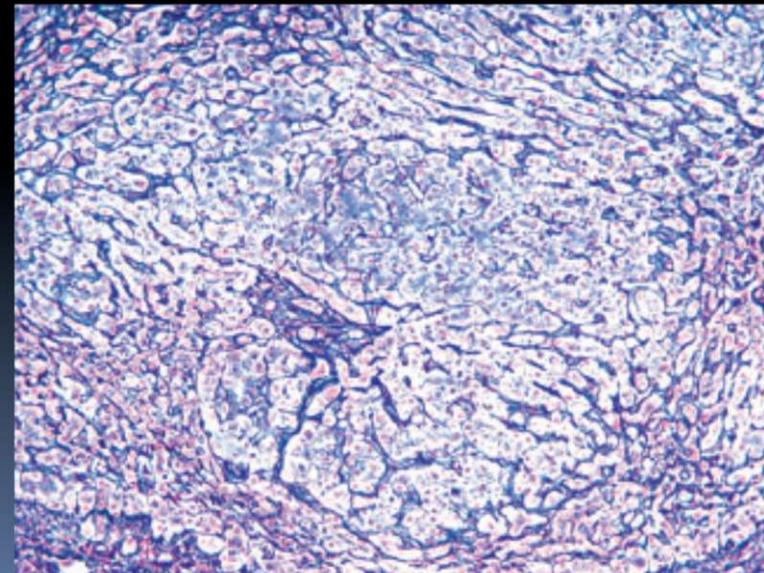
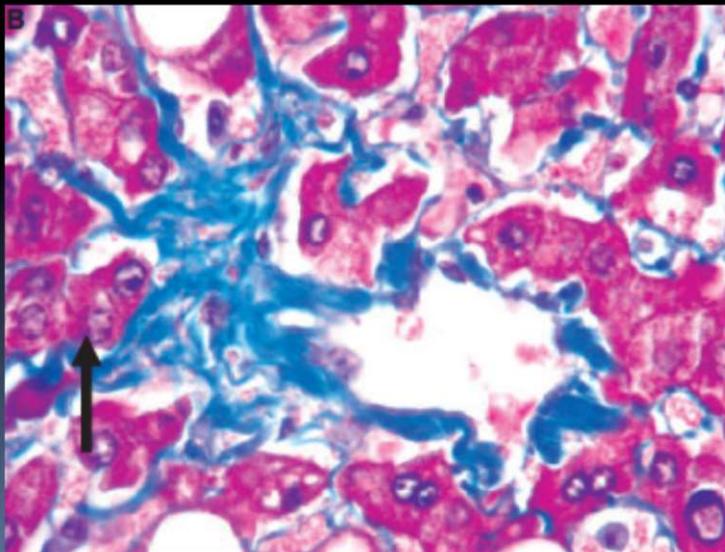
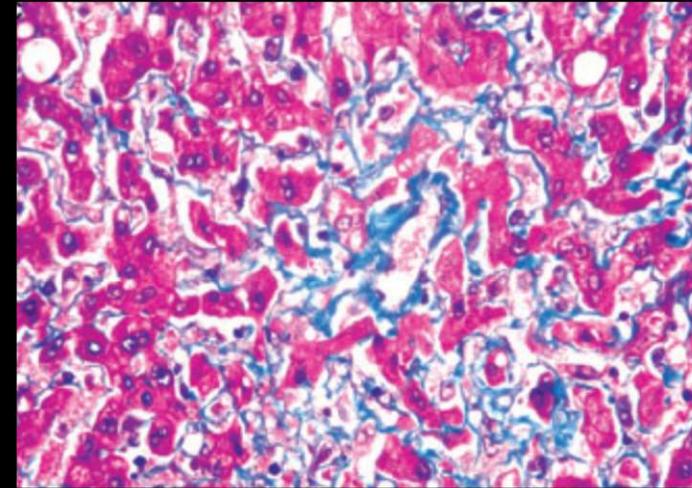
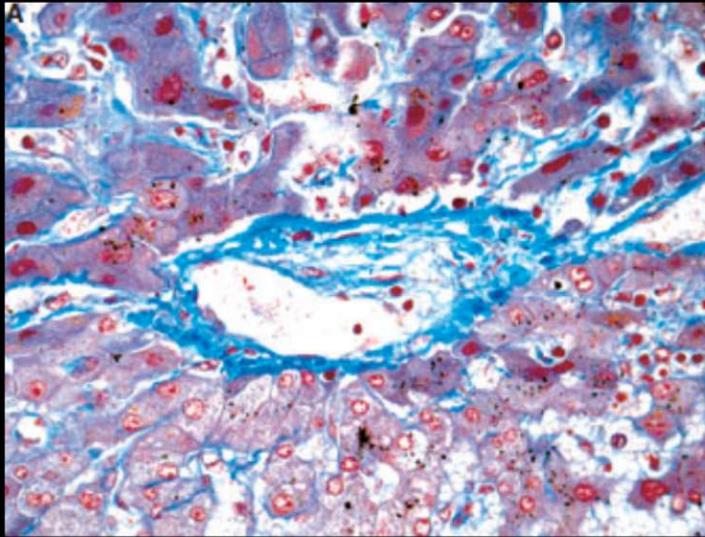
Quimioterapia

- ❑ Promover downsize e elevar a taxa de ressecção curativa.
- ❑ Converter doença irressecável para ressecável.
- ❑ Identificar os respondedores em pacientes de risco elevado de recorrência, para pós-operatória.
- ❑ Pacientes com múltiplas lesões, selecionar quem progride apesar da QT, que podem não se beneficiar da ressecção.

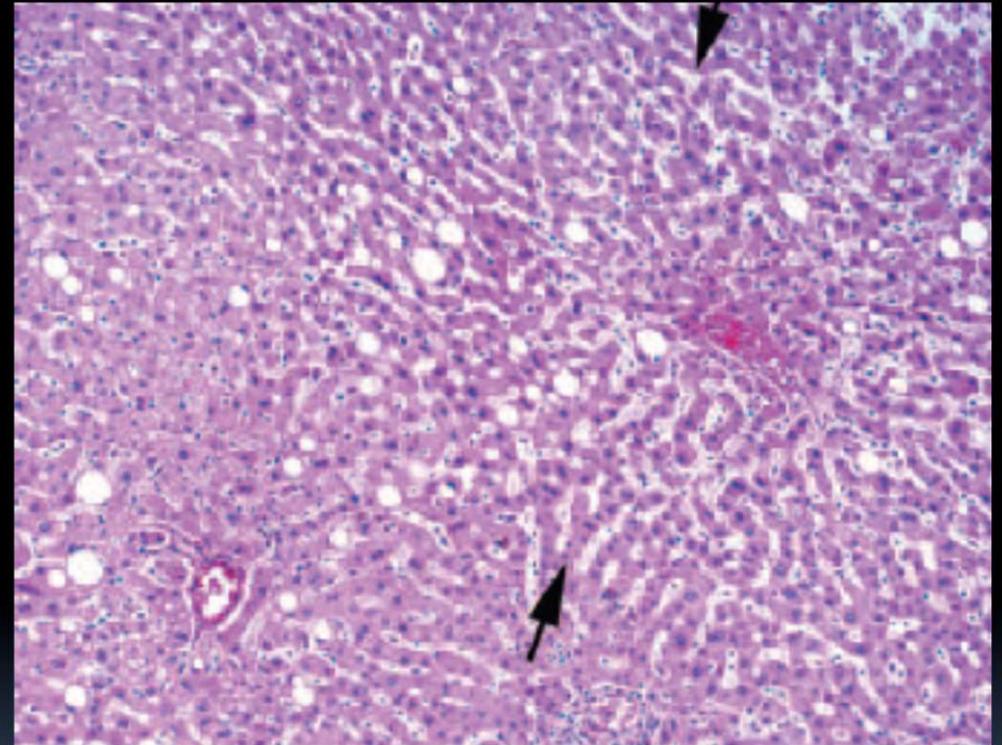
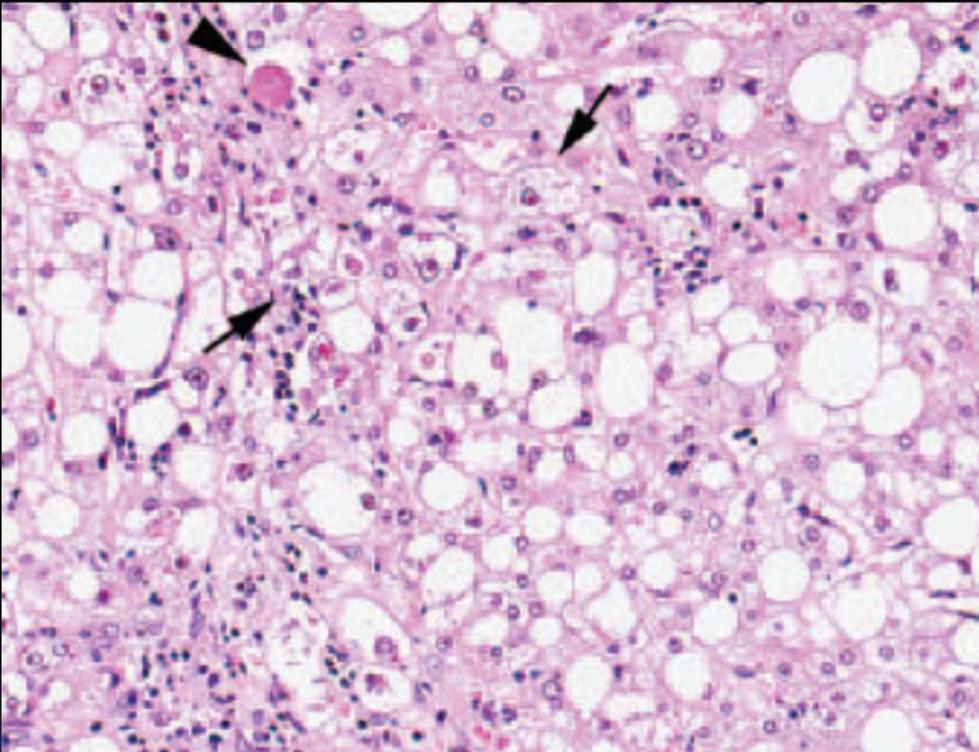
Remanescente hepático



Oxaliplatina e Obstrução sinusoidal



Irinotecan e Esteatohepatite



Metástase hepática e QT

66 metástases com resposta completa em exame de imagem

Doença residual
Macroscópica: 20

Exploração intra-operatória
Exame do fígado + US

Ressecção do local da metástase inicial: 15

Sem doença residual macroscópica: 46

Célula tumoral viável: 12

Sem doença: 3

Local da metástase inicial acompanhado por 1 ano: 31

55/66 (83,3%)

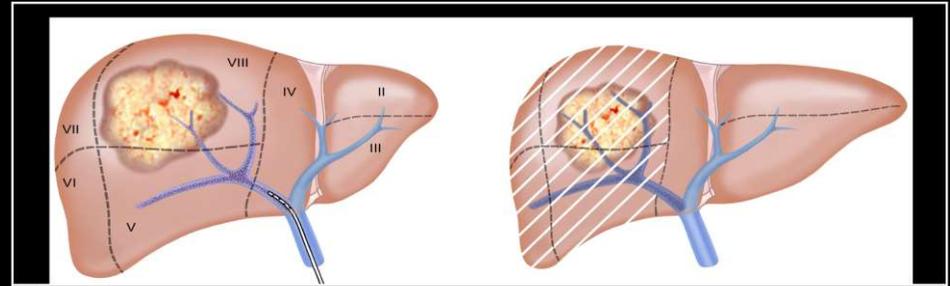
Sem recorrência: 8

Recorrência: 23

Indução de hipertrofia

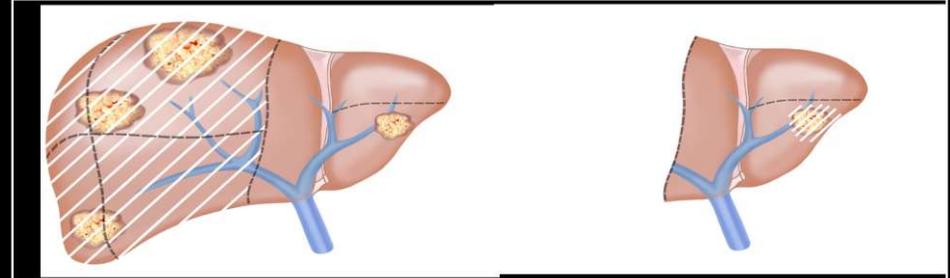
Embolização Portal (EP)

Makuuchi M, et al. Surgery 1990



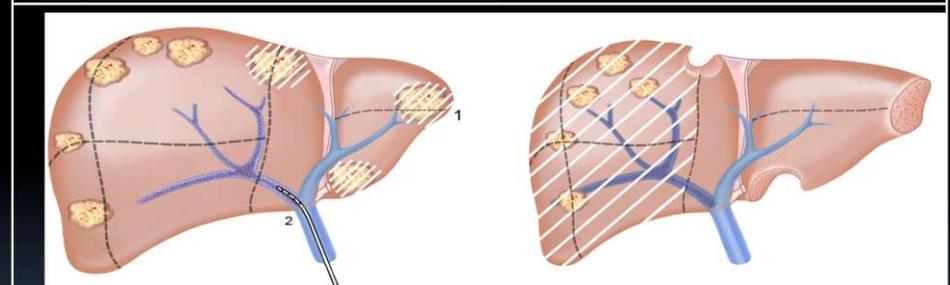
Hepatectomia em 2 tempos

Adam R, et al. Ann Surg. 2000



Hepatectomia 2 tempos + EP

Jaeck D, et al. Ann Surg. 2004

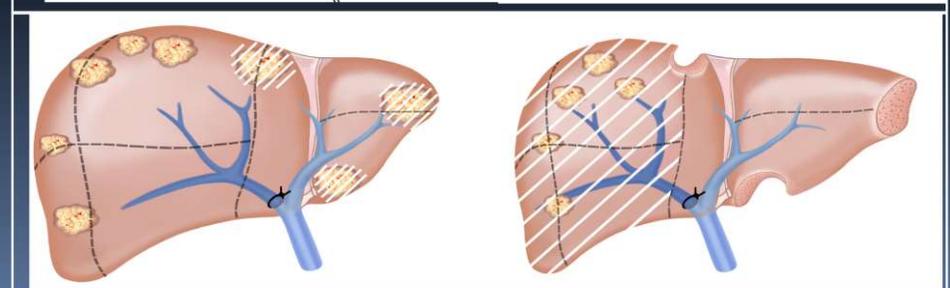


Hepatectomia 2 tempos + LP

J Belghiti, Clavien AP, et al. Hepatology 2008

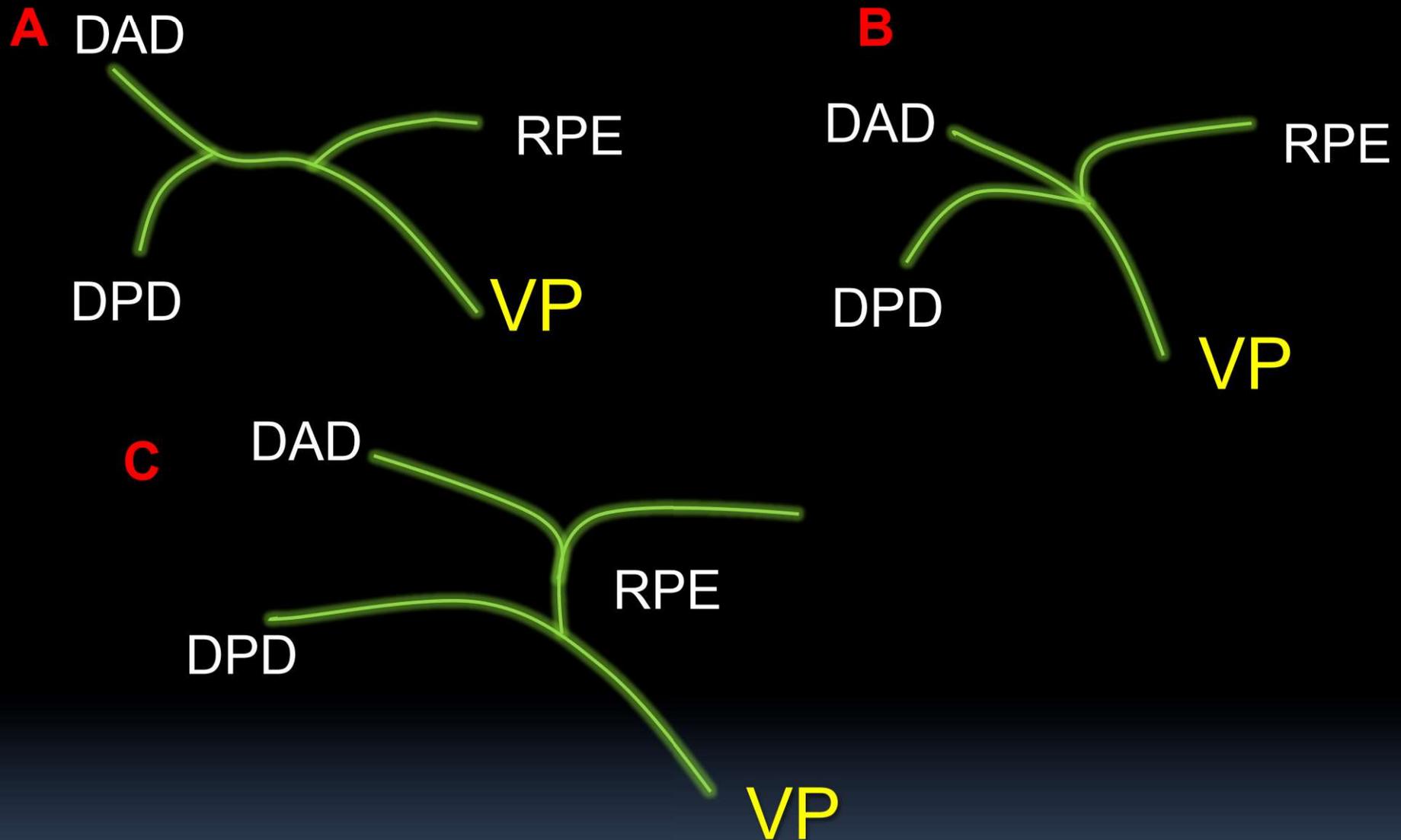
ALPPS

Schnitzbauer AA, et al. Ann Surg 2012

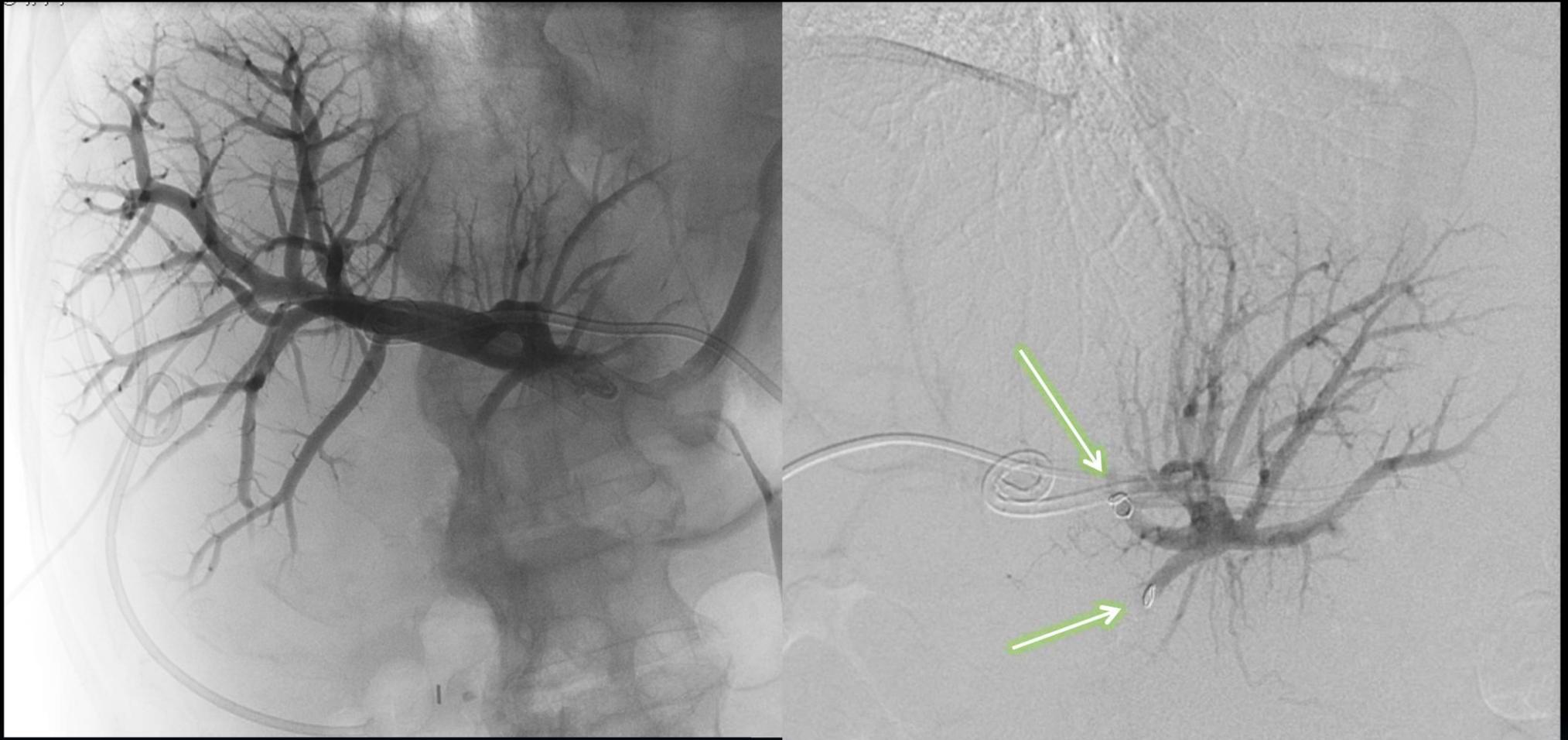


Embolização da veia porta

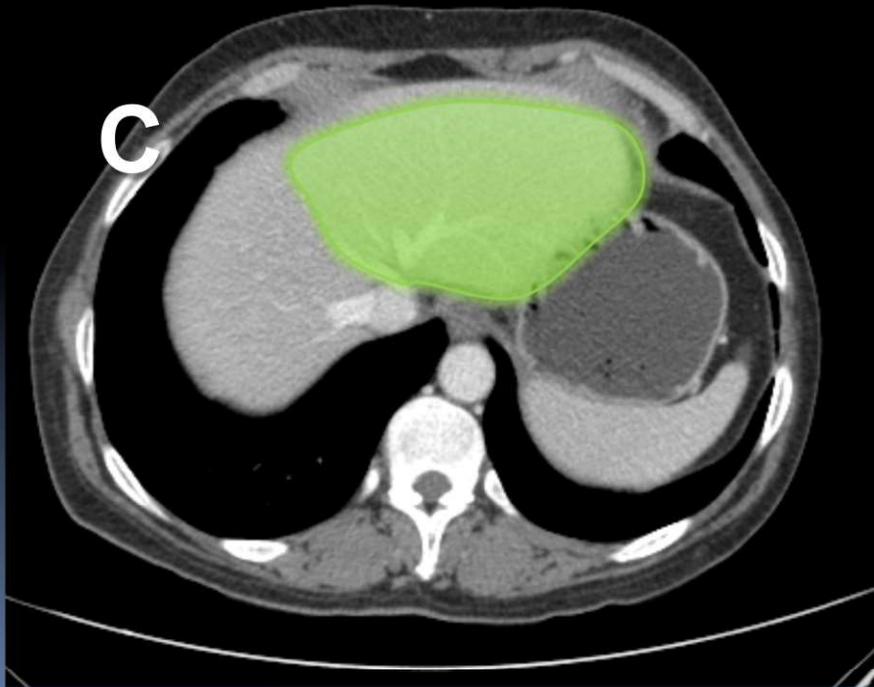
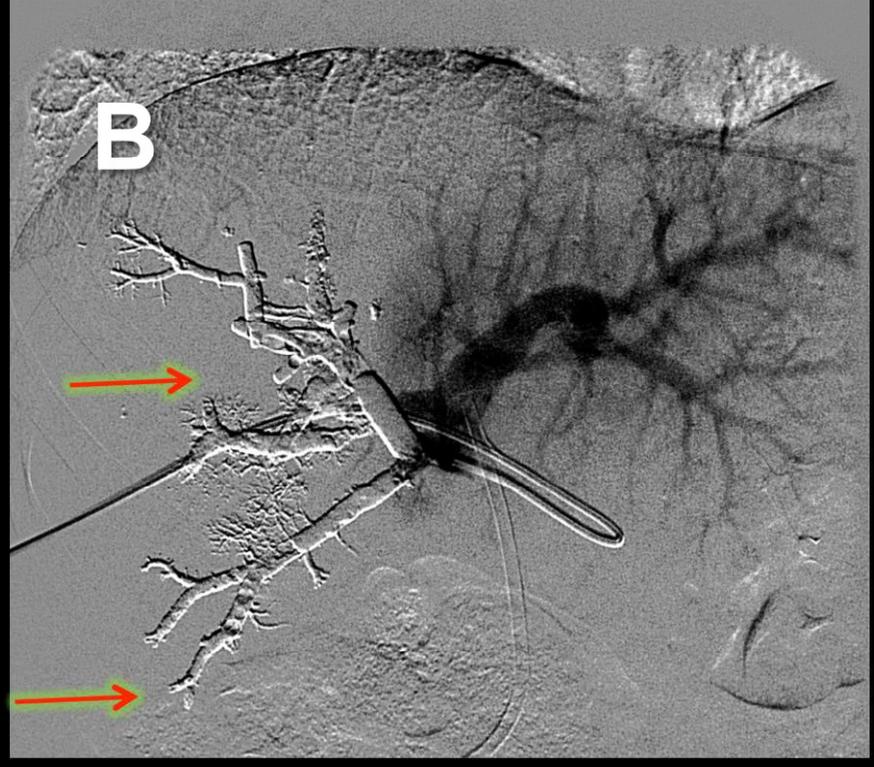
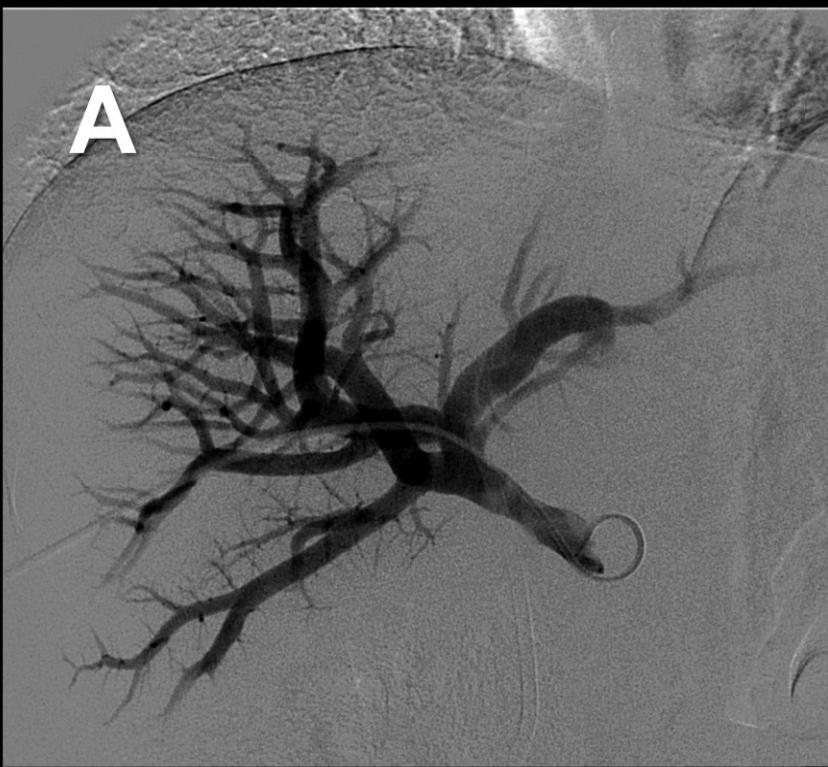
- ❑ Induz hipertrofia seletiva do fígado sem doença
- ❑ Aumenta a massa celular e o número de hepatócitos
- ❑ Transforma paciente não ressecável em ressecável
- ❑ Contra-indicado:
 - não candidatos
 - em obstrução da veia porta
 - insuficiência renal
 - remanescente > 25%
 - coagulopatia
 - hipertensão porta.
- ❑ Aumento de até 40% do volume remanescente



(A) Anatomia clássica (~65%). (B) Trifurcação (~9%). (C) Divisão anterior direita (segmentos 5 e 8) originada do ramo portal esquerdo (~13%). VP = Veia porta; RPE = Ramo portal esquerdo; DAD = Divisão anterior direita; DPD = Divisão posterior direita.



(A) Portografia direita com catéter pigtail através de acesso ipsilateral. (B) Após microcateterização seletiva dos principais ramos do segmento 4 (setas), realizada embolização com micropartículas e micromolas. Notar a preservação do fluxo portal normal nos demais ramos do lobo esquerdo. O procedimento prosseguiu com embolização dos ramos portais direitos com NBCA.

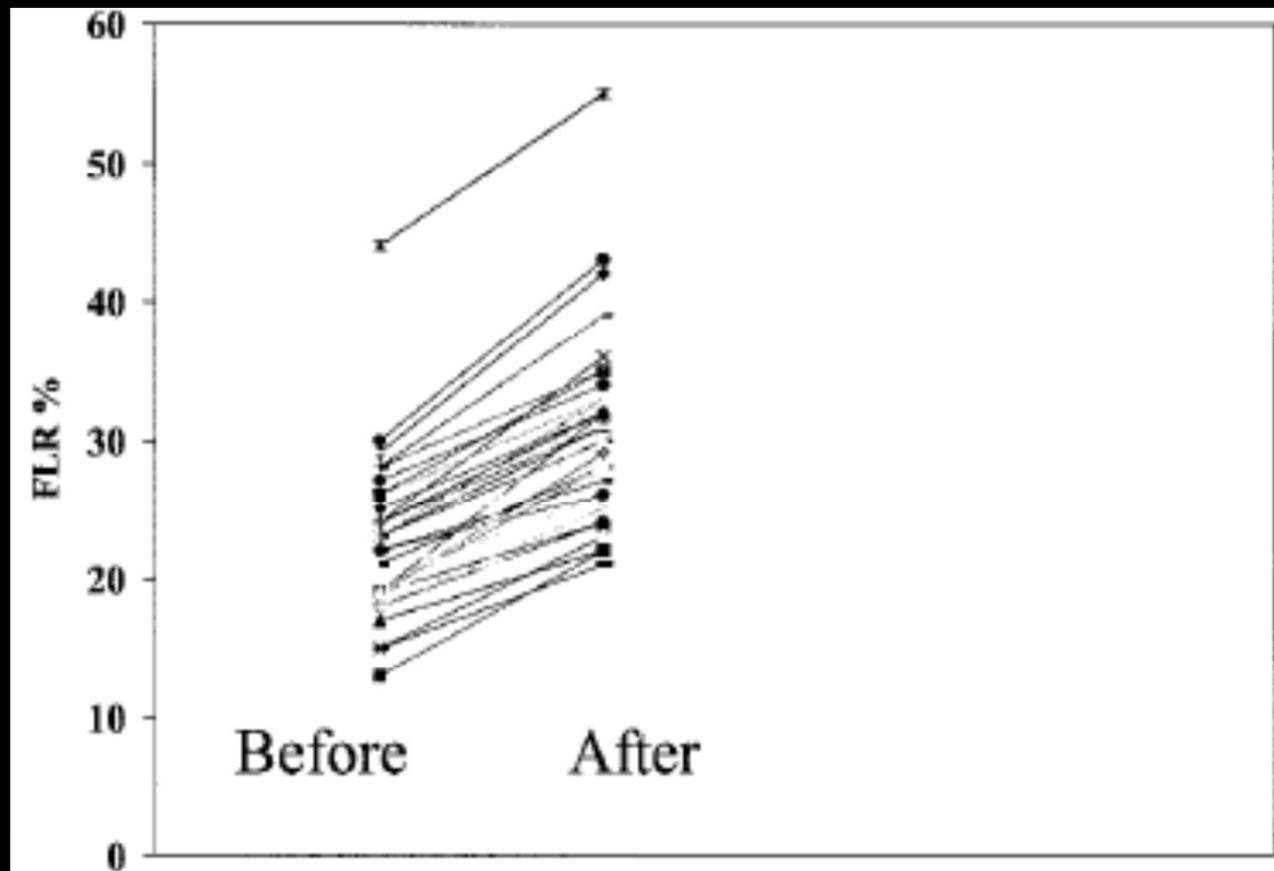


Embolização de veia porta



Embolização da veia porta

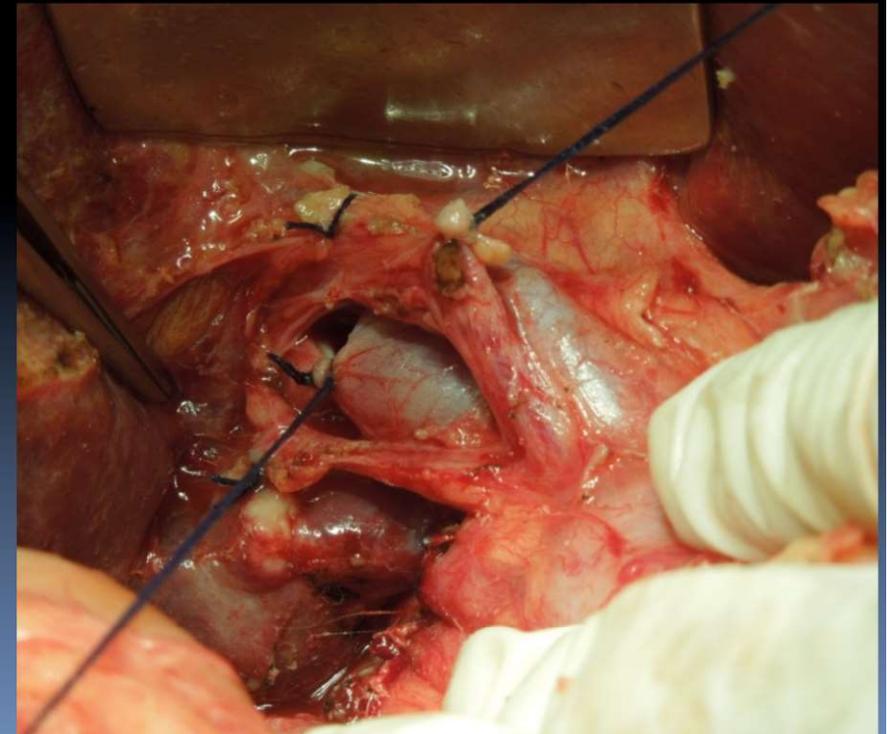
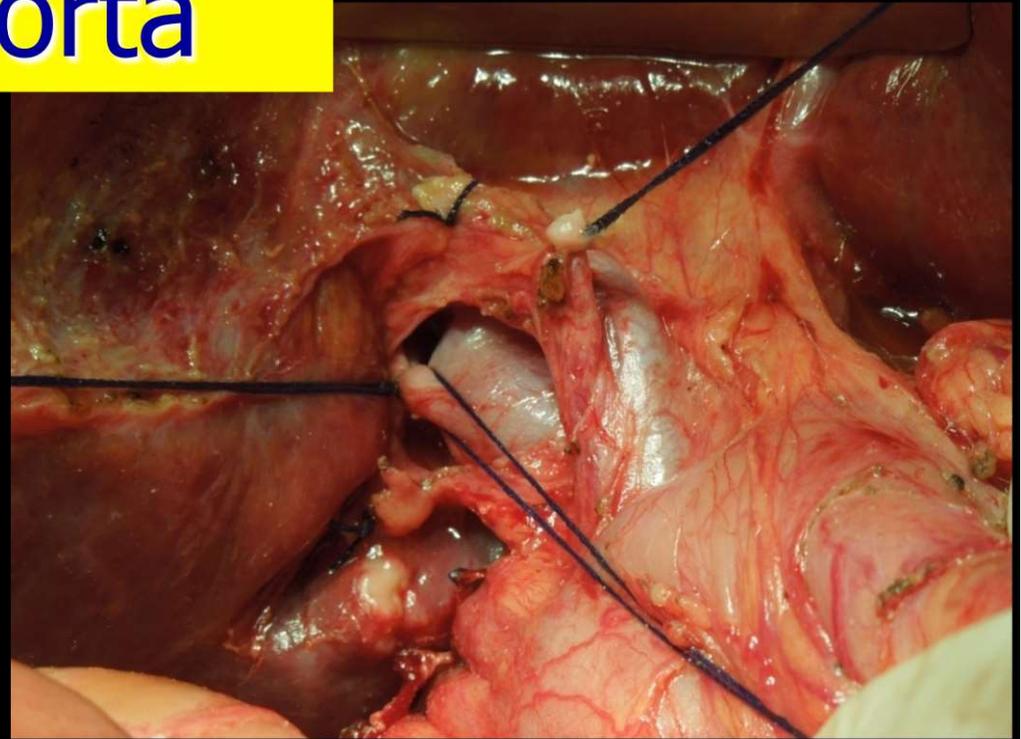
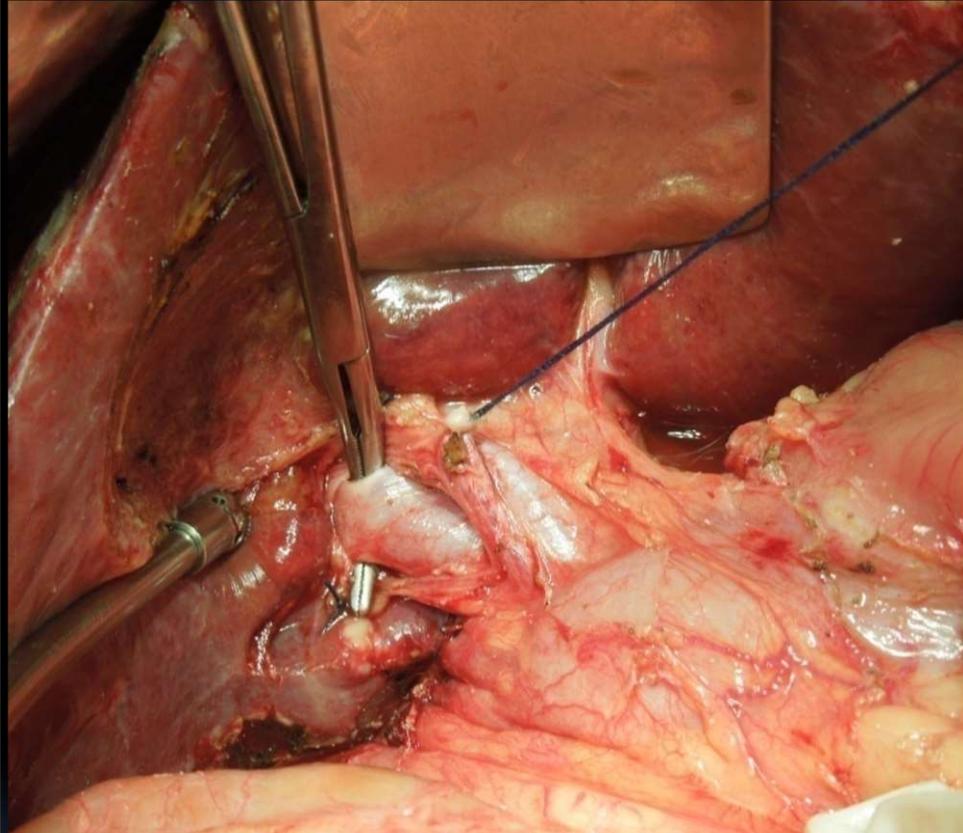




Após 4-6 semanas

35%

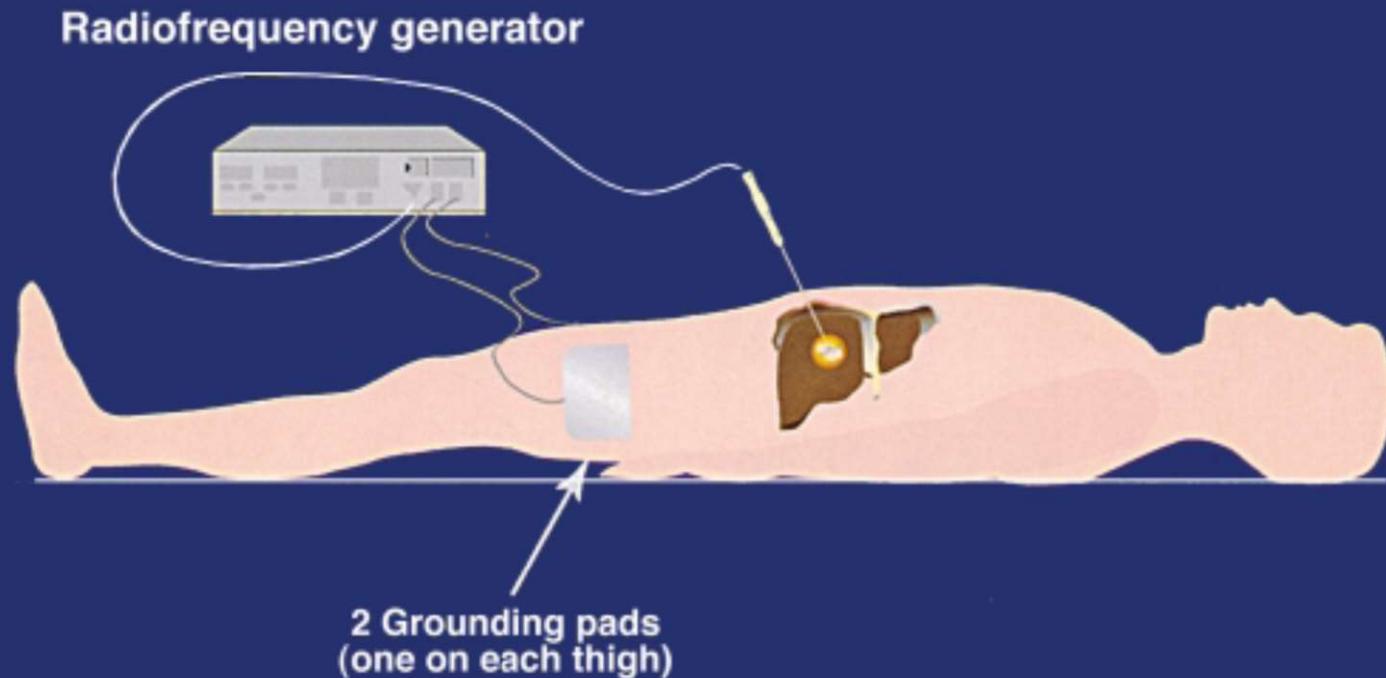
Ligadura da veia porta



Ligadura da veia porta D

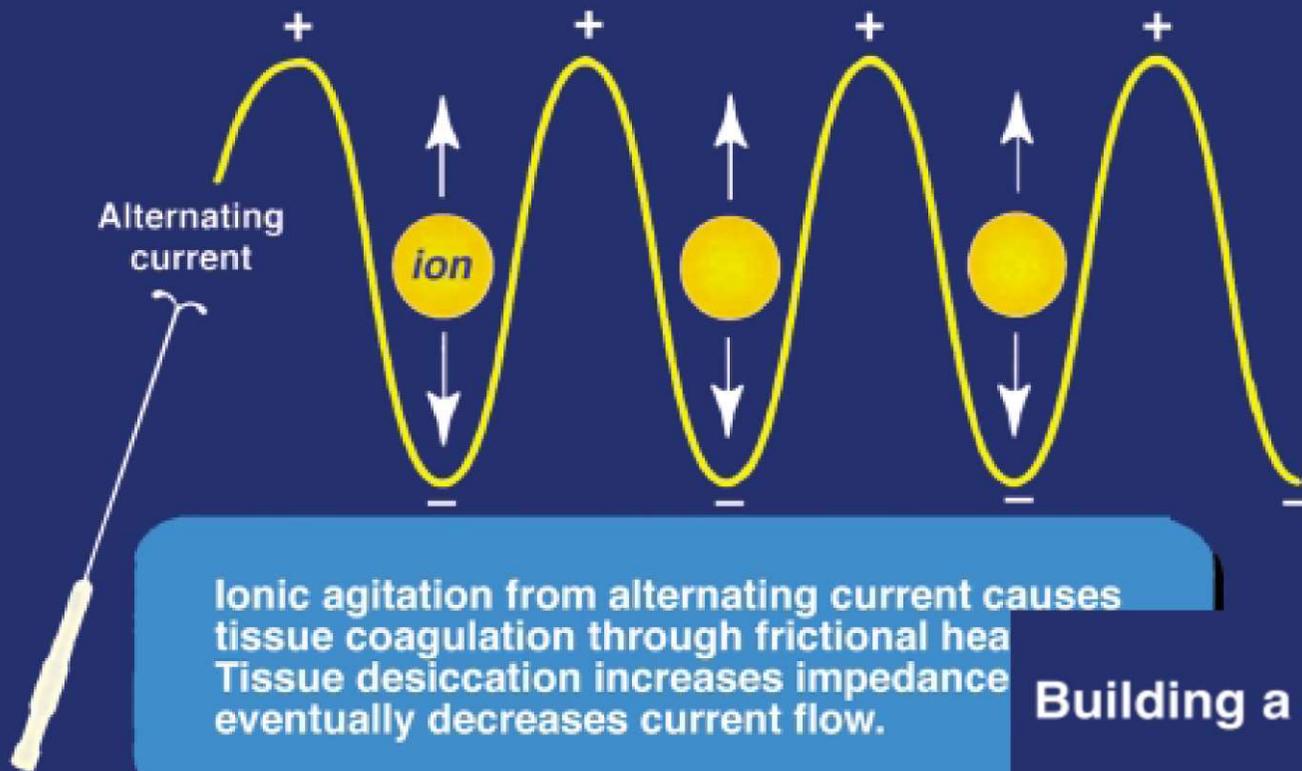
Terapias ablativas

Radiofrequência



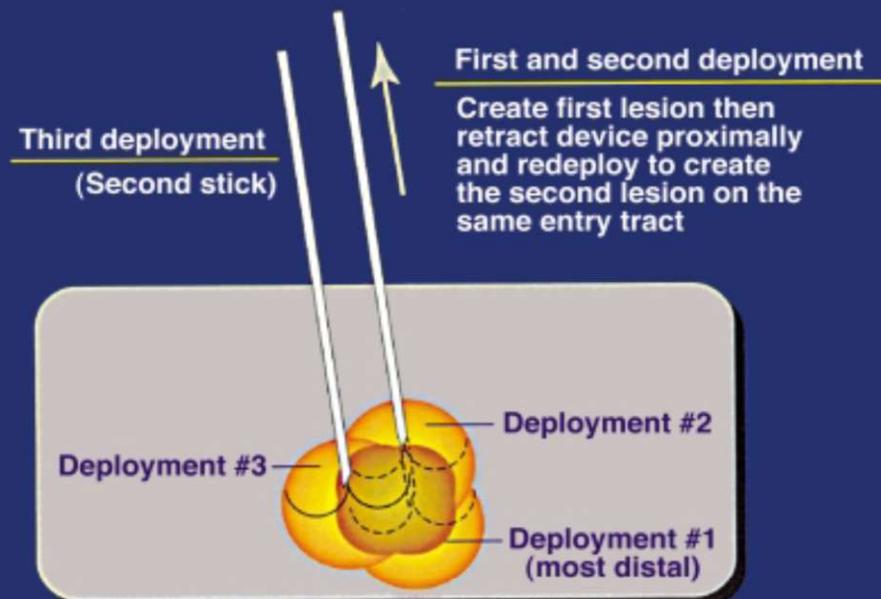
- ❑ Ablação por radiofrequência (ARF), se faz com a passagem de corrente elétrica alternada (energia de radiofrequência) pela área alvo, localizada no fígado.

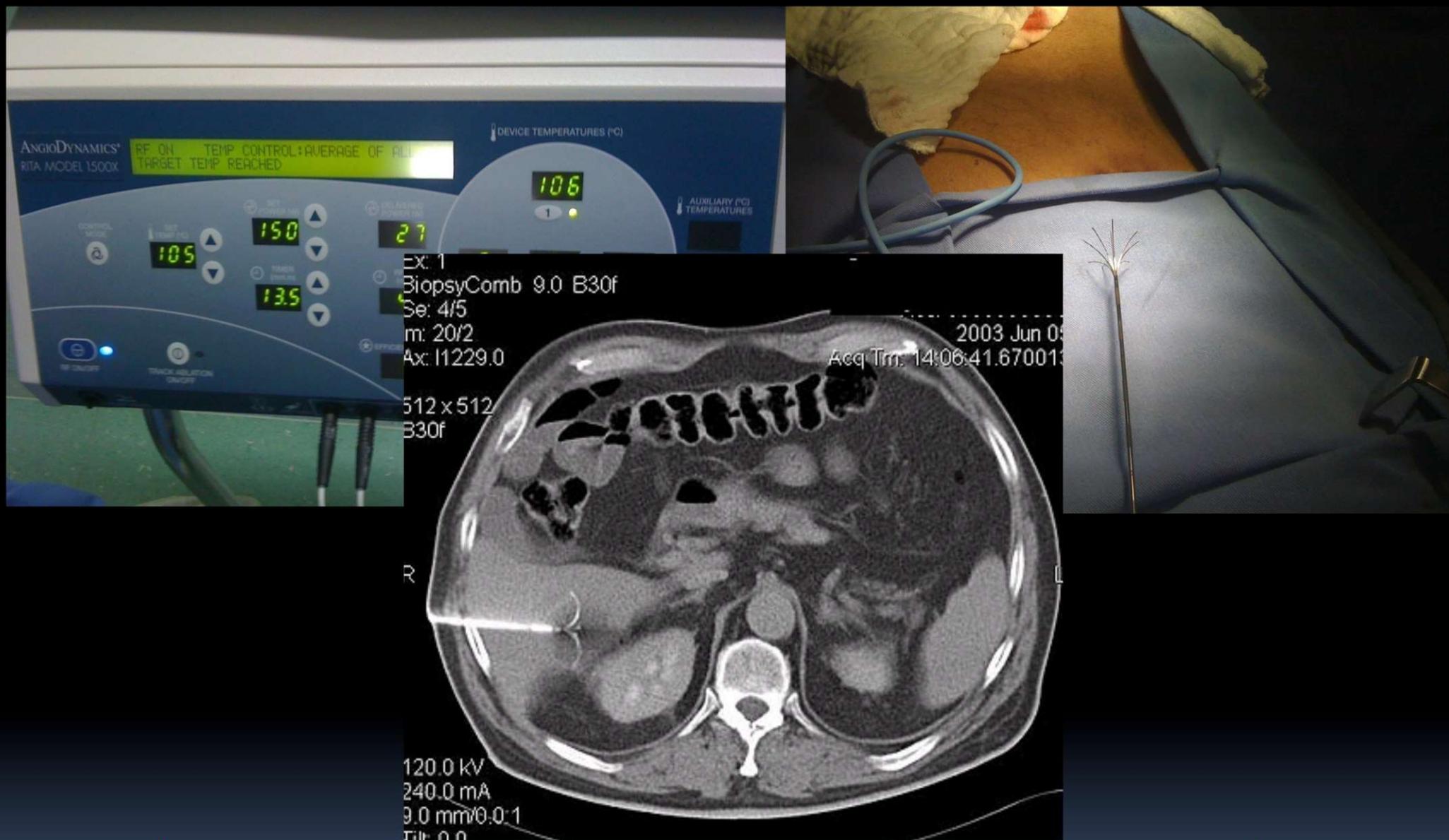
Radiofrequency ablation



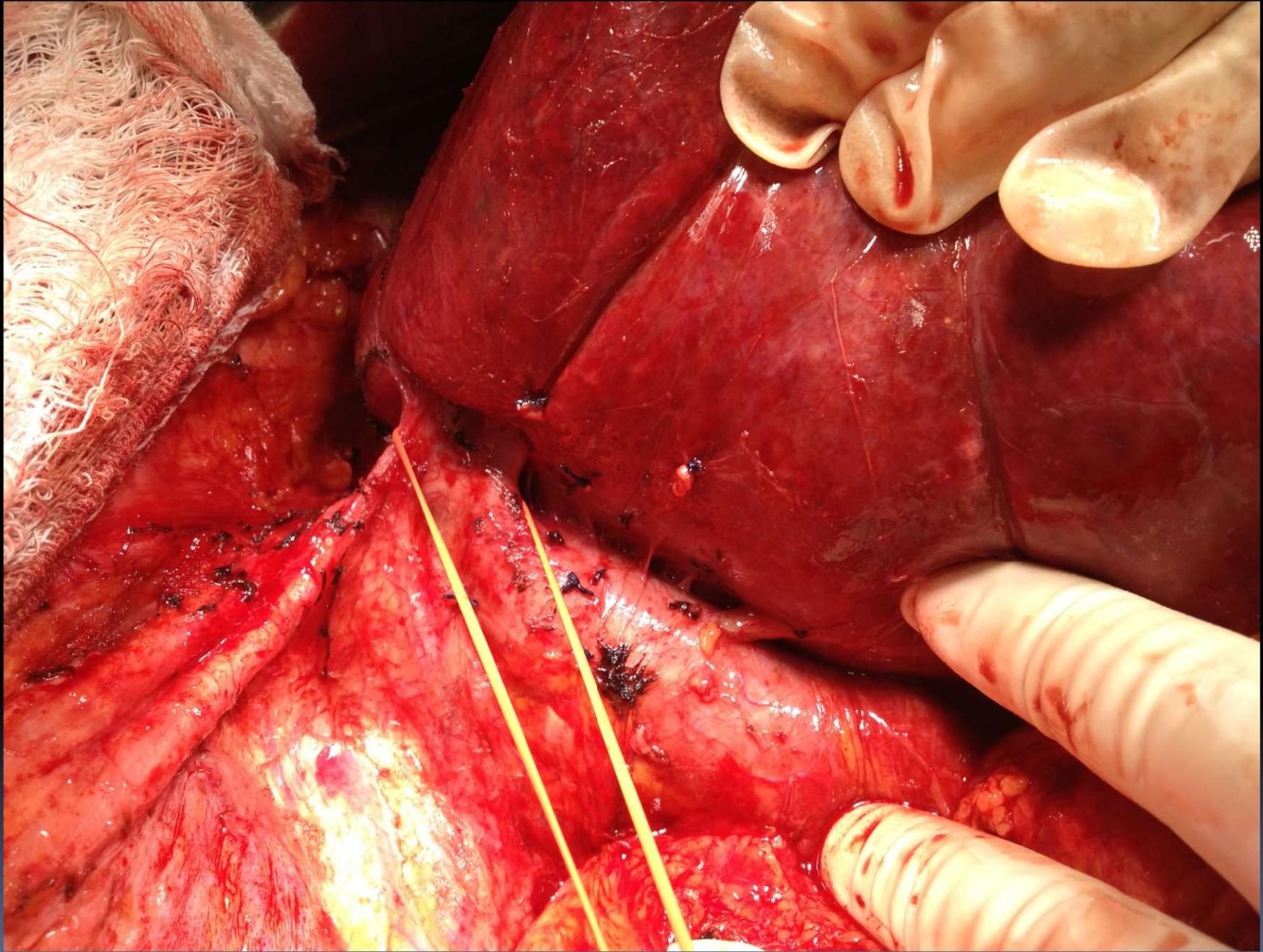
Ionic agitation from alternating current causes tissue coagulation through frictional heat. Tissue desiccation increases impedance eventually decreases current flow.

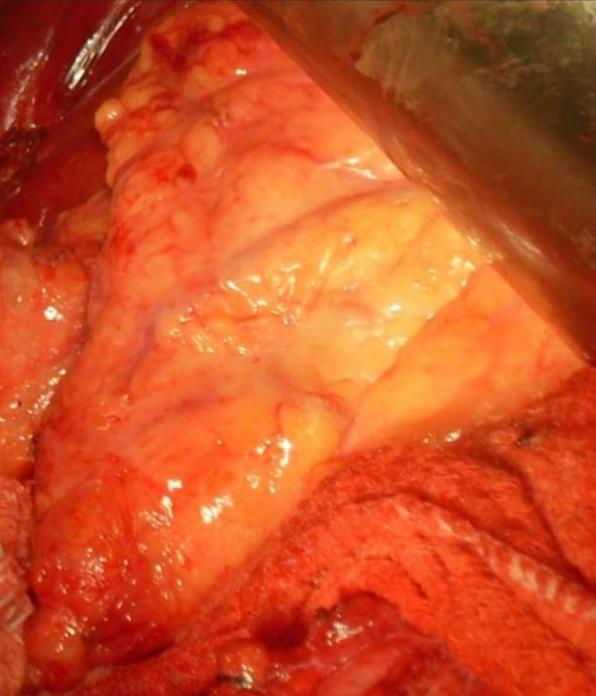
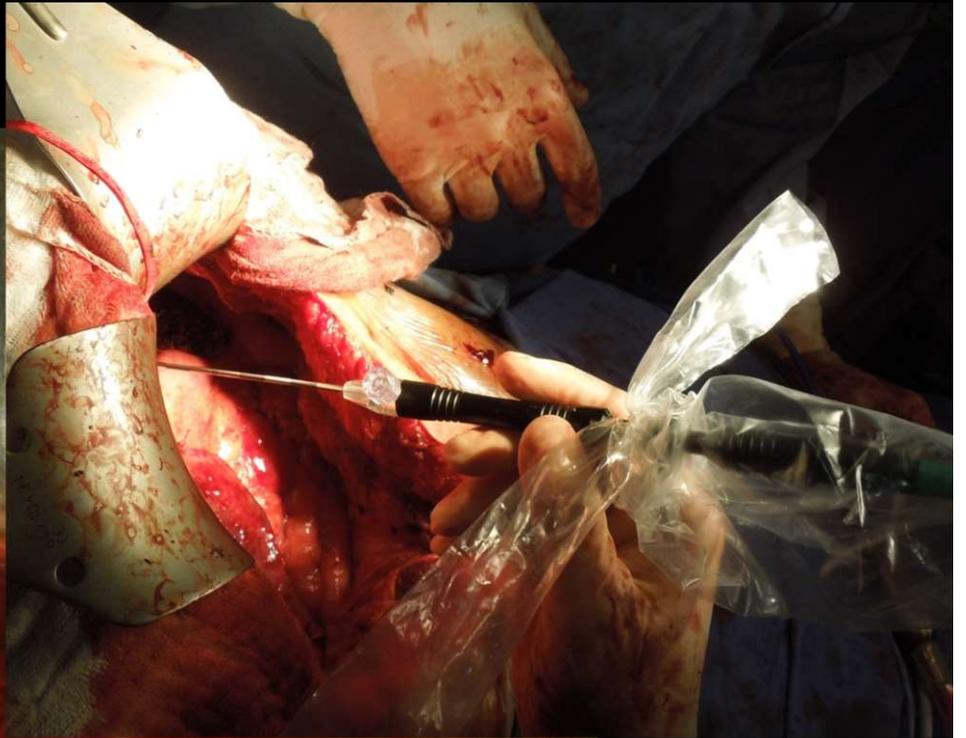
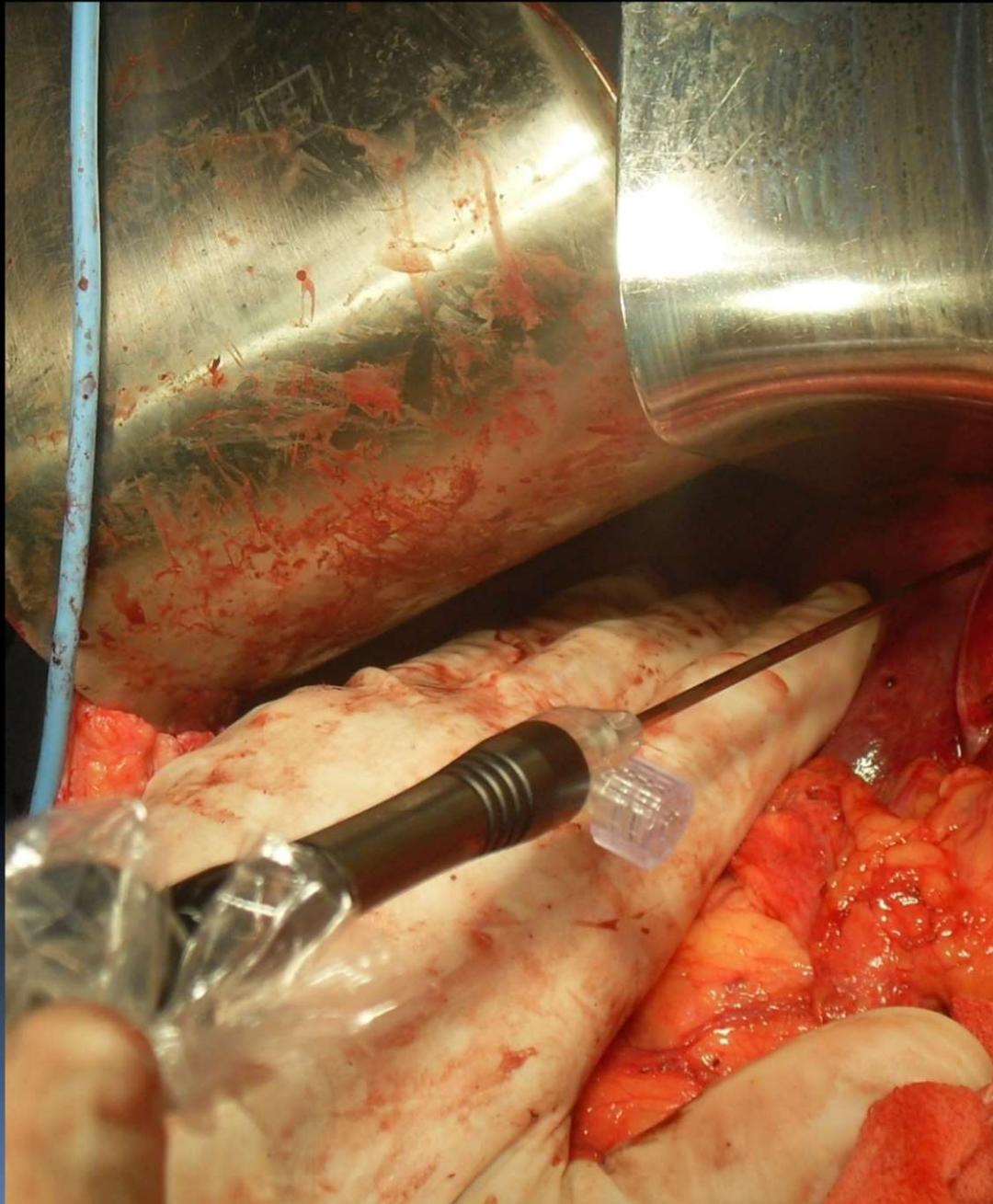
Building a compound thermal lesion





- Lesões profundas
- Perda de parênquima sadio
- Associado com ressecções maiores









L: (294.77)
92:22:9
14.00mm
3.0D

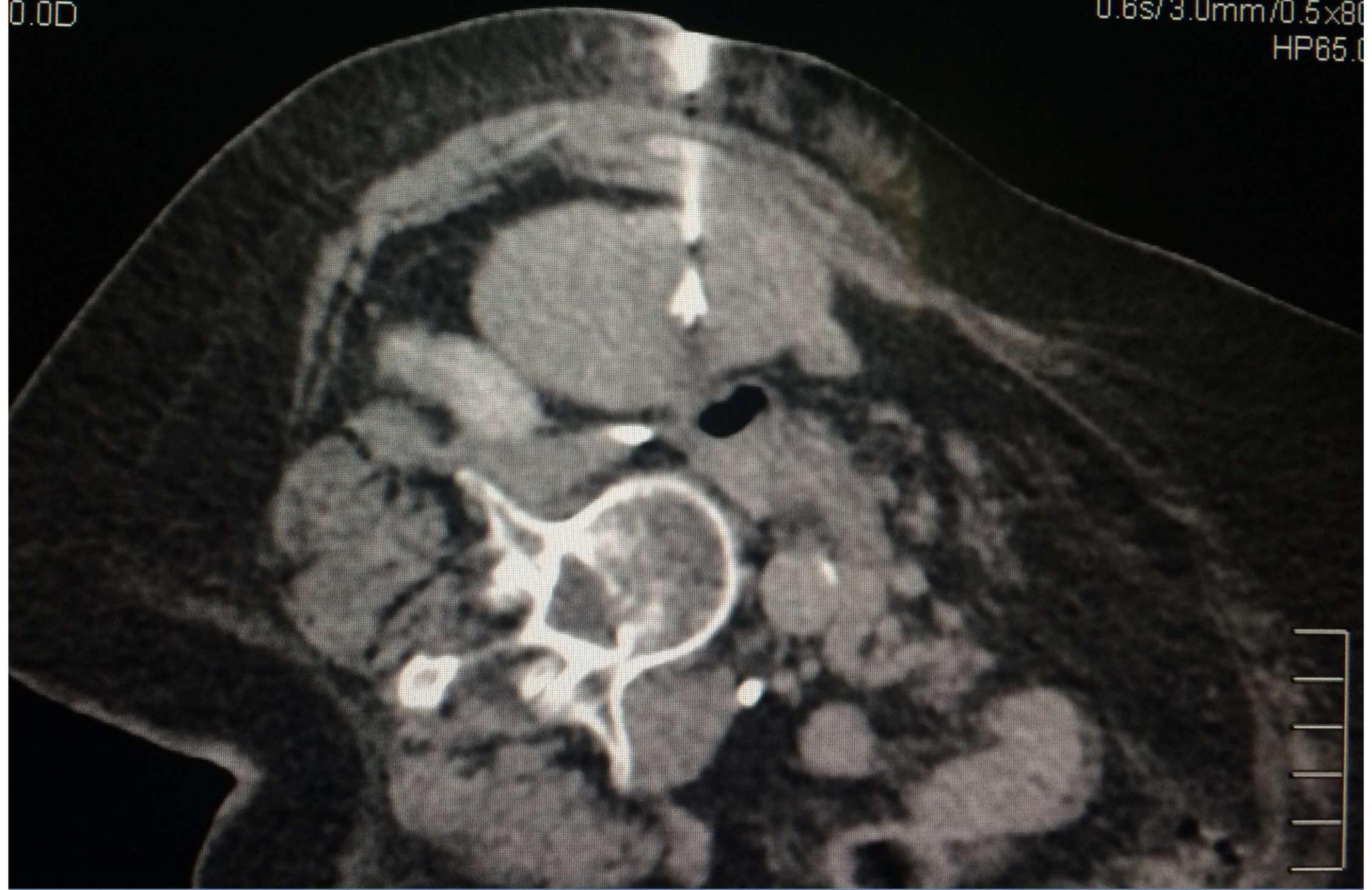
MARIA DA CONCEICAO P SILVA

2015.07.13 11:51:05.723
120kV/51mAs/EC
0.6s/3.0mm/0.5x80
HP65.0



L: (294.77)
92: 22: 10
17.00mm
0.00

WANDA BRUNCEIRO P SILVA
2015.07.13 11:51:05.778
120kV/51mAs/EO
0.6s/3.0mm/0.5x80
HP65.0



JUL 14 10:34 2015

SILVA

MARIA DA CONCEICAO P SILVA

LL: (294.77)
492: 22: 10
317.00mm
+0.00

2015.07.13 11:51:05.778
120kV/51mAs/EC
0.6s/3.0mm/0.5x80
HP65.0

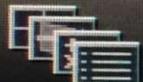
100 / Img. 467

0

0



3D



Clinical



Filming



Raw-Data

Utility

Layout

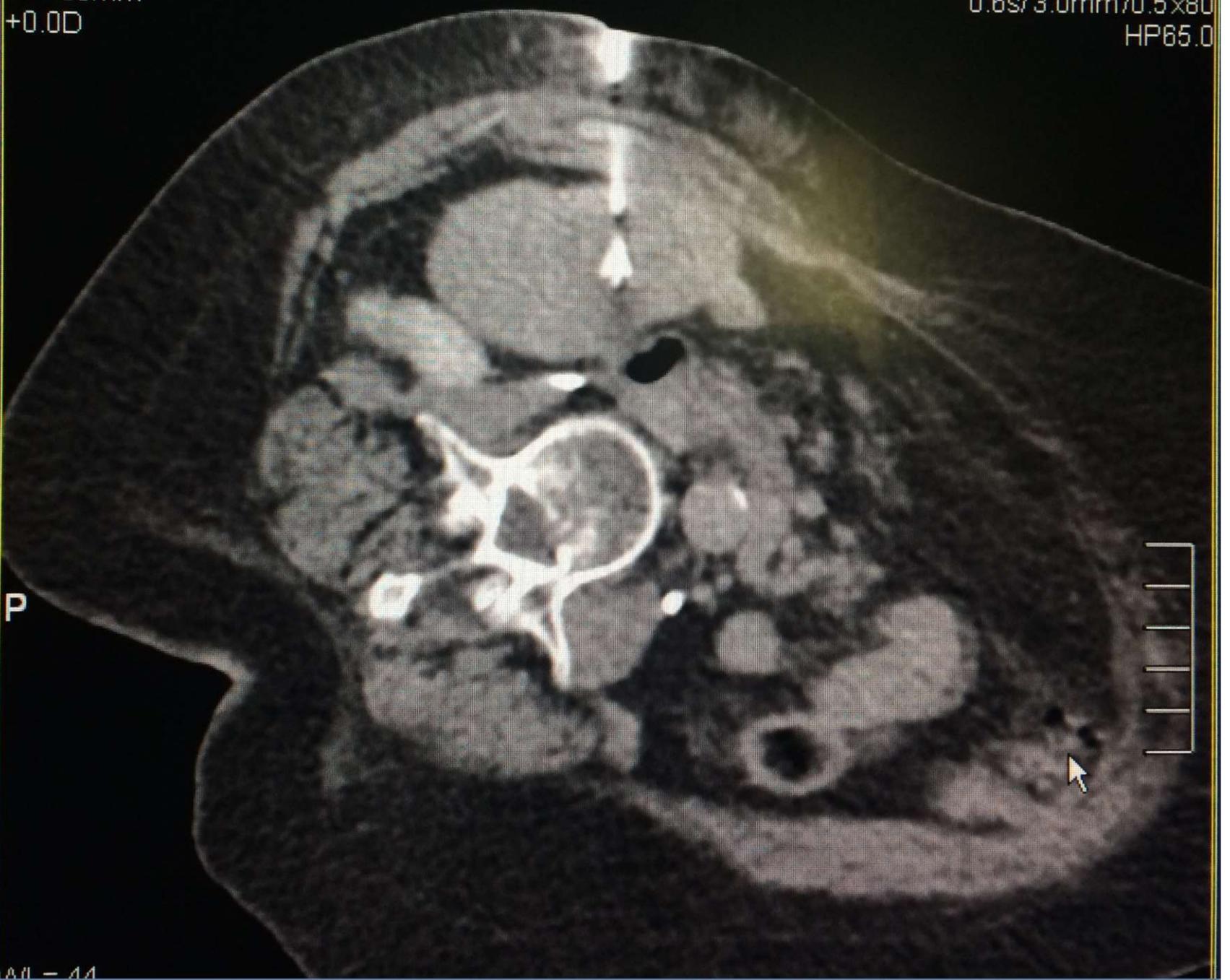
auto View 1st

Auto Load

A

P

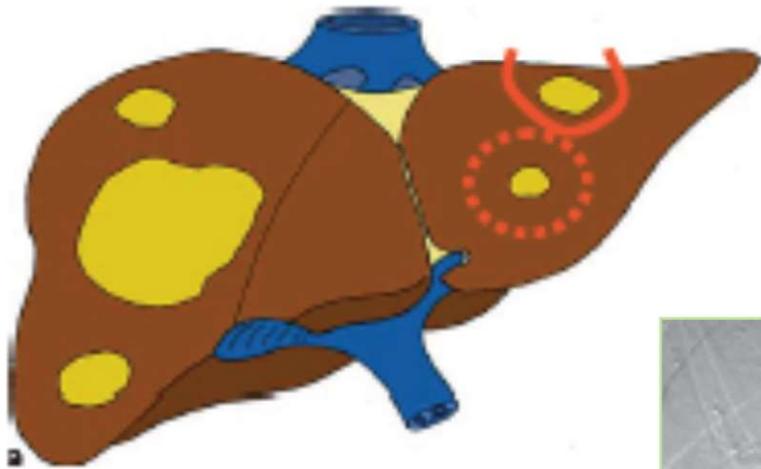
001 - 11



Hepatectomia em dois tempos



Limpeza do lobo E



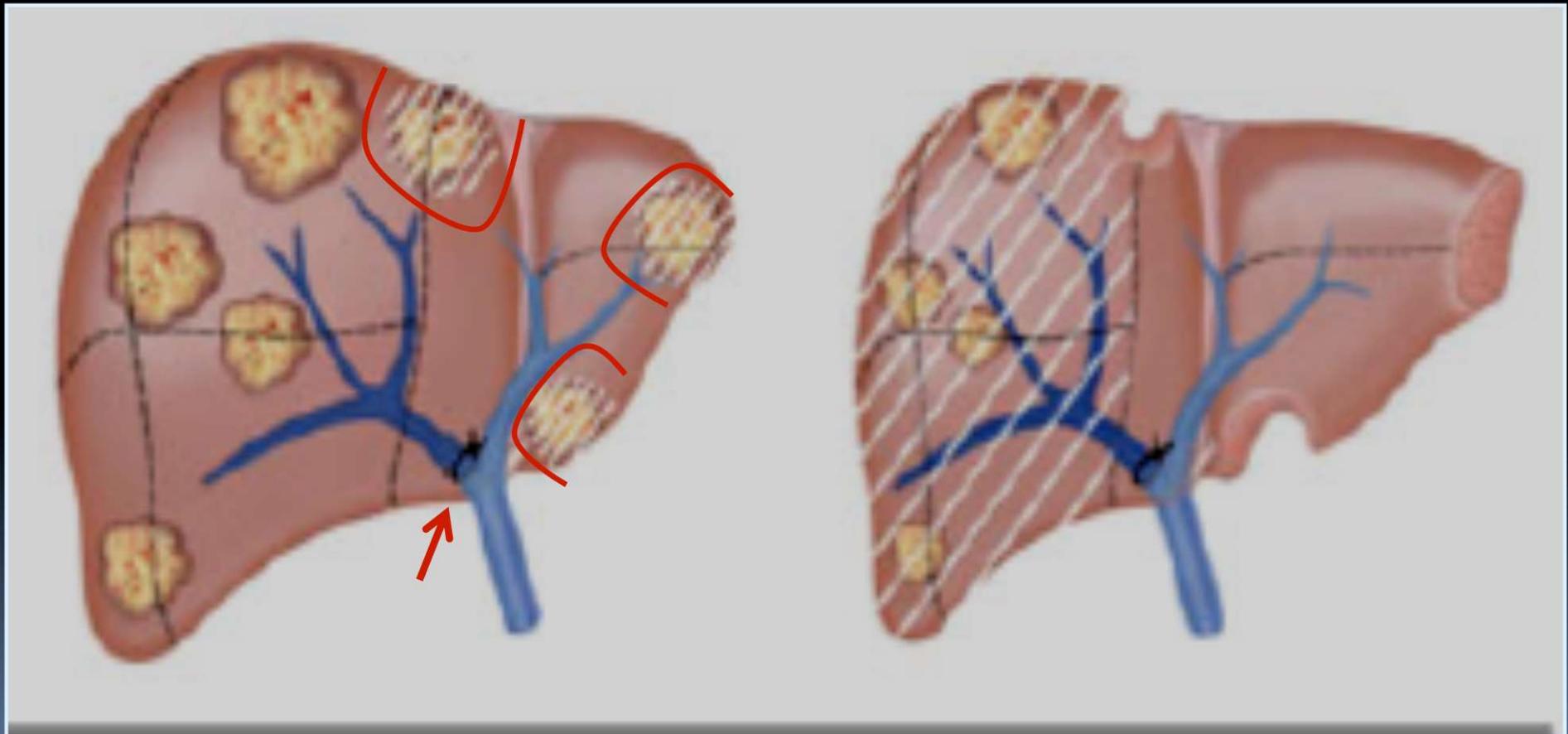
Embolização da veia Porta

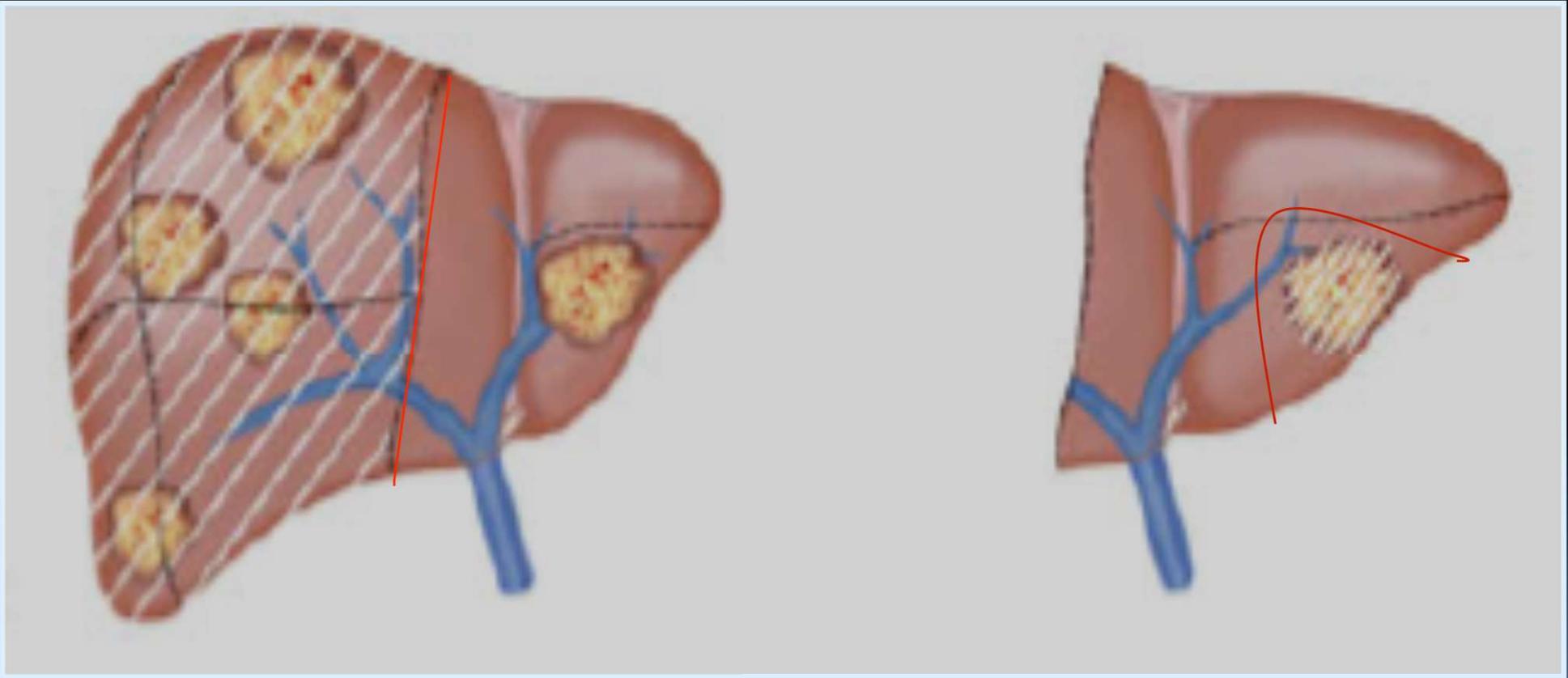


Hepatectomia D

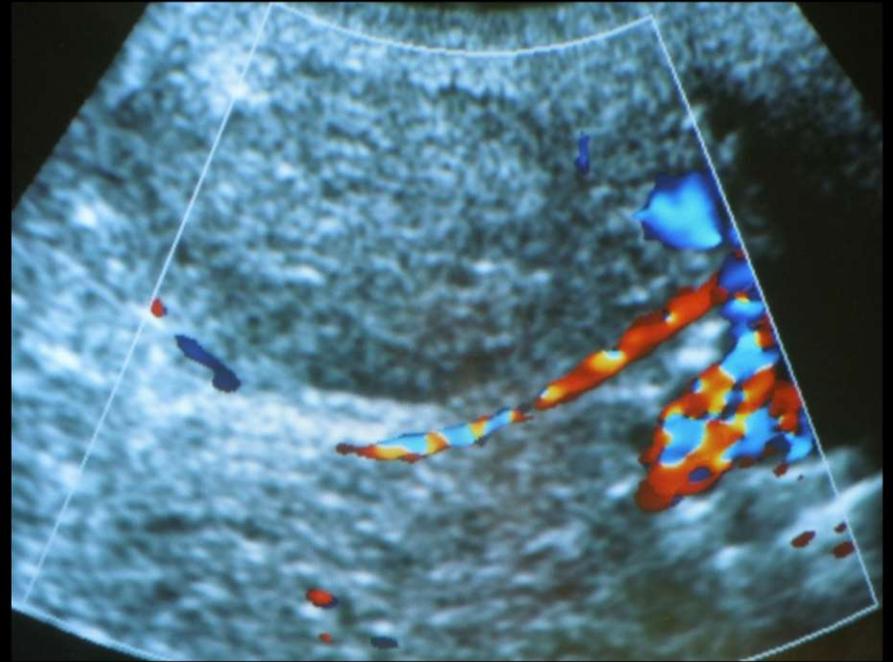


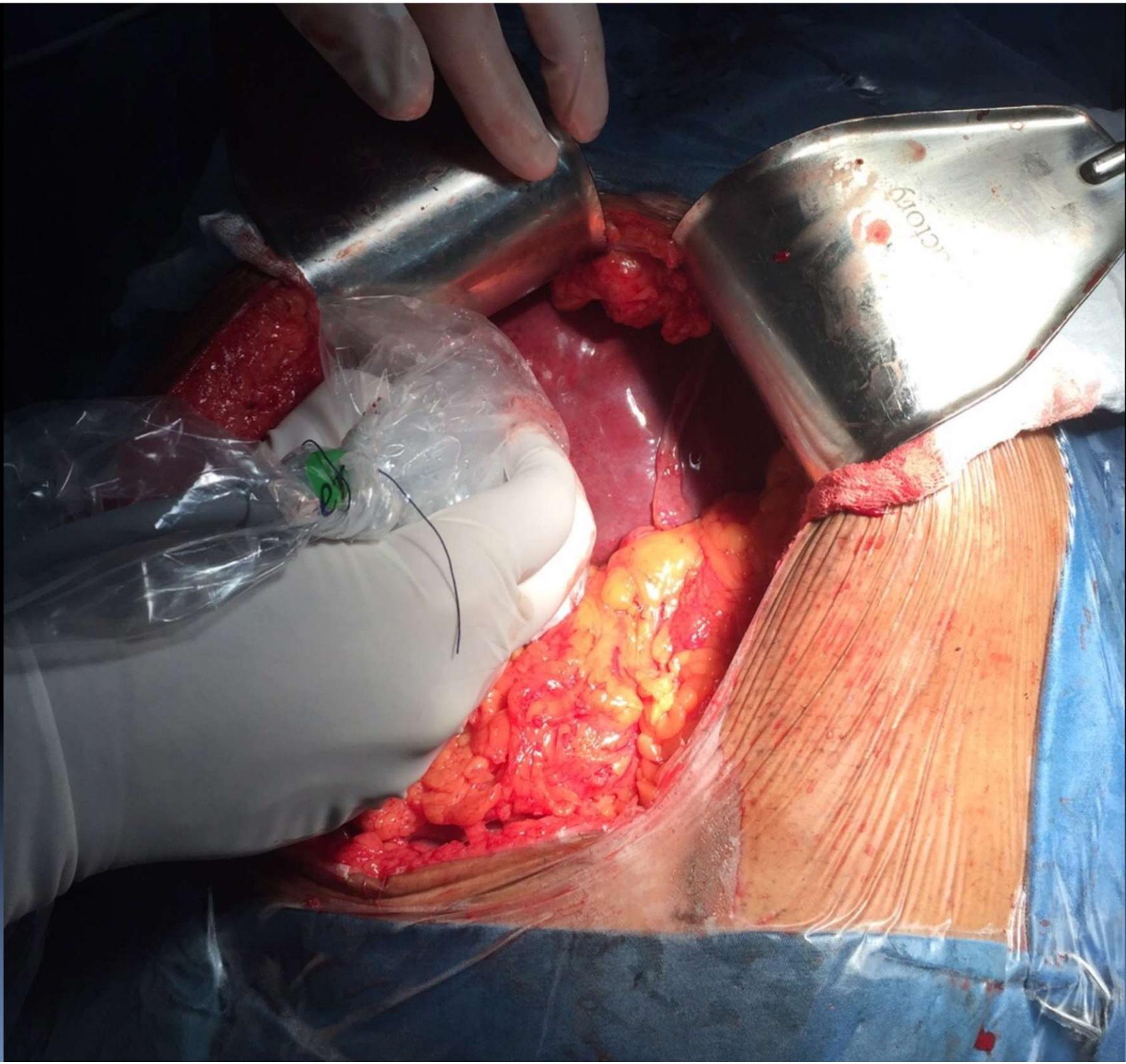
Hepatectomia em dois tempos + LVP

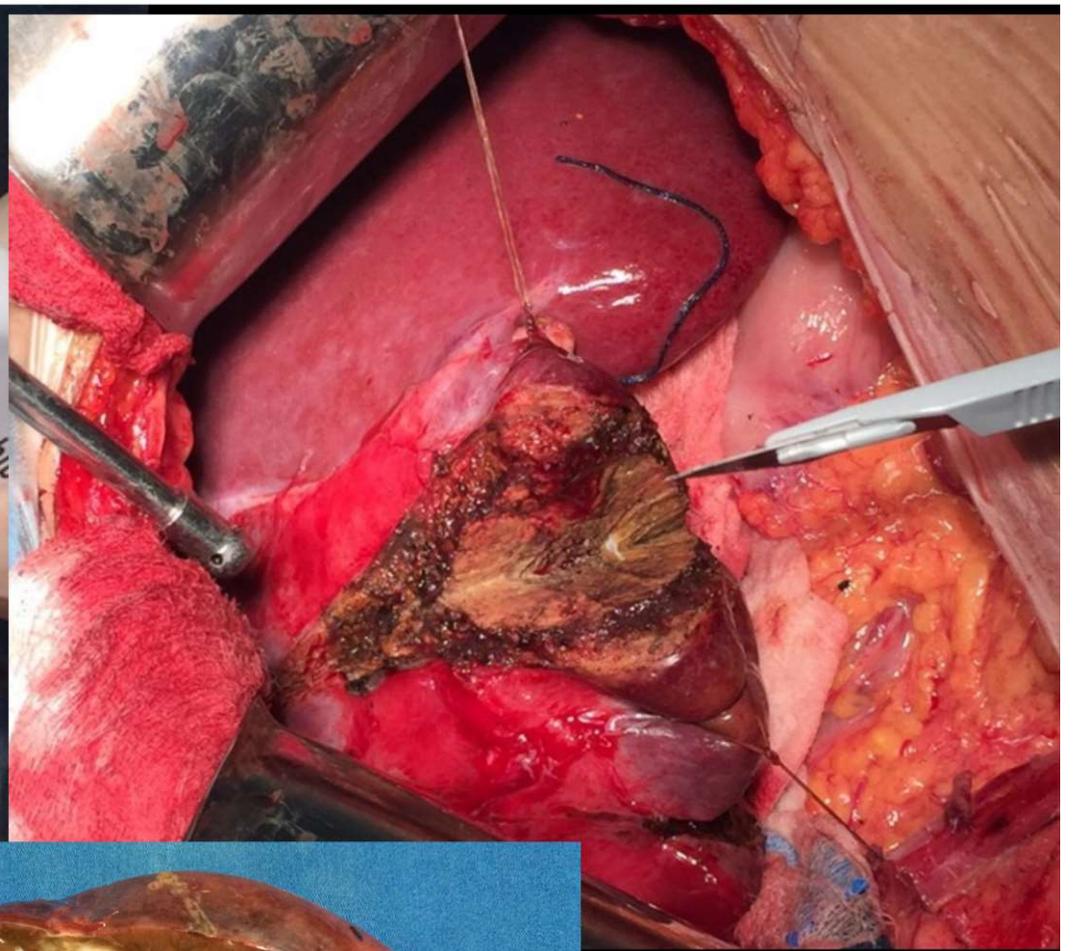
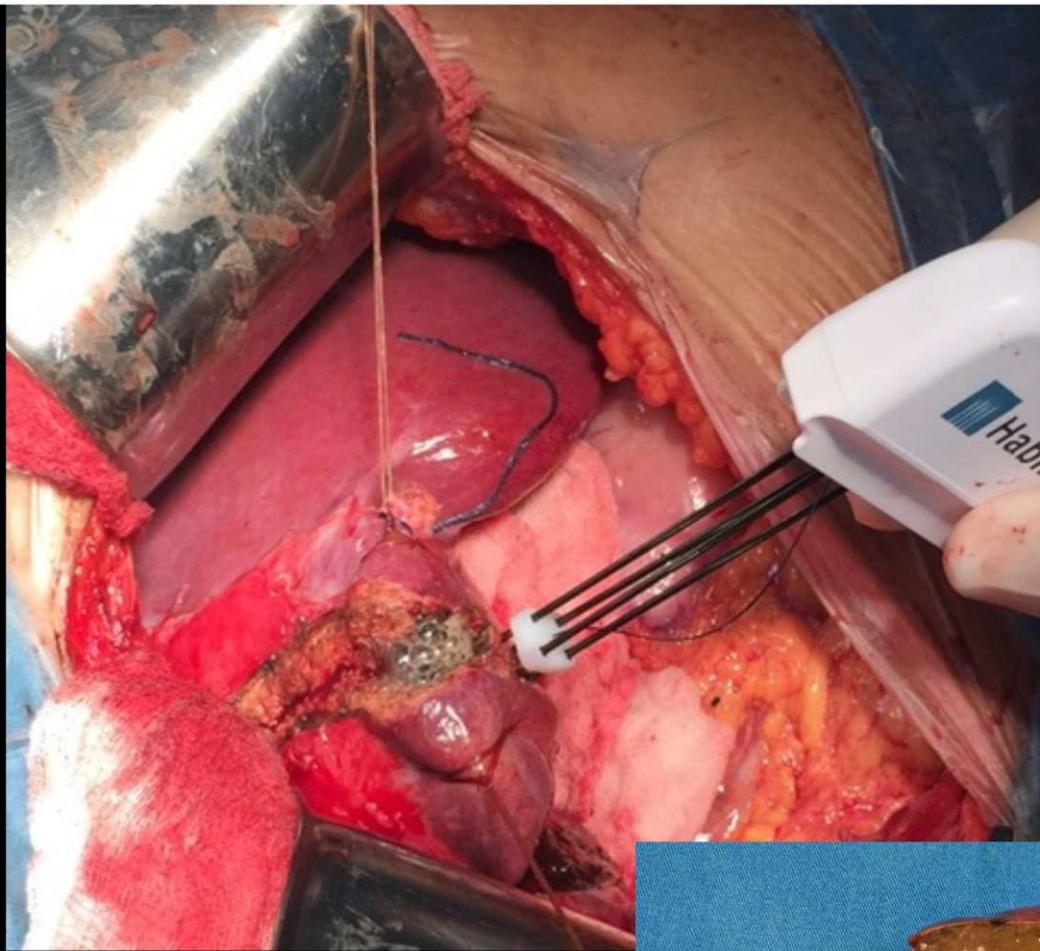


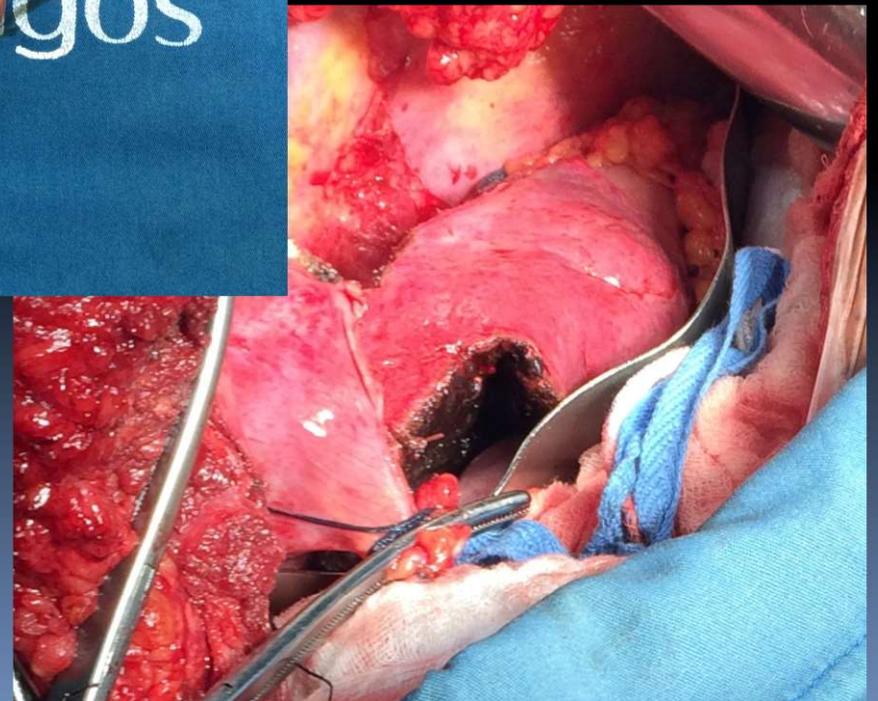
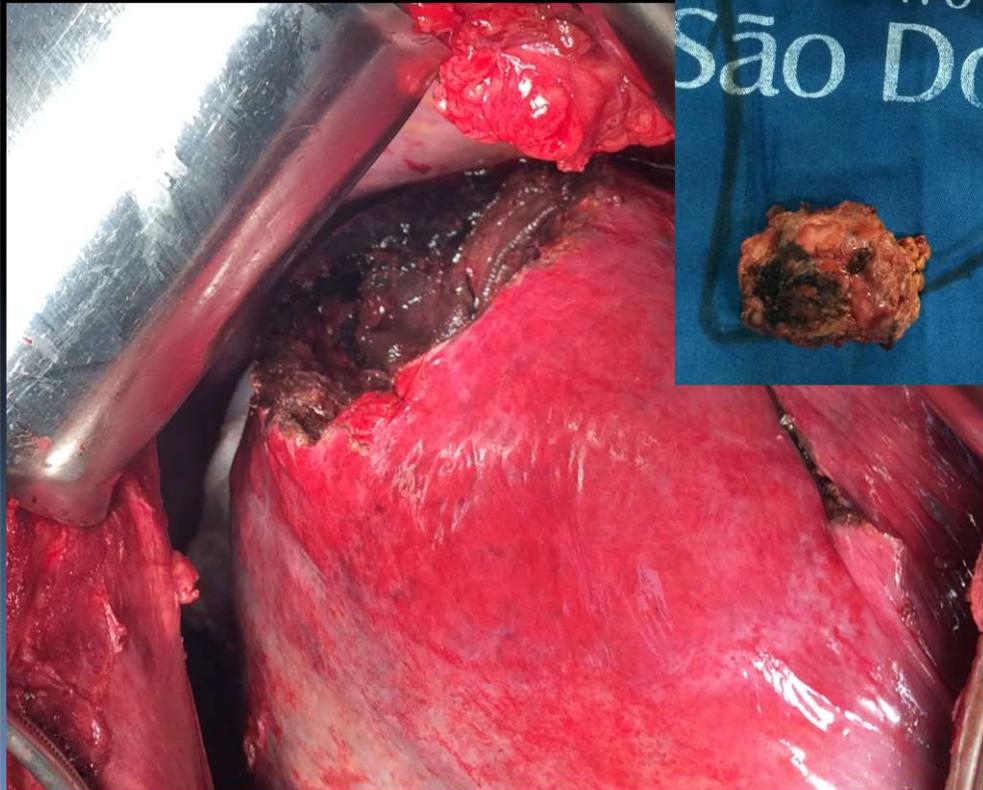
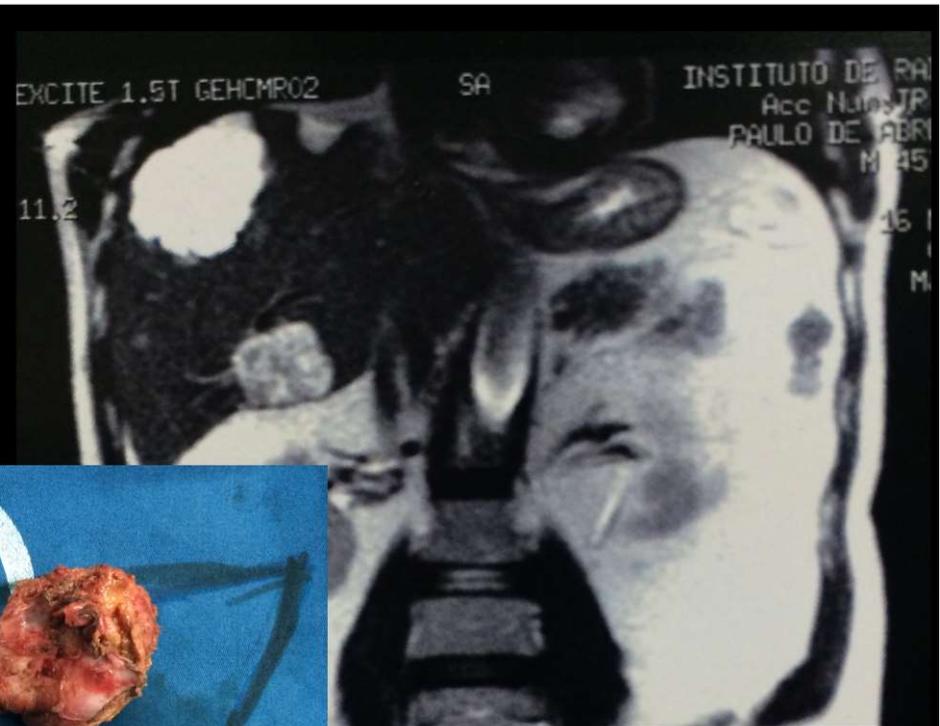
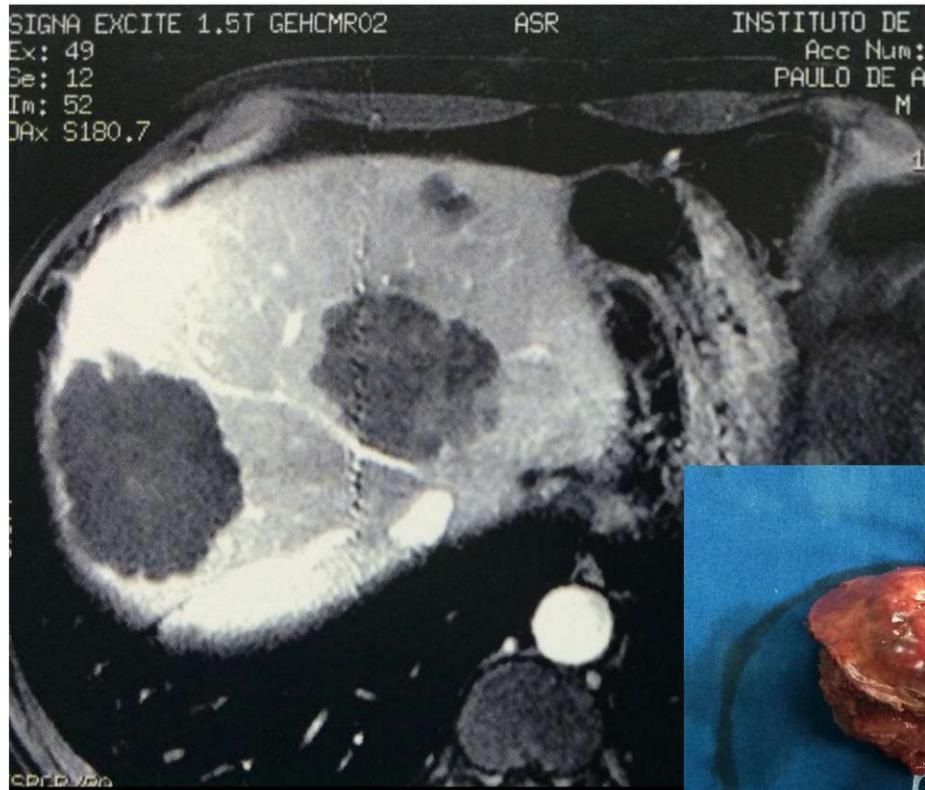


US intra-operatória









Hepatectomia em dois estágios

☐ Qt Ressecção Qt	166
☐ Qt EVP Ressecção Qt	18
☐ Qt Ressecção Ressecção Qt	9
☐ Qt Ressecção PVE Ressecção Qt	12

21 pacientes

1° Estágio – Hepatectomia menor

2° Estágio – Hepatectomia maior

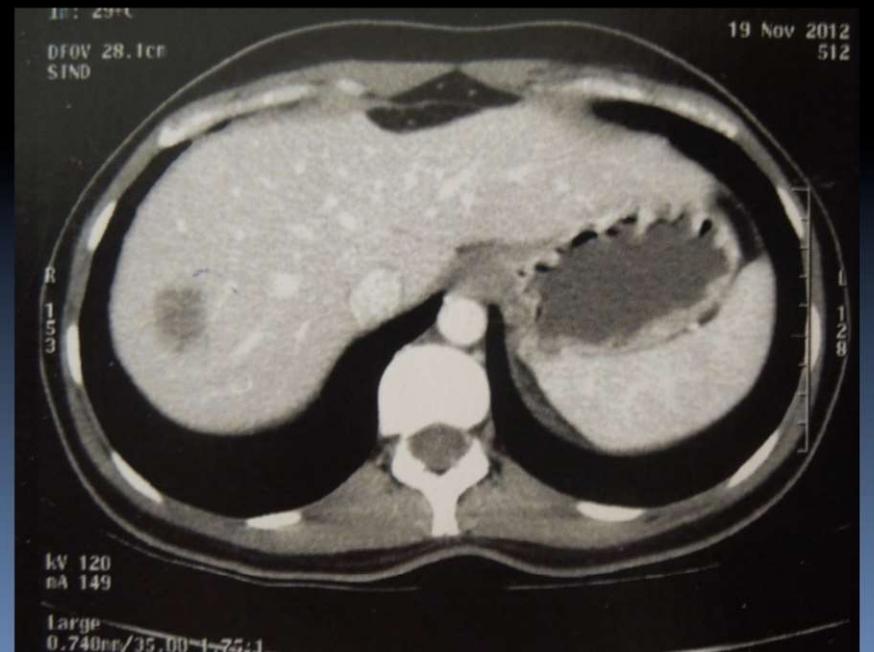
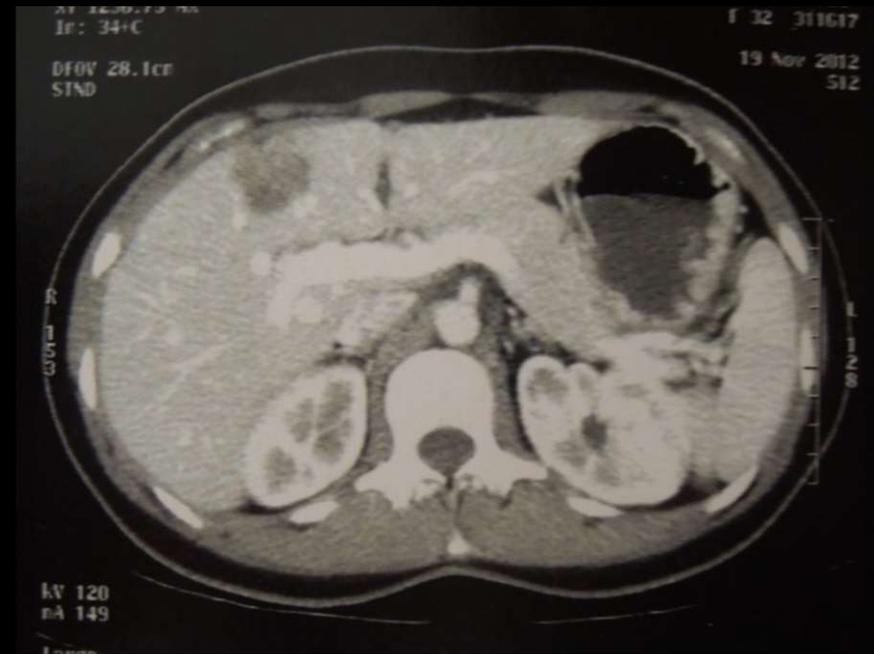
Metastasectomia

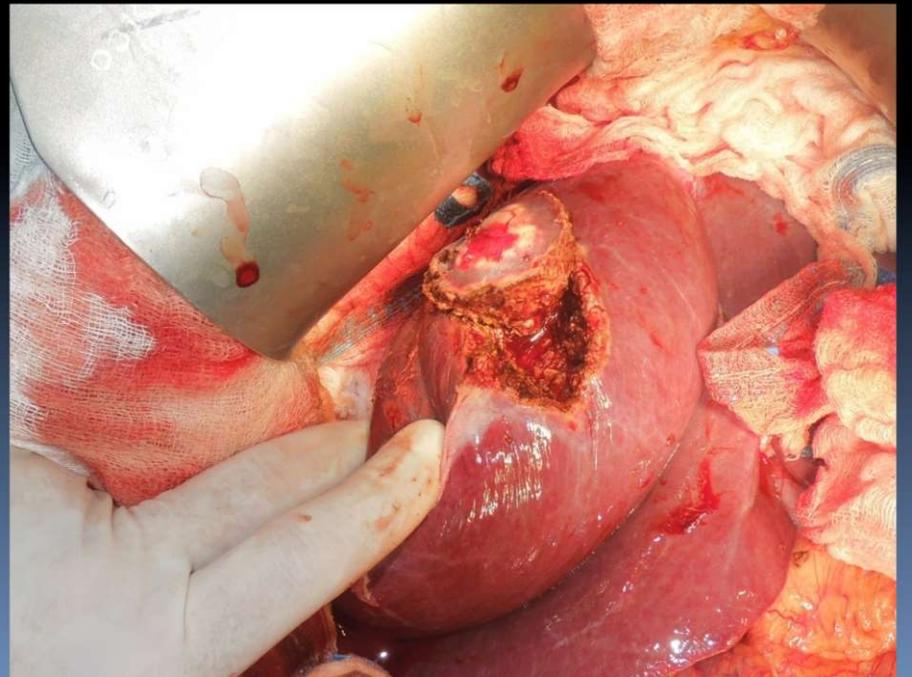
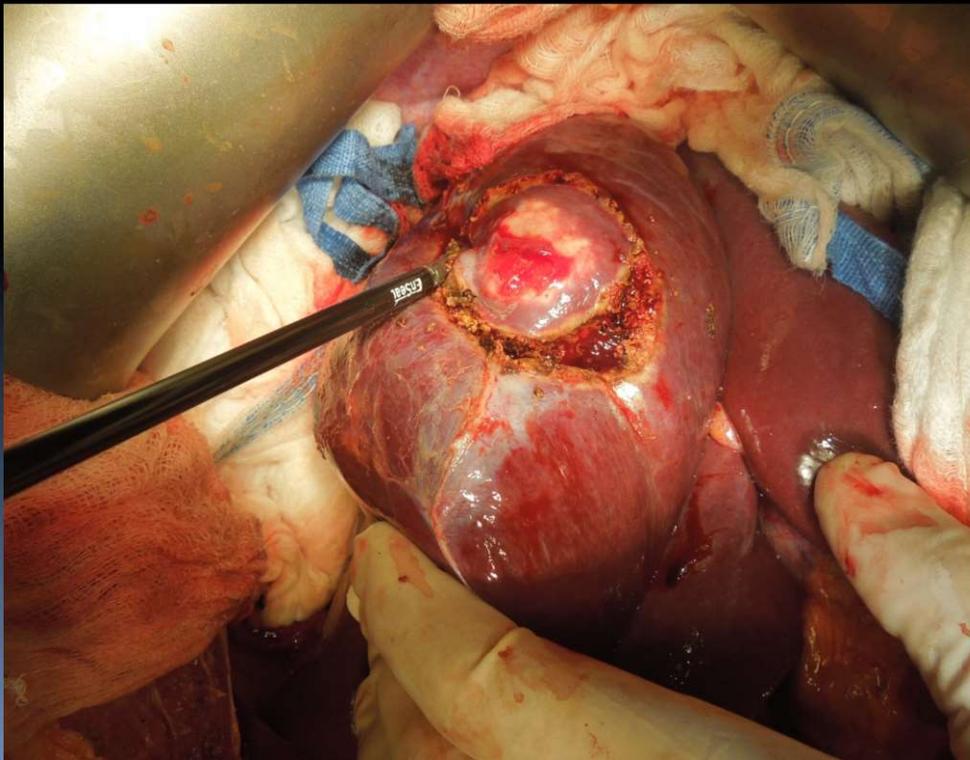
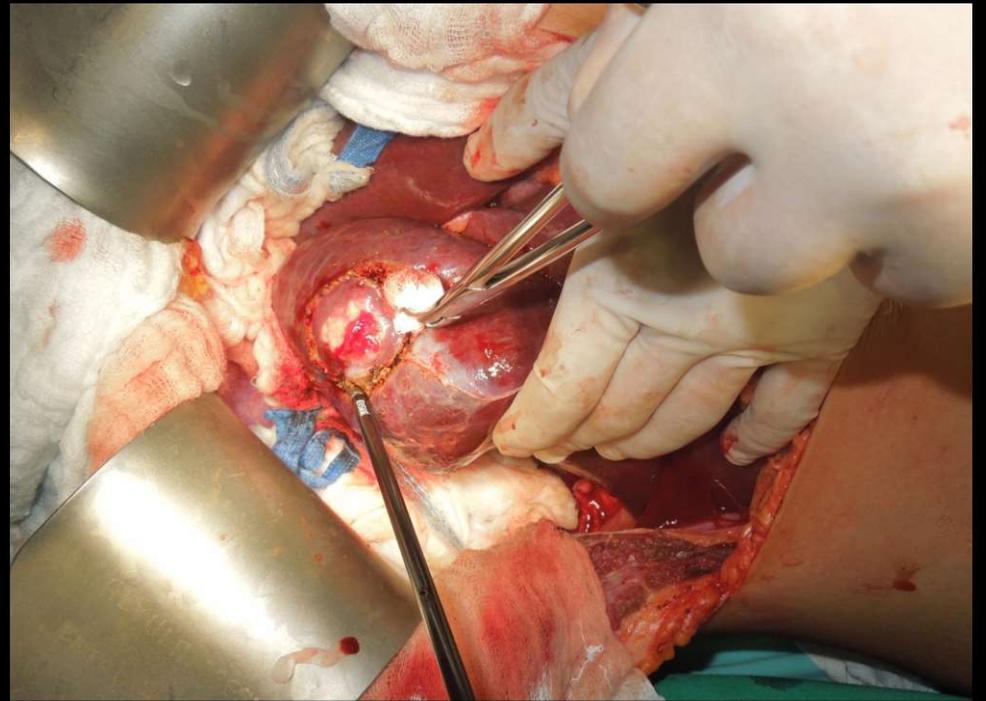
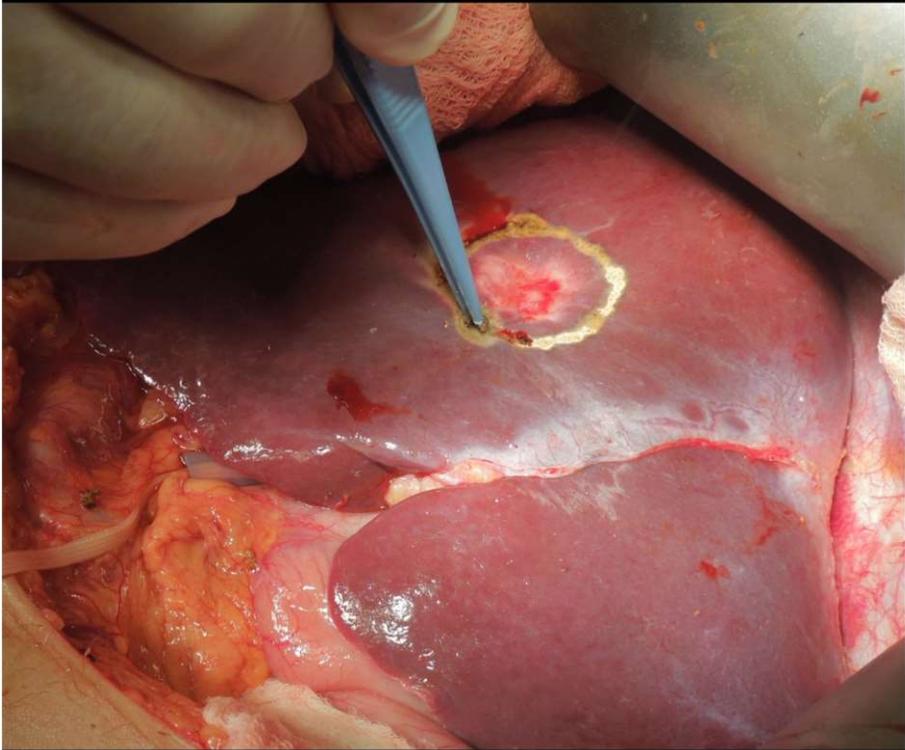
□ Caso clínico

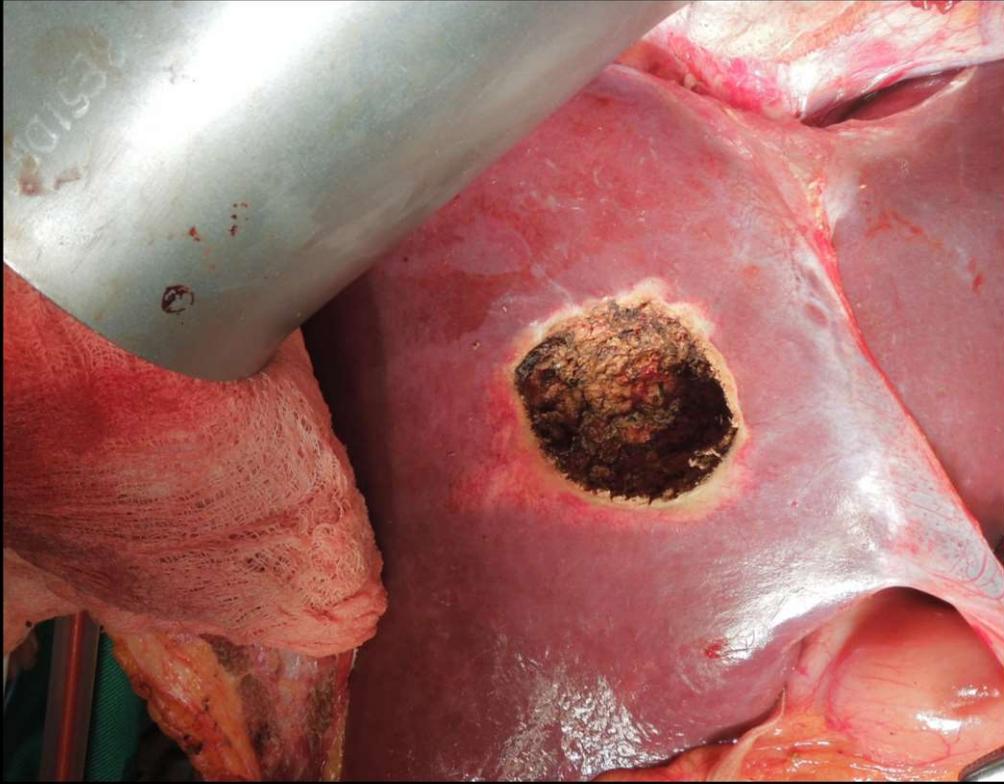
A, feminino, 29 anos
neo de cólon operada

QT

CT de abdome:







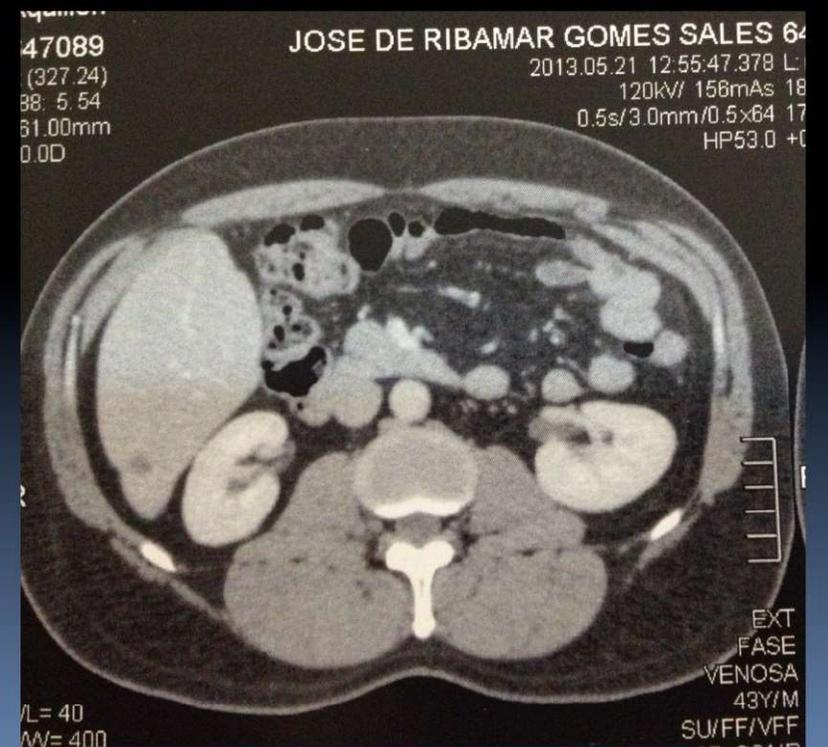
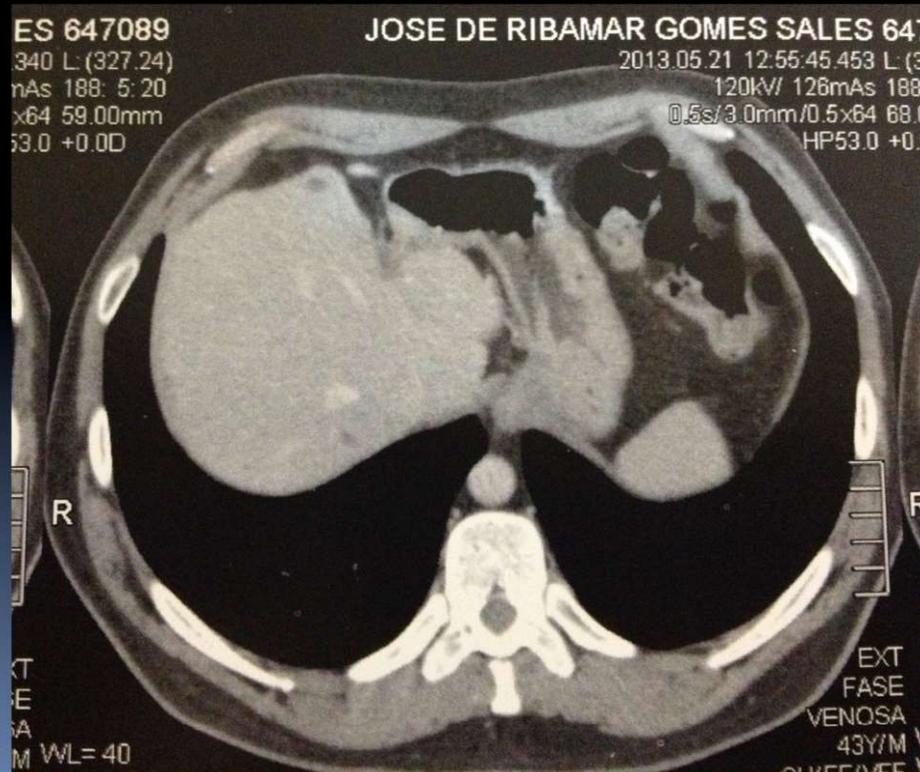
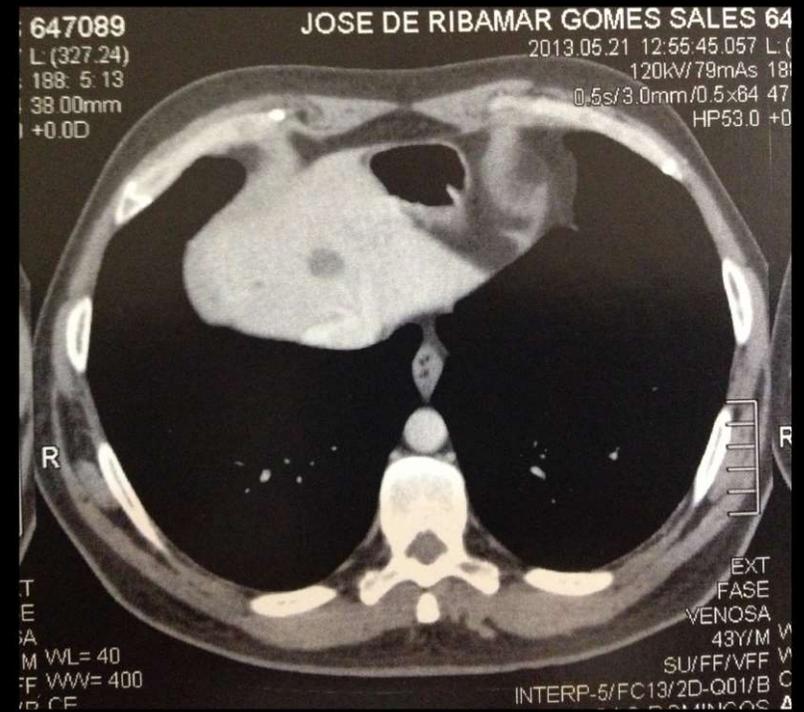
□ Caso clínico

JRGS, masculino, 48 anos

Neo de cólon

Colectomia, QT

CT de abdome:



US intra-operatória





Hepatectomia E (II,III,IV)

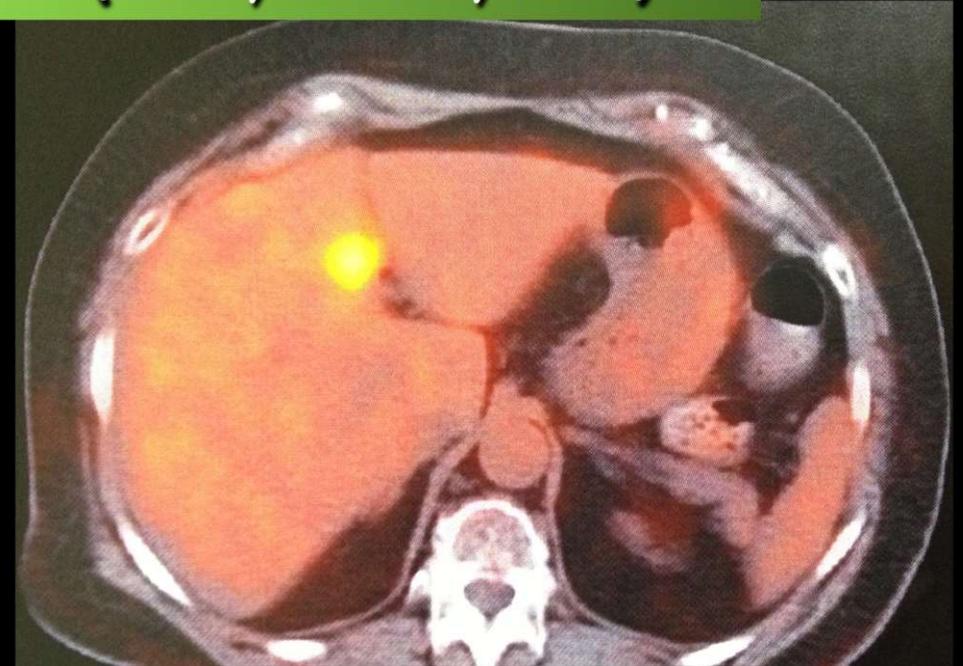
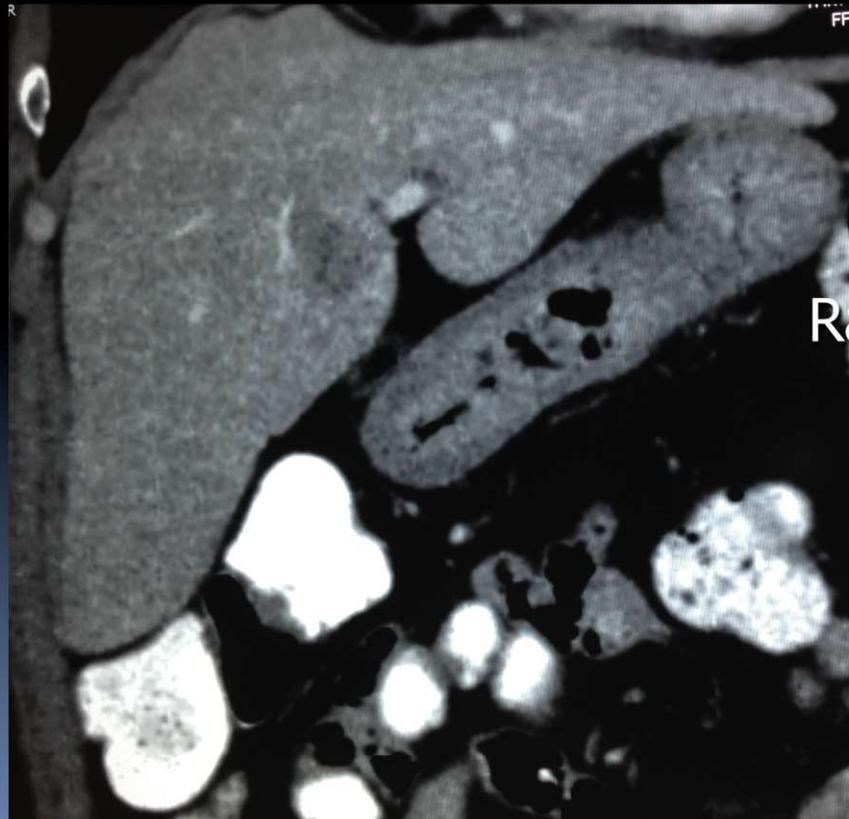
□ Caso clínico

MGDS, feminino, 79 anos

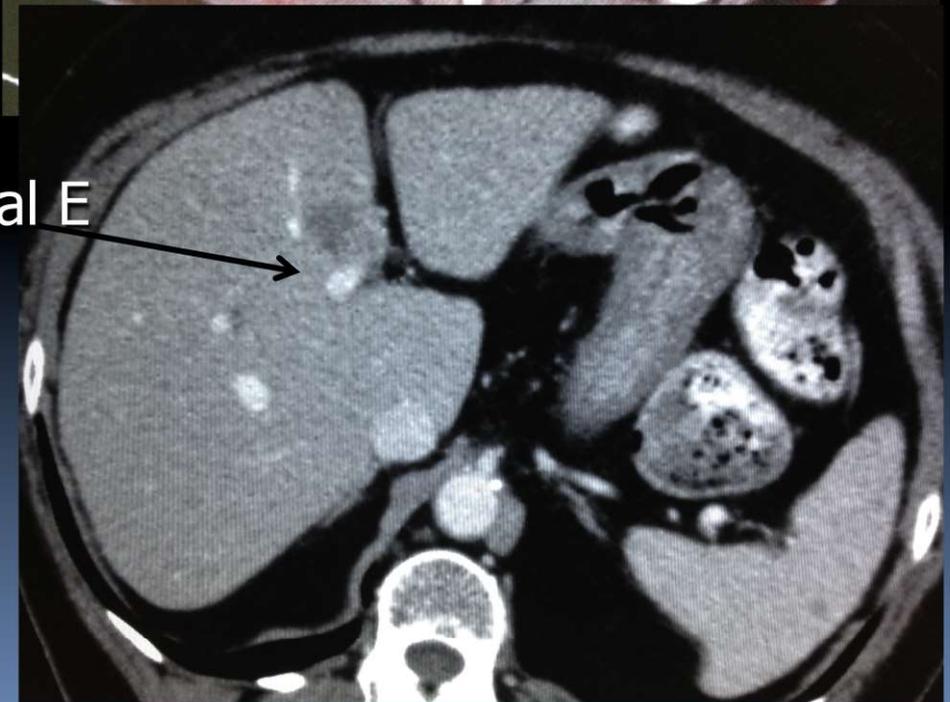
Neo de cólon

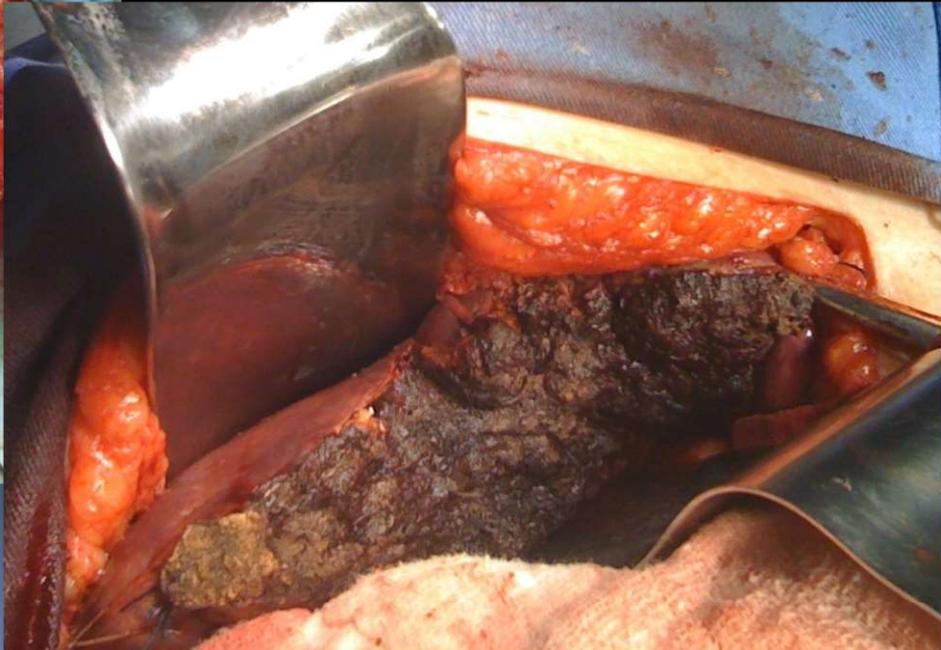
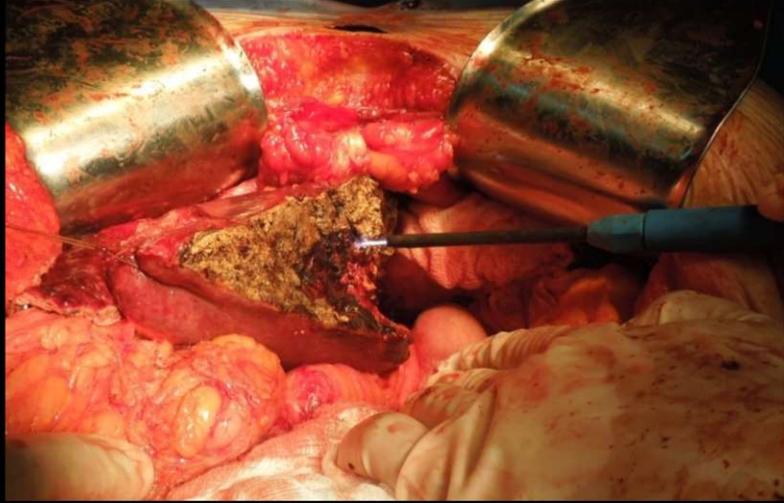
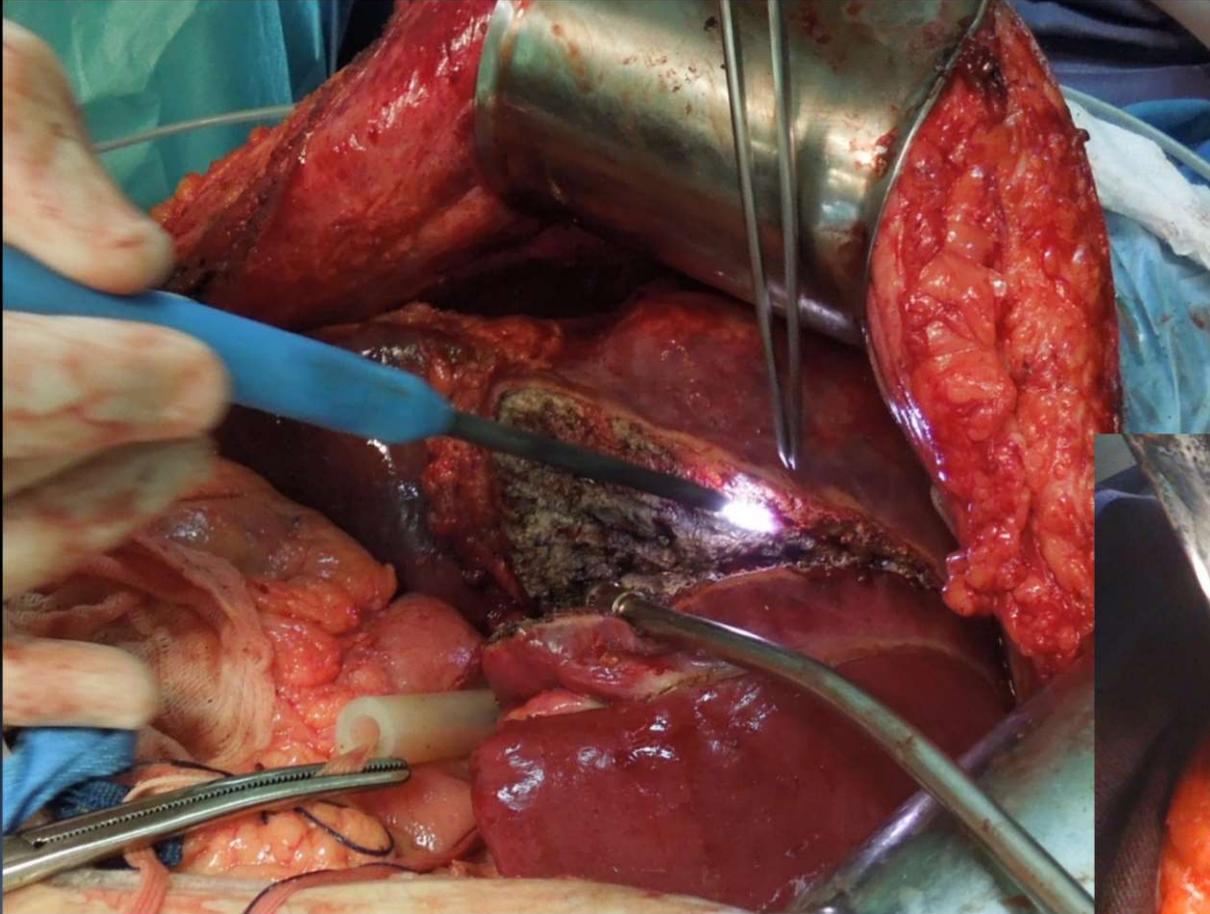
Colectomia, QT

CT de abdome:



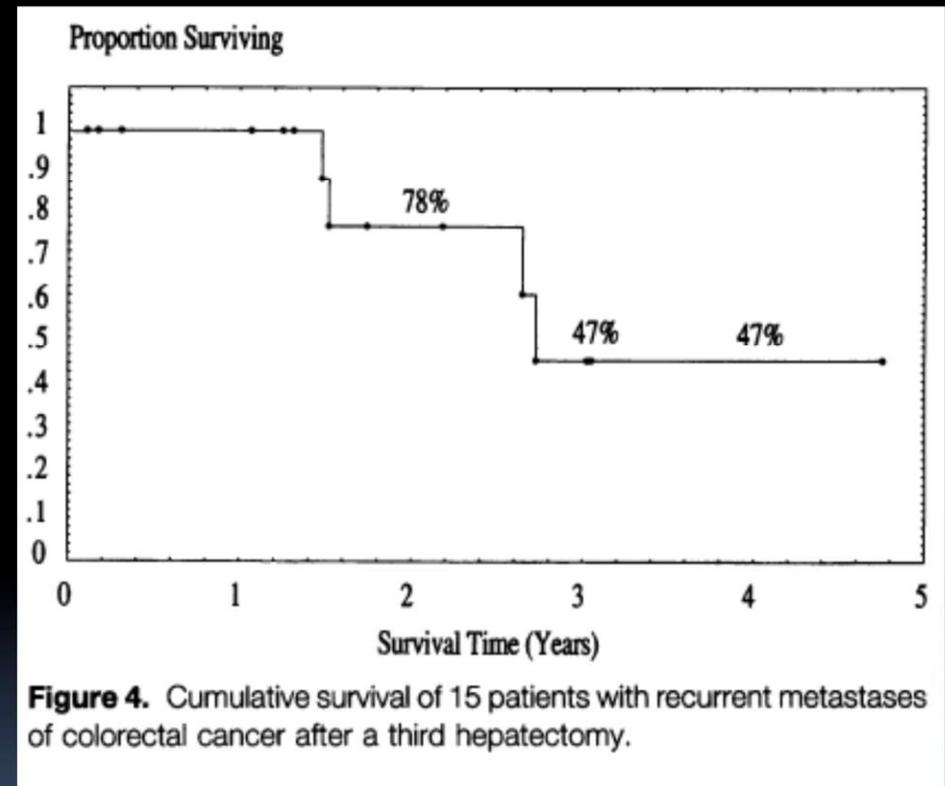
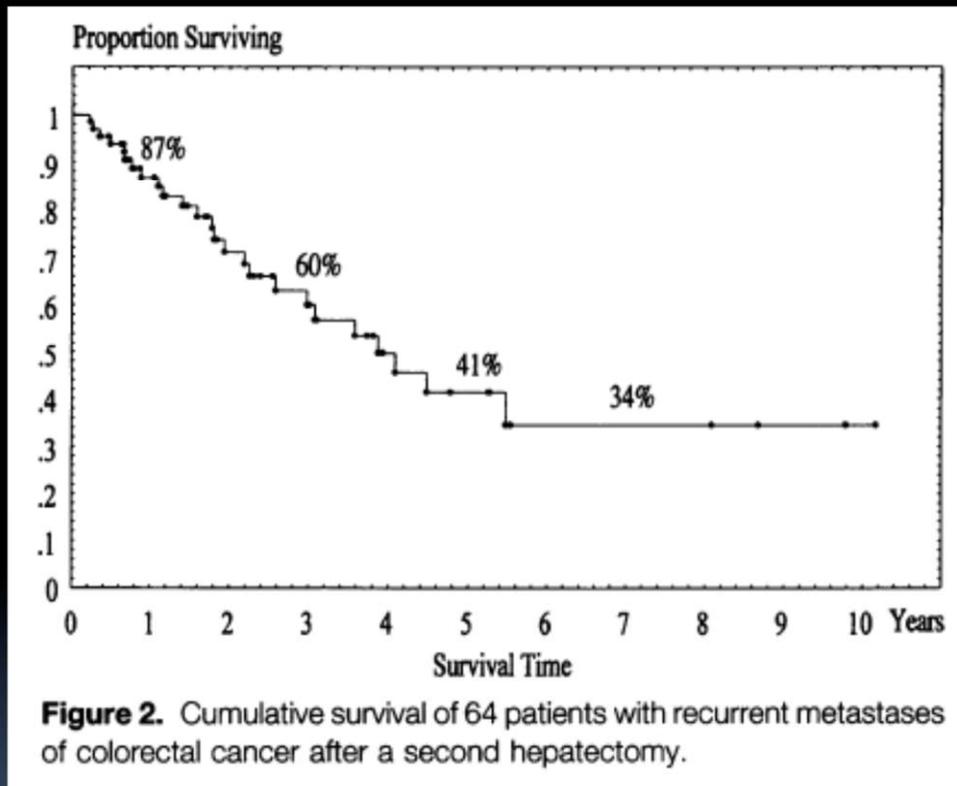
Ramo portal E







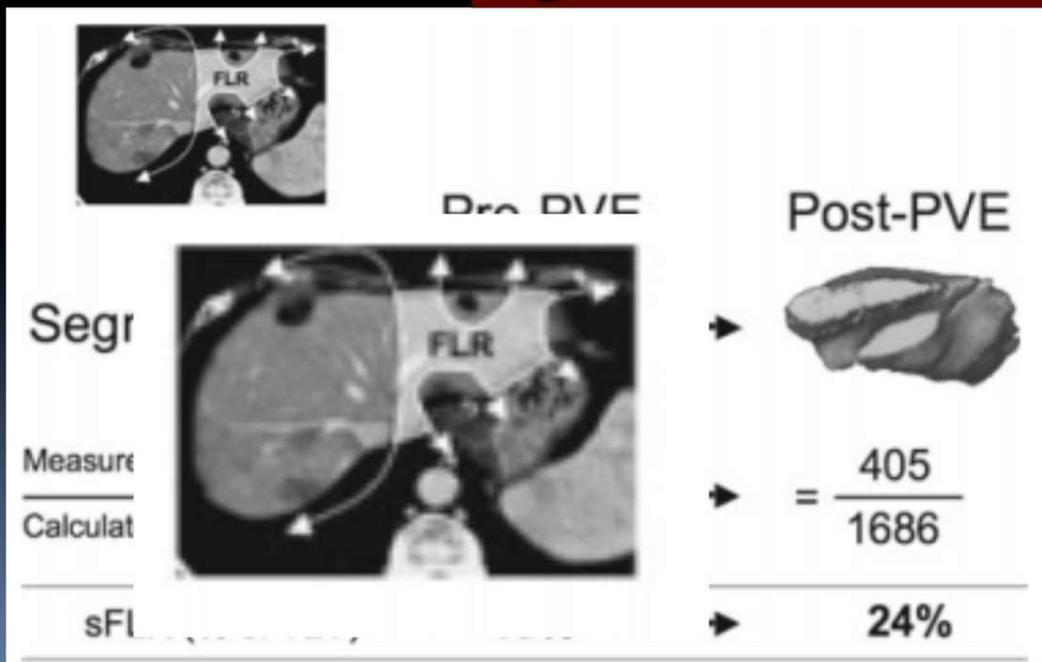
Hepatectomia repetida



Hepatectomia em dois estágios



Após seis ciclos de QT

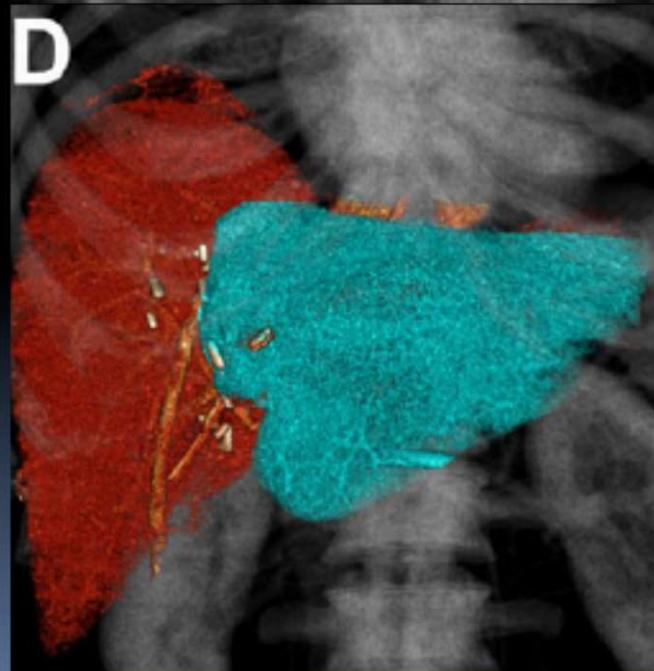
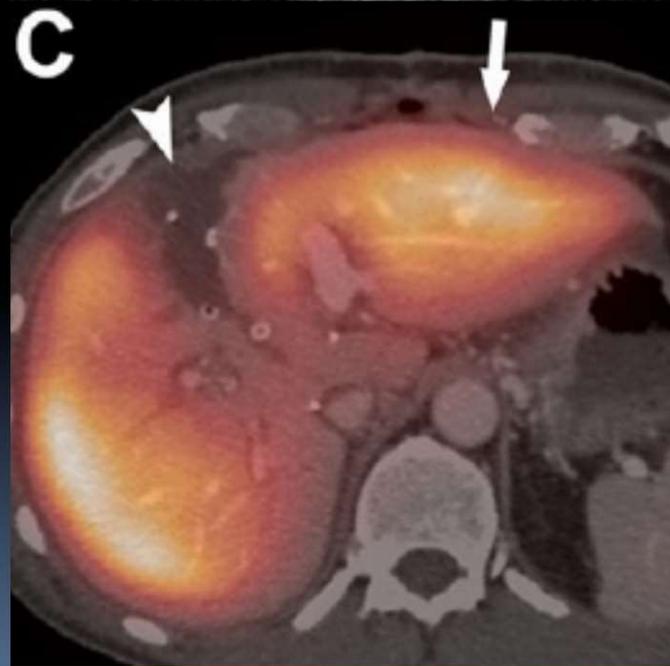
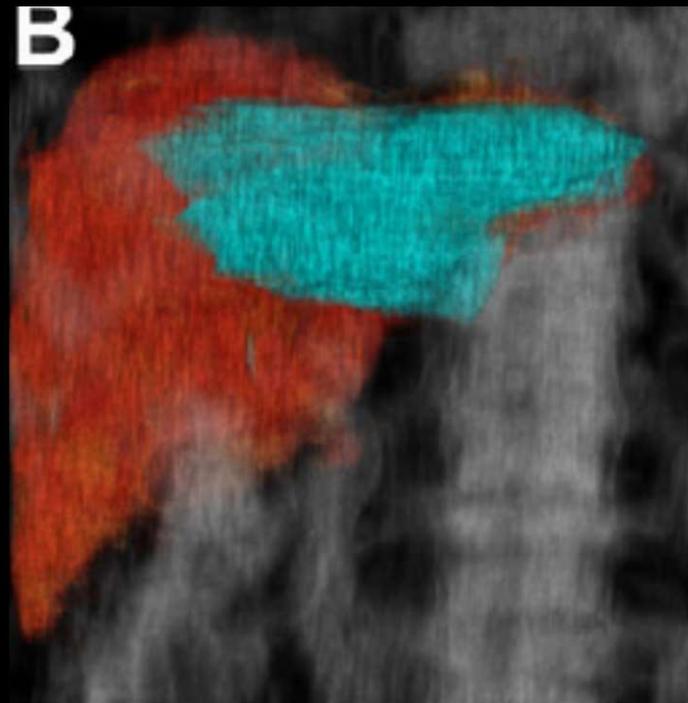
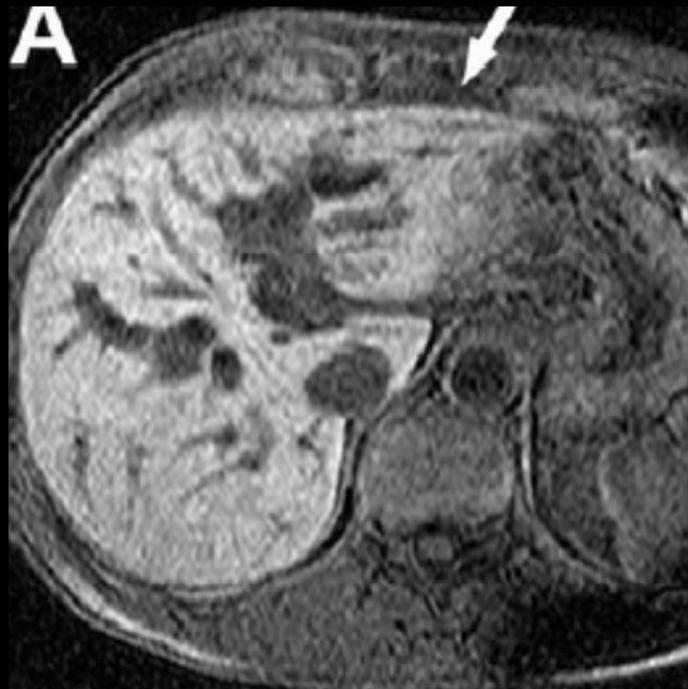


ALPPS

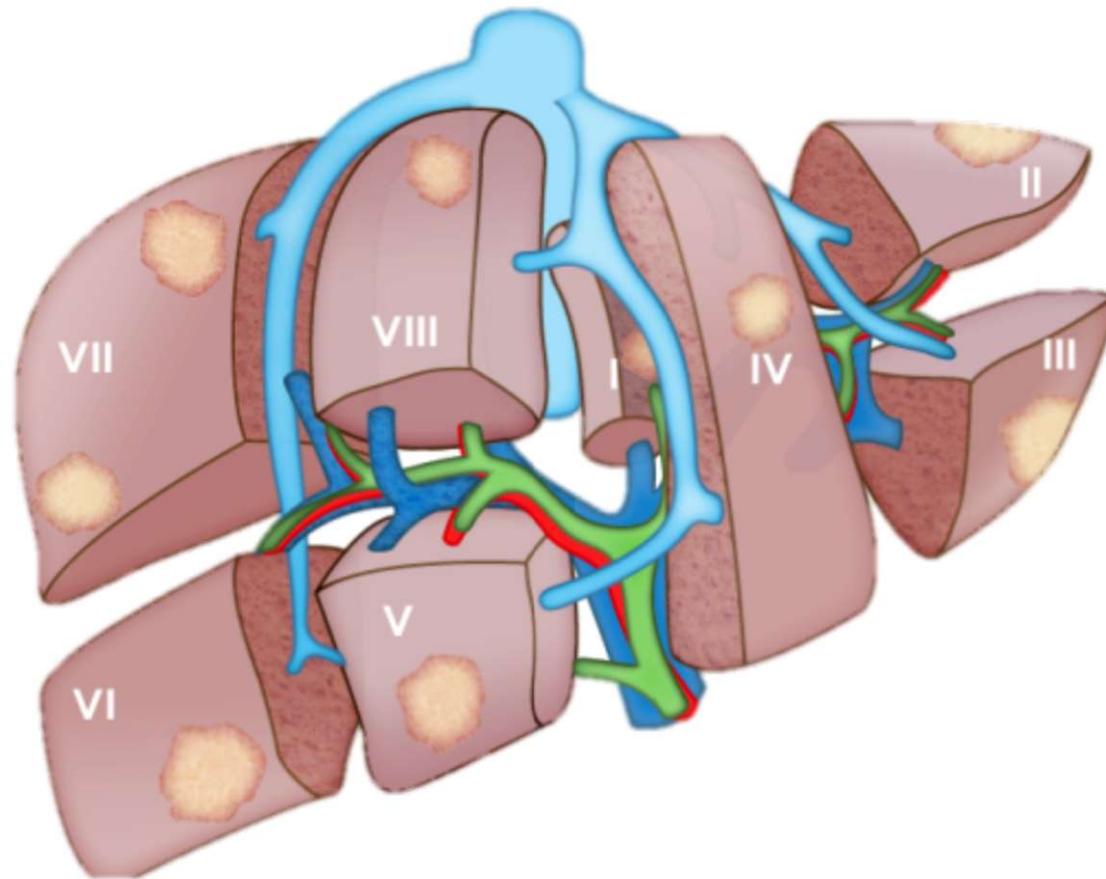
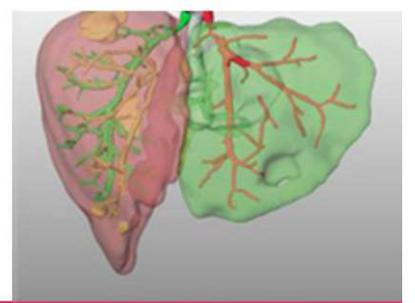
FEATURE

Right Portal Vein Ligation Combined With In Situ Splitting Induces Rapid Left Lateral Liver Lobe Hypertrophy Enabling 2-Stage Extended Right Hepatic Resection in Small-for-Size Settings

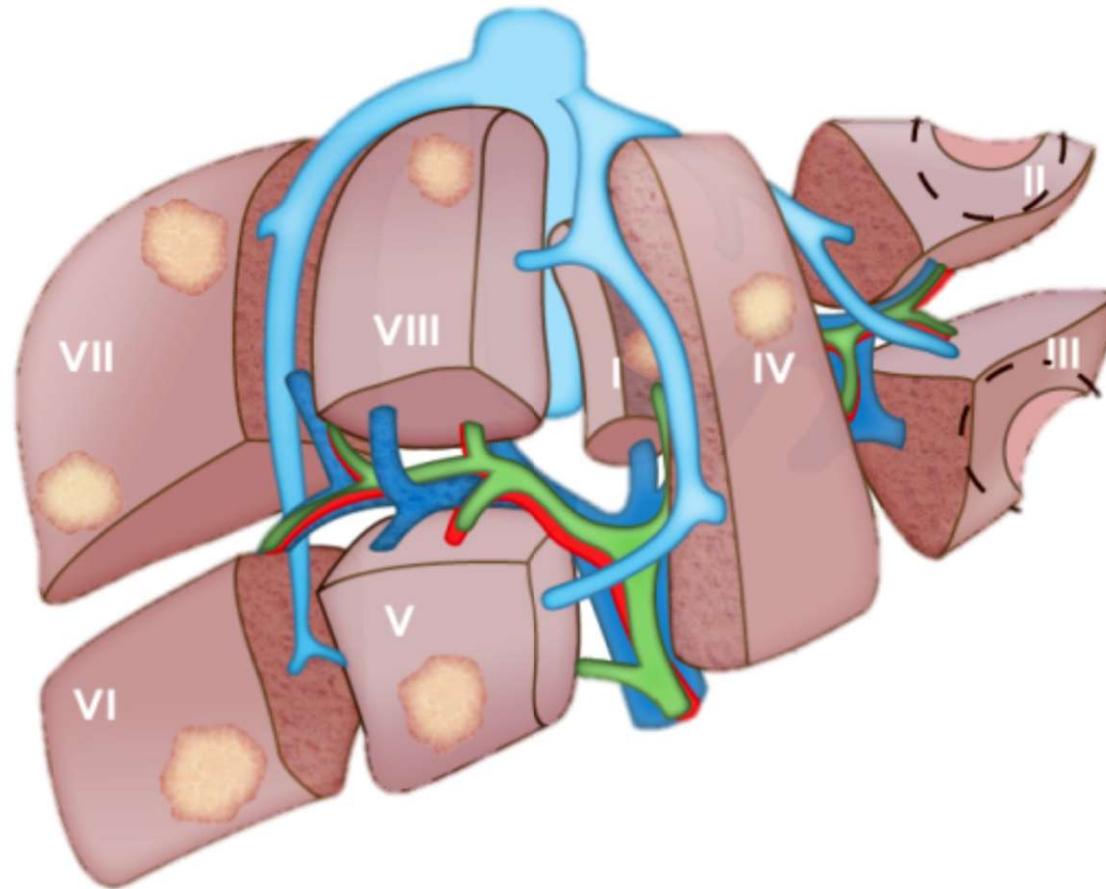
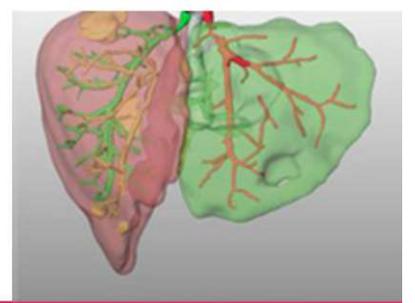
Andreas A. Schnitzbauer, MD, Sven A. Lang, MD,* Holger Goessmann, MD,† Silvio Nadalin, MD,§
Janine Baumgart, MD,|| Stefan A. Farkas, MD,* Stefan Fichtner-Feigl, MD,* Thomas Lorf, MD,¶
Armin Goralcyk, MD,¶ Rüdiger Hörbelt, MD,# Alexander Kroemer, MD,* Martin Loss, MD,* Petra Rümmele, MD,‡
Marcus N. Scherer, MD,* Winfried Padberg, MD,# Alfred Königsrainer, MD,§ Hauke Lang, MD,||
Aiman Obed, MD,¶ and Hans J. Schlitt, MD**



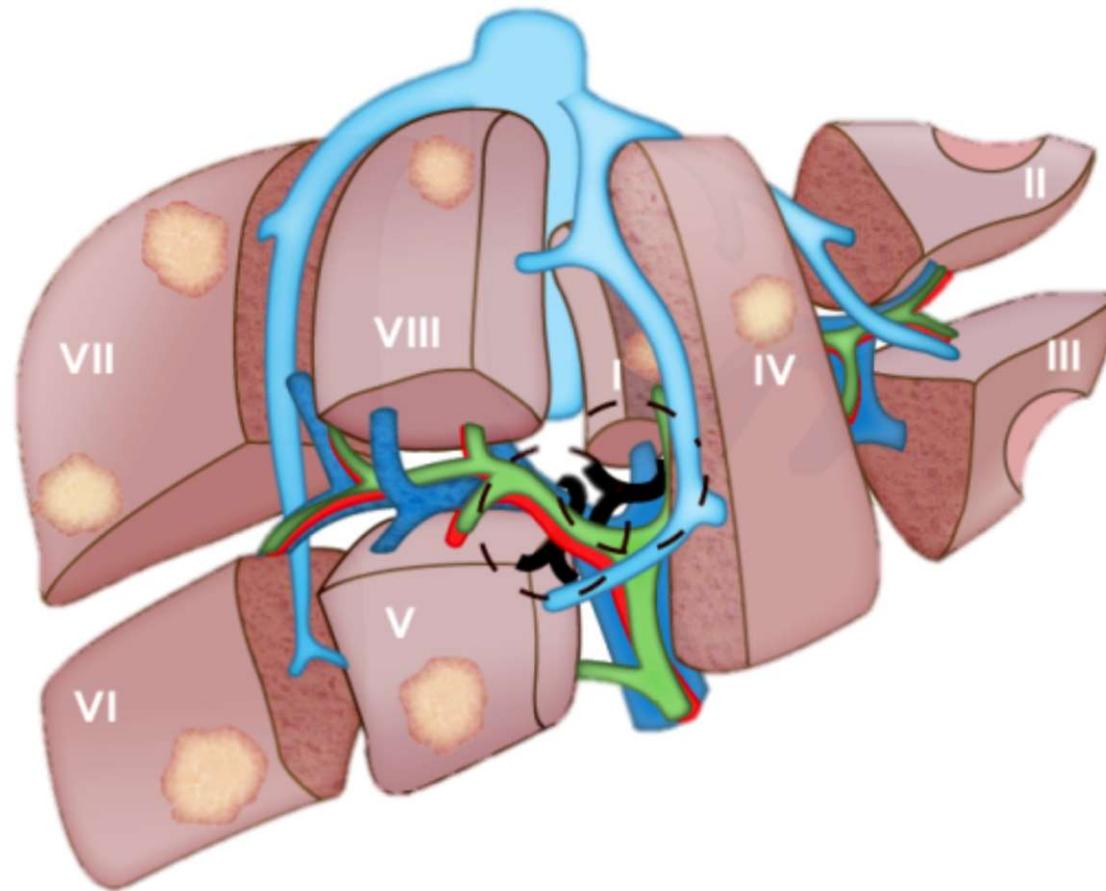
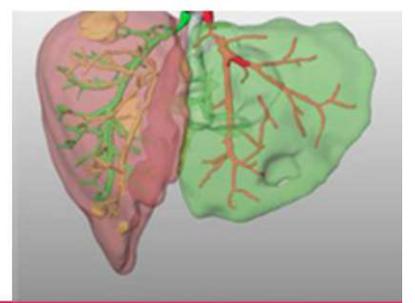
ALPPS



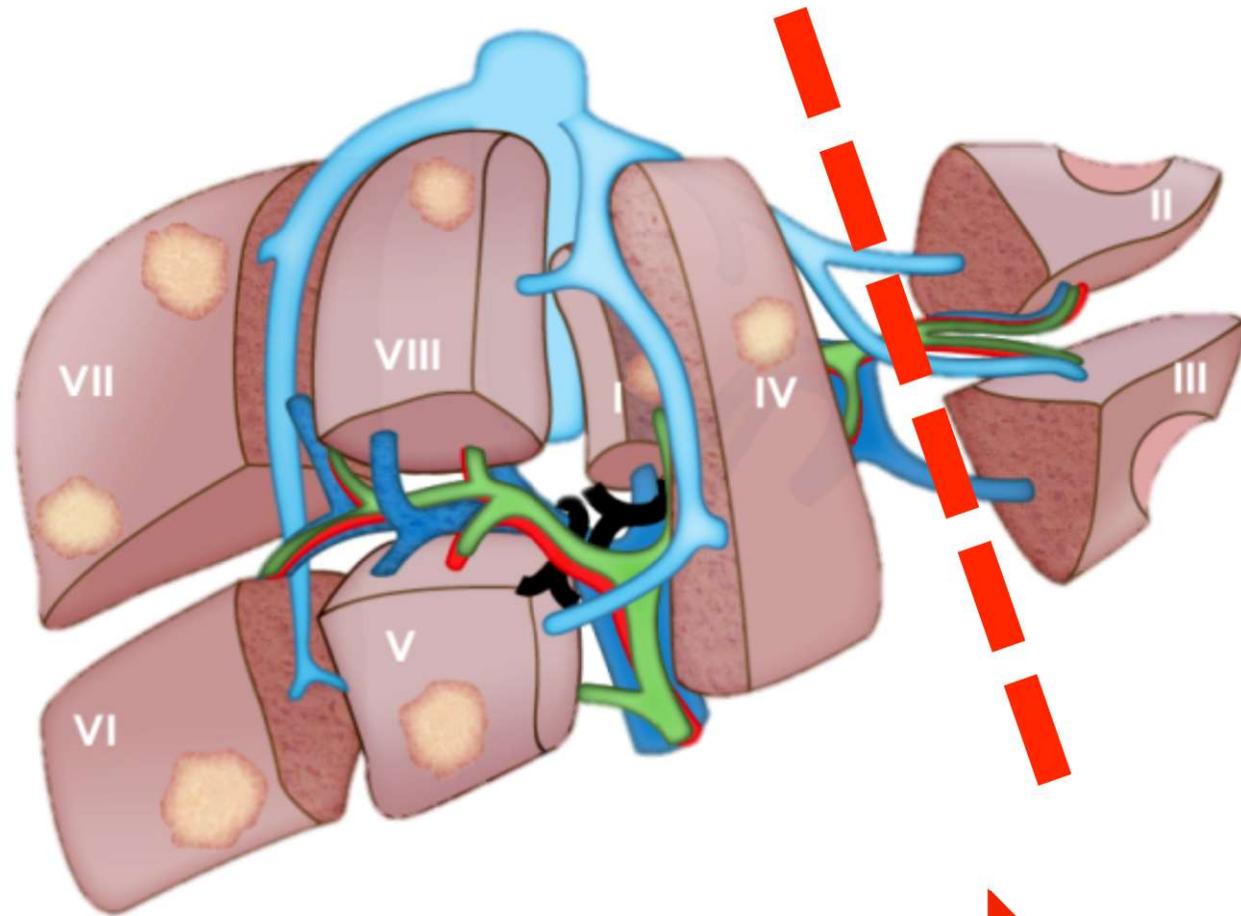
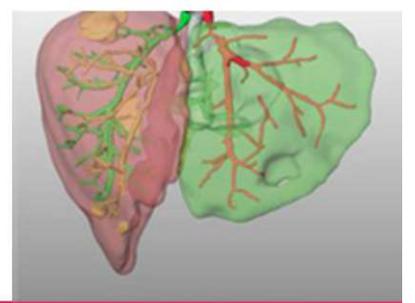
ALPPS



ALPPS

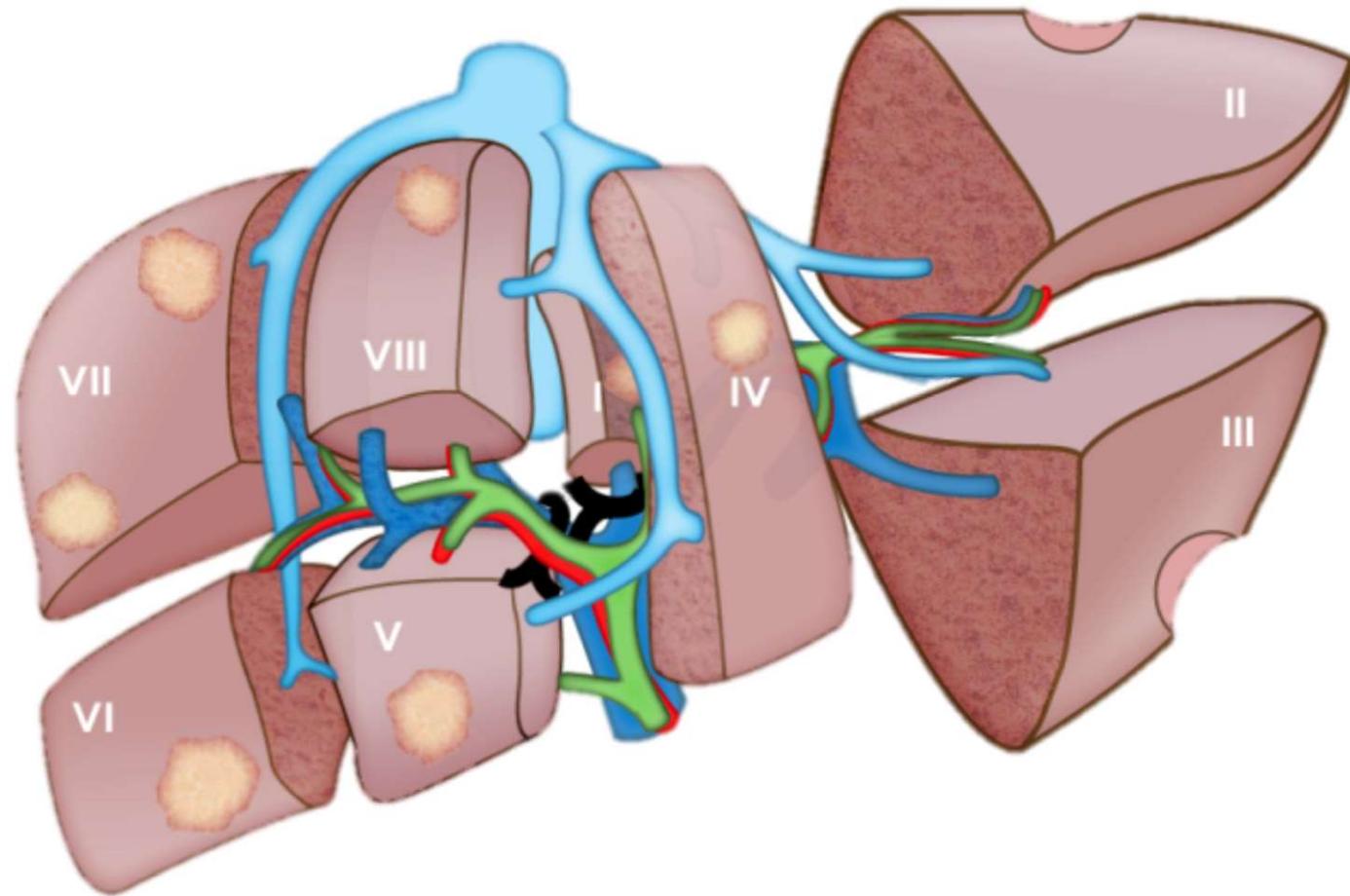
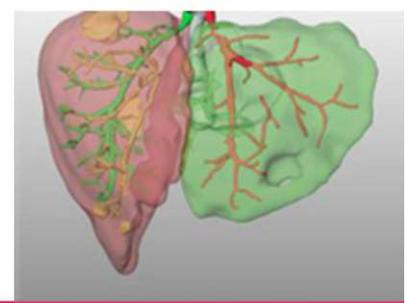


ALPPS

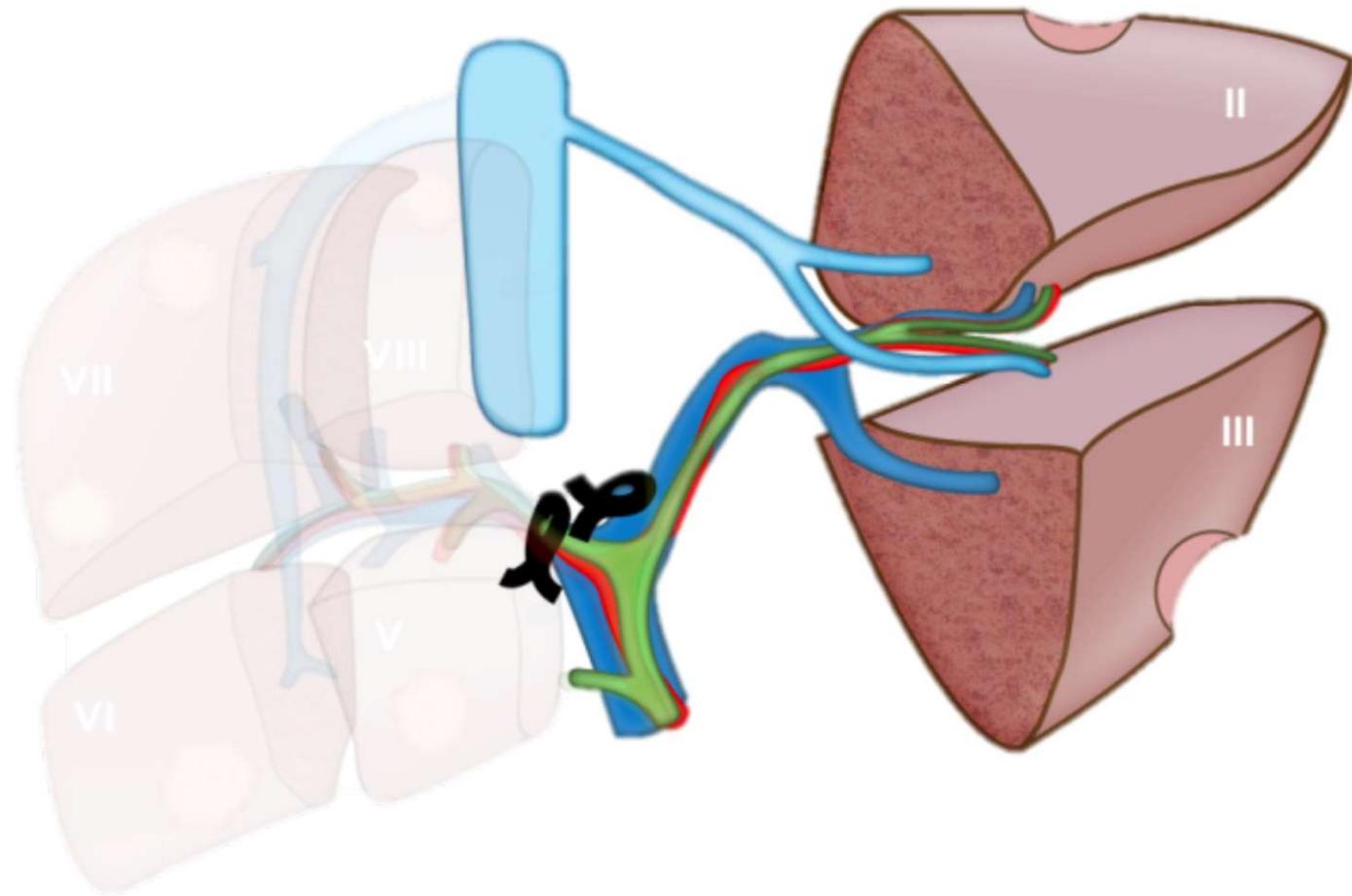
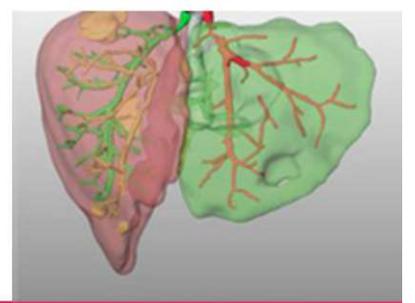


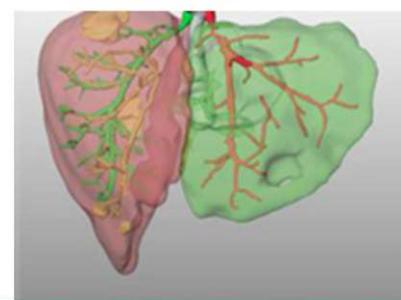
7 days

ALPPS



ALPPS





Right Portal Vein Ligation Combined With In Situ Splitting Induces Rapid Left Lateral Liver Lobe Hypertrophy Enabling 2-Stage Extended Right Hepatic Resection in Small-for-Size Settings

Andreas A. Schnitzbauer, MD, Sven A. Lang, MD,* Holger Goessmann, MD,† Silvio Nadalin, MD,§
Janine Baumgart, MD,|| Stefan A. Farkas, MD,* Stefan Fichtner-Feigl, MD,* Thomas Lorf, MD,¶
Armin Goralczyk, MD,¶ Rüdiger Hörbelt, MD,# Alexander Kroemer, MD,* Martin Loss, MD,* Petra Rümmele, MD,‡
Marcus N. Scherer, MD,* Winfried Padberg, MD,# Alfred Königsrainer, MD,§ Hauke Lang, MD,||
Aiman Obed, MD,¶ and Hans J. Schlitt, MD**

ABCDDV/898

ABCD Arq Bras Cir Dig
2013;26(1):40-43

Original Article

ASSOCIATING LIVER PARTITION AND PORTAL VEIN LIGATION FOR STAGED HEPATECTOMY (ALPPS): THE BRAZILIAN EXPERIENCE

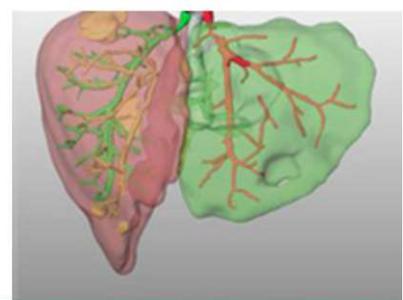
Ligadura da veia porta associada à bipartição do fígado para hepatectomia em dois estágios (ALPPS): experiência Brasileira

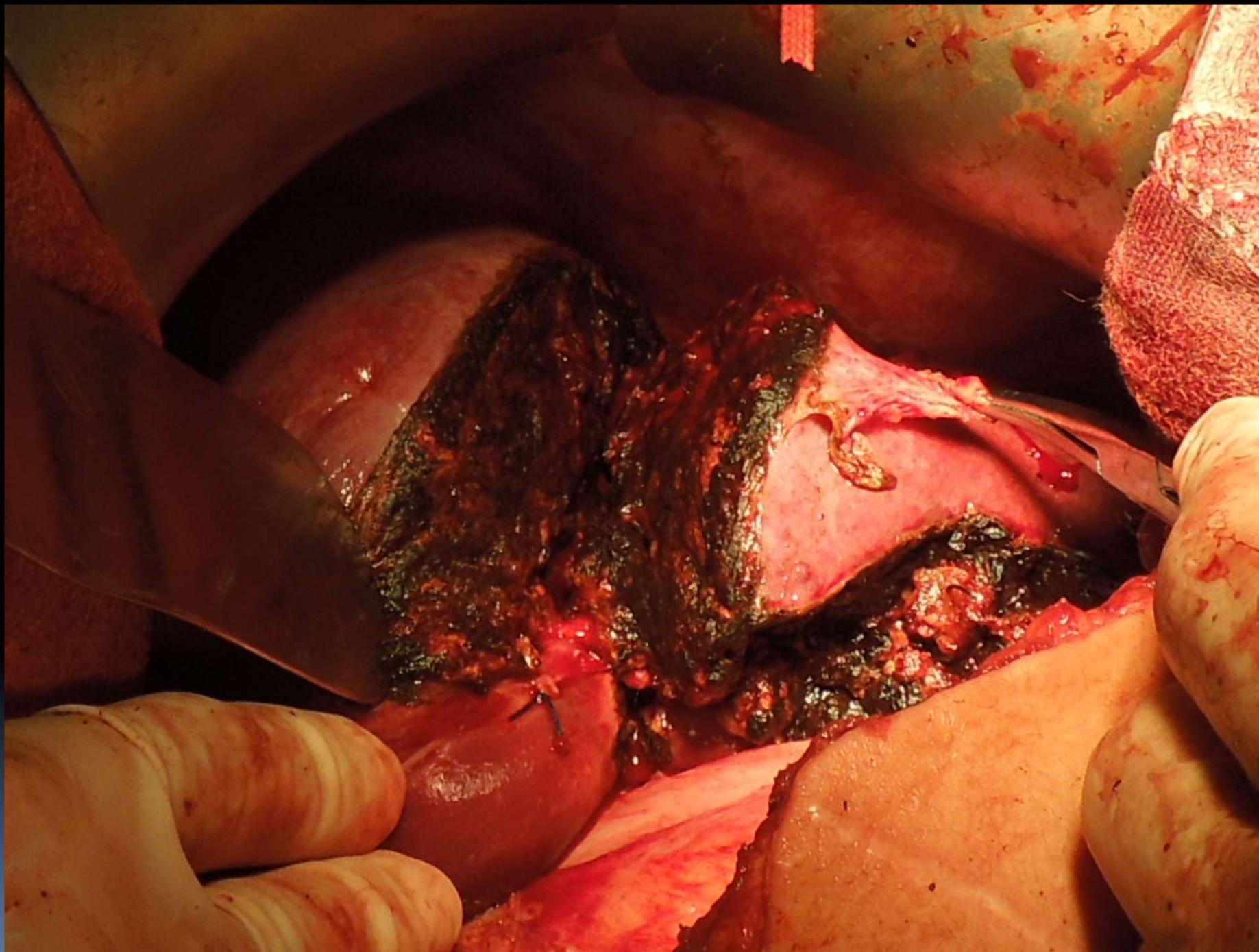
Orlando Jorge Martins TORRES¹, Eduardo de Souza Martins **FERNANDES**² Cassio Virgílio Cavalcante **OLIV**
Cristiano Xavier **LIMA**⁴, Fabio Luiz **WAECHTER**⁵, Jose Maria Assunção **MORAES-JUNIOR**¹,
Marcelo Moura **LINHARES**⁶, Rinaldo Danese **PINTO**⁷, Paulo **HERMAN**⁸, Marcel Autran Cesar **MACHAD**

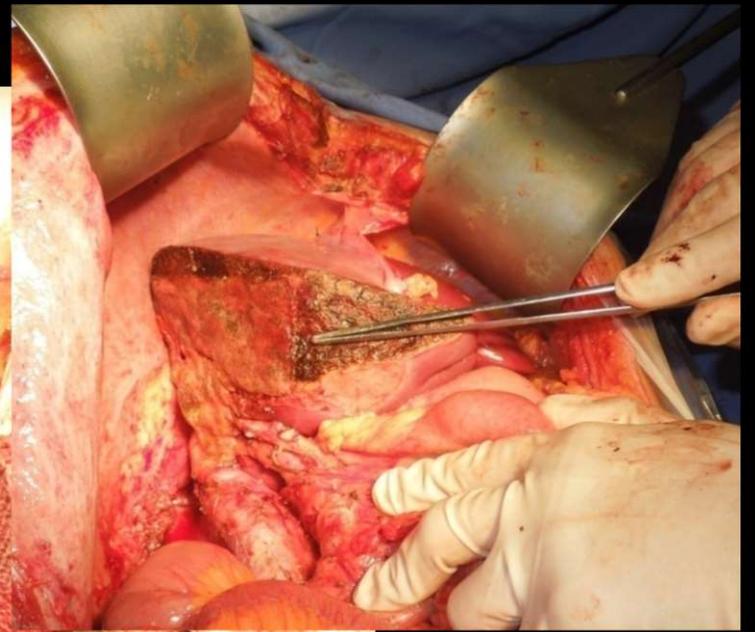
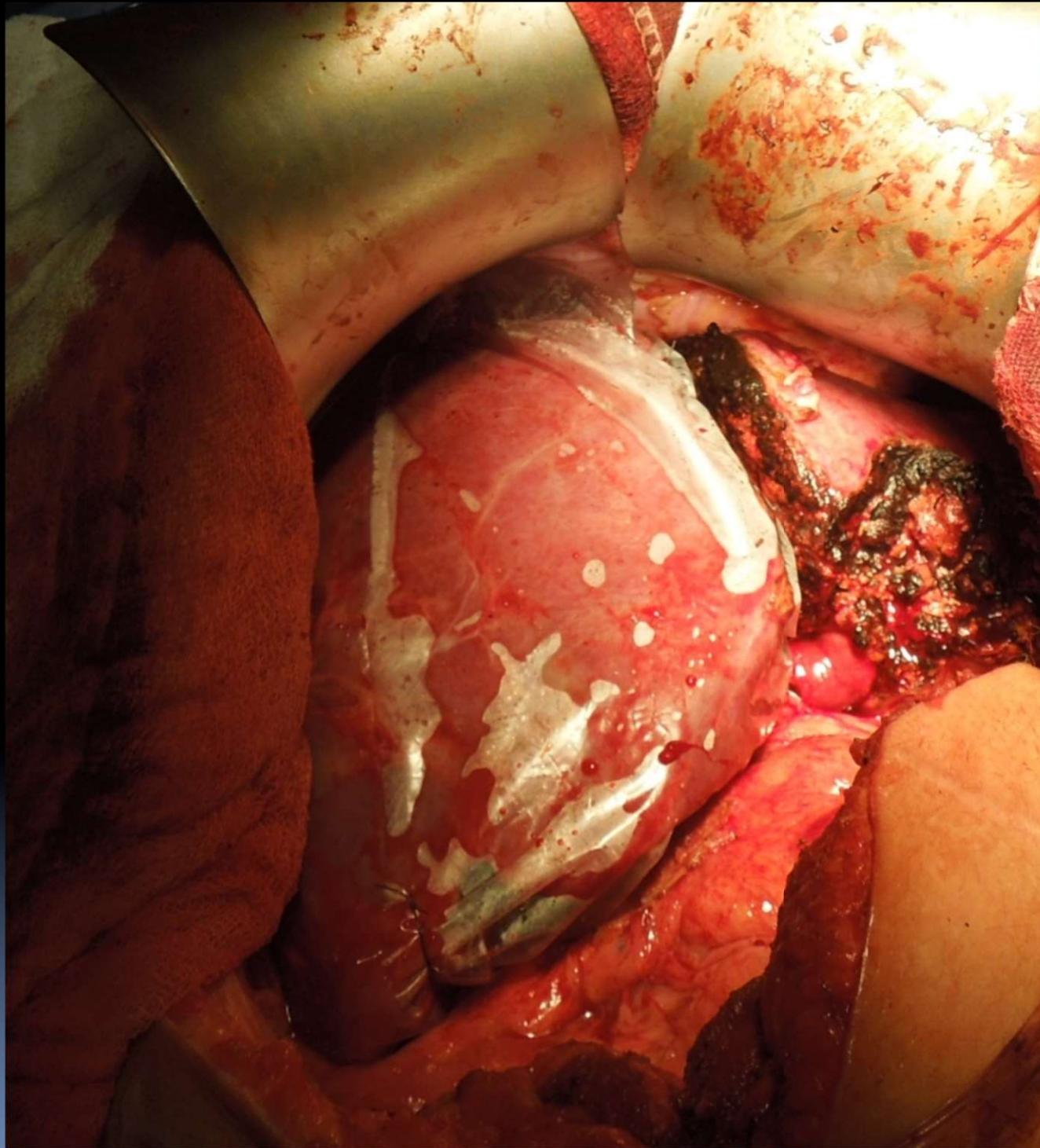
59 e 64% Complicação
12 e 12,8% Mortalidade

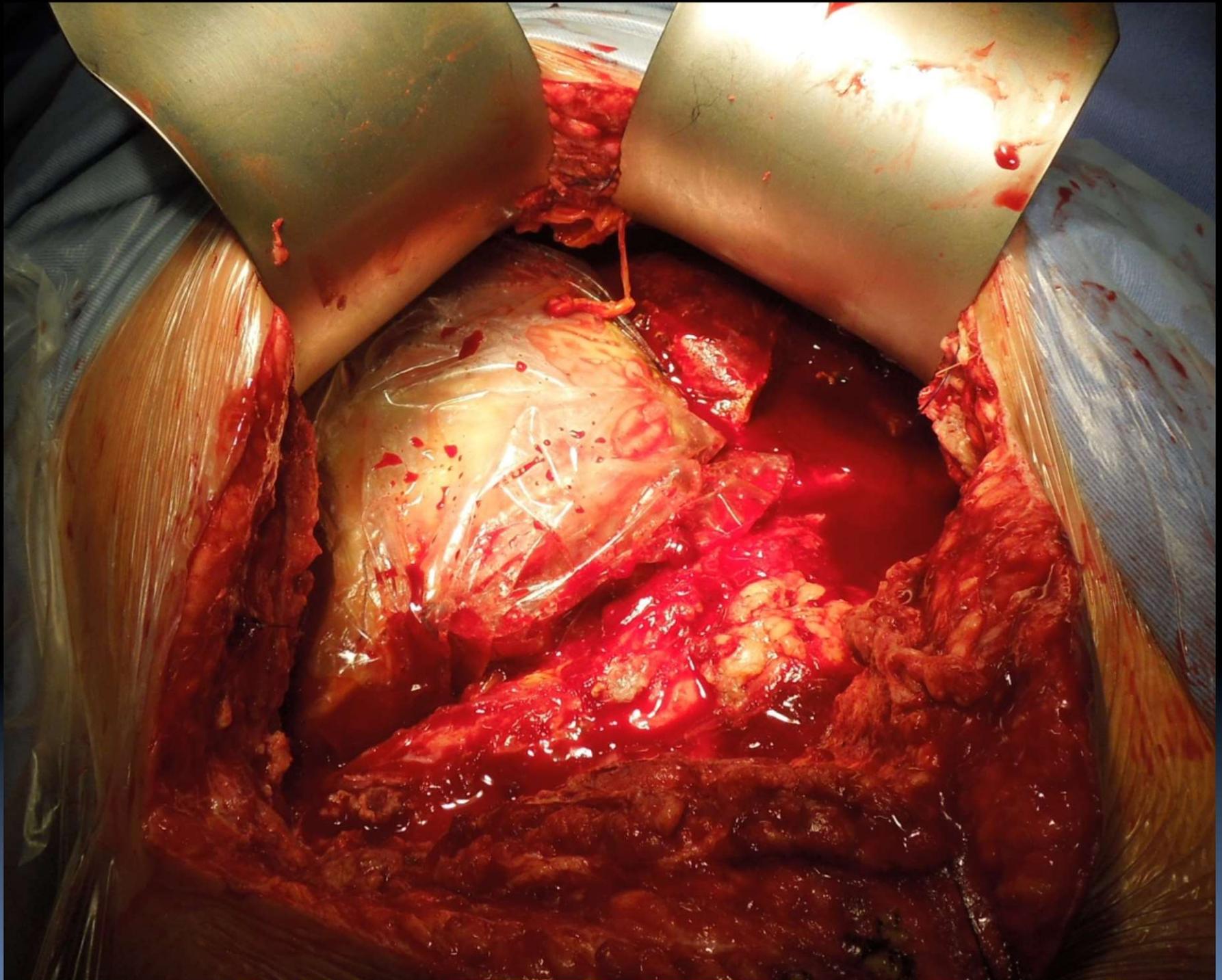


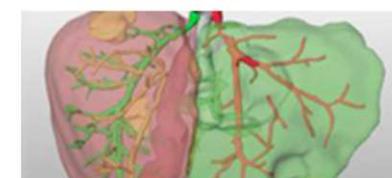
Brazil











High Mortality Rates After ALPPS: the Devil Is the Indication

Paulo Herman • Jaime Arthur Pirola Krüger •
Marcos Vinícius Perini • Fabrício Ferreira Coelho •
Ivan Ceconello

Table 1 Operative results

	Gender, age, date of first OR	Diagnosis	Indication for ALPPS	Time between first and second OR (days)	Time from second OR to discharge (days)	Complications	FLR hypertrophy (%)
Case 1	M 48 17/11/11	MCRC	Multiple mets and small FLR	7	20	Liver failure Pulmonary sepsis	81
Case 2	M 58 16/02/12	MCRC	Multiple mets and intraoperative decision	7	6	None	78
Case 3	M 58 23/05/12	iCCC	Proximity to the hepatic vein and small FLR	7	8	None	82
Case 4	M 58 07/11/12	MCRC	Multiple mets and small FLR	7	7	None	75
Case 5	F 38 10/04/13	MCRC	Multiple mets and small FLR	7	7		67
Case 6	M 52 17/06/13	MCRC	Multiple mets and small FLR	8	30	Biliary fistula Hepatic insufficiency	37
Case 7	F 55 15/11/13	MCRC	Multiple mets and small FLR	14	8	None	61

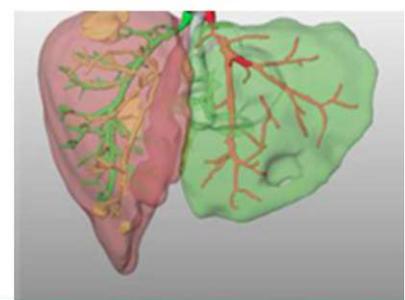
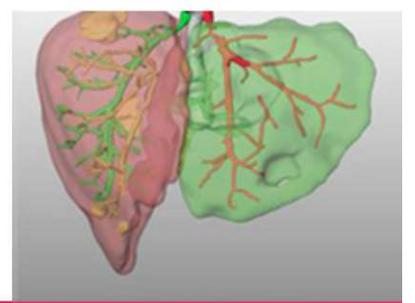


Table 2 Oncological results

	Oncological diagnosis	Disease-free survival or time to recurrence (months)	Site of recurrence	Current state
Case 1	MCRC	6	Lungs	Dead of disease after 2 years
Case 2	MCRC	26	No recurrence	Alive without disease
Case 3	iCCC	6	Lungs	Alive with disease after 25 months
Case 4	MCRC	9	Lungs (resected)	Alive without disease after 19 months
Case 5	MCRC	14	No recurrence	Alive without disease
Case 6	MCRC	6	Liver	Alive with disease after 12 months
Case 7	MCRC	6	Liver	Alive with disease after 7 months



ALPPS: the Devil Is the Indication

Paulo Herman



IHPBA 2016 · SÃO PAULO

**12TH WORLD CONGRESS
OF THE INTERNATIONAL
Hepato-Pancreato-Biliary Association**

**APRIL 20-23 2016 - BRAZIL
SHERATON WTC - SÃO PAULO**

www.ihpba2016.com

Obrigado!