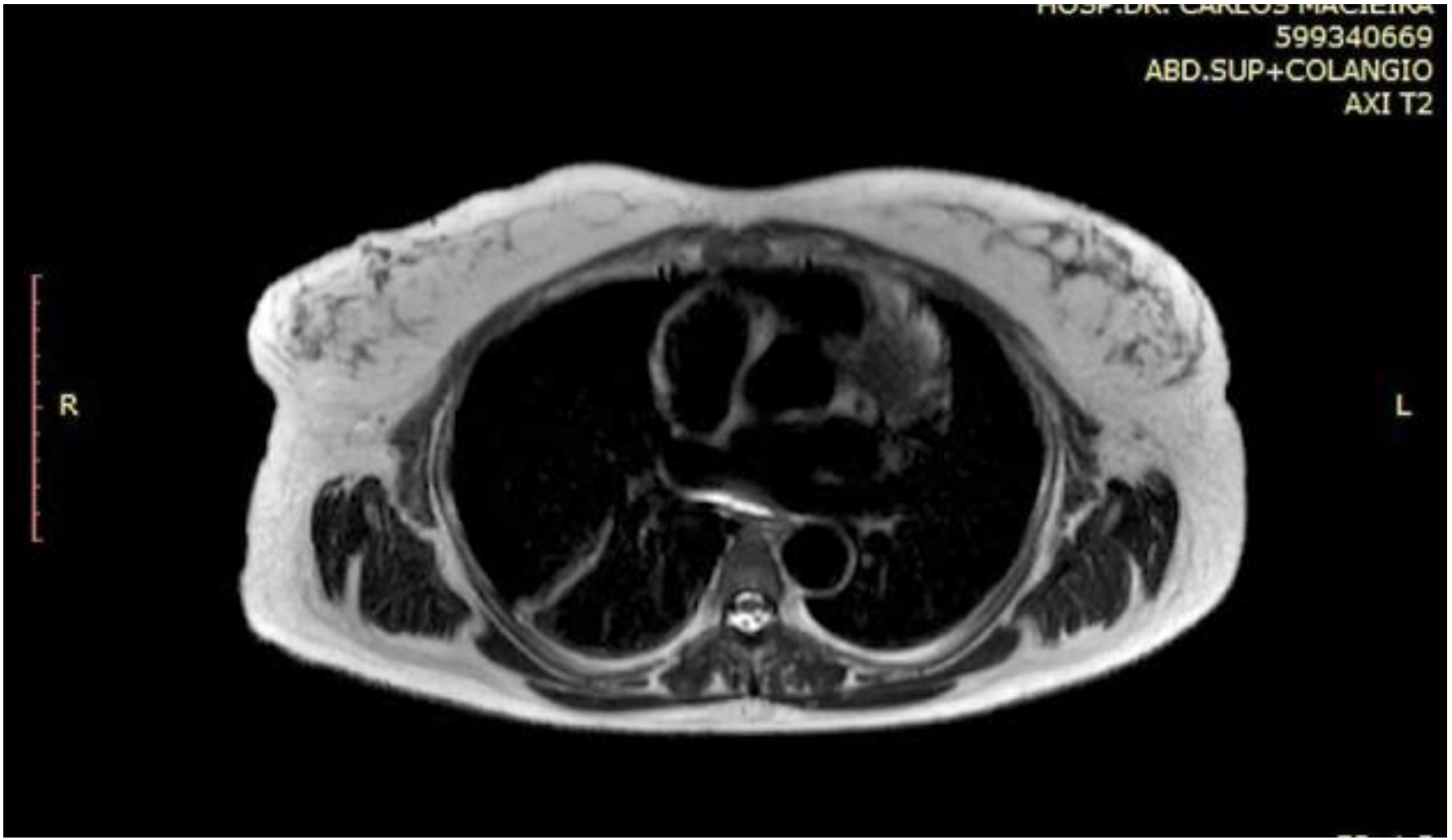
Technical toolkit: small liver remnant

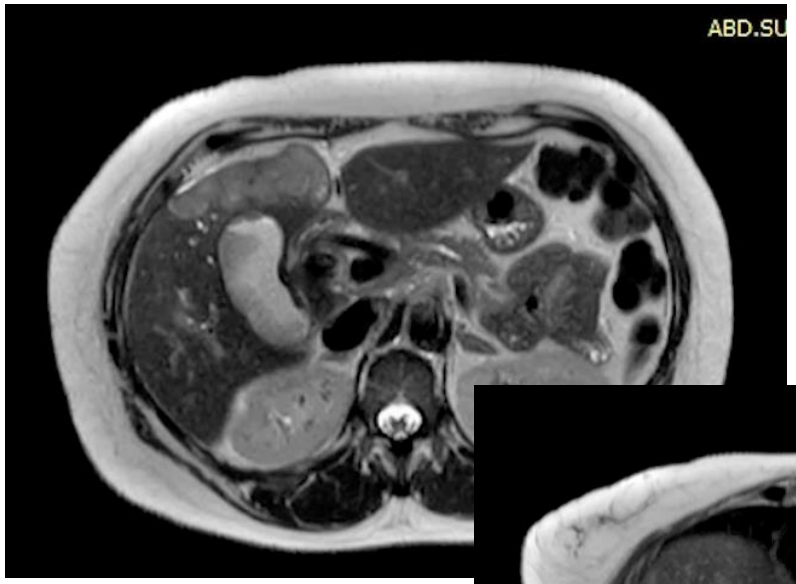
Orlando Jorge M. Torres MD, PhD
Full Professor and Chairman
Department of Gastrointestinal Surgery
Hepatopancreatobiliary Unit
Universidade Federal do Maranhão - Brazil

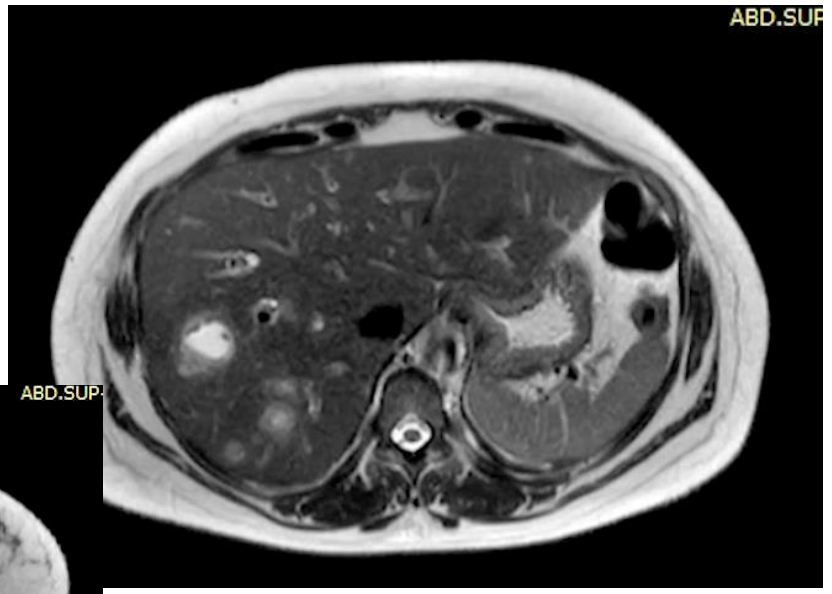
CASE 1

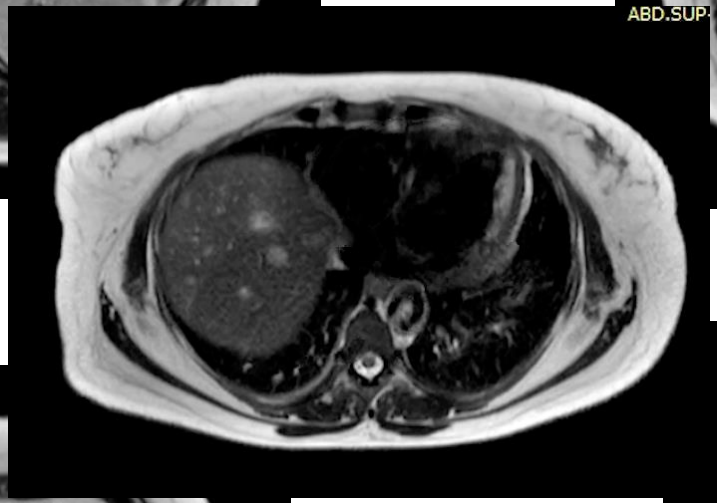
- 45-year-old female patient
- Weight loss, abdominal discomfort
- Jaundice: total bilirubin - 18 mg/dl

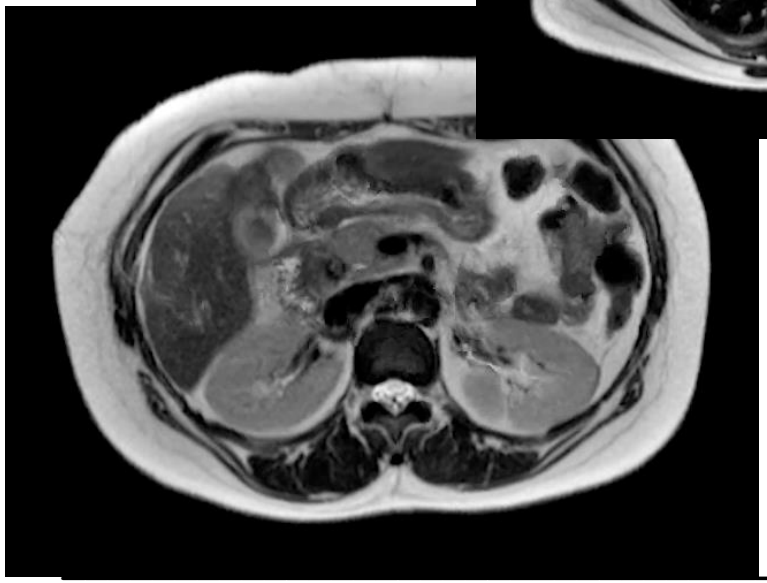
MAGNETIC RESONANCE IMAGING

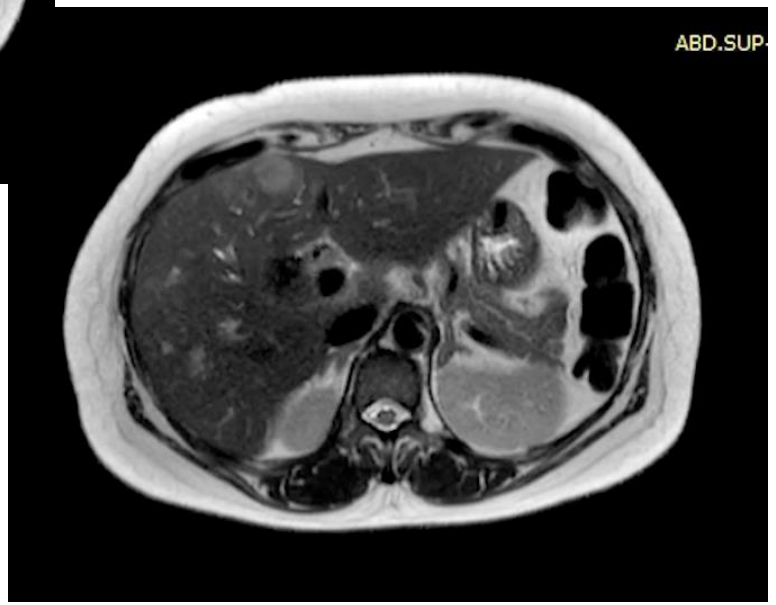



ABD.SU


ABD.SUP


ABD.SUP




ABD.SUP

MAGNETIC RESONANCE IMAGING

- Gallbladder tumor
- Multiple liver metastasis in segments IV,V,VI,VII and VIII
- No extrahepatic disease
- Left lobe is preserved

Question:

Initial treatment approach

- ❑ Gallbladder tumor
- ❑ Liver mets
- ❑ Jaundice Bilirubin 18 mg/dl

- Best supportive care
- Biliary drainage
- Biopsy

  Chemotherapy
- Radical approach (surgery)

- 45 yo female
- Good PS
- Jaundice - Bilirubin 18 mg/dl

GB tumor + liver mets

- Internal- external stent
  - Bilirubin:
    - Pre - 18.0 mg/dl
    - Post - 3.04 mg/dl
- Biopsy:
  - Gallbladder NET G2
  - Ki 67 - 15%
- Liver metastases (NET)

- Best supportive care
- Chemotherapy
- Radical approach (surgery)
- Volumetry

- 45 yo female
- Good PS
- No jaundice*

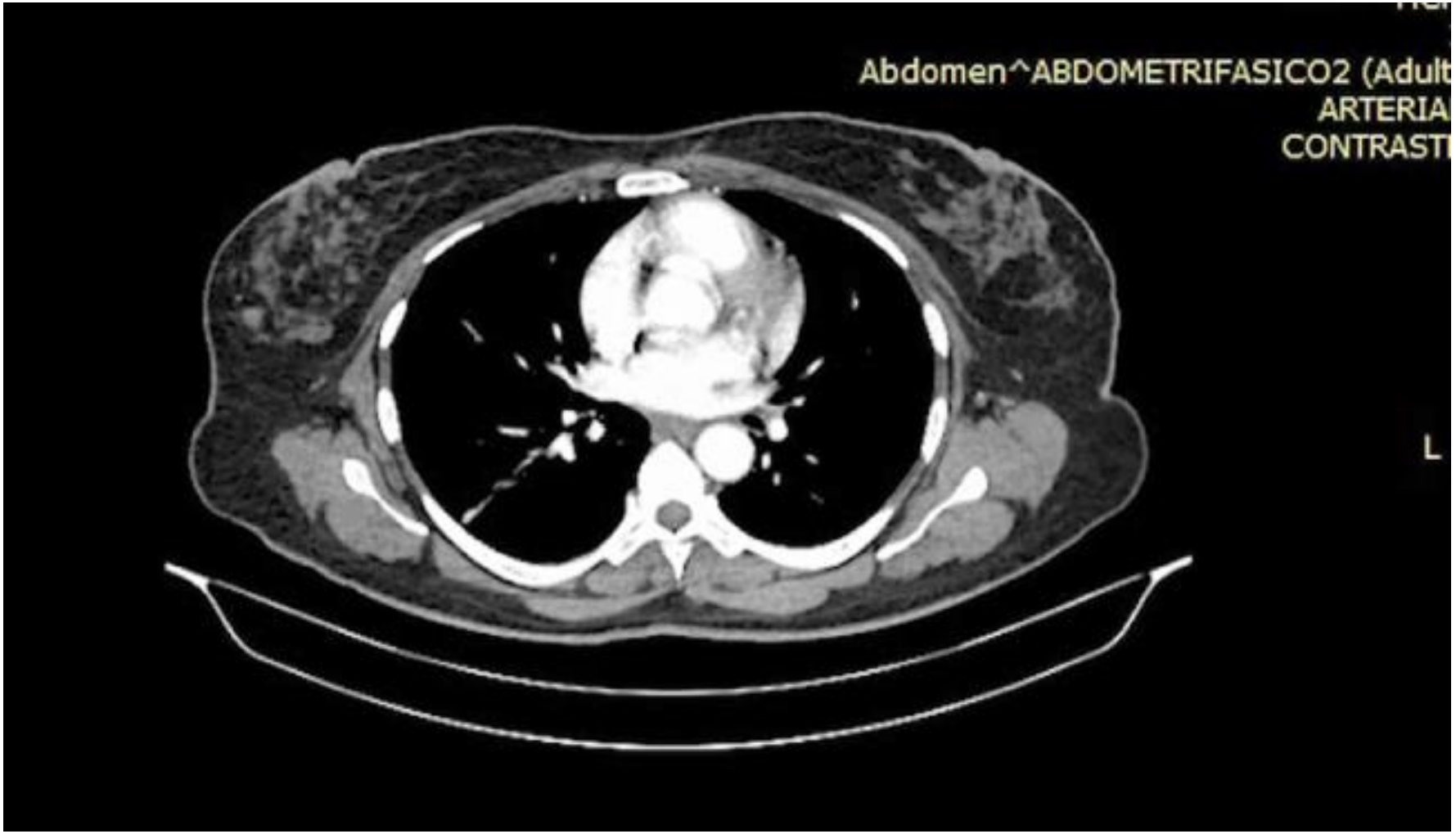
  Bilirubin 3 mg/dl

GB tumor + liver mets

- Chemotherapy (17 cicles)
  - Cisplatin
  - Irinotecan

After 9 months

- Partial response:
  - Better response – gallbladder
  - Stable – liver mets
- No extrahepatic disease


Abdomen^ABDOMETRIFASICO2 (Adult
ARTERIA
CONTRASTI
L

Questions:

- ❑ Do you consider the tumor as resectable?
- ❑ More Chemotherapy
- ❑ Is liver volumetry necessary?

- ❑ Gallbladder NET
- ❑ Liver mets
- ❑ Left lobe is preserved
- ❑ No jaundice*

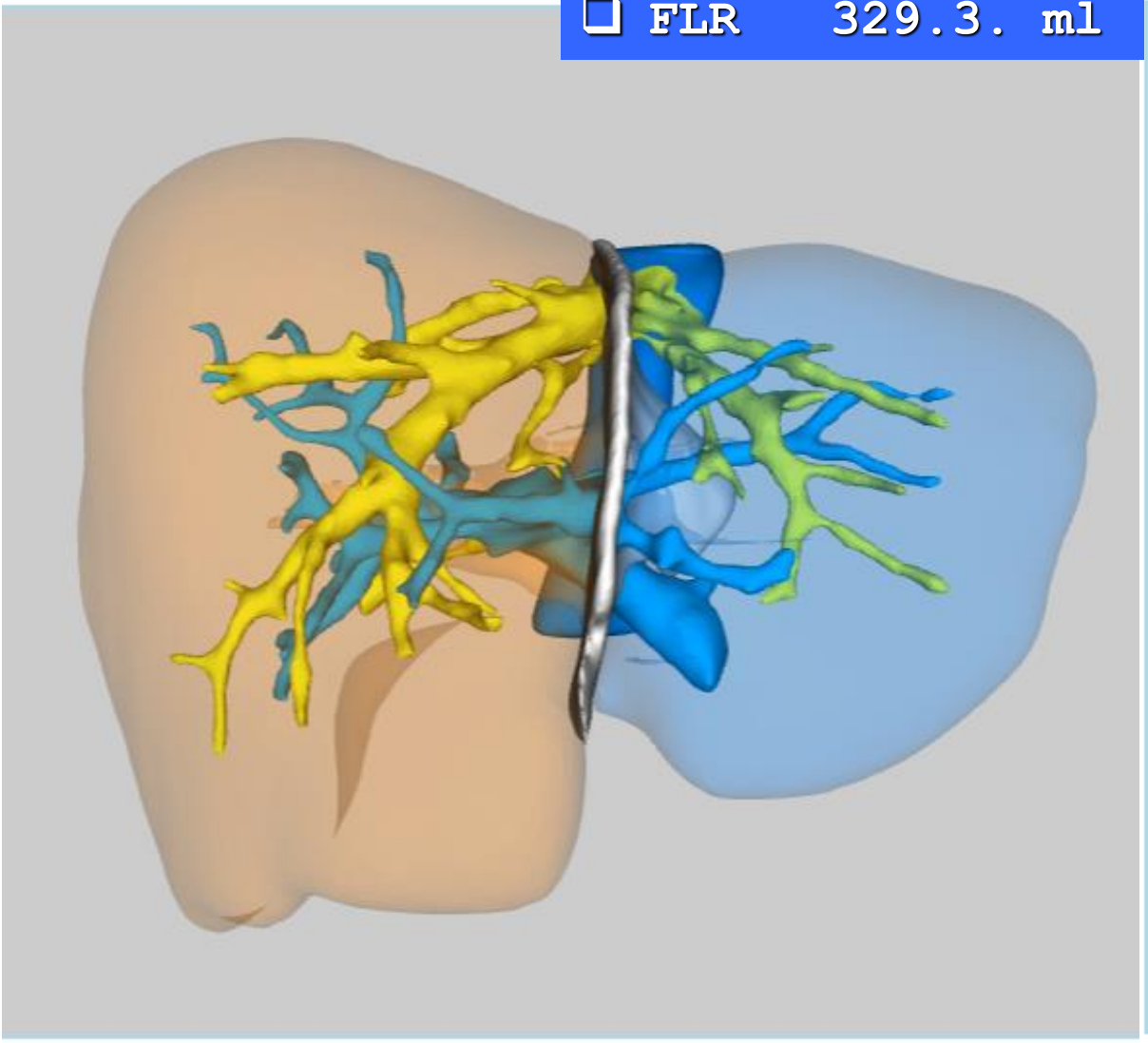
Bilirubin 3 mg/dl

VOLUMETRY

- Liver 1593.0 ml
- FLR 329.3. ml

Segments 2/3

FLR 20.7%



LIVER VISION

Name [redacted]

Gender, Age

[redacted], 18.07.16-22:10:37-STD-1.3.12.2.1107.5.1.4.77005

Date 20180716

Liver View

Serie/s View | Liver

Liver :1593.0 ml

Cut Liver :1243.6 ml / %78.1

FLR :329.3 ml / %20.7

Cut Plane :20.2 ml / %1.3

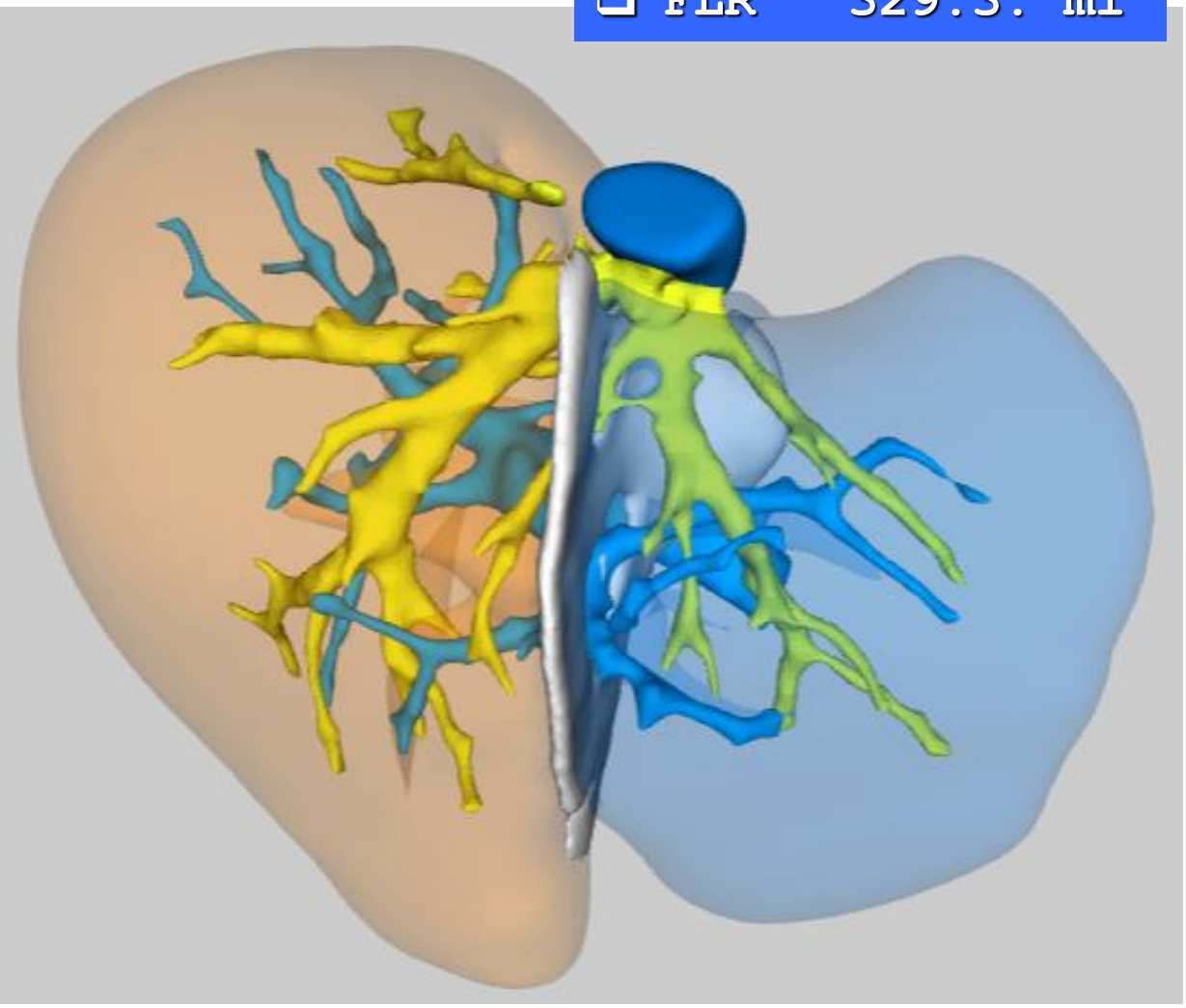
Courtesy: Prof. Deniz Balci (Ankara – Turkey)

VOLUMETRY

- Liver 1593.0 ml
- FLR 329.3. ml

Segments 2/3

FLR 20.7%



LIVER VISION

Name [redacted]

Gender, Age

, 18.07.16-22:10:37-STD-1.3.12.2.1107.5.1.4.77005

Date 20180716

Liver View

Serie/s View | Liver

Liver :1593.0 ml

Cut Liver :1243.6 ml / %78.1

FLR :329.3 ml / %20.7

Cut Plane :20.2 ml / %1.3

Courtesy: Prof. Deniz Balci (Ankara – Turkey)

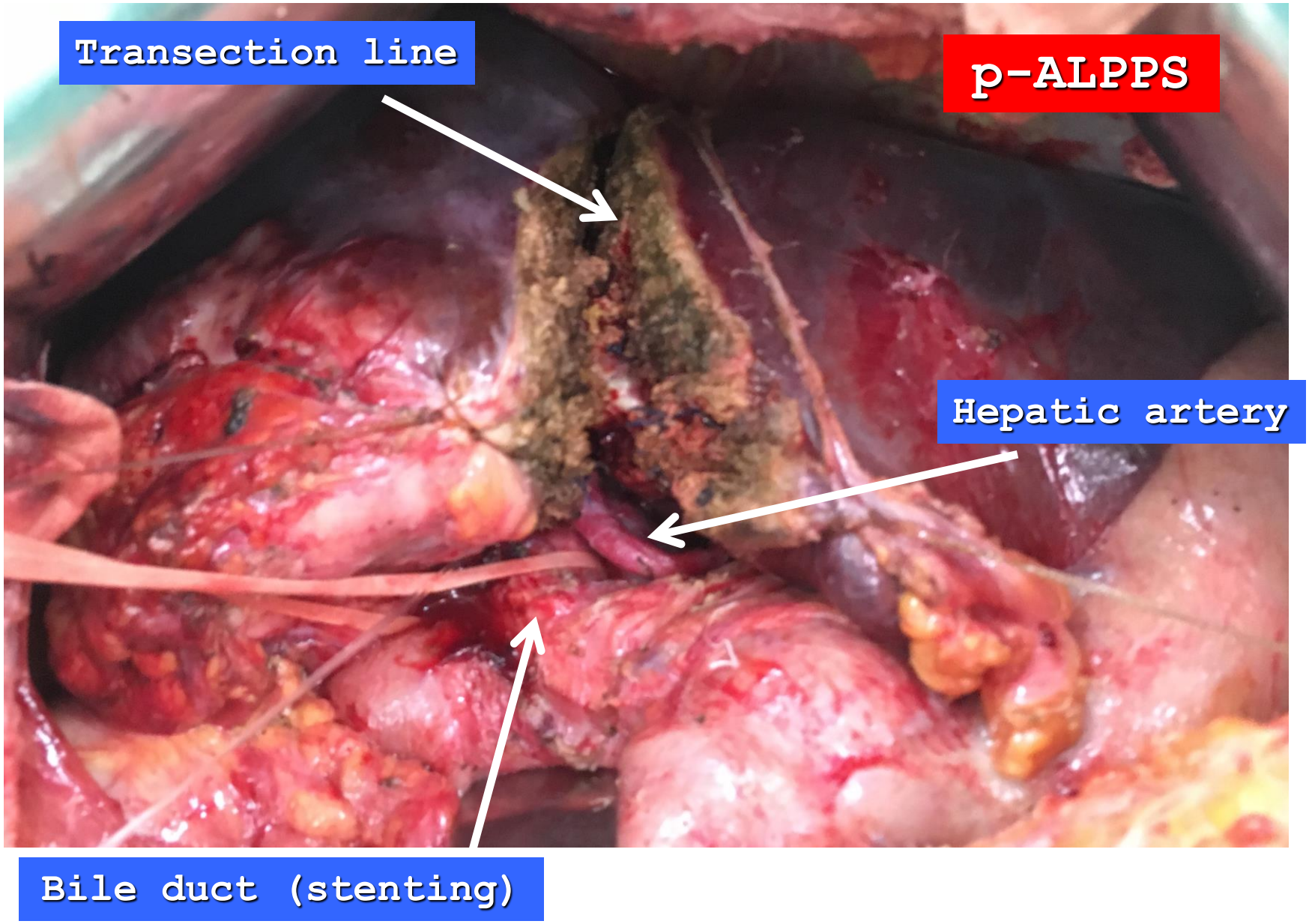
Questions:

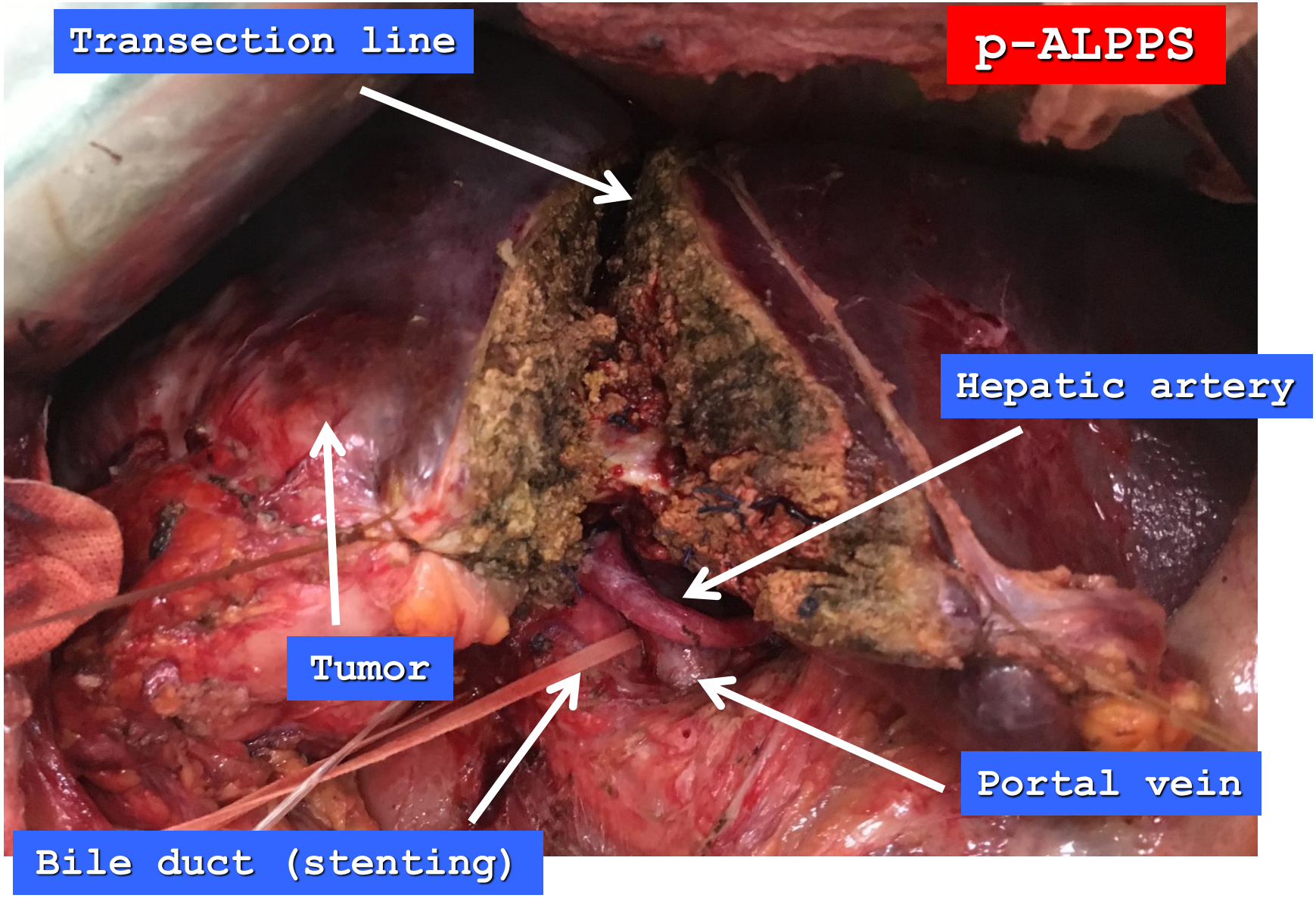
- ❑ Resection?
- ❑ Portal vein embolization?
- ❑ Two stage hepatectomy
- ❑ ALPPS
- ❑ Combined procedure

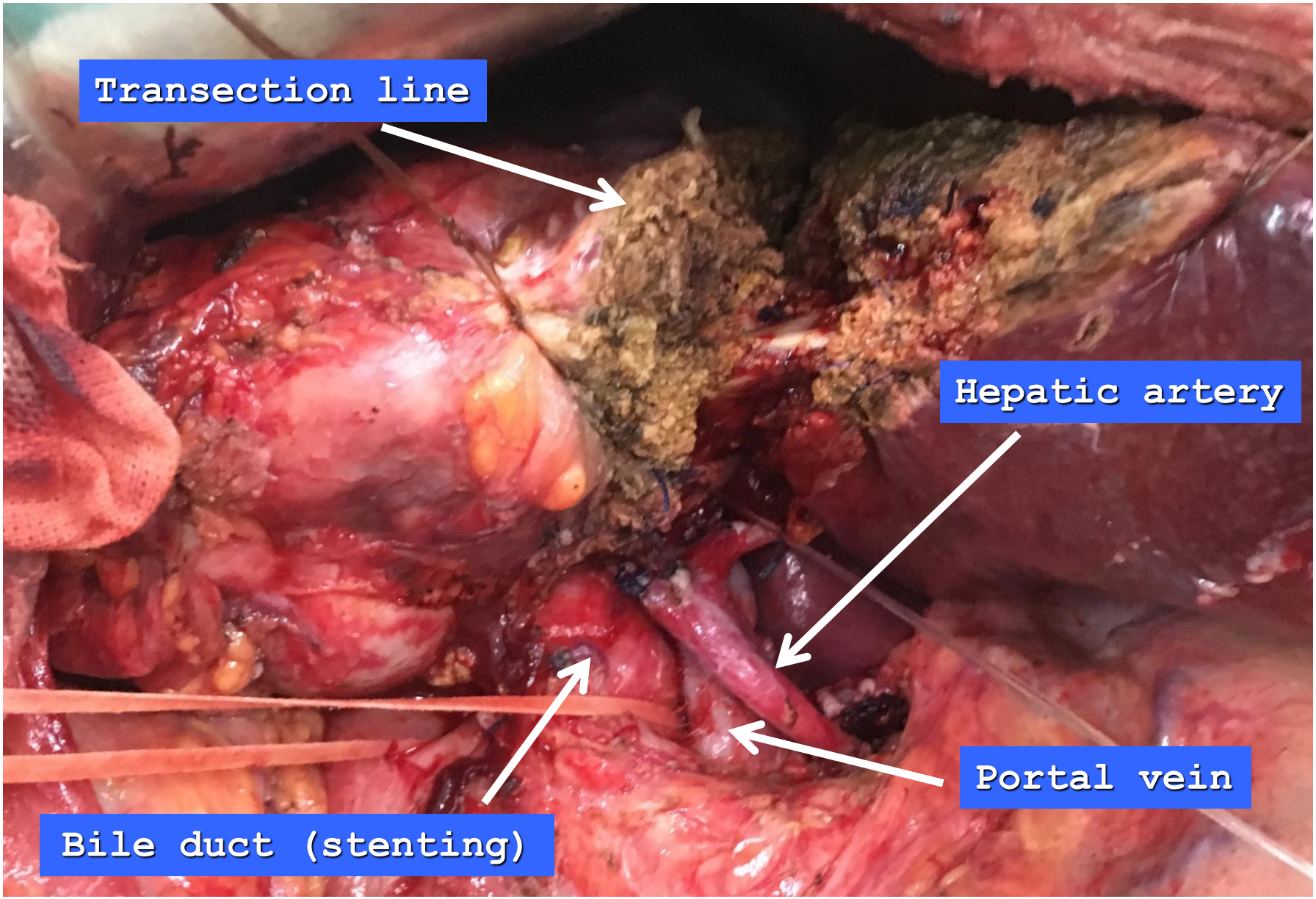
ALPPS

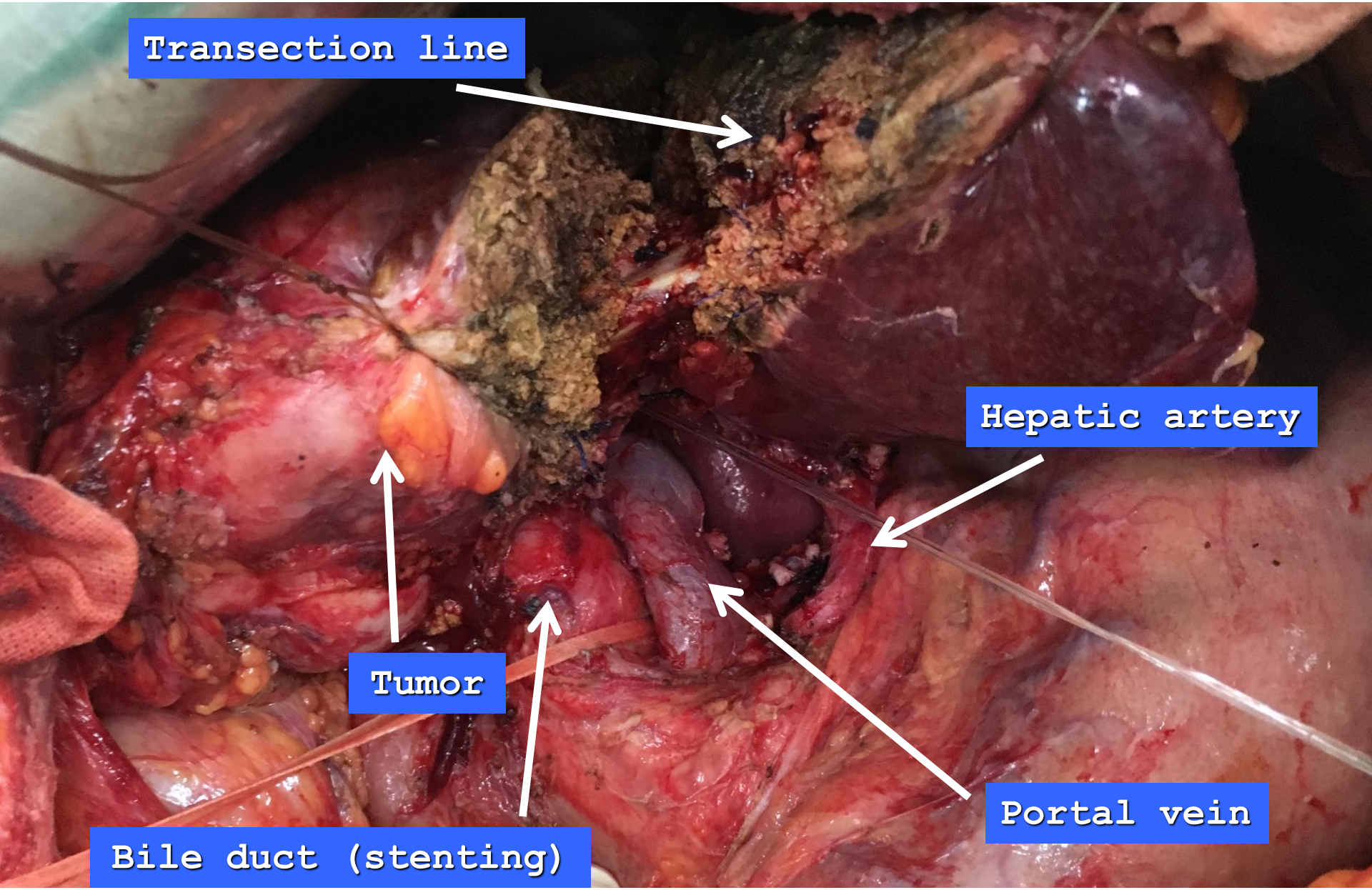
FIRST STEP:

- ❑ Right portal vein ligation
  - Including segment 4
- ❑ Partial parenchymal transection
  - (p-ALPPS)
  - MHV was preserved


Transection line
p-ALPPS
Hepatic artery
Bile duct (stenting)


Transection line
p-ALPPS
Hepatic artery
Tumor
Portal vein
Bile duct (stenting)


Transection line
Hepatic artery
Portal vein
Bile duct (stenting)


Transection line
Hepatic artery
Tumor
Bile duct (stenting)
Portal vein

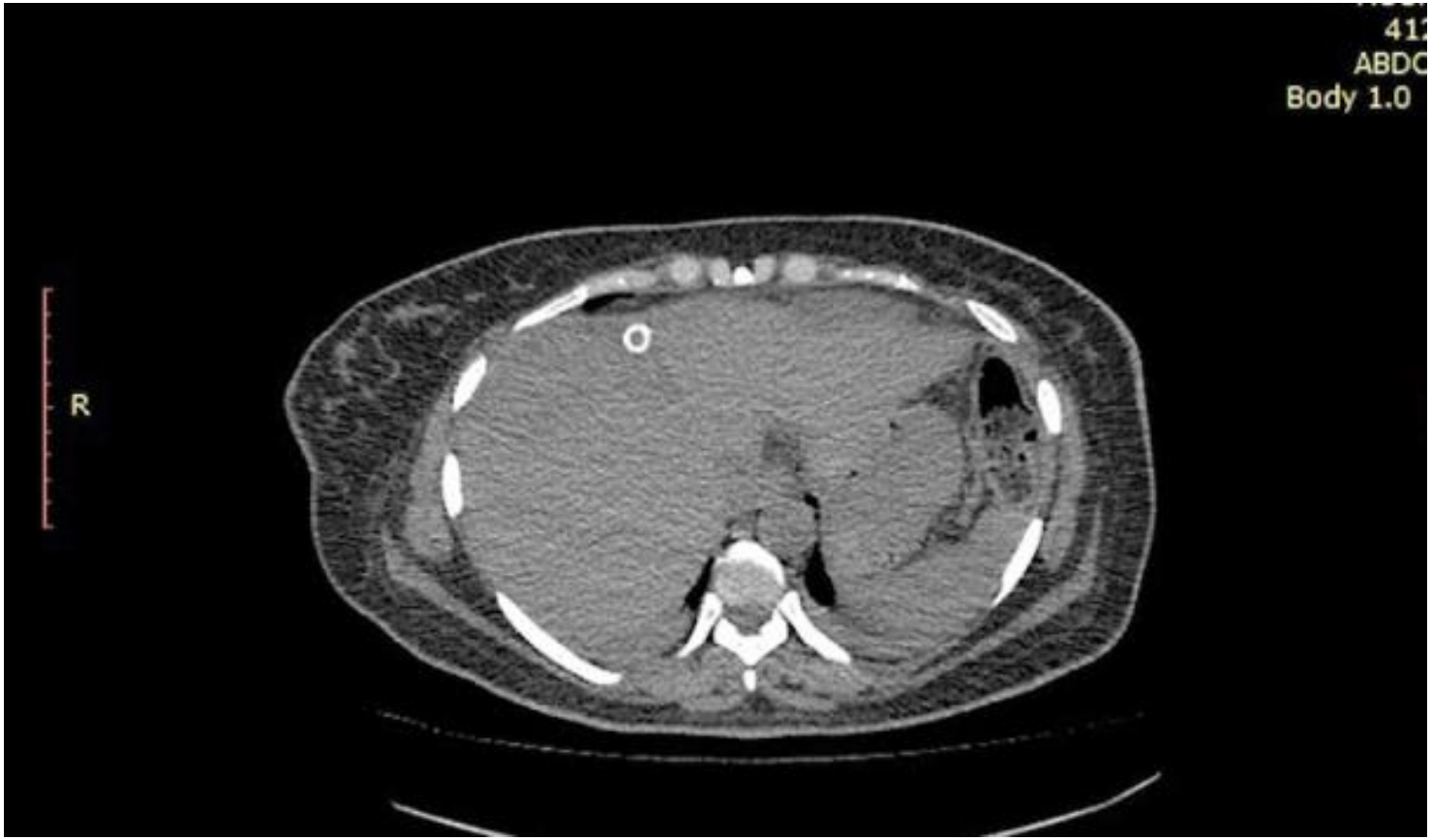
AFTER 13 DAYS

- No major complications
- Stable disease
- Evaluation
  - Image

COMPUTED TOMOGRAPHY

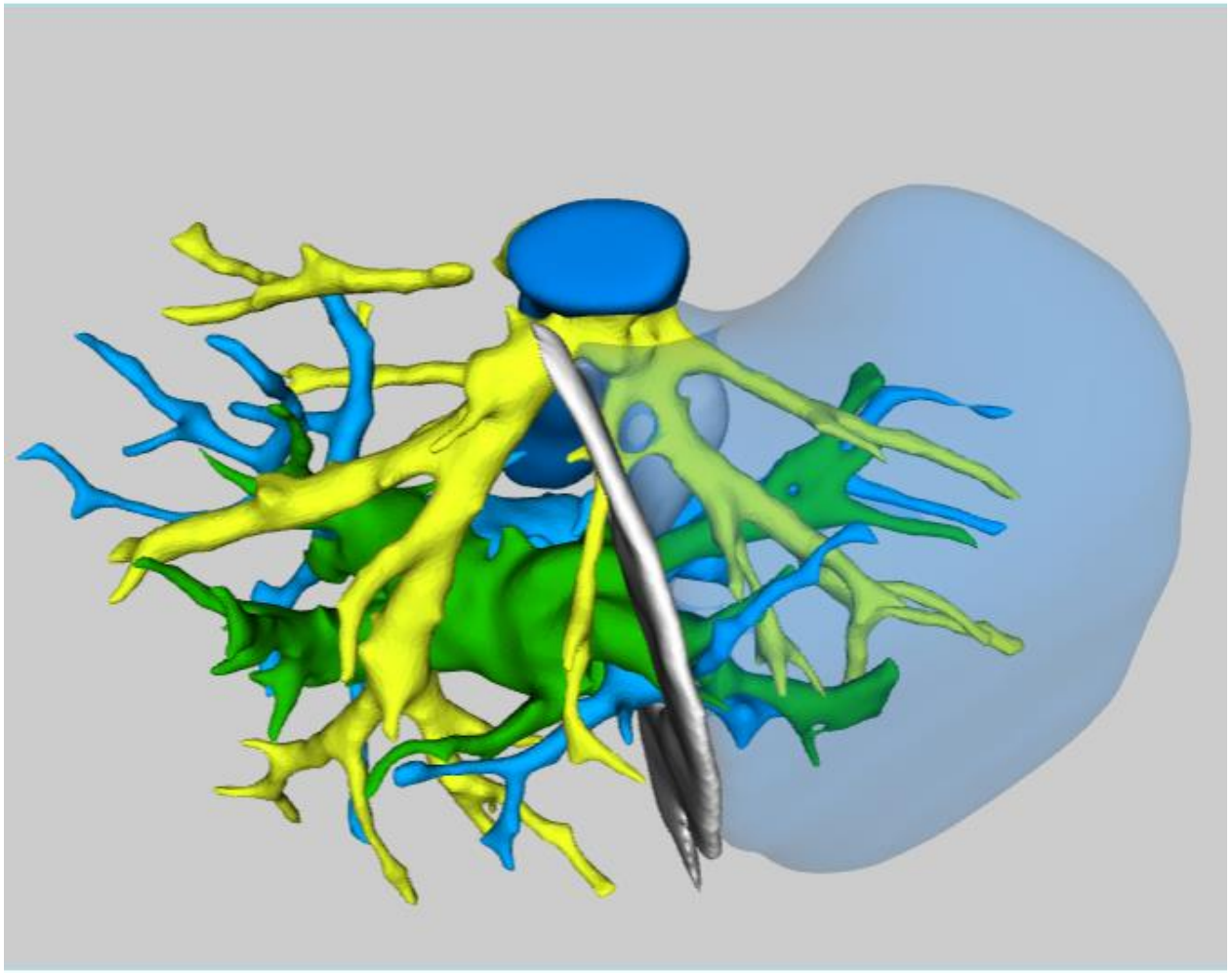
INTERSTAGE

INTERSTAGE



VOLUMETRY

FLR 33.1%



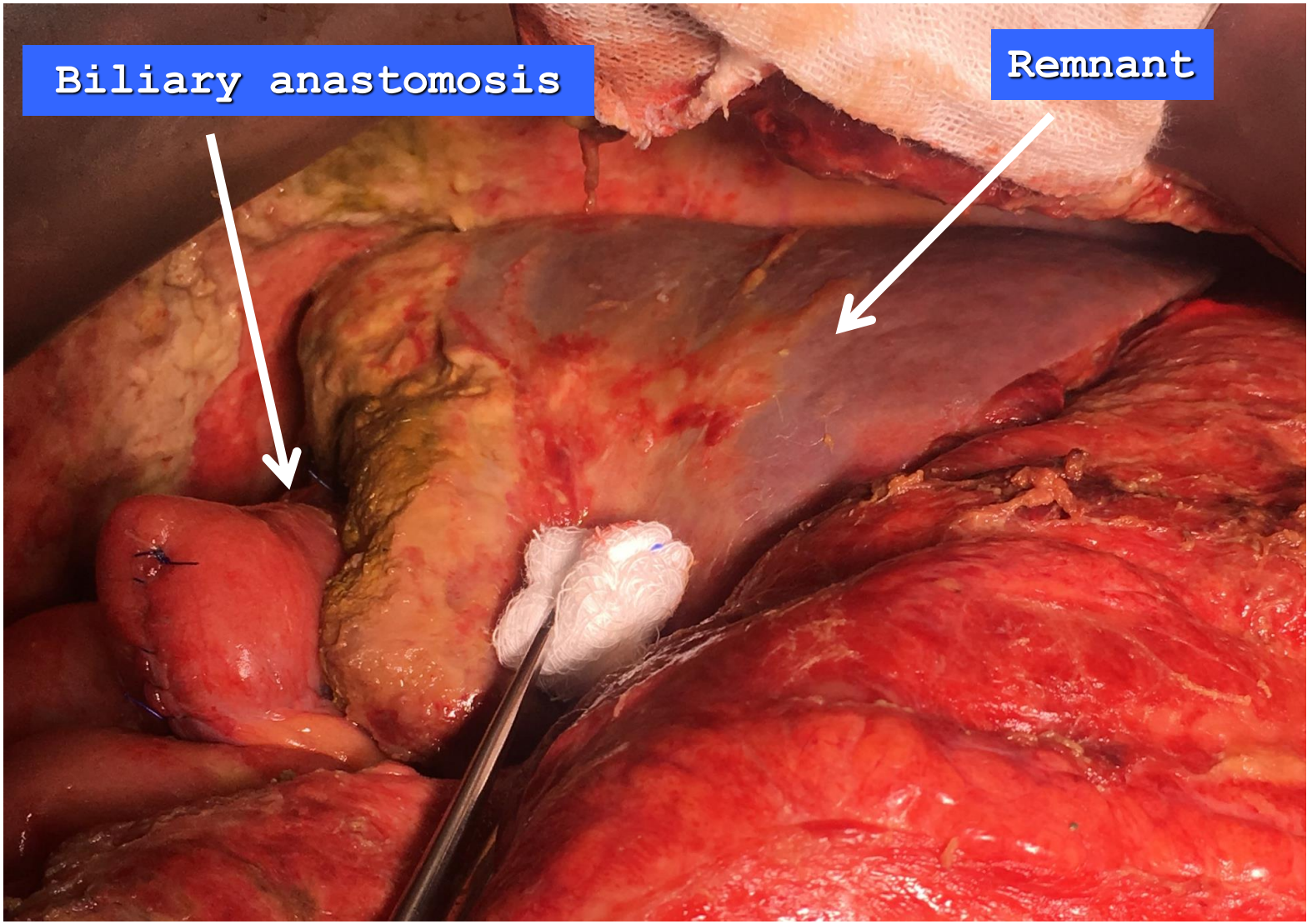
Courtesy: Prof. Deniz Balci (Ankara – Turkey)

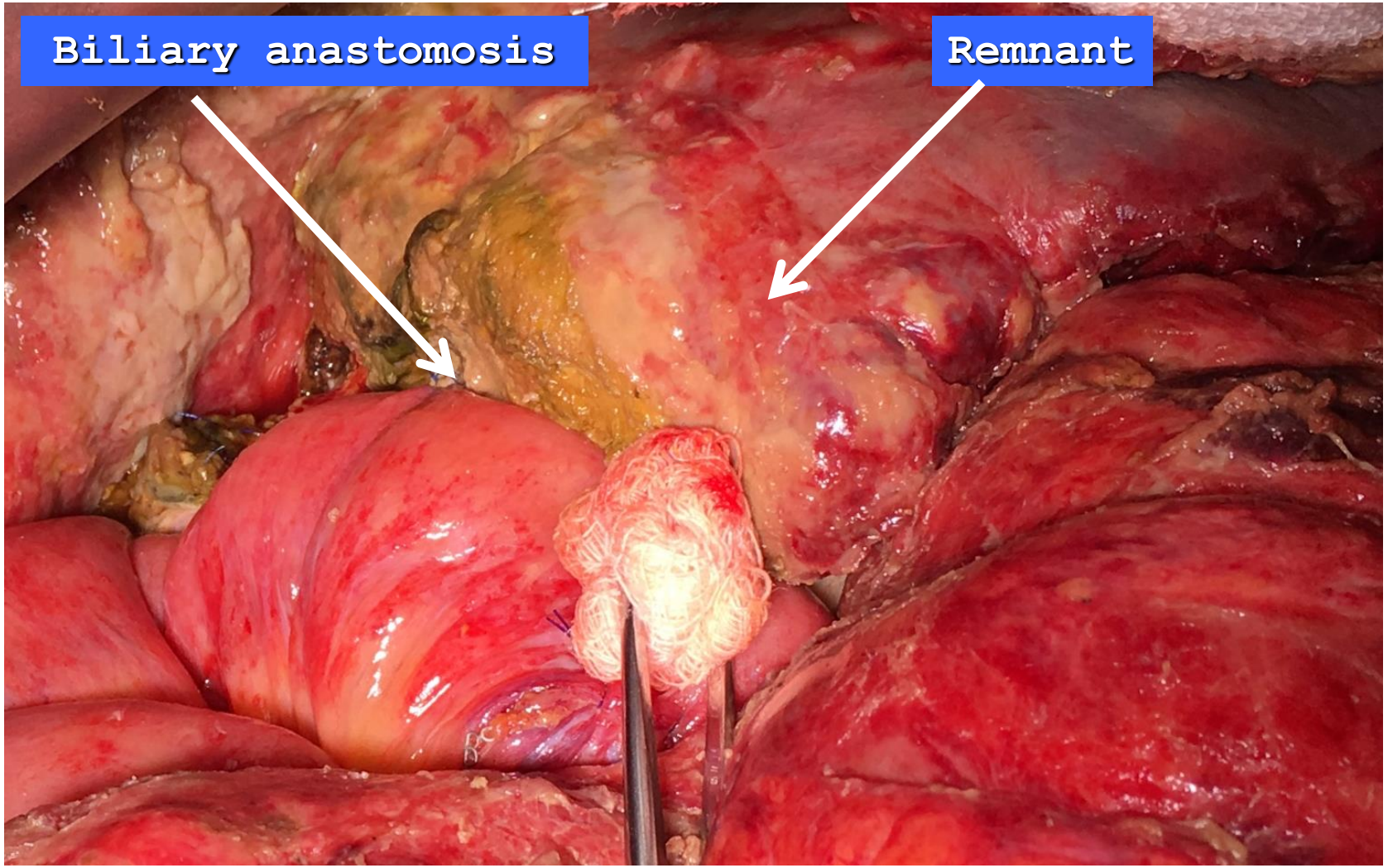
ALPPS

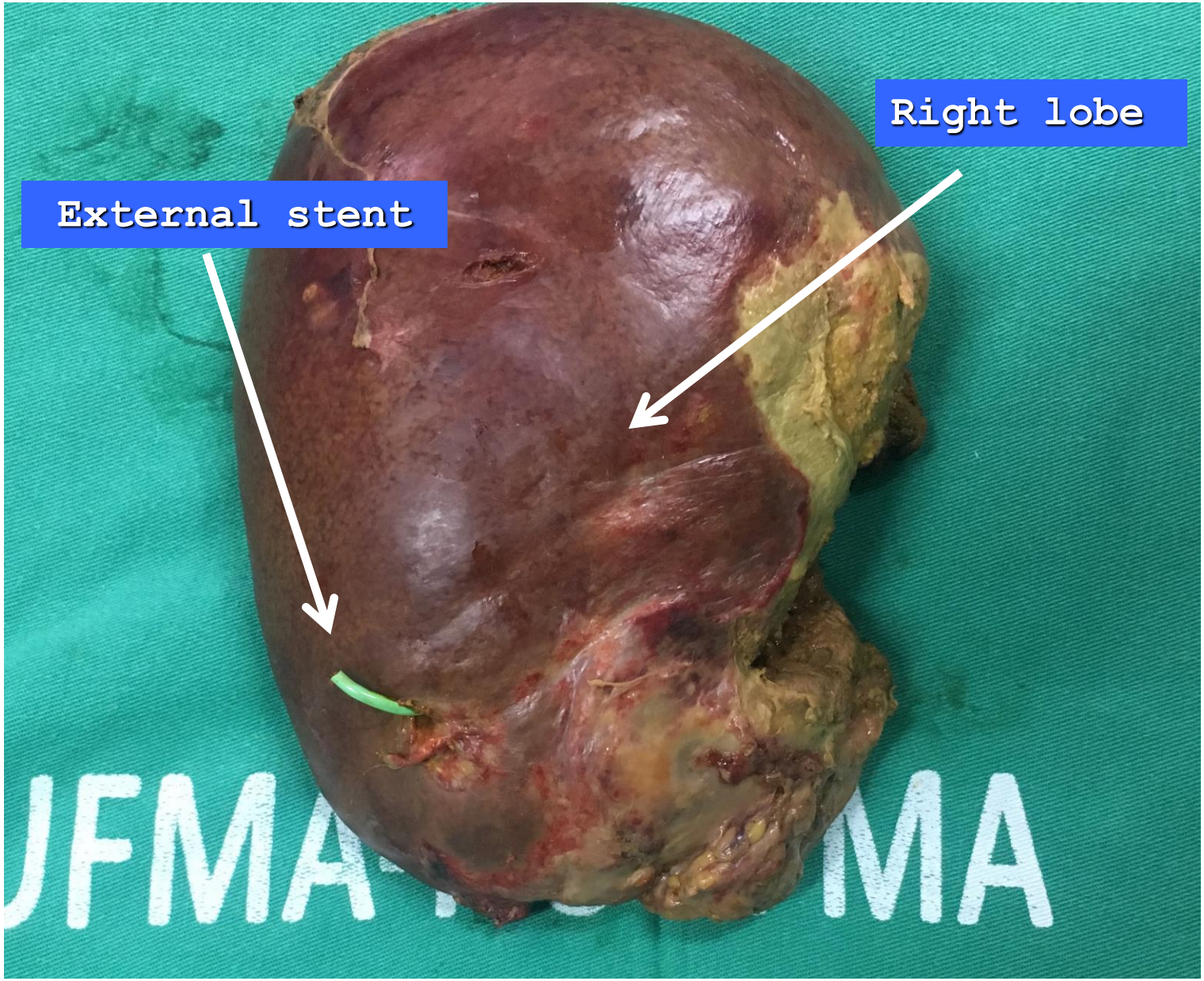
14 days after step 1

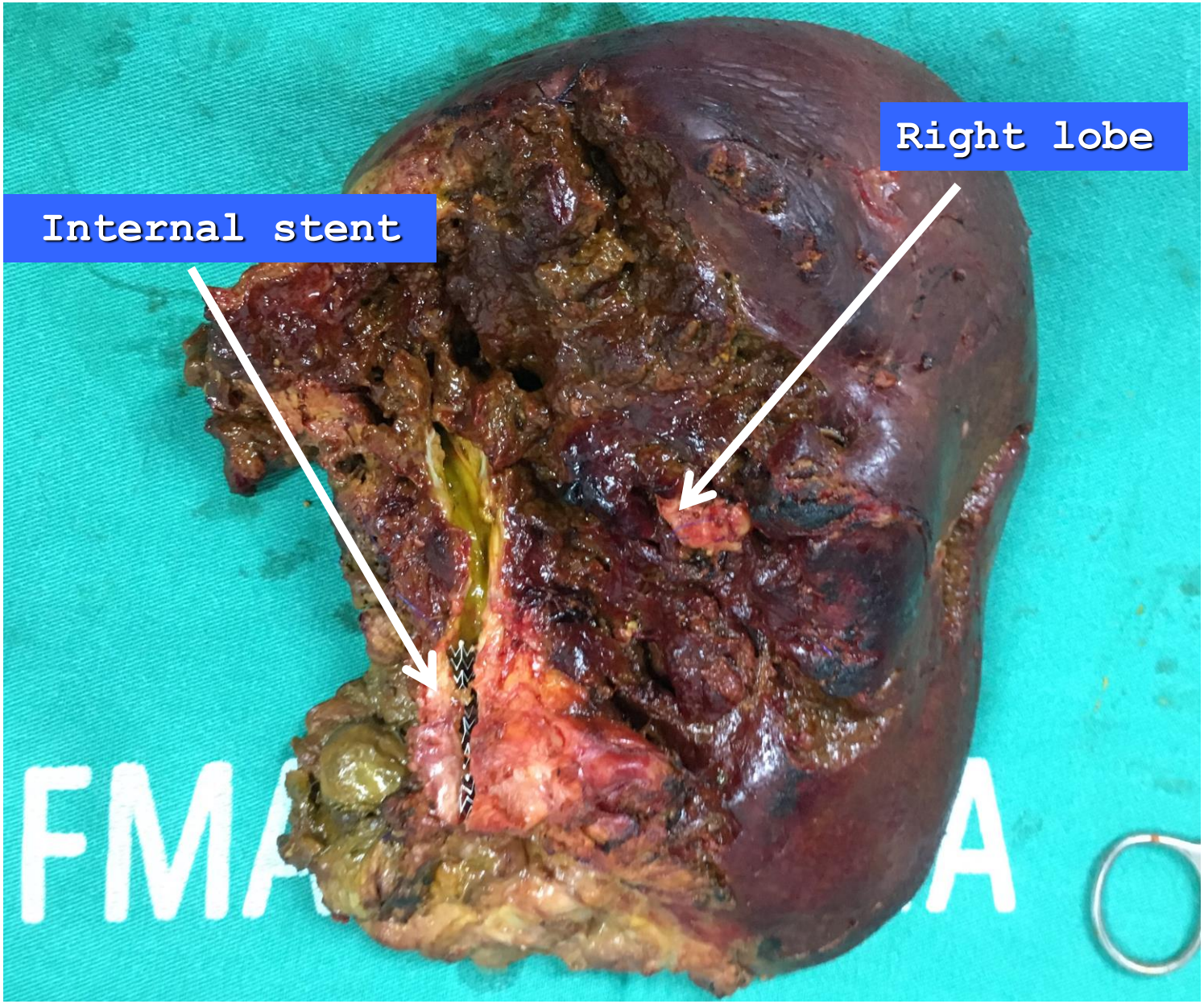
Second step:

- Complete the resection
  - Hepatic artery is ligated
  - Bile duct (stenting) was transected
  - RHV and MHV were divided
- Biliary anastomosis was performed


Biliary anastomosis
Remnant


Biliary anastomosis
Remnant


Right lobe
External stent


Right lobe
Internal stent

POSTOPERATIVE COURSE

- ICU - 5 days
- Length of stay - 19 days

Obrigado! **Thanks!** **Gracias!**