

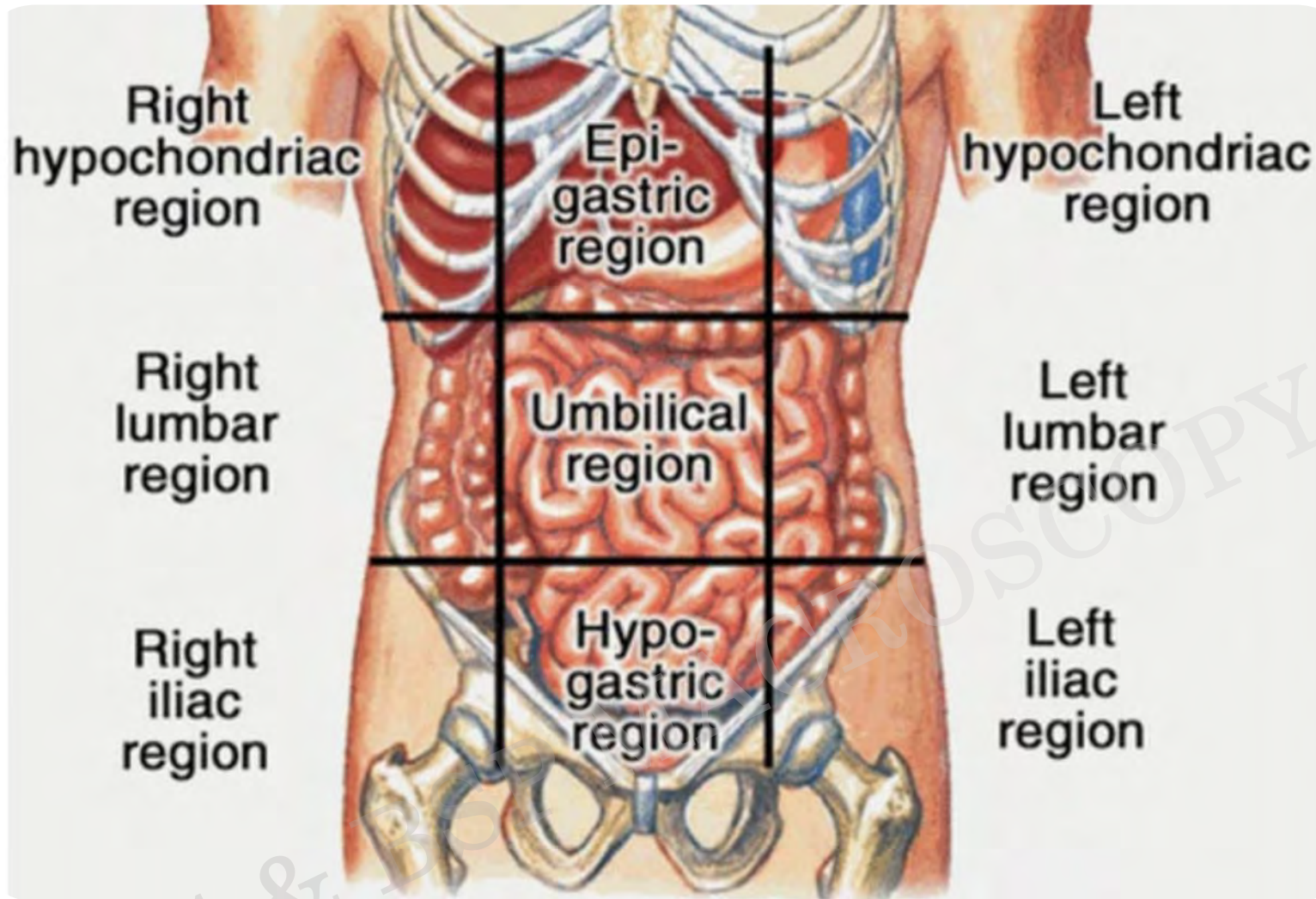
Macroscopy handling of Liver specimens

Baldin Pamela, MD PhD

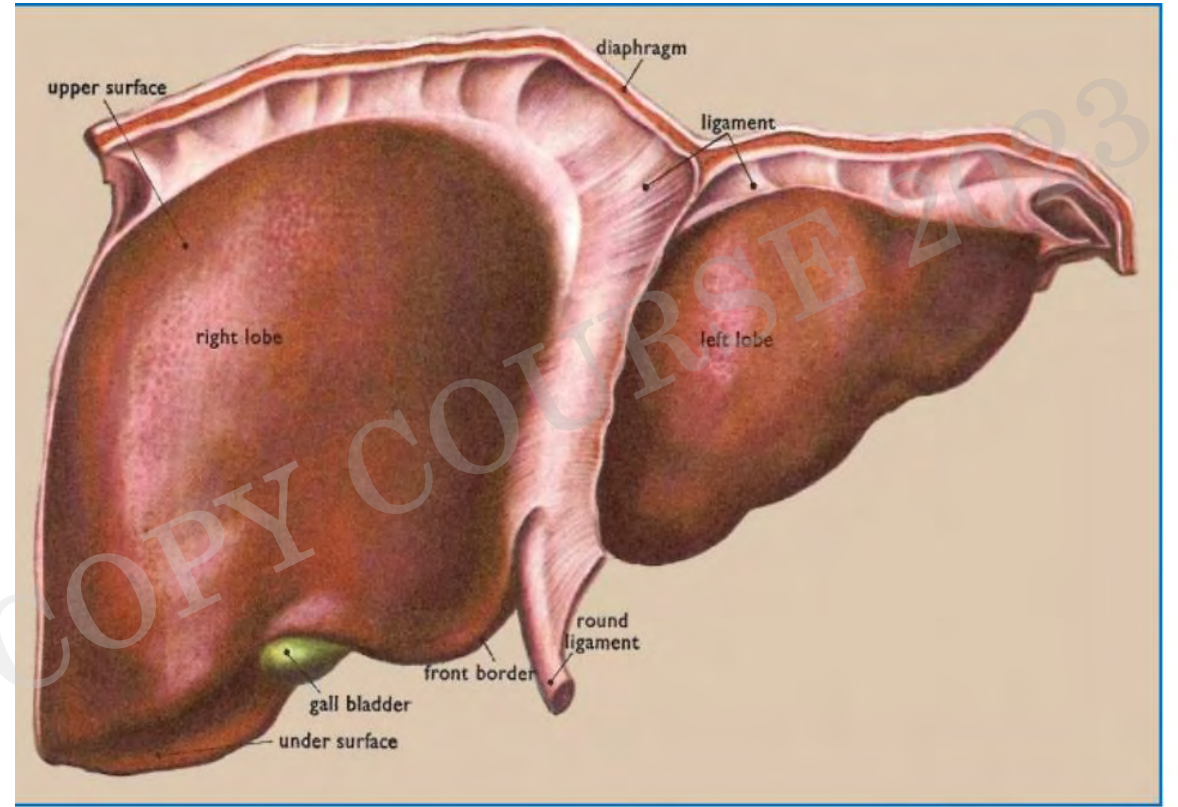
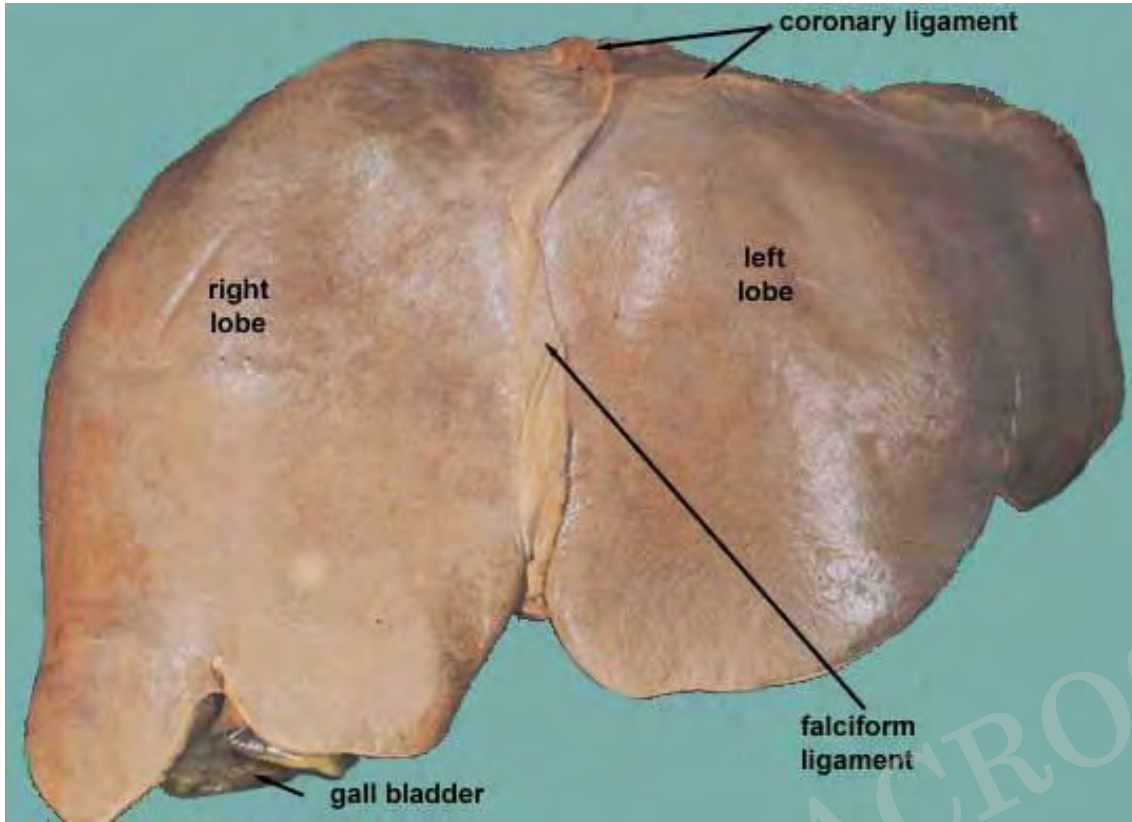
Pamela.baldin@uclouvain.be

Cliniques Universitaires Saint Luc

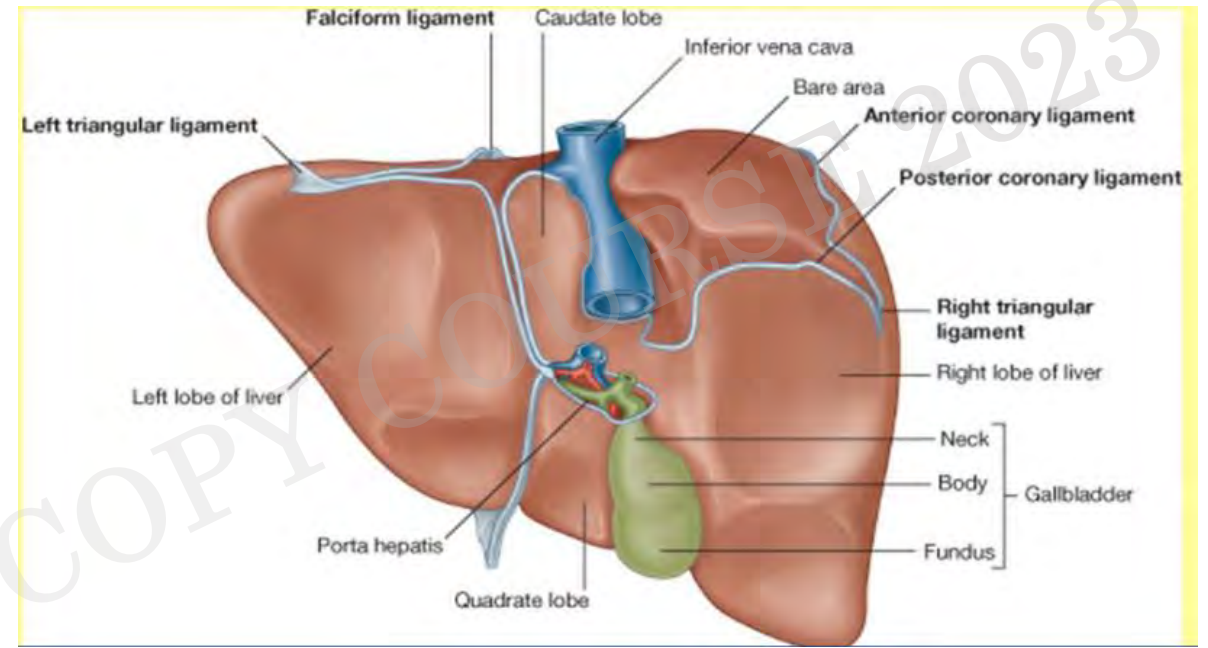
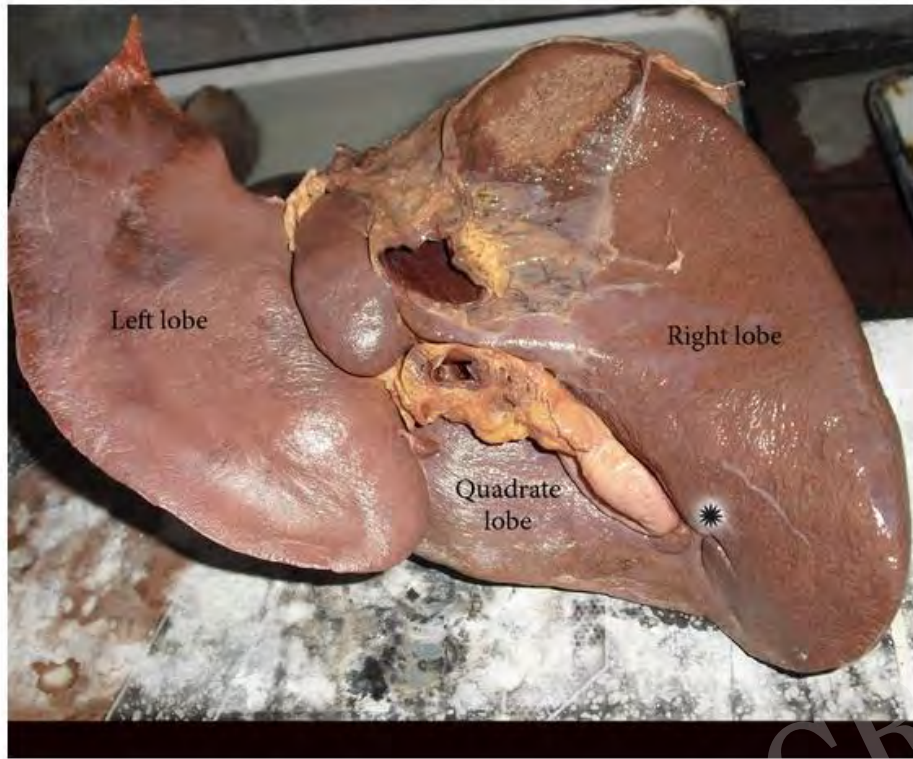
-Bruxelles-



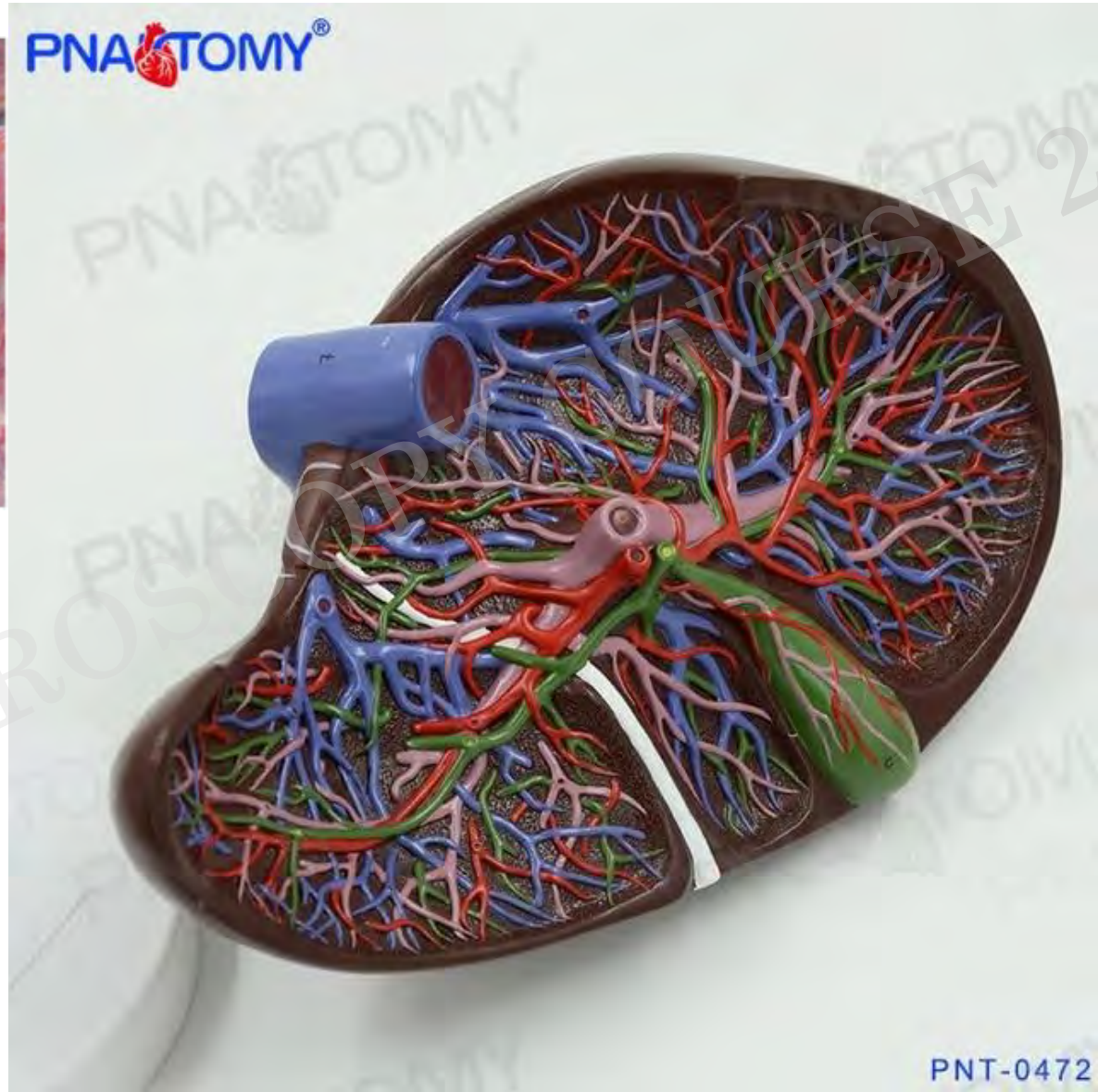
- The largest gland in the body
- Weighs approximately 1500 g. (2.5% of adult body weight).



Anterior surface of the liver

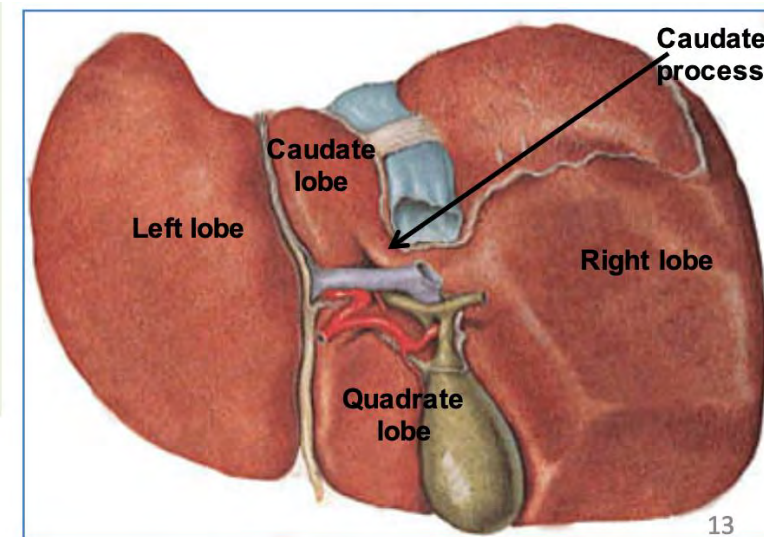
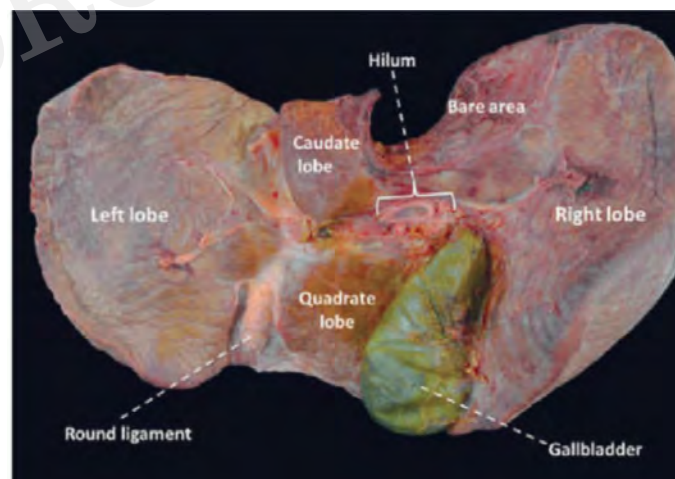
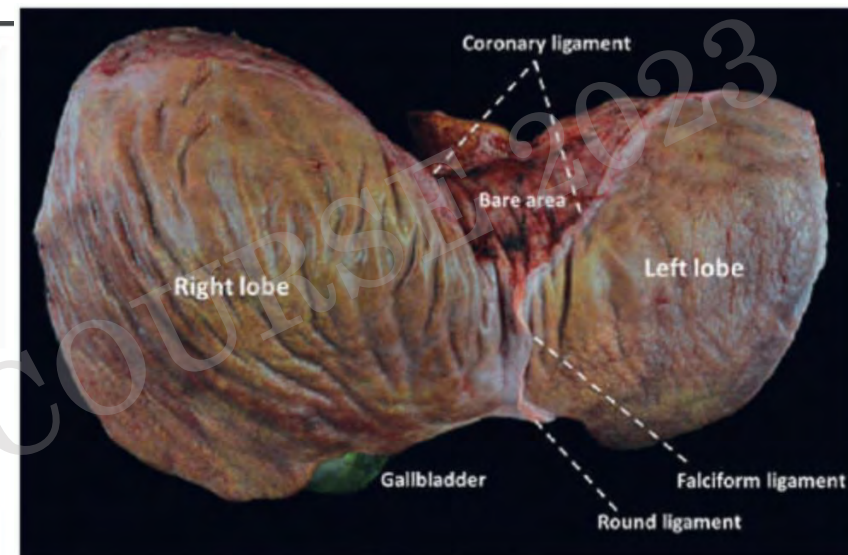
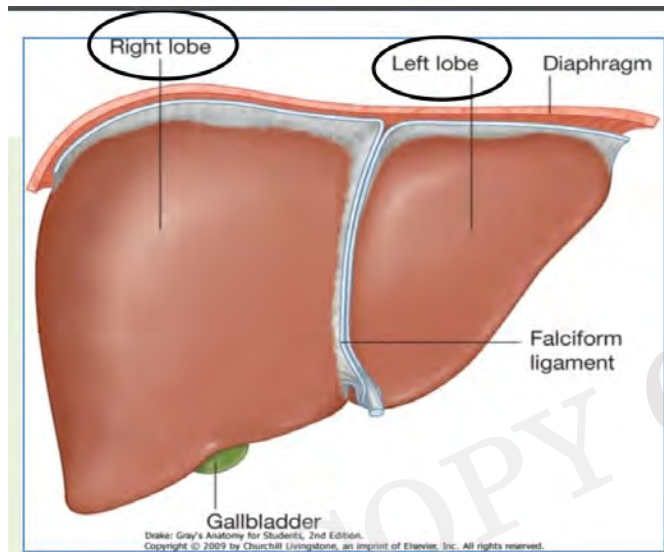


Posterior surface of the liver

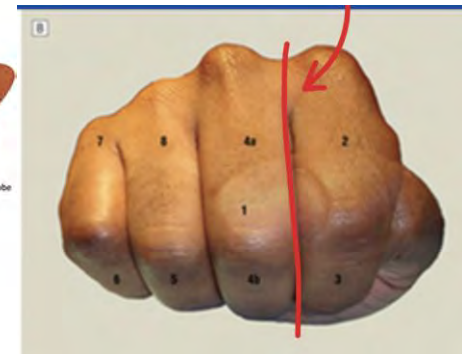
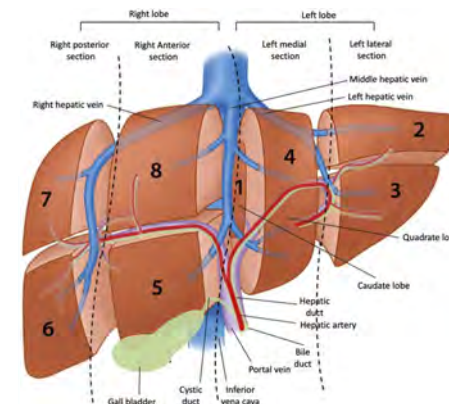
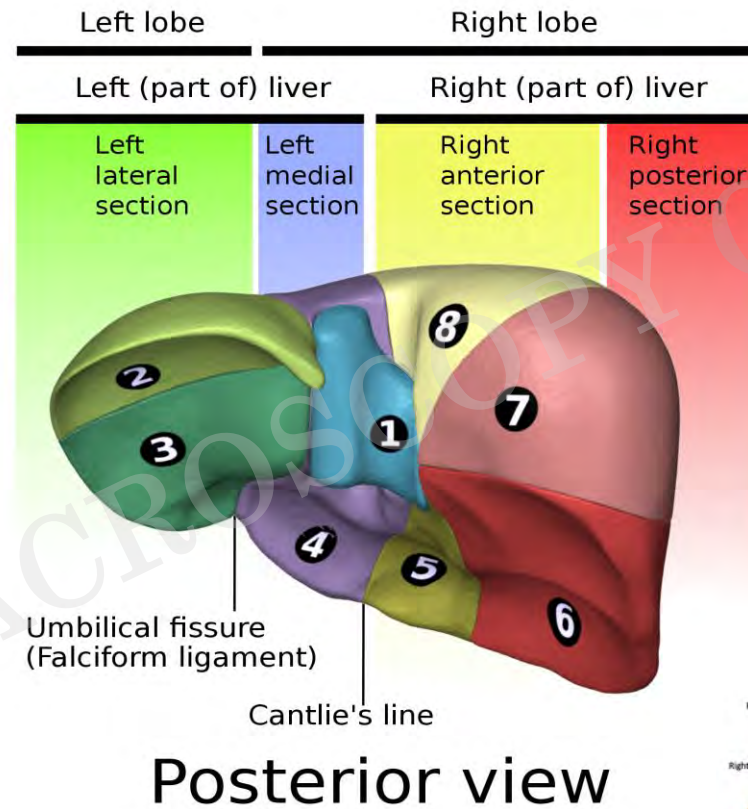
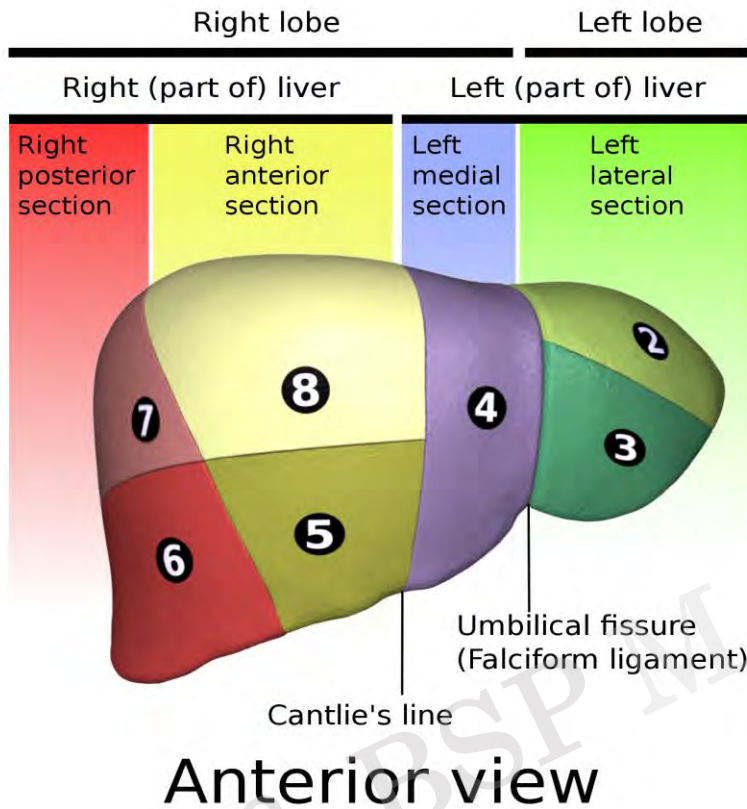


YPS & BSP MACROSCOPIC ANATOMY COURSE 2023

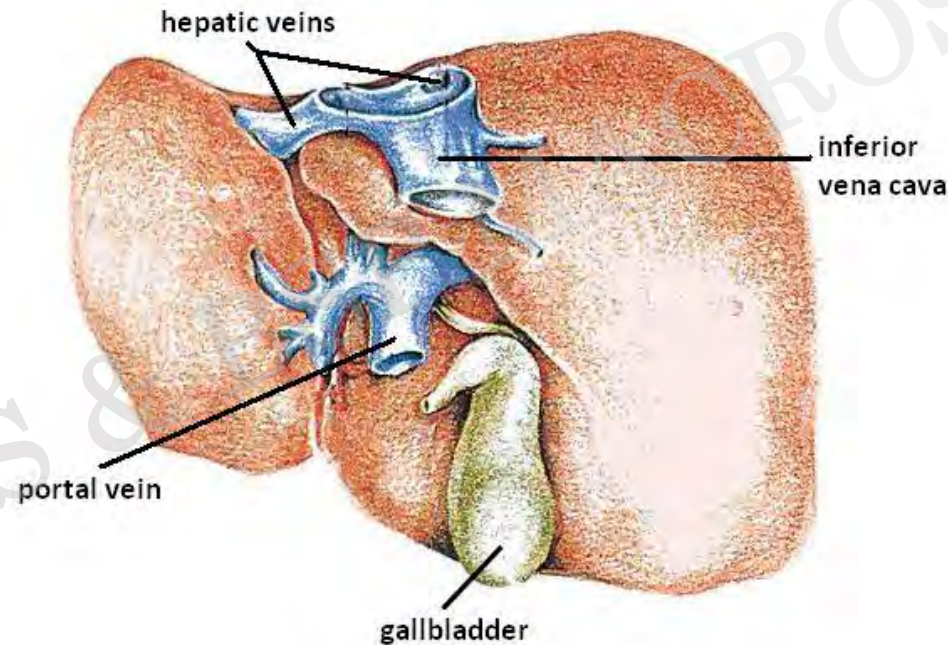
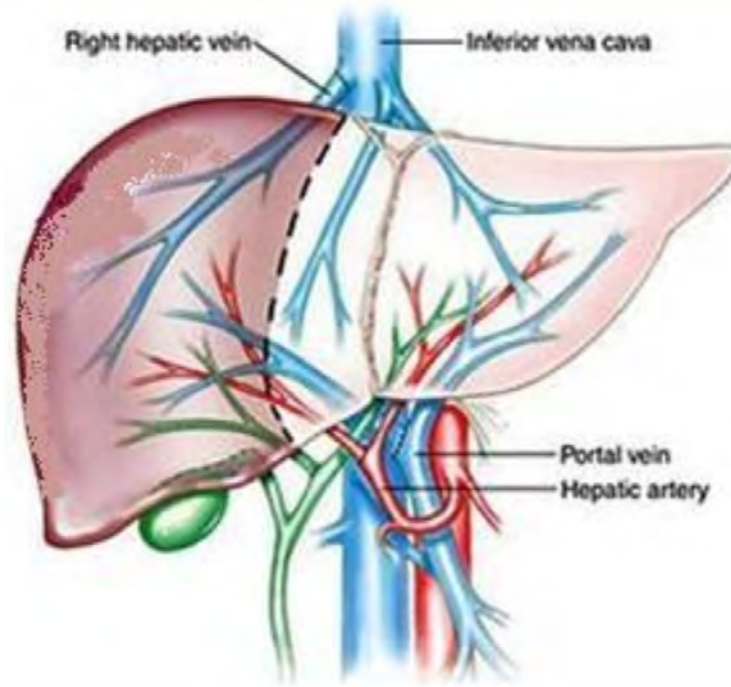
Anatomical division of the liver: the lobes



Functional division of the liver: the segments



Anatomy of liver. Adapted from Orcutt et al.

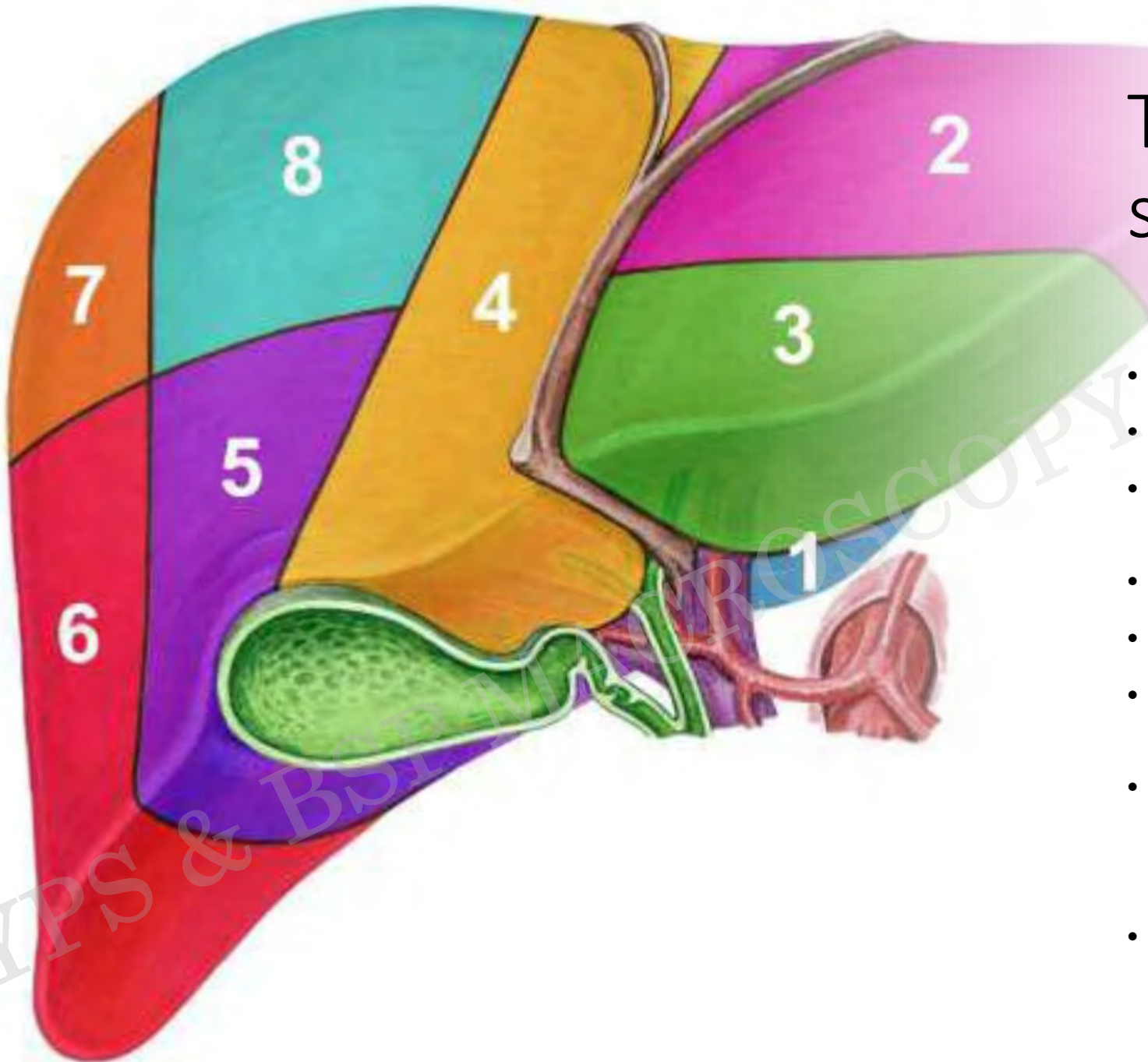


The blood vessels conveying blood to the liver are:

❖ Hepatic artery (30%)

❖ Portal vein (70%)

❖ The venous blood is drained by 2 hepatic veins which drain into the inferior vena cava.



Type of liver specimens

- Segmentectomy specimens
- Right hepatectomy Segments 5–8
- Extended right hepatectomy Segments 4–8
- Left lateral sectionectomy Segments 2–3
- Left hepatectomy Segments 2–4
- Extended left hepatectomy Segments 1–5 and 8
- Total Hepatectomy (at transplant) Segments 1–8
- Wedge resections

General considerations

- Take in mind parameters that influence prognosis and that you have to take in consideration
- Remember TNM classification

TNM staging of tumours of the intrahepatic bile ducts

T – Primary Tumour

- TX Primary tumour cannot be assessed
T0 No evidence of primary tumour
Tis Carcinoma in situ (intraductal tumour)
T1a Solitary tumour 5 cm or less in greatest dimension without vascular invasion
T1b Solitary tumour more than 5 cm in greatest dimension without vascular invasion
T2 Solitary tumour with intrahepatic vascular invasion or multiple tumours, with or without vascular invasion
T3 Tumour perforating the visceral peritoneum
T4 Tumour involving local extrahepatic structures by direct hepatic invasion

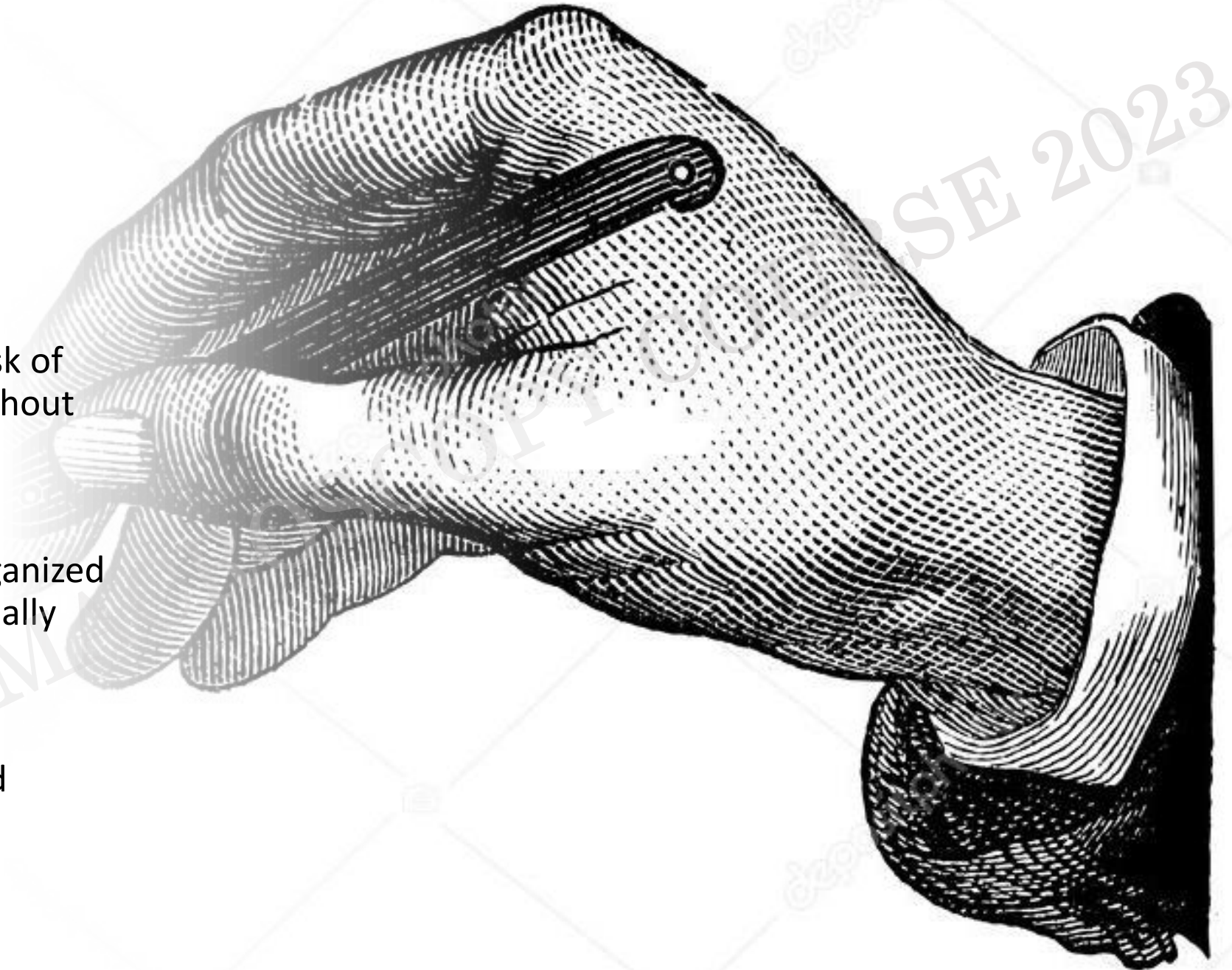
TNM staging of tumours of the liver

T – Primary Tumour

- TX Primary tumour cannot be assessed
T0 No evidence of primary tumour
T1a Solitary tumour 2 cm or less in greatest dimension with or without vascular invasion
T1b Solitary tumour more than 2 cm in greatest dimension without vascular invasion
T2 Solitary tumour with vascular invasion more than 2 cm dimension or multiple tumours, none more than 5 cm in greatest dimension
T3 Multiple tumours any more than 5 cm in greatest dimension
T4 Tumour(s) involving a major branch of the portal or hepatic vein or with direct invasion of adjacent organs (including the diaphragm), other than the gallbladder or with perforation of visceral peritoneum

General consideration

- Structural simplicity = risk of rush in the dissection without thinking ahead
- Strategy important ->organized gross description (eventually draw schemas)
- Pivotal role of clinical and radiological information





General handling of the specimens

Clinical informations (given by the surgeon or researched by pathologist)

Orientation of the specimen

Mesurement, description, presence/absence of structures

Cutting of the specimen

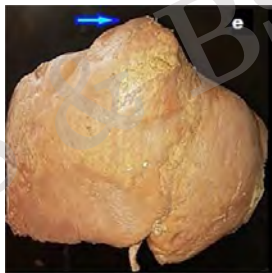
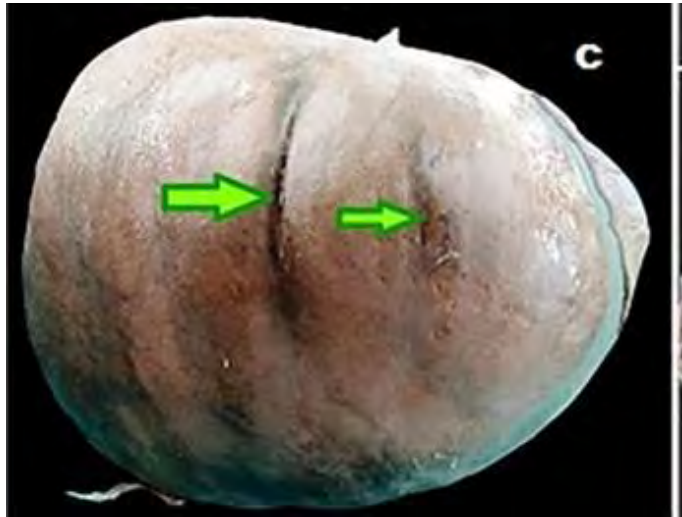
Describe and pictures of the findings

Submitting of rappresentative lesion

Submitting of normal tissue

Submitting of margins and lymph nodes

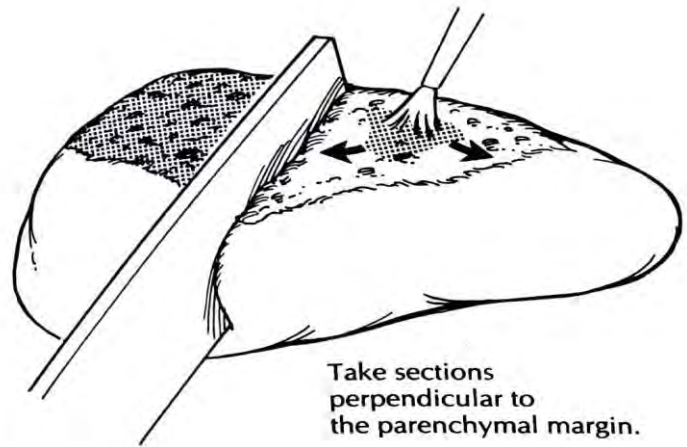
Orientation of the specimen



Wedge resection/Partial hepatectomy (neoplastic)

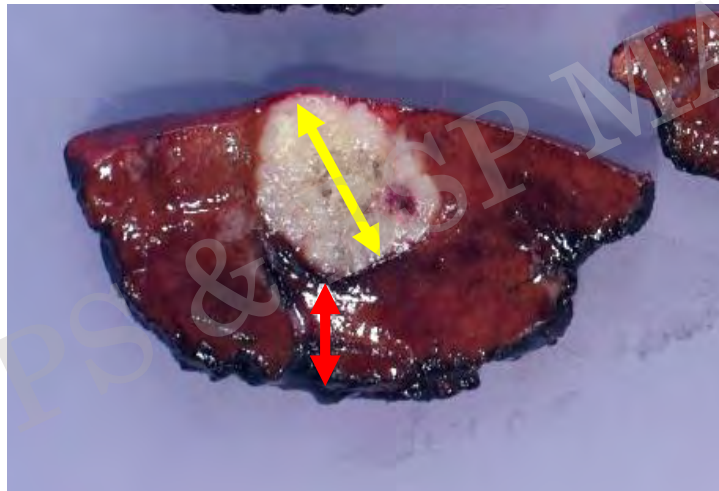
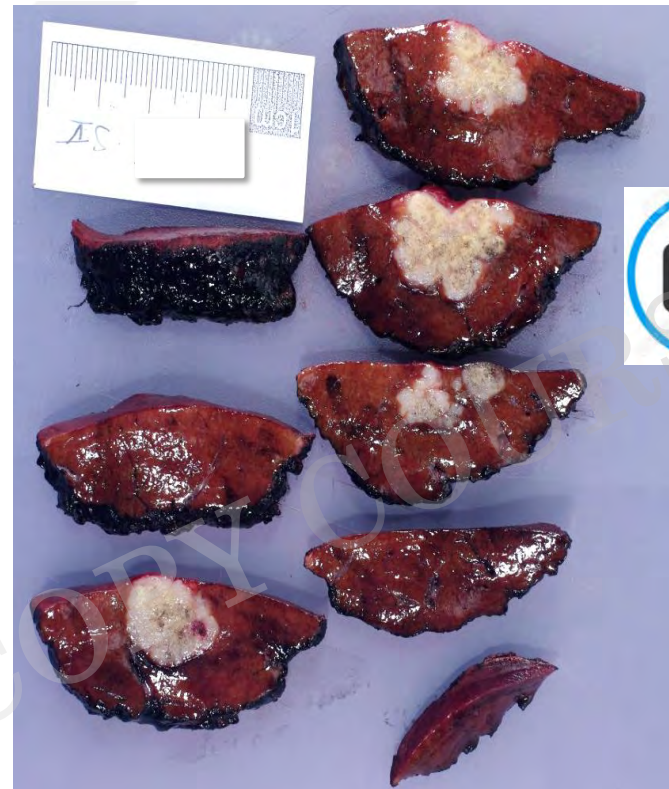


- Orientation of the specimen
- *Record as stated by the clinician.*
- Weight and measurement of the specimens
- Ink the resection margin (+ capsular alterations)

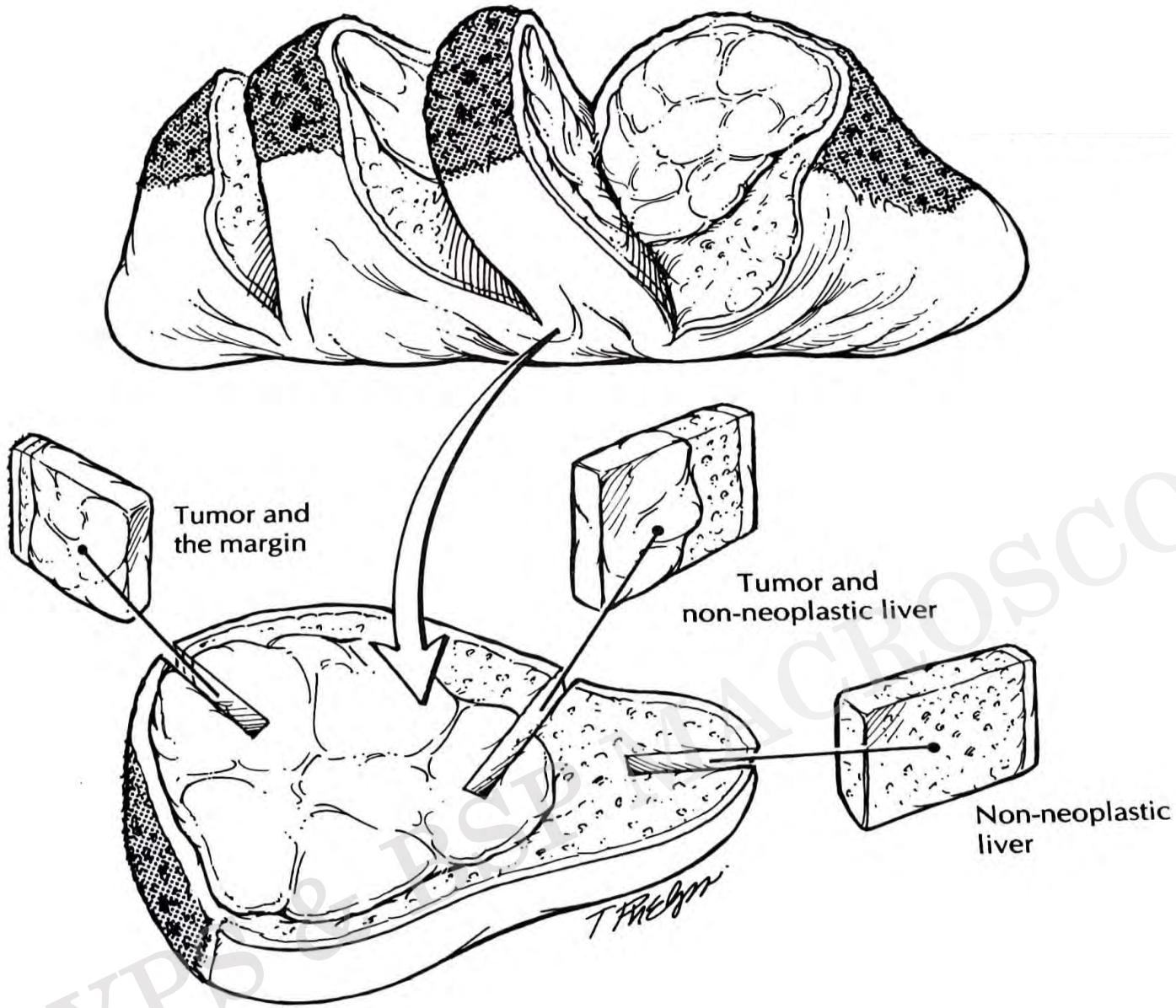


Take sections
perpendicular to
the parenchymal margin.

Section 0,5cm

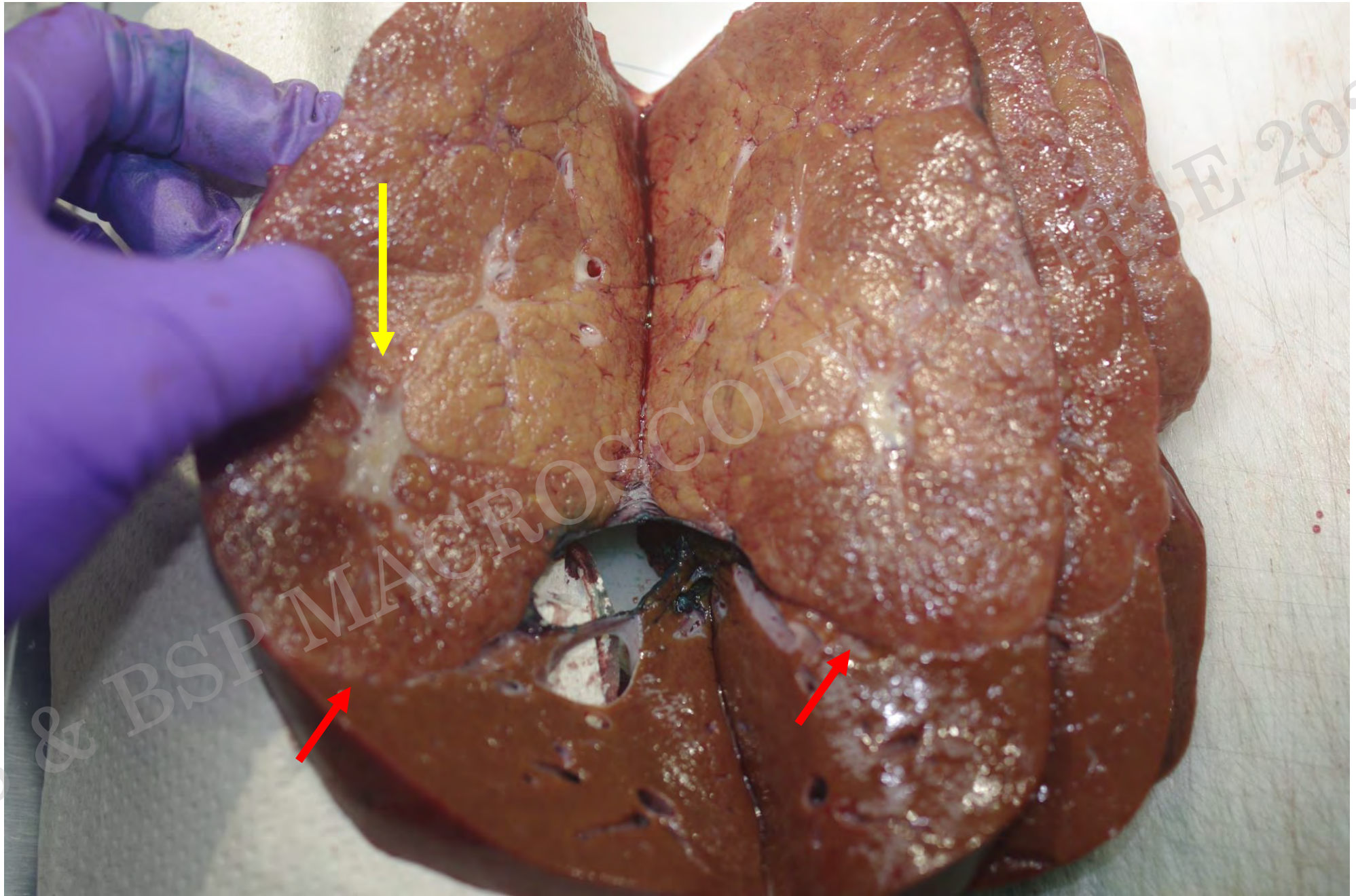


- ❖ Describe number of lesion, color, consistency, presence of necrosis (% , hemorrhage)
- ❖ Measure lesions
- ❖ Measure distance to the inked margin
- ❖ Describe presence/absence of macroscopical vascular infiltration
- ❖ Describe the appearance of non neoplastic hepatic tissue

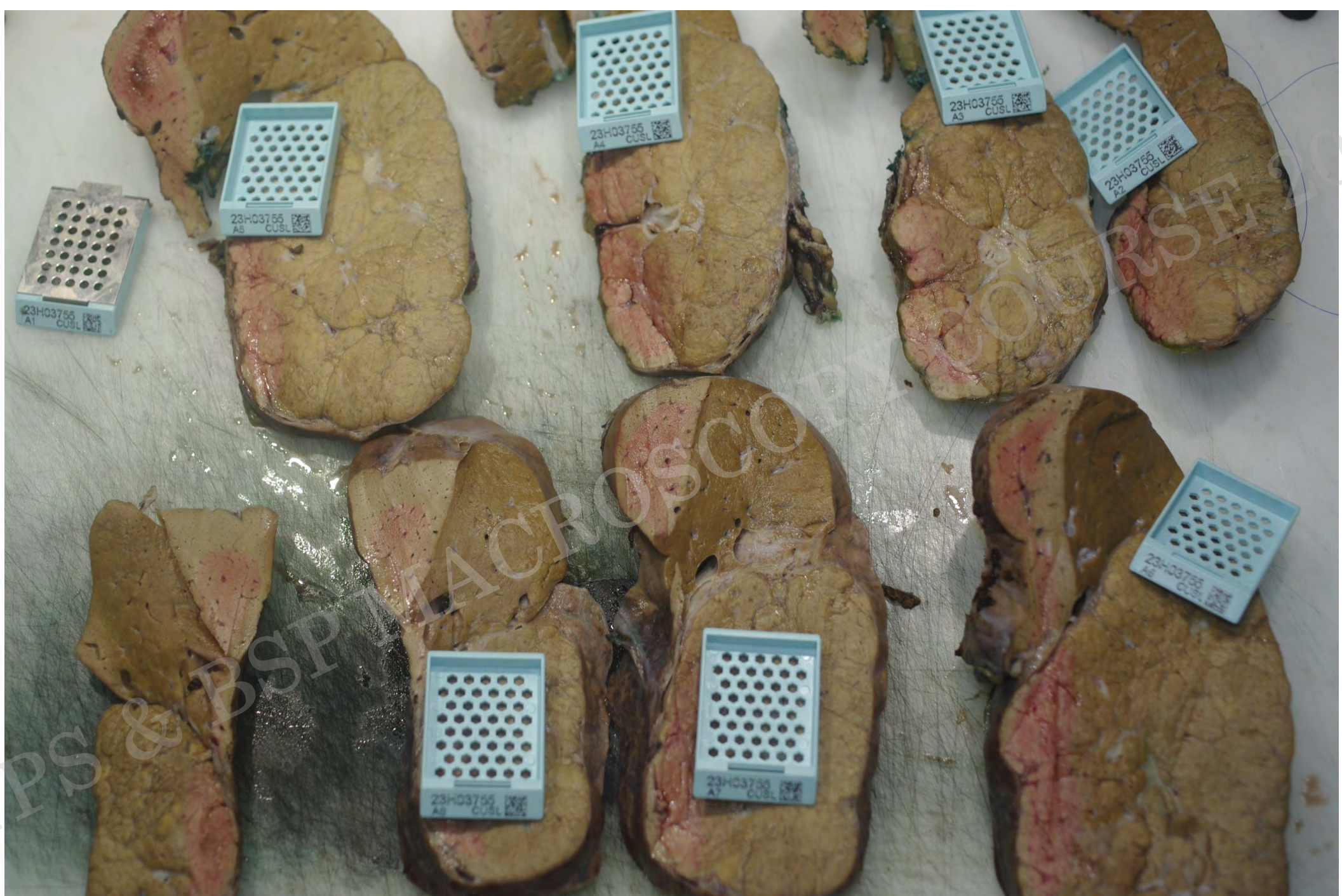


Lesions:

- ❖ If small 2-3 cm totality of the lesion
- ❖ If bigger: 1 complete section (sometimes more section at the interface with surrounding liver parenchyma are more helpful)
- ❖ Relation with the surrounding liver parenchyma
- ❖ Relation to the margin
- ❖ Non neoplastic liver (as far as possible from the lesion)



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23H03755
A1
CUSL

23H03755
A5
CUSL

23H03755
A4
CUSL

23H03755
A3
CUSL

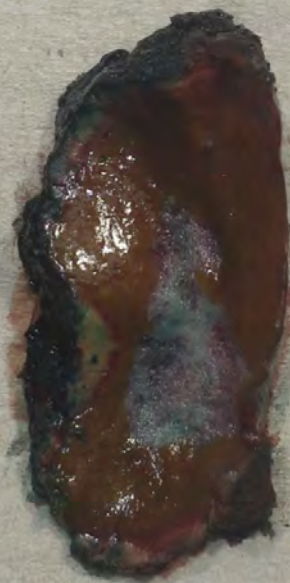
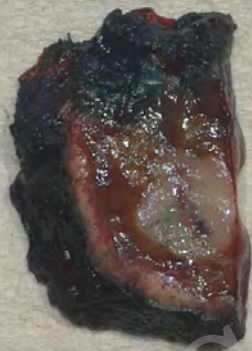
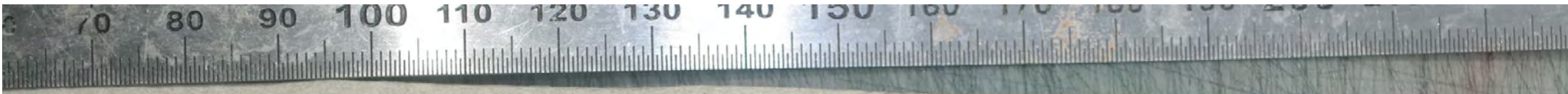
23H03755
A2
CUSL

23H03755
A6
CUSL

23H03755
A7
CUSL

23H03755
A8
CUSL

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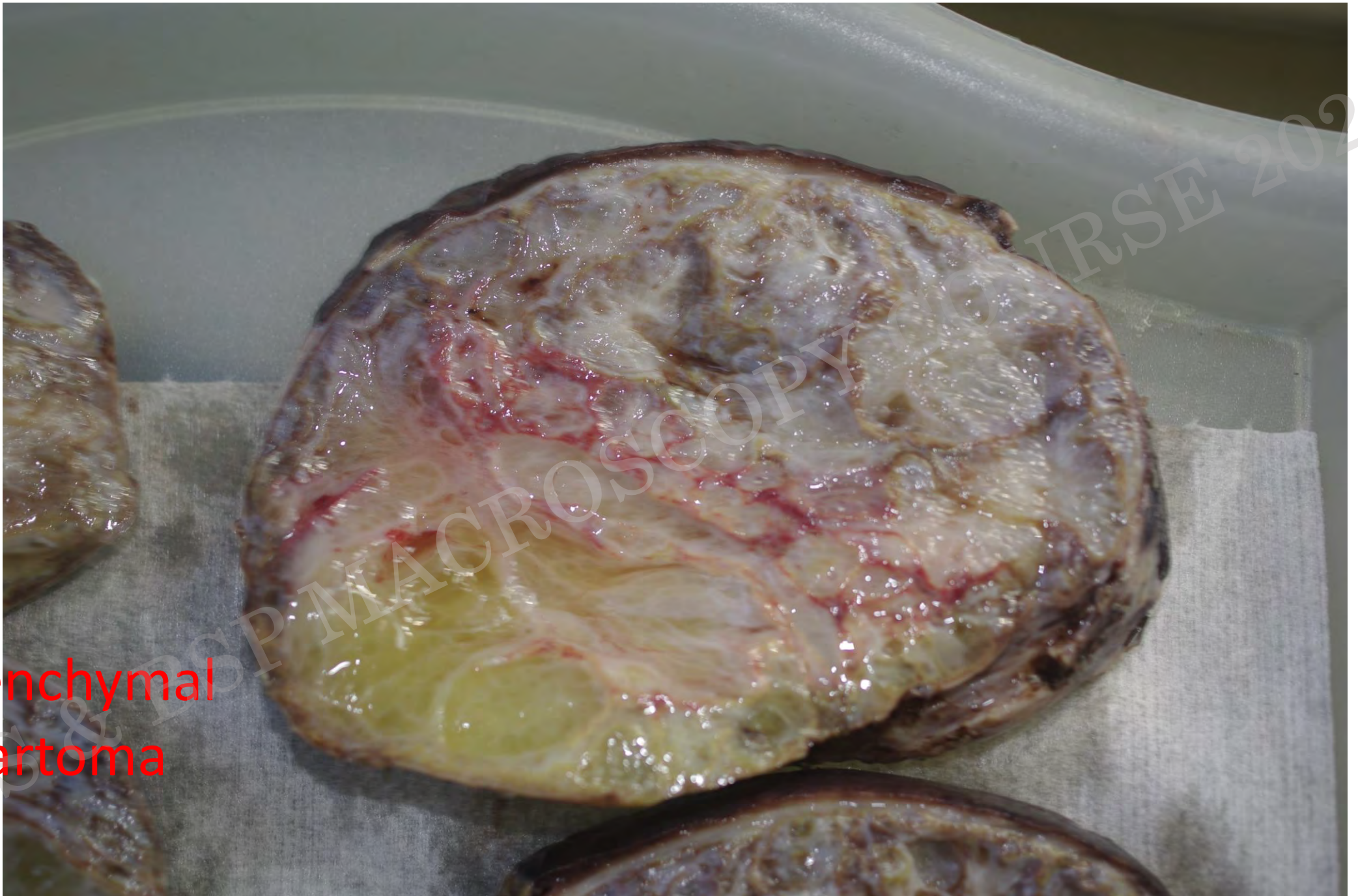
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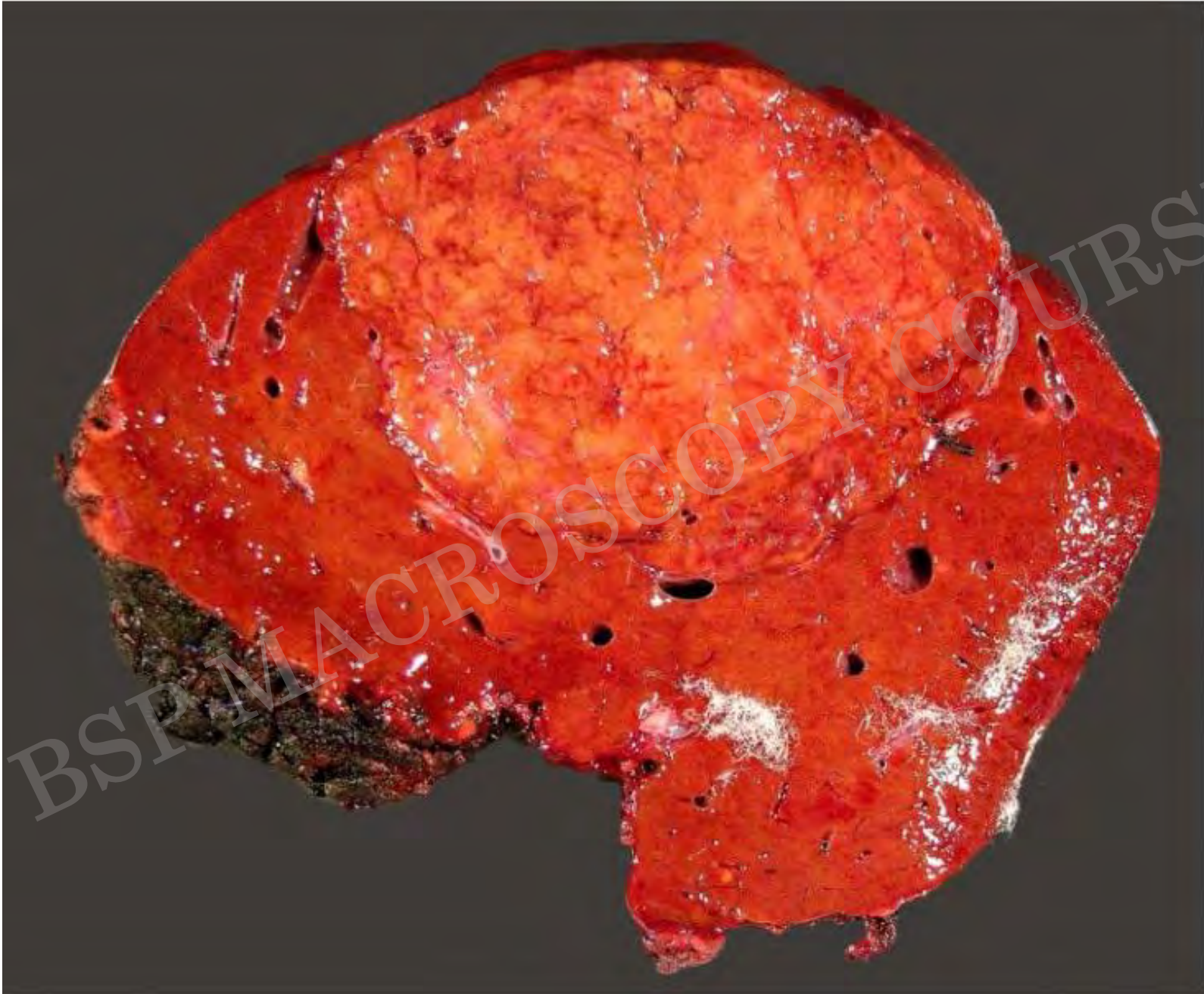
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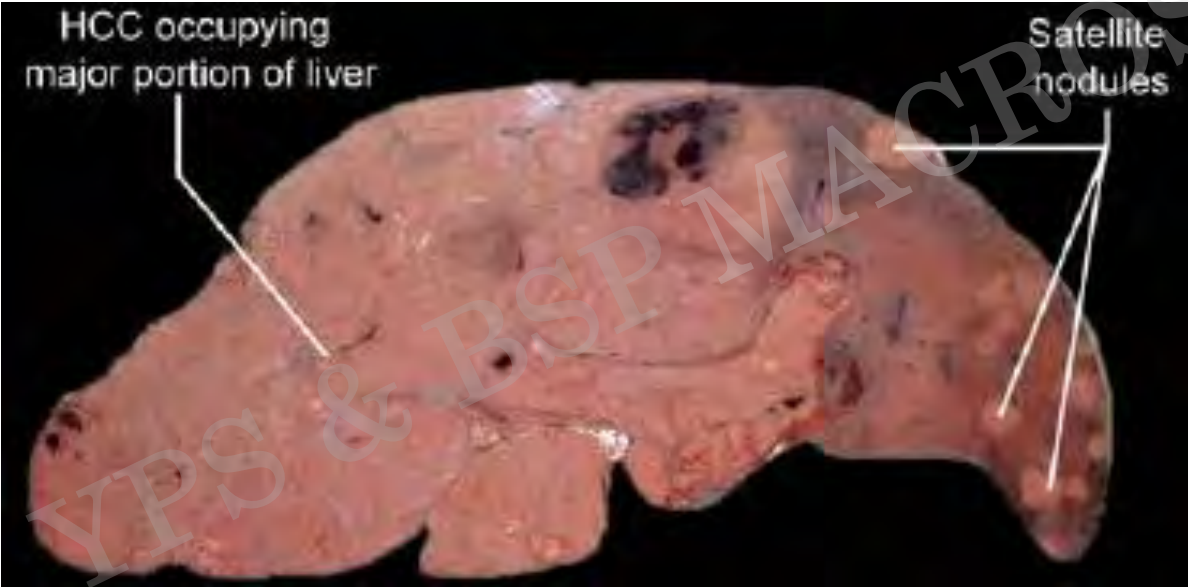
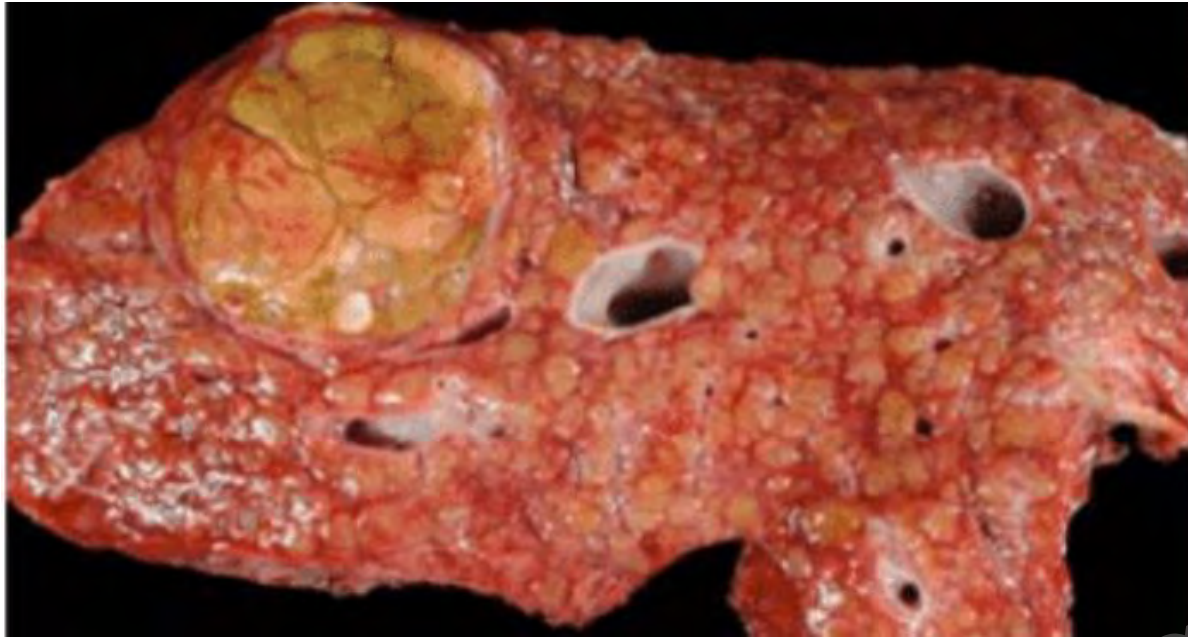


Mesenchymal
Hamartoma



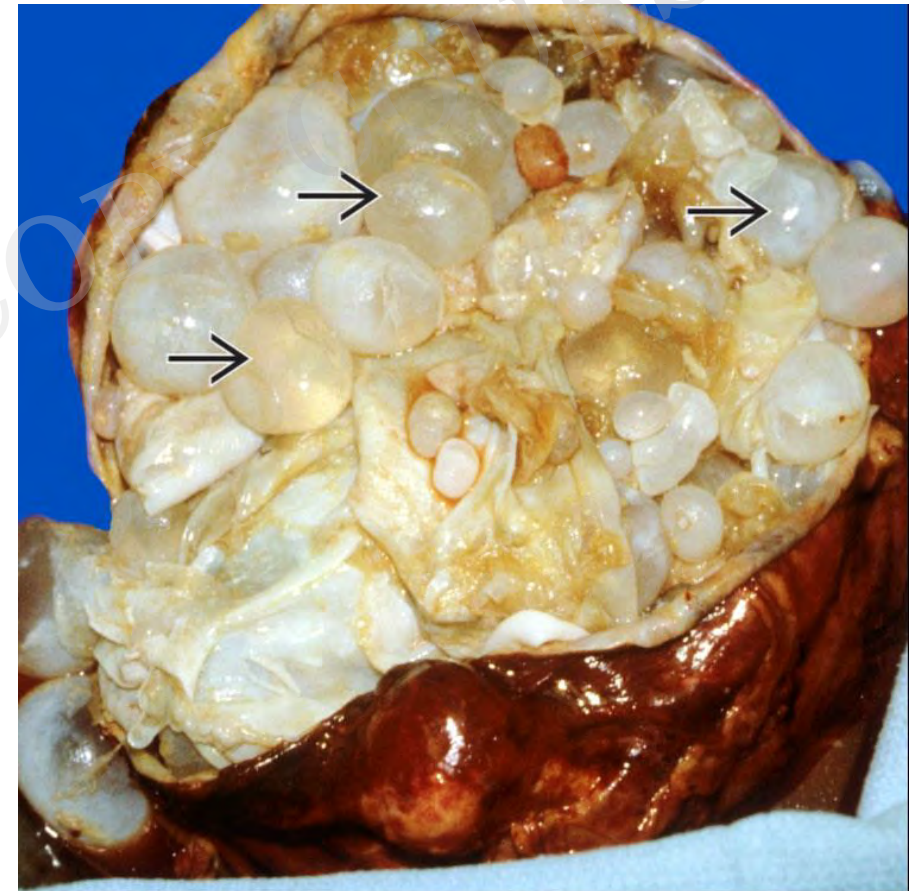
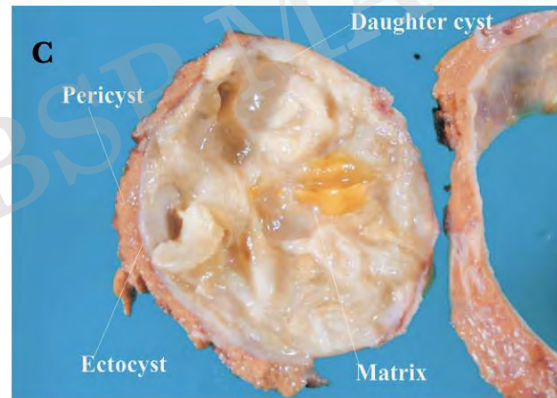
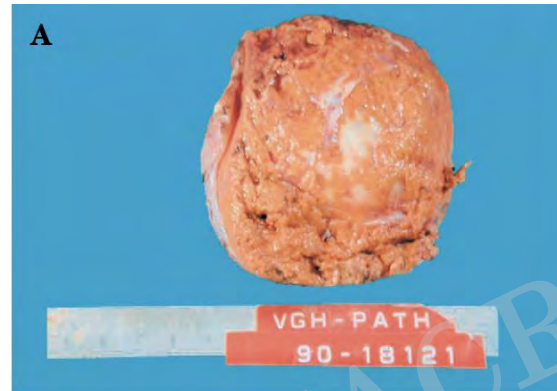
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Wedge resection/Partial hepatectomy (cystic lesions)

Hydatid cyst



Total hepatectomy specimens

Purpose:

- Document the cause of the patient's hepatic failure
- Staging of the tumours
- Assessing of the margins

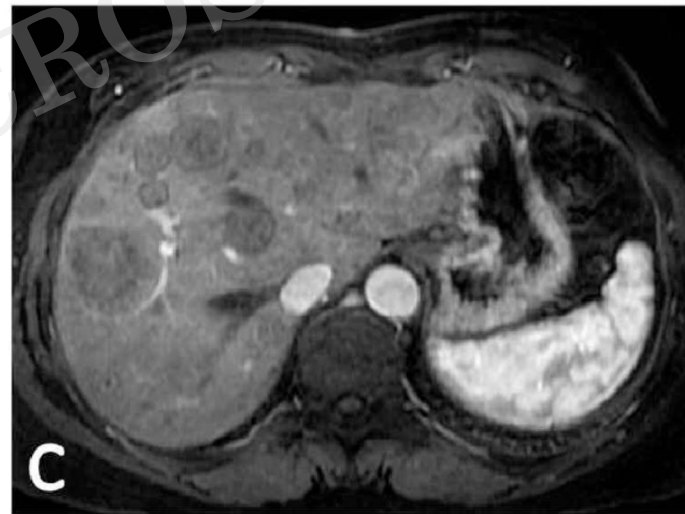
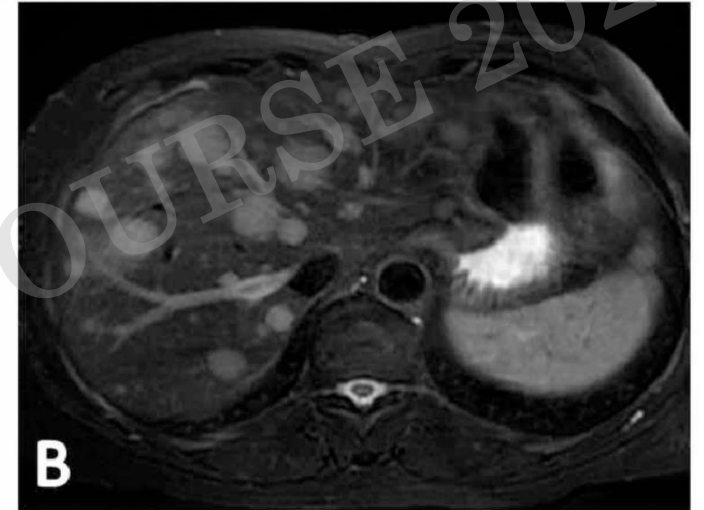
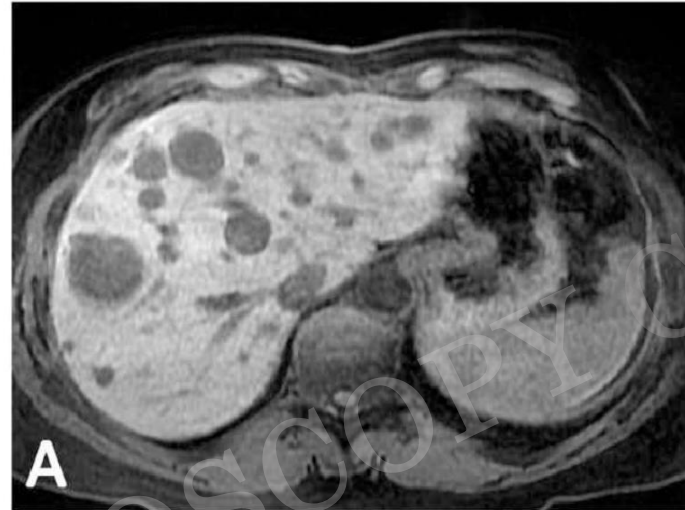


Frequent infection cause!
Handle with precaution!



Check clinical information before!!!

Check
radiological
images /
protocols



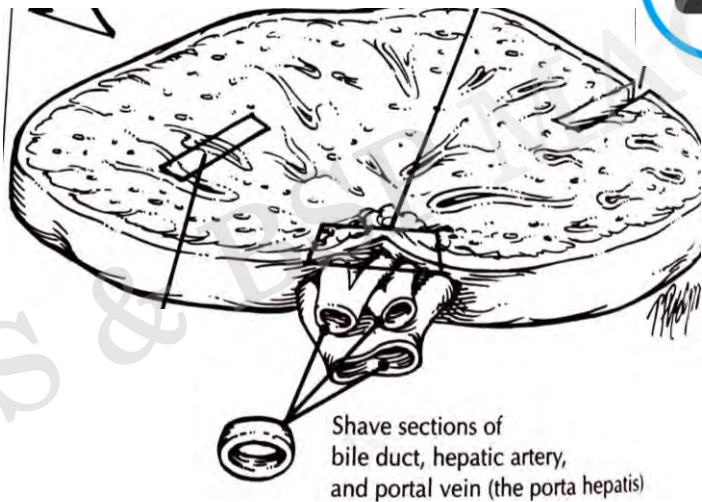
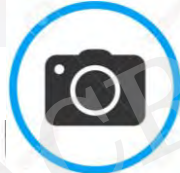
External features of the liver



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Normal liver



Shave sections of
bile duct, hepatic artery,
and portal vein (the porta hepatis)

- ❖ Orient liver
- ❖ Weight, measure, describe
- ❖ Take pictures
- ❖ Submit shave sections from the bile duct, hepatic artery, portal vein and hepatic veins (check the presence of thrombosis!)
- ❖ Look for lymph nodes in the soft tissue of the liver hilum
- ❖ Dissect gallbladder from its bed and routinely process

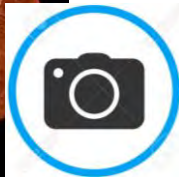


- ❖ Serially section the liver perpendicular to the long axis (0.5 cm)
- ❖ Take pictures
- ❖ Describe the colour and features of the parenchyma



No neoplastic condition:

- ❖ Take one specimen from each segment



In case of neoplastic condition:

- Describe features, size and localisation of each lesion
- Take each lesion (if it is possible, up to 5 could be ok)
- Identify grossly evident vascular invasion and/or portal vein thrombi
- Take also **non lesional parenchyma**

Pay attention especially to:

- ❖ Describe necrosis
- ❖ Mapping of the lesion for correlation with downstaging
- ❖ Up to 2-3 cm take all the lesion
- ❖ Out together the parts of the liver after macro so if you need you can go back to the specimen



-
- Suspected nodules **HAVE** to be taken



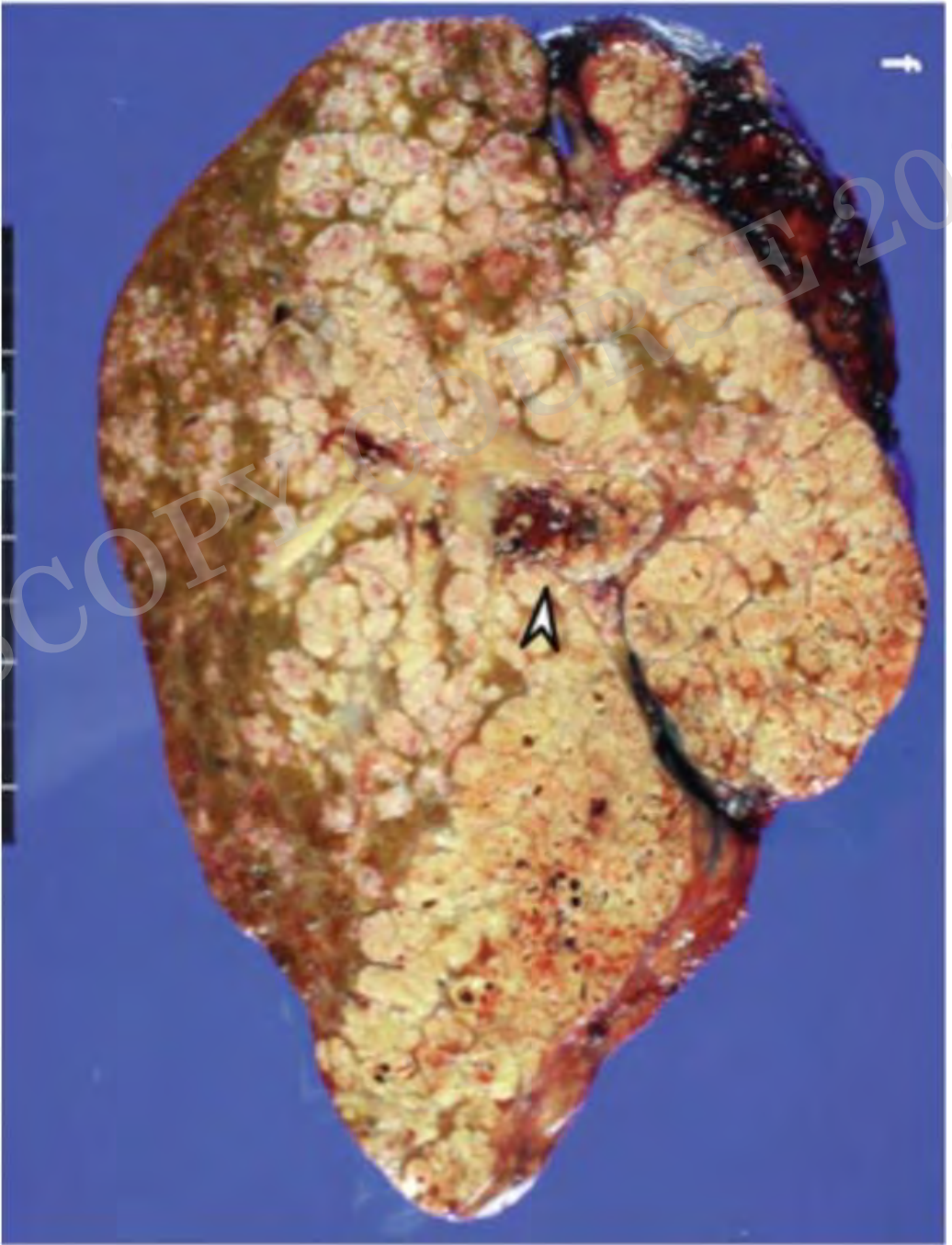




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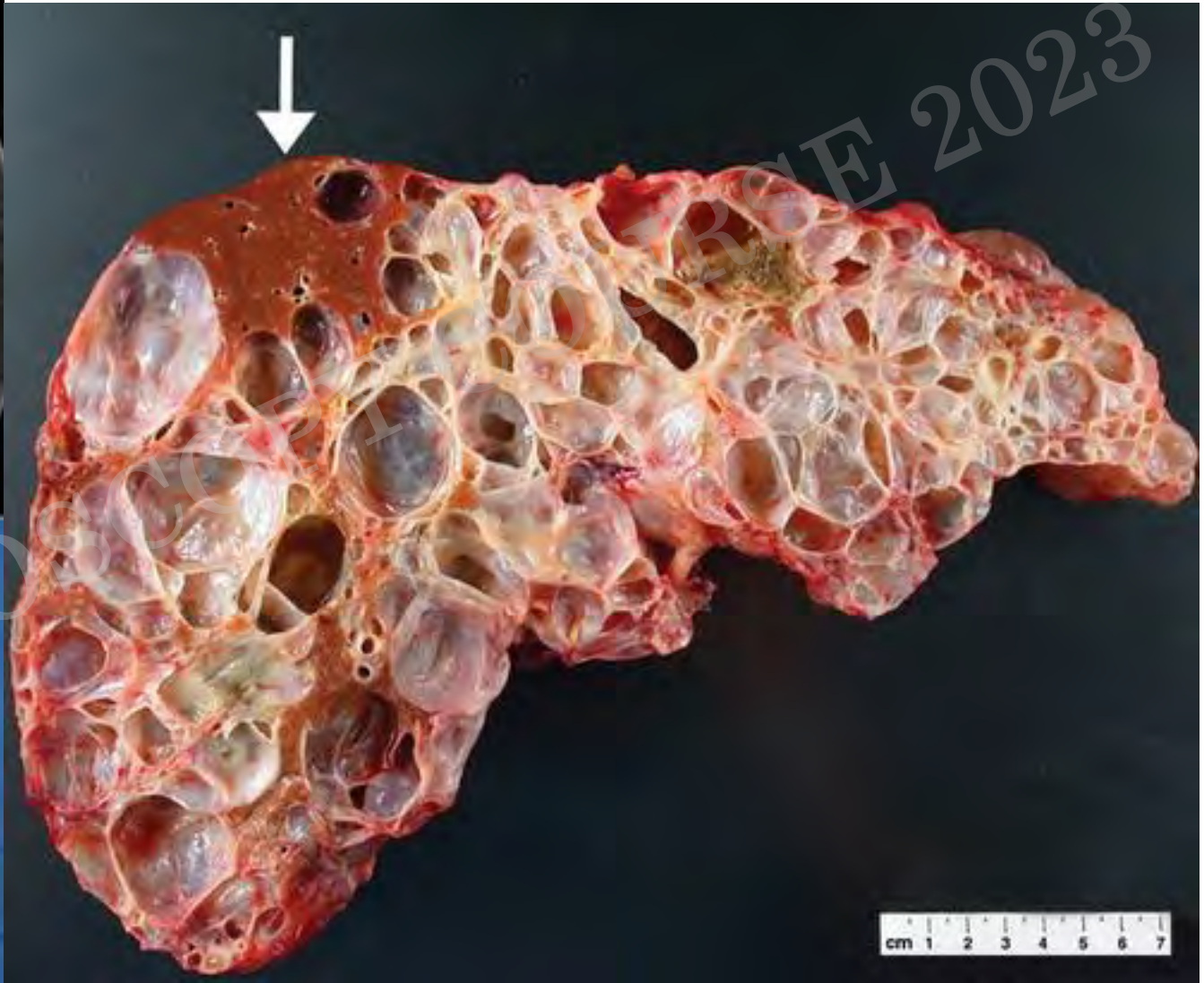
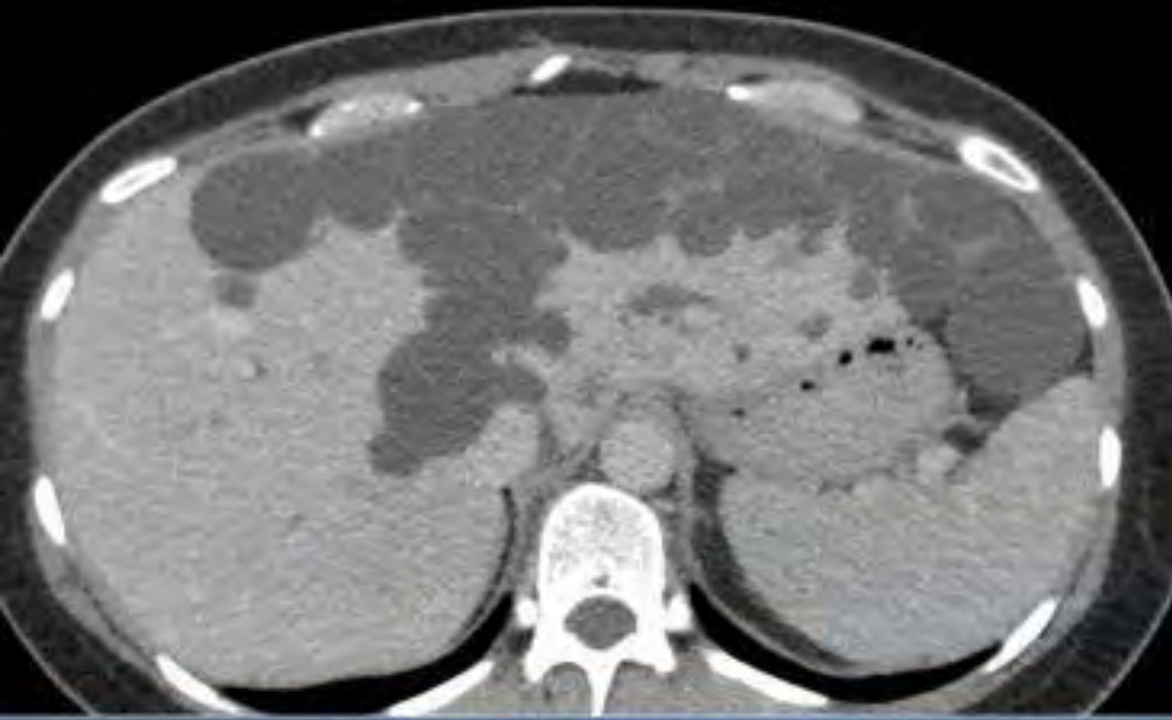


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site
II

III



To conclude

- Macroscopical handling of the liver specimens is an unique moment and have a pivotal role in the dignostic process
- Important role of clinical informations and radiological information also for the follow up of the patient
- If you have any doubt ask for another opinion / take picures
- Orient correctly the specimen!





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