

Associating Liver Partition and Portal Vein Ligation for Staged Hepatectomy (ALPPS)

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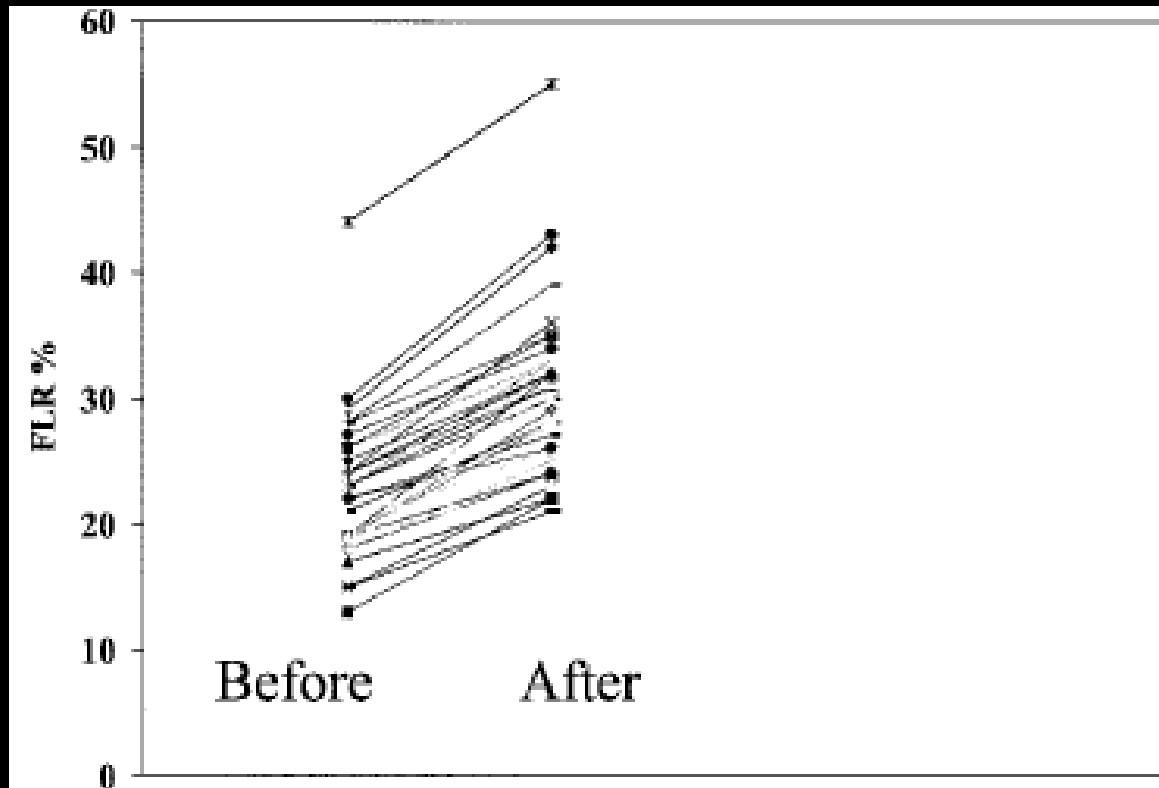
Introduction

- Major liver resections
- Future liver remnant
- Portal vein occlusion:
 - a) Portal vein embolization
 - b) Portal vein ligation
- Intrahepatic portal collaterals

Hypertrophy 20-35% in 45 days

Portal vein embolization





After 4-6 weeks

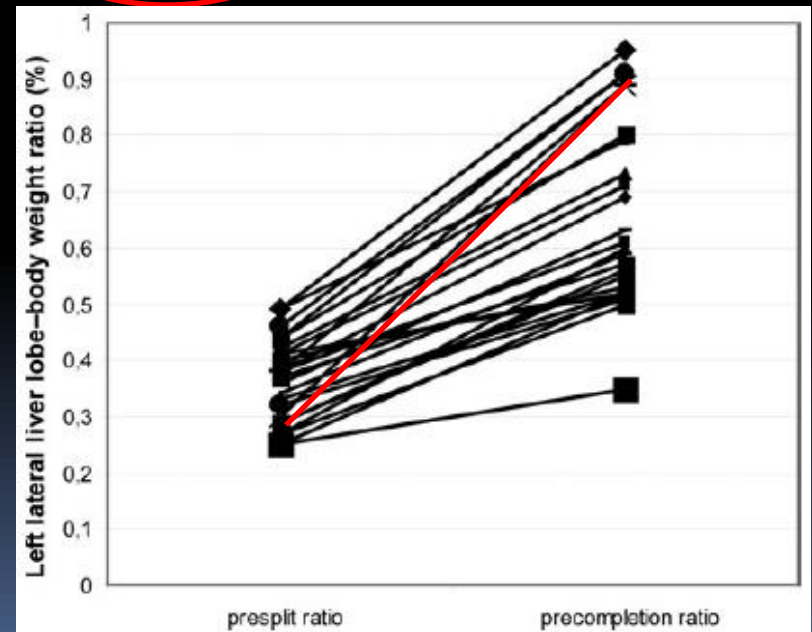
35%

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

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ALPPS in Germany

- 25 patients (five universities)
 - Colorectal metastasis 14
 - Others 11
- Two steps procedure PVL and ISS
- Hypertrophy from 21-192% (74%)
- Nine days



ALPPS in Argentina

World J Surg (2012) 36:125–128
DOI 10.1007/s00268-011-1331-0

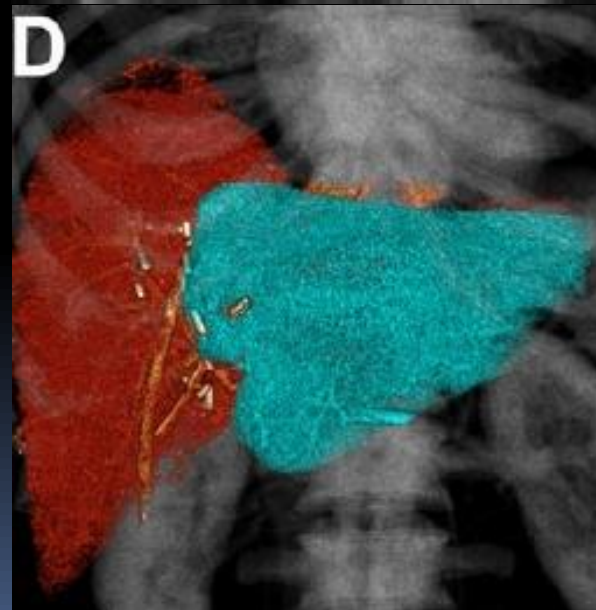
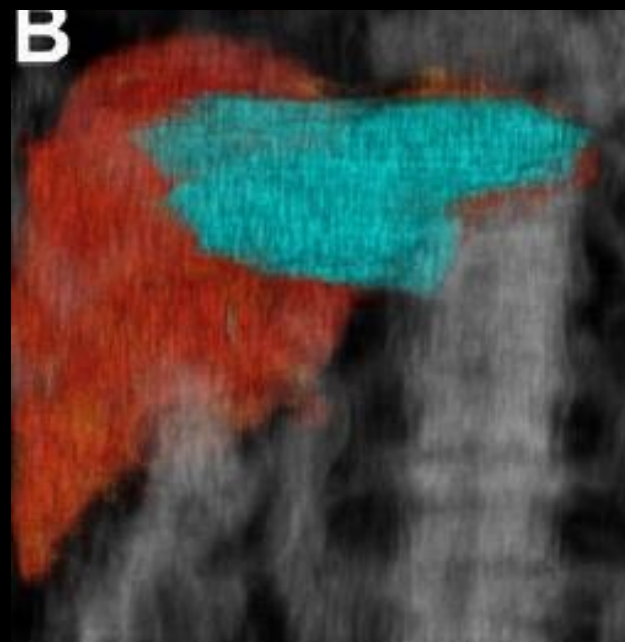
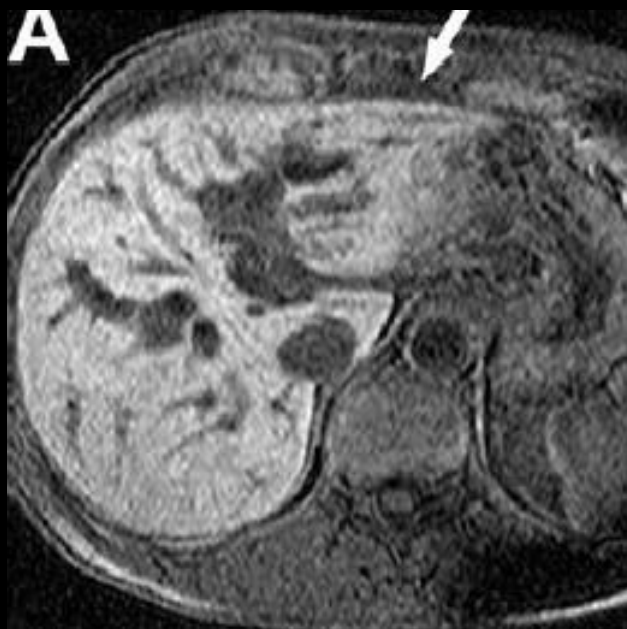


How to Avoid Postoperative Liver Failure: A Novel Method

Eduardo de Santibañes · Fernando A. Alvarez ·
Victoria Ardiles

- Three patients
 - Two colorectal metastasis
 - One Hilar Cholangiocarcinoma
- Hypertrophy from 40–83%
- After six days

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



Aim

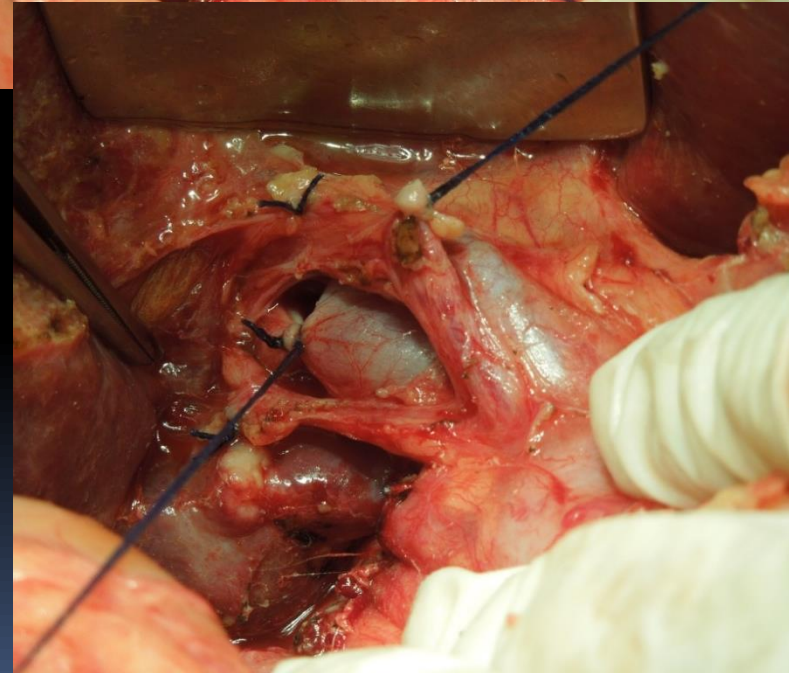
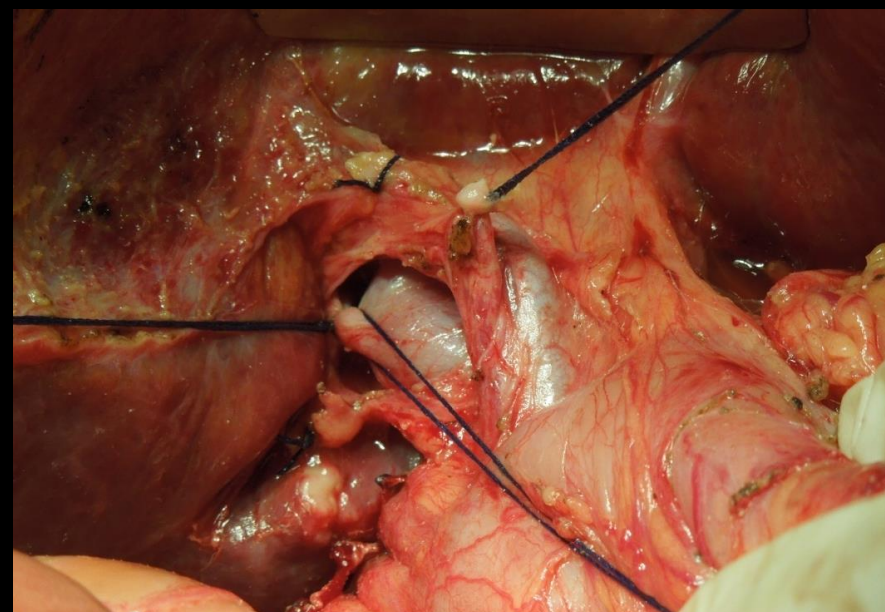
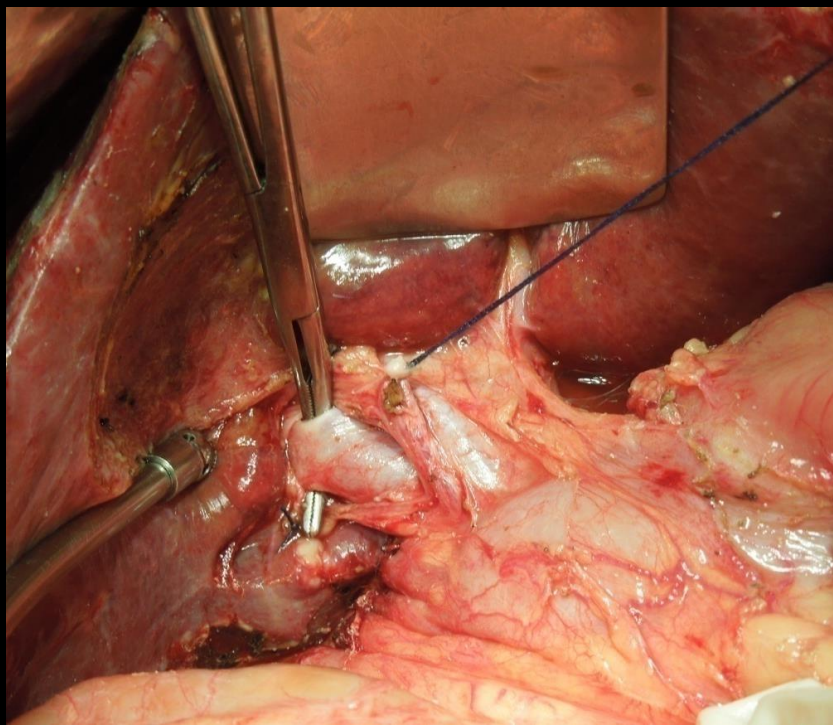
To present the "Brazilian Experience" with ALPPS procedure.



Technique

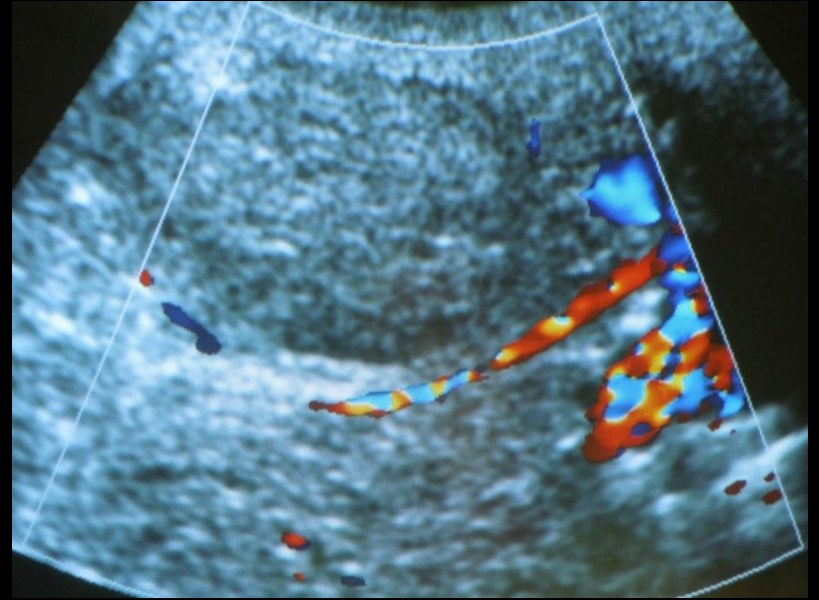
First operation

- Right portal vein ligation
- In situ liver transection (ISS)
- Ligation of segment IV branches
- **Ligation of middle hepatic vein during transection**
- **The right extended lobe is covered with plastic bag**
- Resections of small lesions in segment III
- Drain placed and abdomen closed



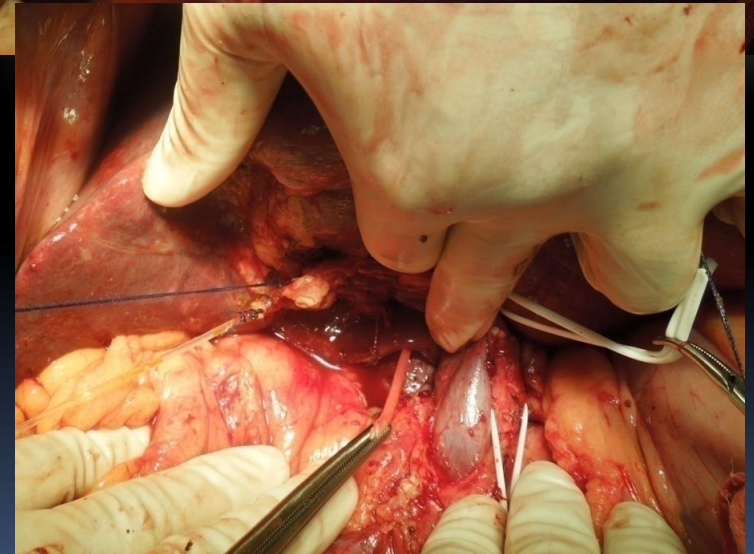
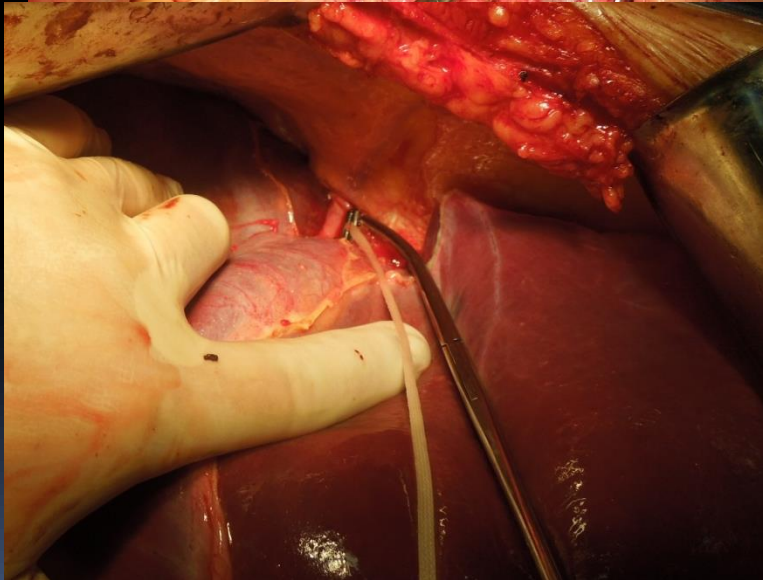
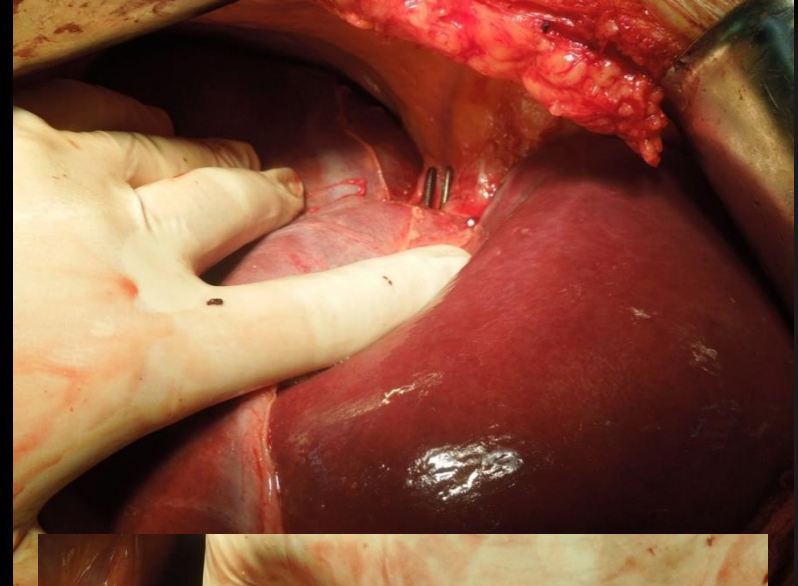
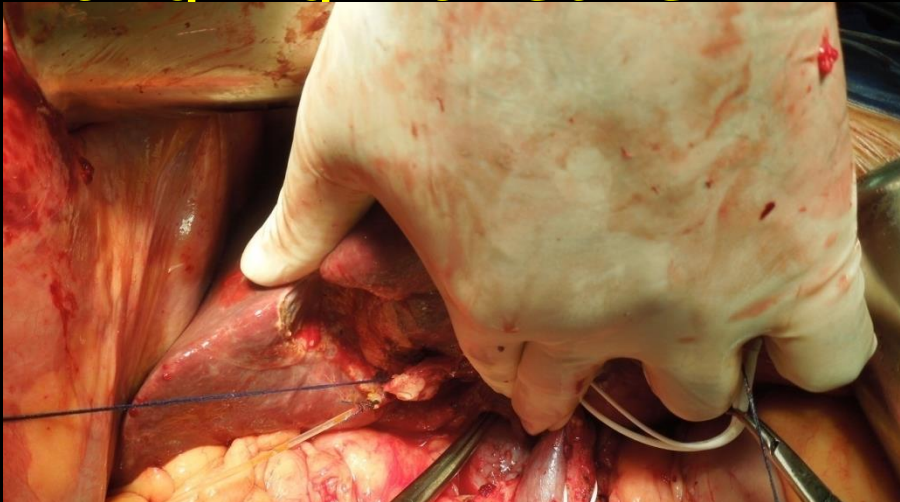
Right Portal Vein Ligation

Intraoperative US



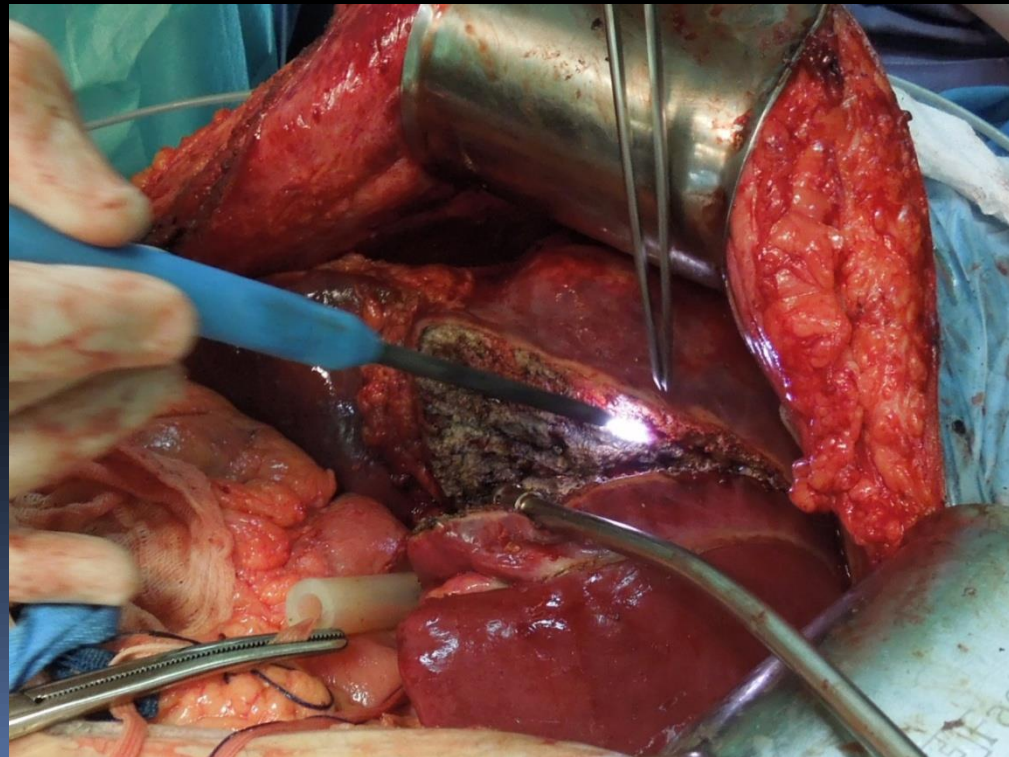
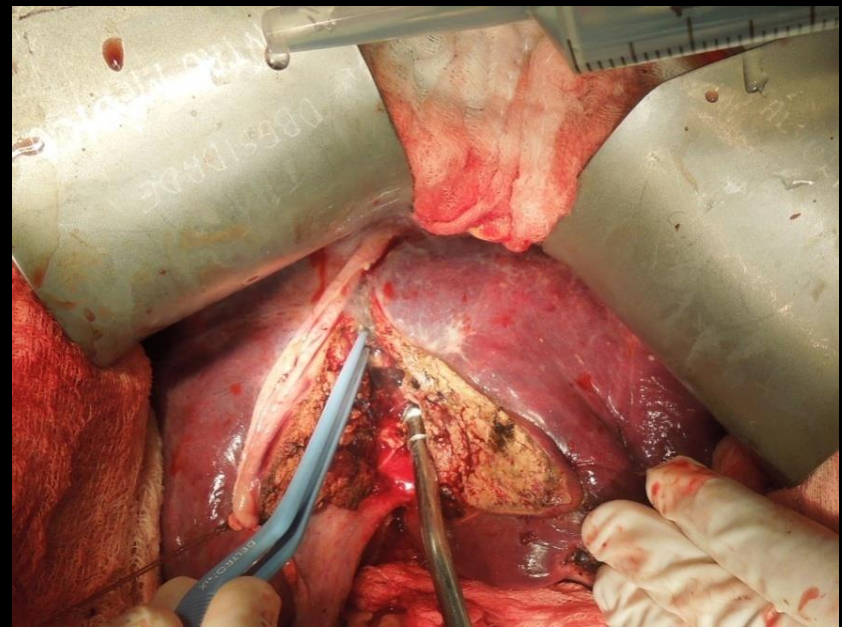
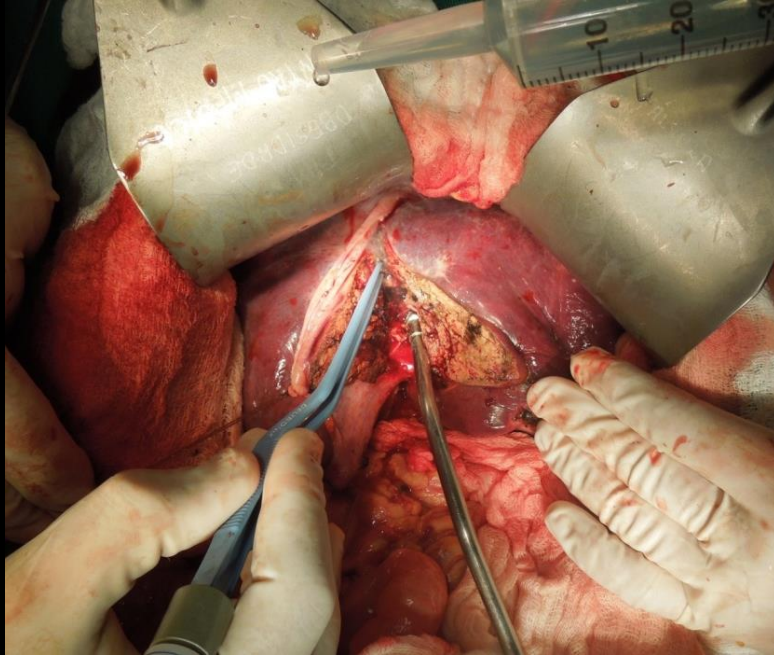
ALPPS

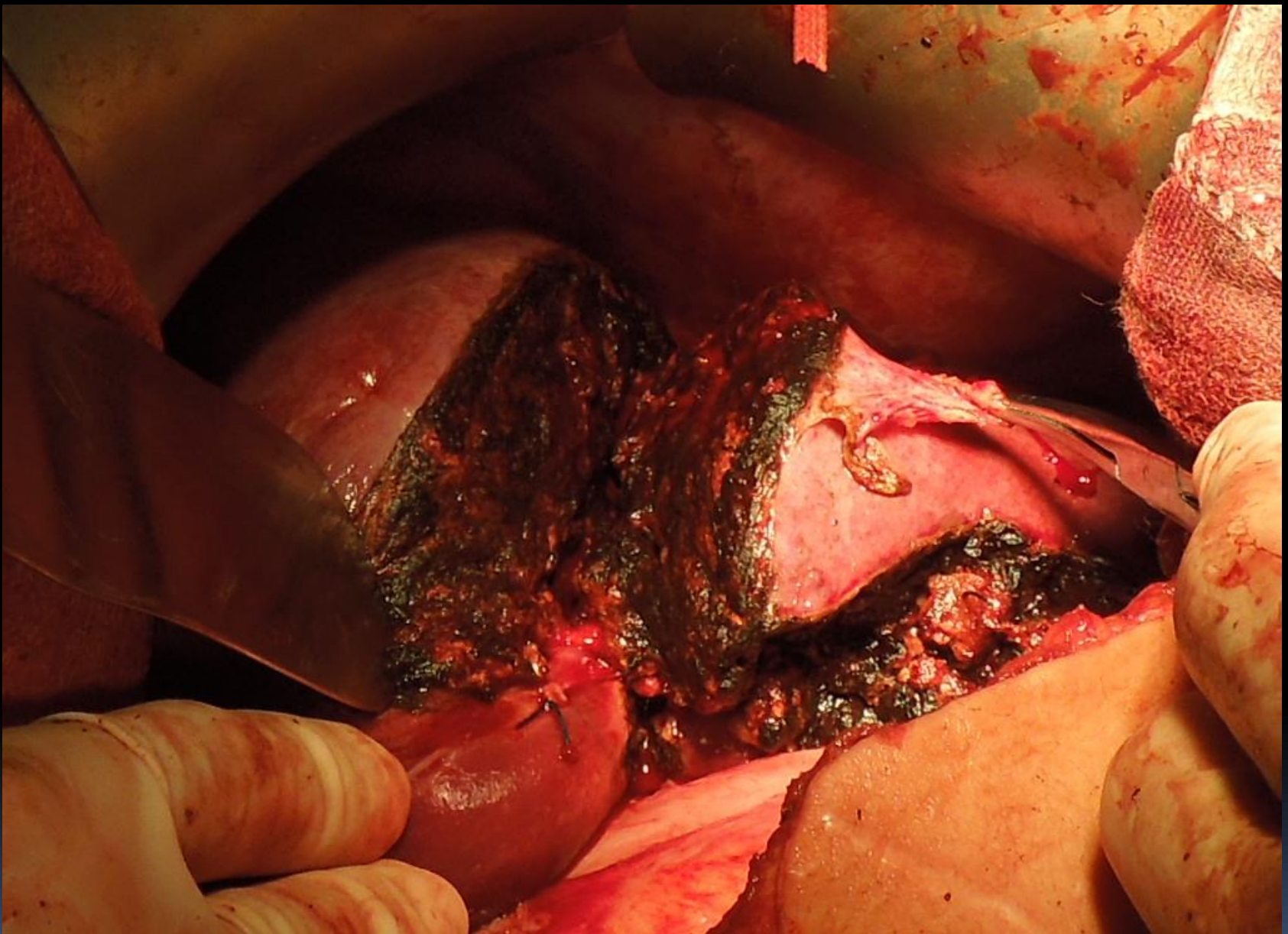
Hanging maneuver

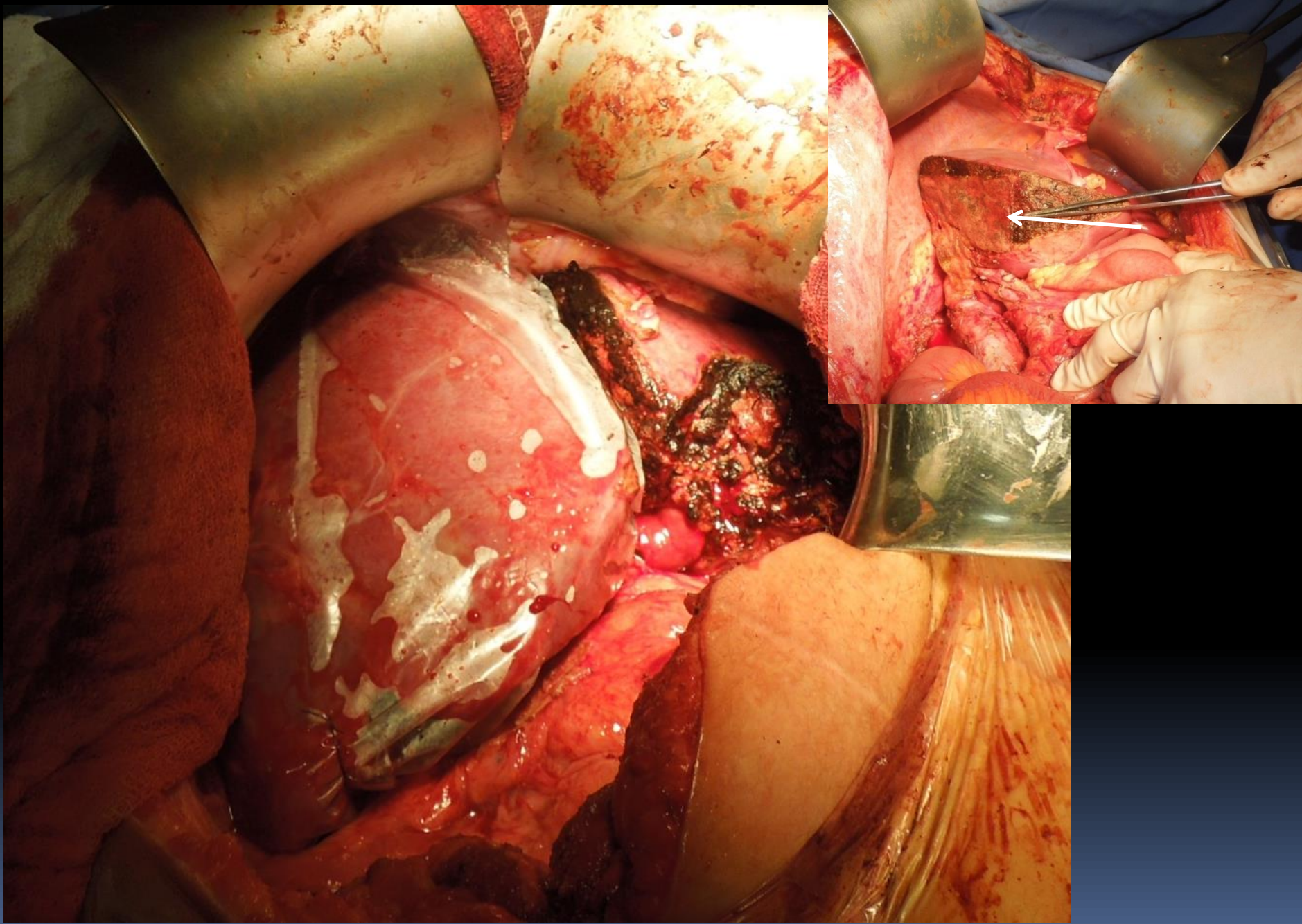


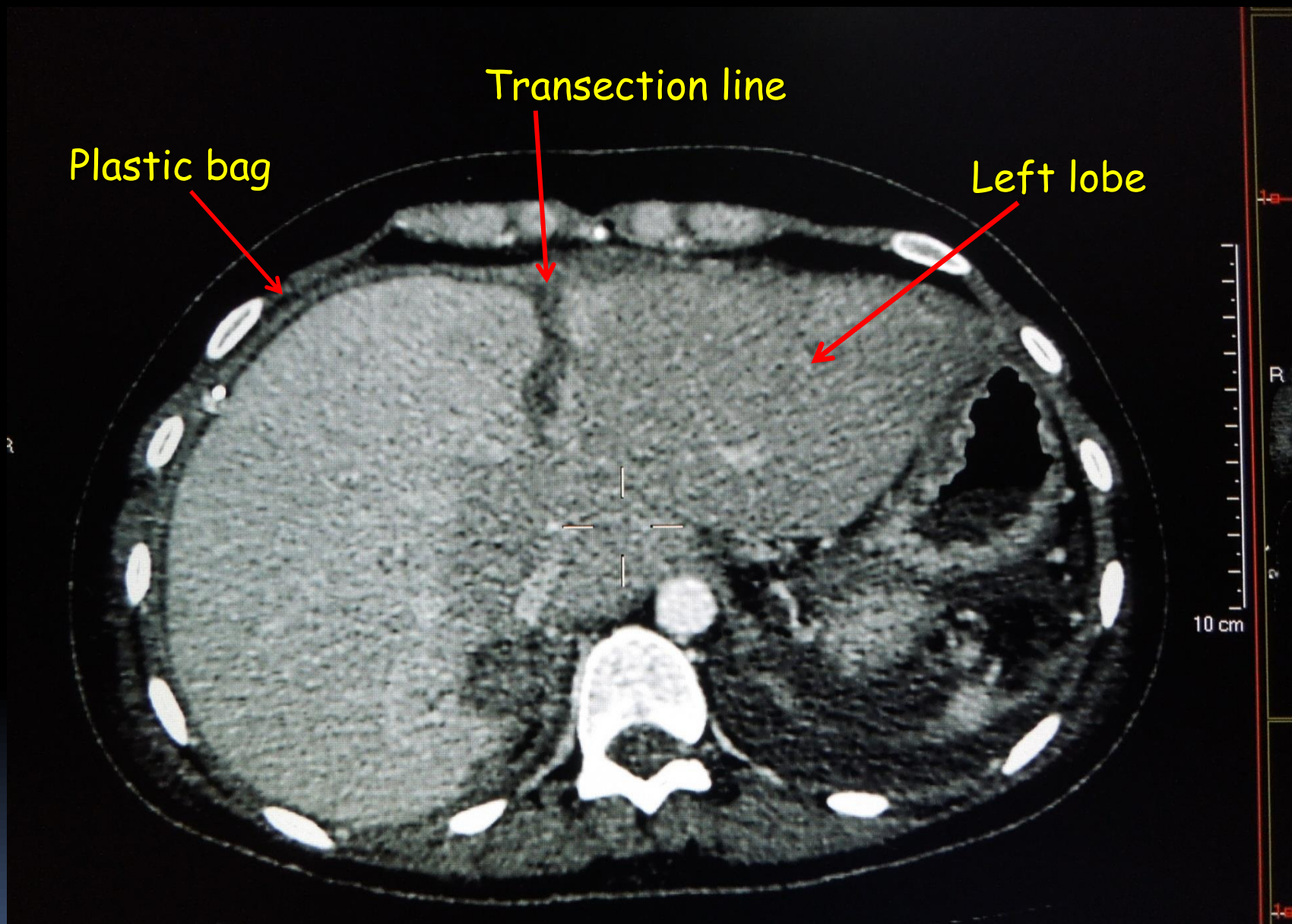
ALPPS

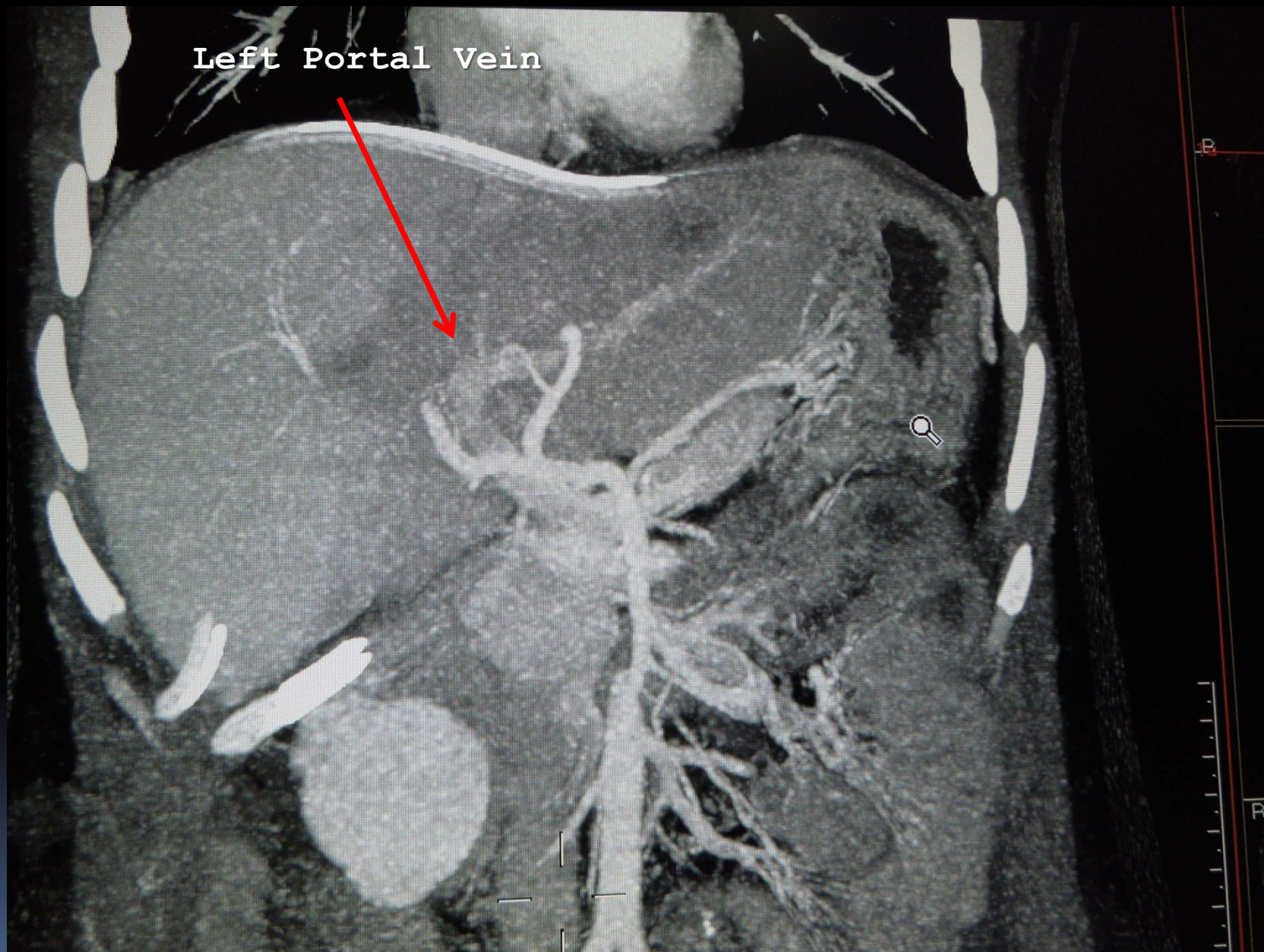
Anterior approach





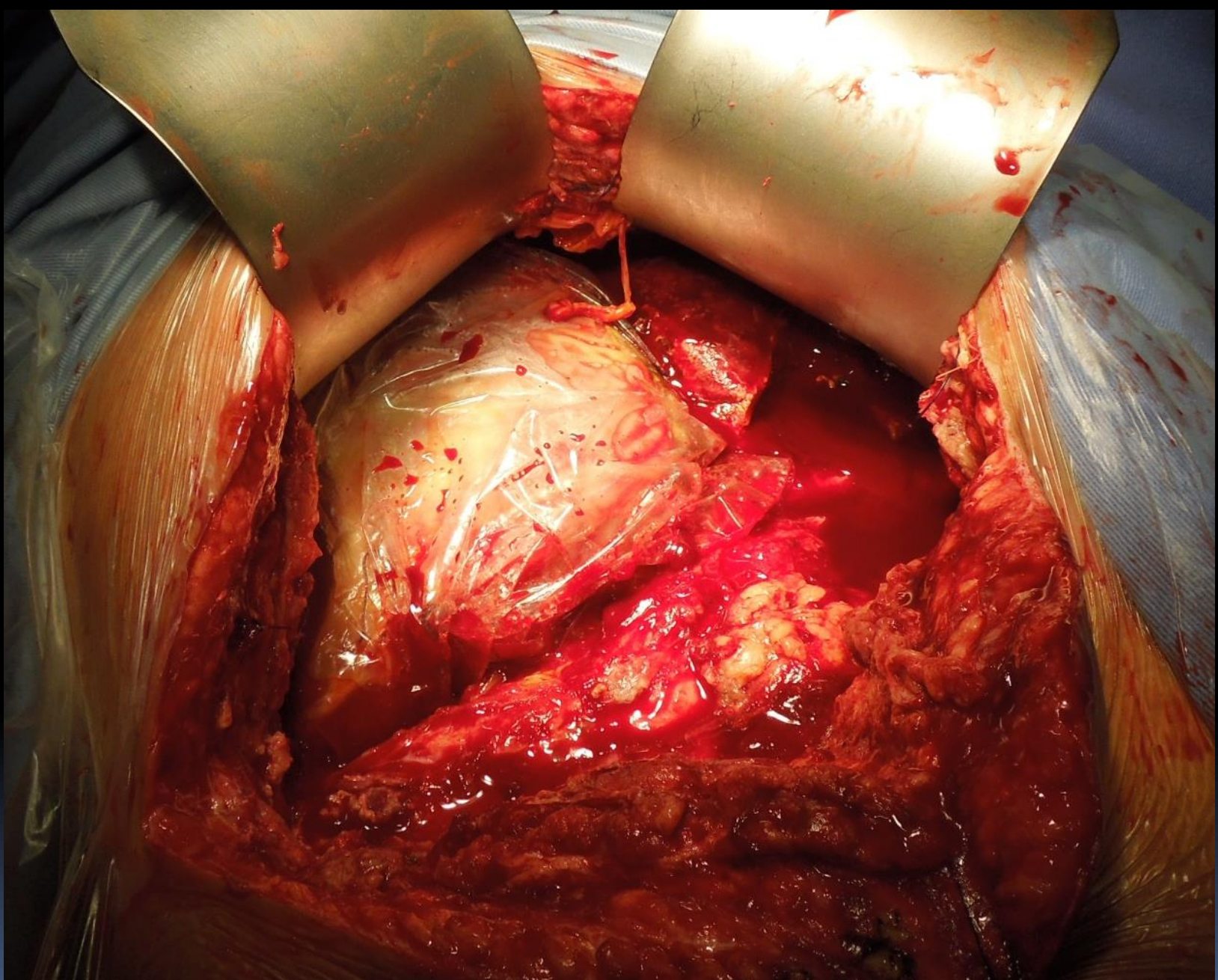


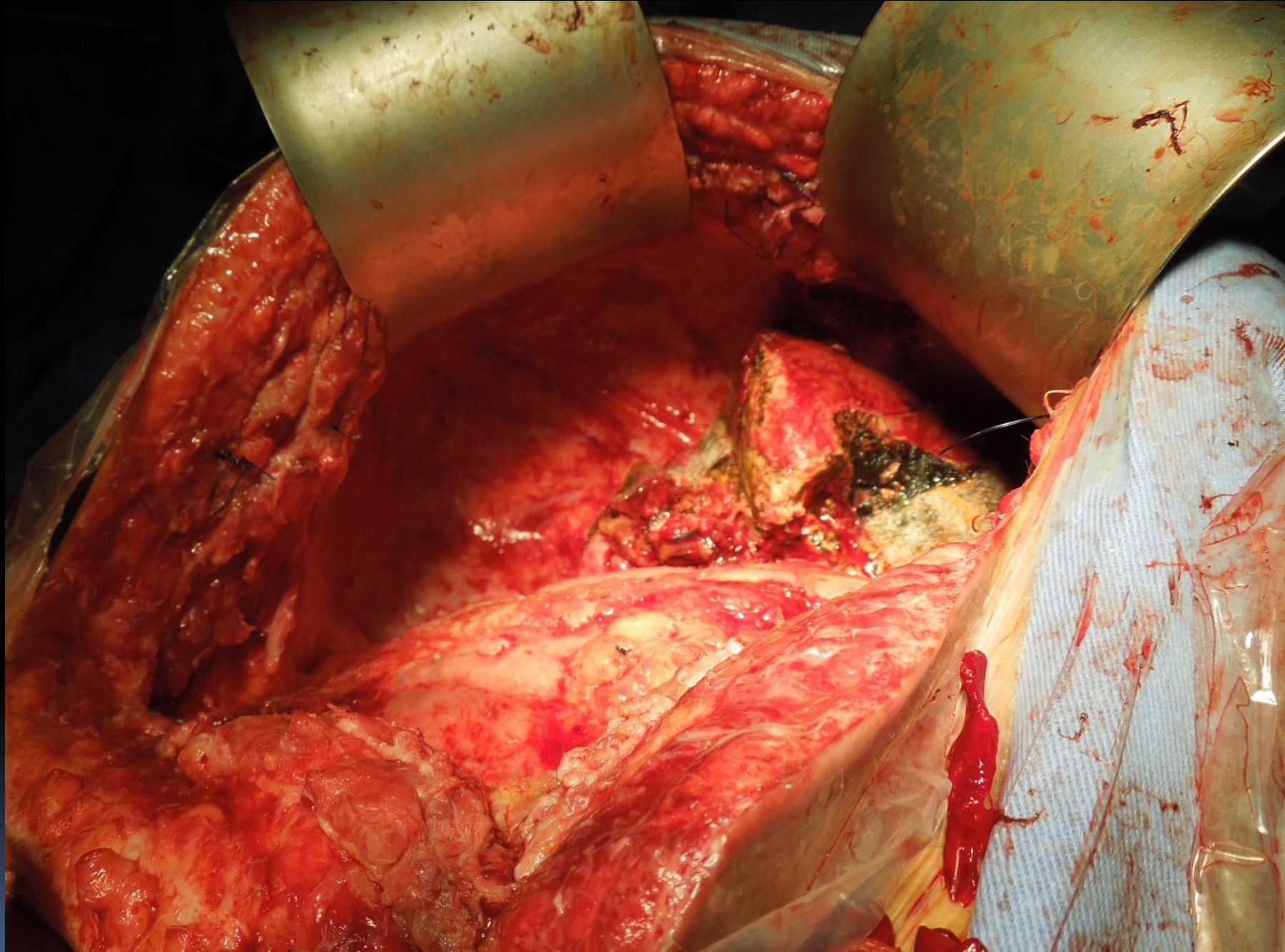




Second operation

- The procedure was completed
- The plastic bag is removed from the right extended lobe
- Right artery, bile duct and right hepatic vein is ligated
- Parenchymal bridges of liver tissue divided
- Complete hepatectomy
- Drain placed and abdomen closed





RESULTS

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

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ABSTRACT – Background - Postoperative liver failure consequent to insufficiency of remnant liver is a feared complication in patients who underwent extensive liver resections. To induce rapid and significant hepatic hypertrophy, associating liver partition and portal vein ligation for staged hepatectomy (ALPPS) has been recently developed for patients which tumor is previously considered unresectable. **Aim** – To present the Brazilian experience with ALPPS approach. **Method** – Were analyzed 39 patients who underwent hepatic resection using ALPPS in nine hospitals. The procedure was performed in two steps. The first operation was portal vein ligation and in situ splitting. In the second operation the right hepatic artery, right bile duct and the right hepatic vein were isolated and ligated. The extended right lobe was

ALPPS in Brazil

- ❑ From July 2011 (1st case) to October 2012
- ❑ 39 ALPPS (9 surgeons)
- ❑ Male 22 (56.4%) and Female 17 (43.6%)
- ❑ Age 20-83 years (57.3 years)
- ❑ Indications:
 - Colorectal liver metastasis 32 (82.0%)
 - Cholangiocarcinoma 3 (7.7%)
 - Sarcoma 2 (5,1%)
 - Hepatocellular carcinoma 1
 - Cistic liver disease 1

ALPPS in Brazil

- ❑ Interval between operations – 14.1 days (5 a 30)
- ❑ Death after first operation – 2 (5.1%)
- ❑ Length of stay – 17.8 days (13-40)
- ❑ Preoperative volumetry – 28 patients (71.7%)
- ❑ Regeneration of 83% (47-211.9%) Obs. 28 cases
- ❑ Plastic bag in 8 patients (20.5%)
- ❑ Tachosil® (18 patients – 46.1%)

ALPPS in Brazil

- ❑ Videolaparoscopy (2 patients)
- ❑ Pancreaticoduodenectomy (1 patient)
- ❑ Reverse + ALPPS (1 patient)

ALPPS in Brazil

❑ Complications:

Pneumonia

Biliary fistula

Enteric fistula

Abdominal hernia

Surgical site infection

SIRS

Ascites

Acute renal failure

Sepsis

Hepatic artery thrombosis

Acute liver failure

Bile duct injury

❑ Mortality – 5 patients (12.8%)

❑ Liver resections performed 262 (11.4% ALPPS)



Lençóis Maranhenses

