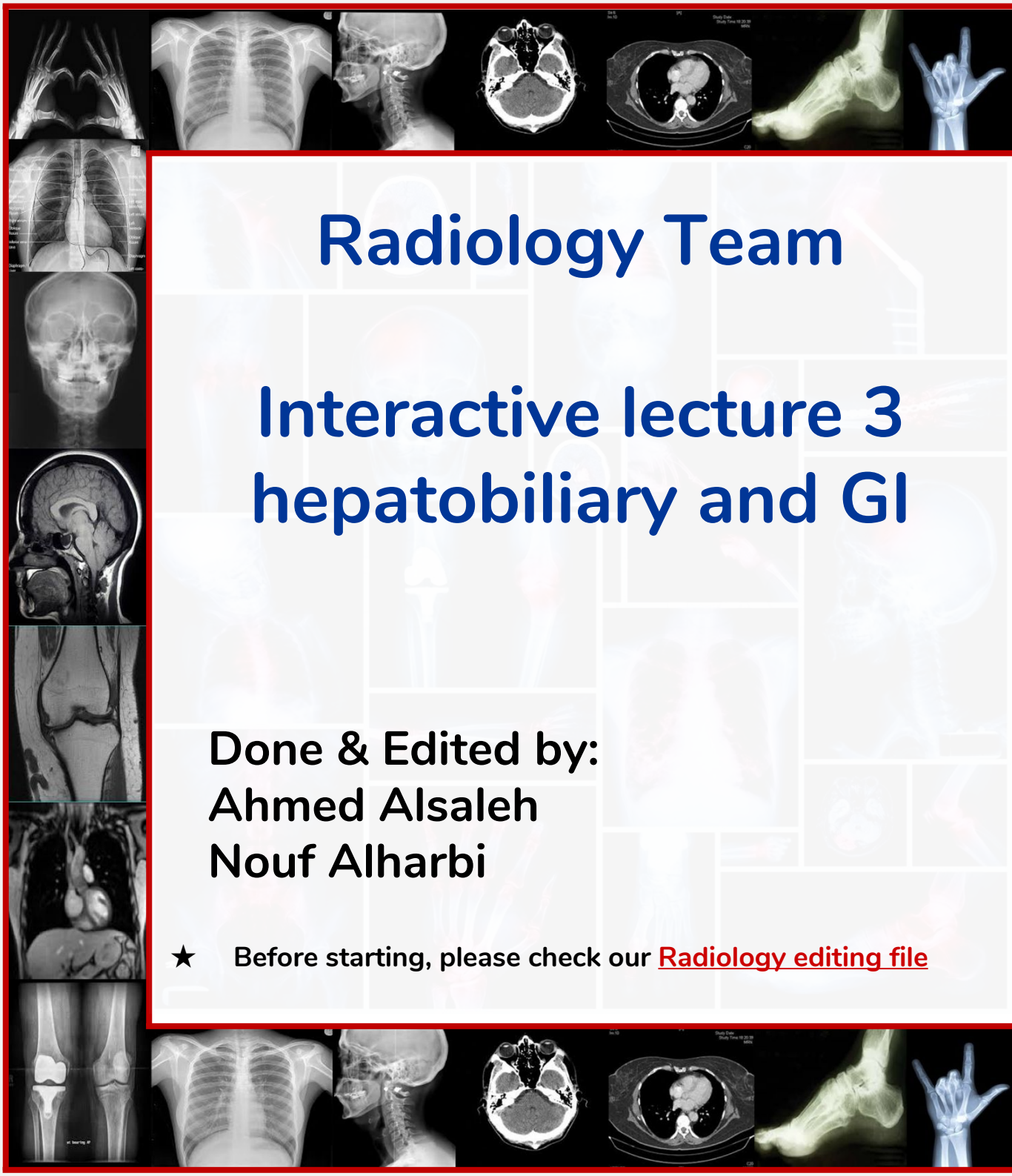

Radiology Team

Interactive lecture 3 hepatobiliary and GI

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★ Before starting, please check our Radiology editing file

Color Index:

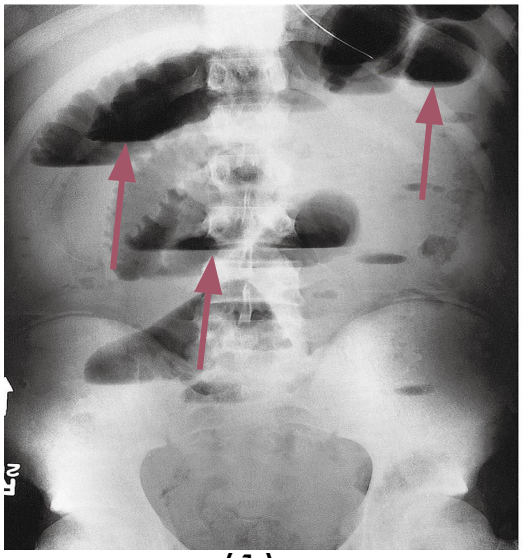
• Important • Females' notes • Males' notes • Explanations

Name 5 radiological modalities:

1. X-RAY
2. Fluoroscopy
3. U/S
4. MRI
5. CT scan
6. Nuclear Medicine
7. Angiography

- Main first 5, less likely to use last 2 in GI and hepatobiliary

Case 1:



(1)

(2)

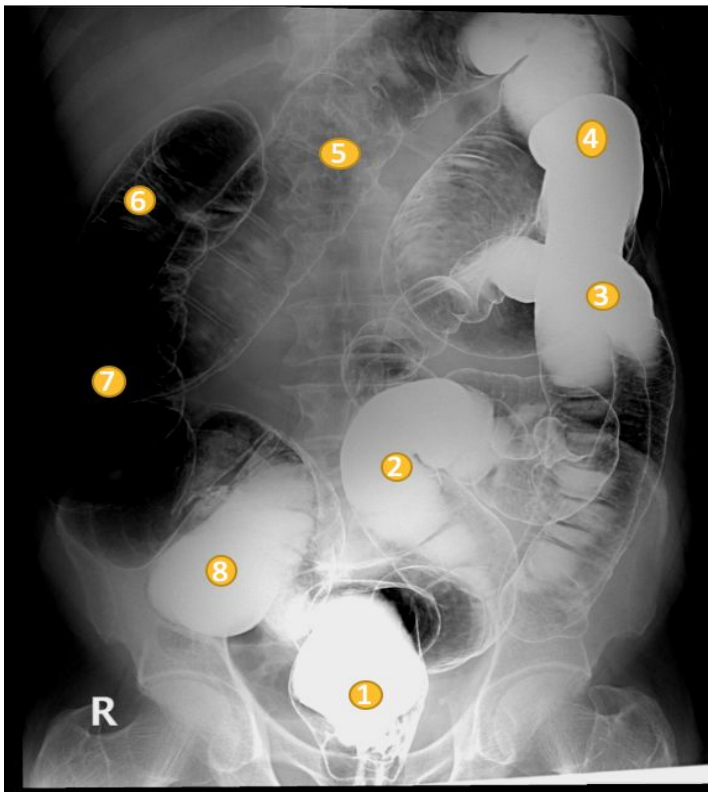
- **What is the modalities?** Plain X-RAYS No contrast unlike fluoroscopy
- **Mention 2 abnormalities?** Multiple air-Fluid levels and Stack of coins signs

- Image (1): In case of multiple air fluid level **(arrows)** it's sign of obstruction. Increase diameter of small bowel (dilation) "normal 2.5 cm"
- Image (2): dilatation and thickened wall, stack of coins sign indicate thickening of small bowel convinces "inflammation of the wall". Can happen with bowel obstruction also.

Case 2:

Name of Study: **Double contrast barium enema**

1. Rectum
2. Sigmoid colon
3. Descending colon
4. Splenic flexure
5. Transverse colon
6. Hepatic flexure
7. Ascending colon
8. cecum



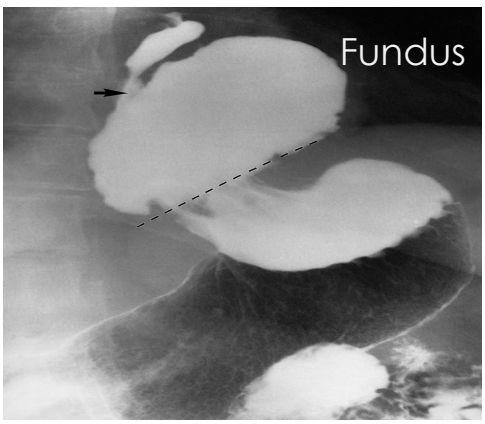
- barium enema it has two types:

1- single contrast barium enema

2- double contrast barium enema

- If you see clear bowel wall with gas it's double as in this image

Case 3:



- **What is the modality?**

Barium meal - fluoroscopy

- **What is the diagnosis?**

Hiatus hernia

how do we know it's Hiatus hernia? b/c we see pouch " fundus of stomach" above diaphragm which act normally as sphincter, and causes stenosis in this case

Case 4:

- **What is the modality?**

Barium enema – fluoroscopy

Is it single or double ? Single b/c we don't see the wall of bowel nor gases as the previous one , it's only contrast

- **What is the name of the sign?**

Lead pipe sign (loss of bowel haustra sign) it's important b/c UC predisposing to colon cancer.

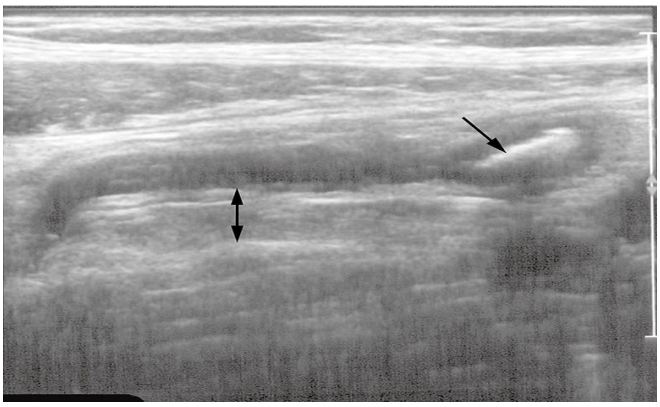
- What is the diagnosis?

IBD – **Ulcerative colitis** mainly

Case 5:

- CT
- Iliac bone> this section in the pelvis
- Stone of appendix (appendicolith) impacted in the base of appendix -> obstruction of lymphatic drainage -> inflammation. (not all appendicitis because of stone)

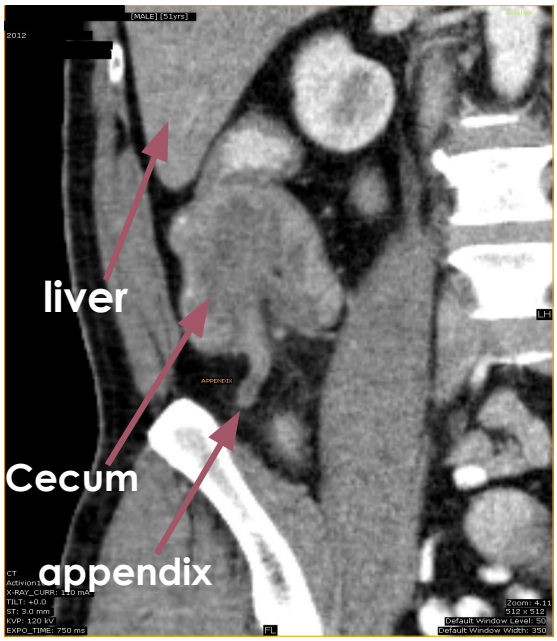
- Descending colon
- Cecum (RLQ)> there is something protruded either it's terminal ileum (if reach to small bowel) or appendix (blind ended). "6-7 mm diameter appendix"

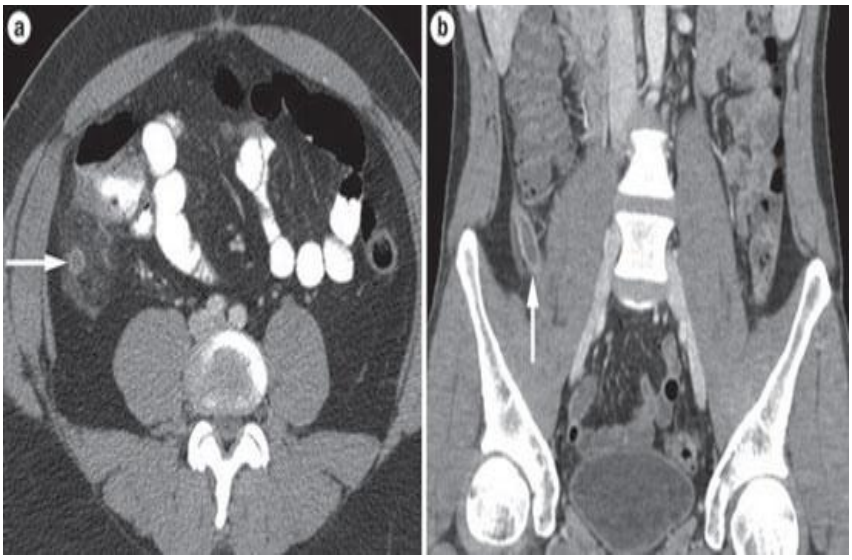


CT

- U/S
- Tubular obstruction Hypoechoic or anechoic
- And hyperechoic stone with acoustic shadow
- This is appendicolith

Case 6:





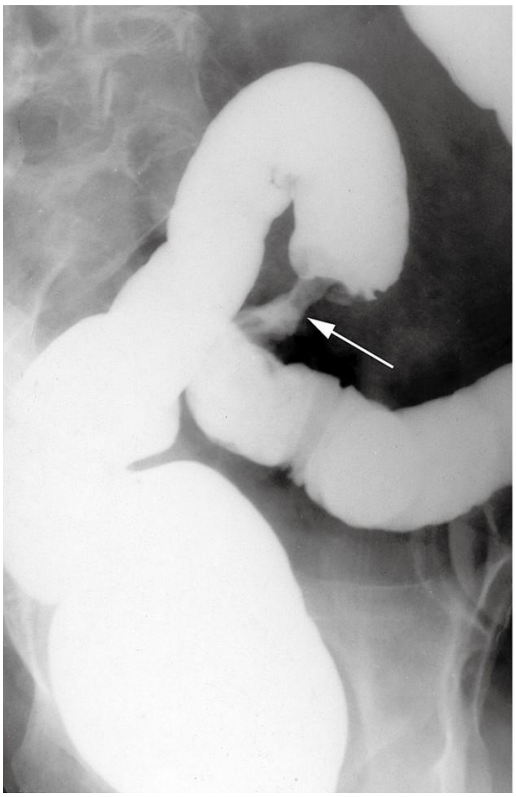
- **What is the name of the study?** CT scan
- **What is structure labeled on the left image? Appendix** (retrocecal appendix)
- Is it normal or abnormal? Abnormal b/c diameter enlarged, inflamed appendix (hyperattenuated means high density which is sign of inflammation)
- **What is the diagnosis of the patient on right image?** Simple appendicitis (no complications such as abscess, perforation or air in peritoneum)
- **What is the gold standard image modality for such diagnosis? & What is the alternative image modality in pregnant/pediatric patients?** CT scan is the gold standard, U/S is the alternative.

Case 7:

What is the name of the study?
Barium enema (not easy in this image to tell is it single or double but it's double)
What is the pertinent sign?
Apple-core sign
What is the diagnosis?
Colon cancer

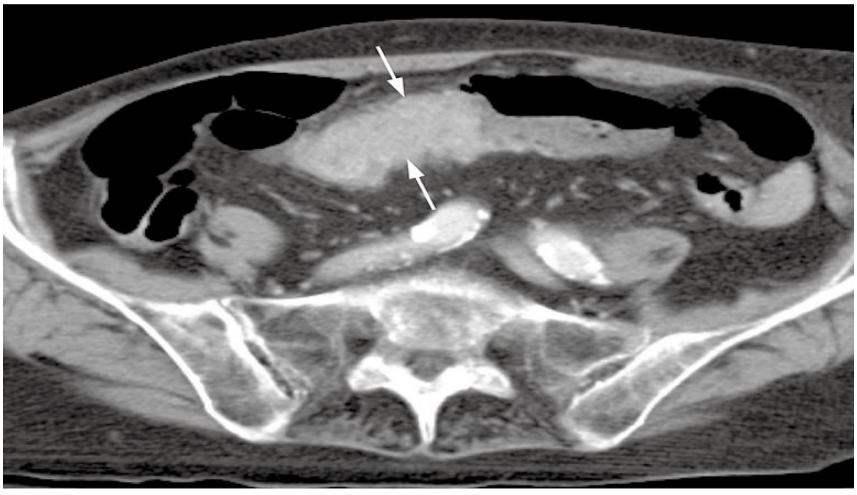
Case 8:

Examples of colon cancer in barium enema and CT scan



Apple core appearance

Apple core appearance
Lumen narrow and there is obstruction (circumferential mass)



Sigmoid colon with mass

Case 9 :

What is the name of the modality?

- UltraSound

What is the diagnosis?

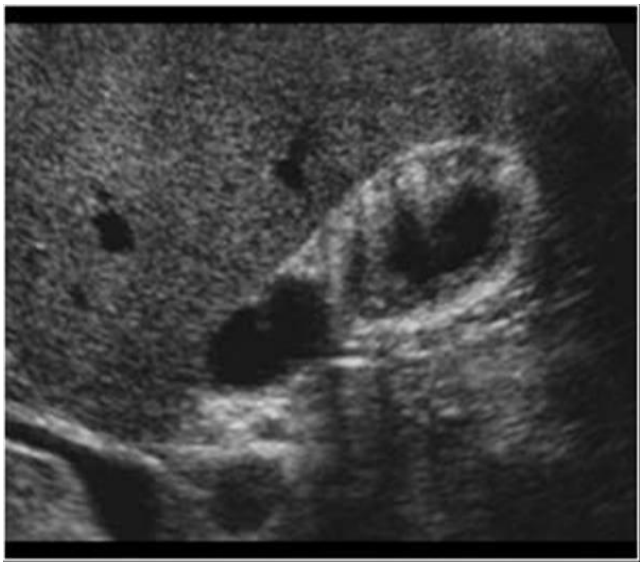
- Gallstone with cholecystitis

What are the expected symptoms the patient has?

- RUQ pain radiating to right shoulder aggravating by fatty meal

We have **hyperechoic lesion** and **acoustic shadow**
We know if it is cholecystitis if there is thickening of the wall and edematous
It is calculus cholecystitis

Case 10:



What is the name of the modality?
- UltraSound

What is the findings?
- Hyperechoic lesions within the wall

What is the diagnosis?
- Gallbladder adenomyomatosis

What is the importance of this disease?
- Misdiagnose with stone, benign lesion and can convert to malignant lesions, F/U is needed.

This tumor consist of fat and muscle which will cause thickening of the wall of gall bladder

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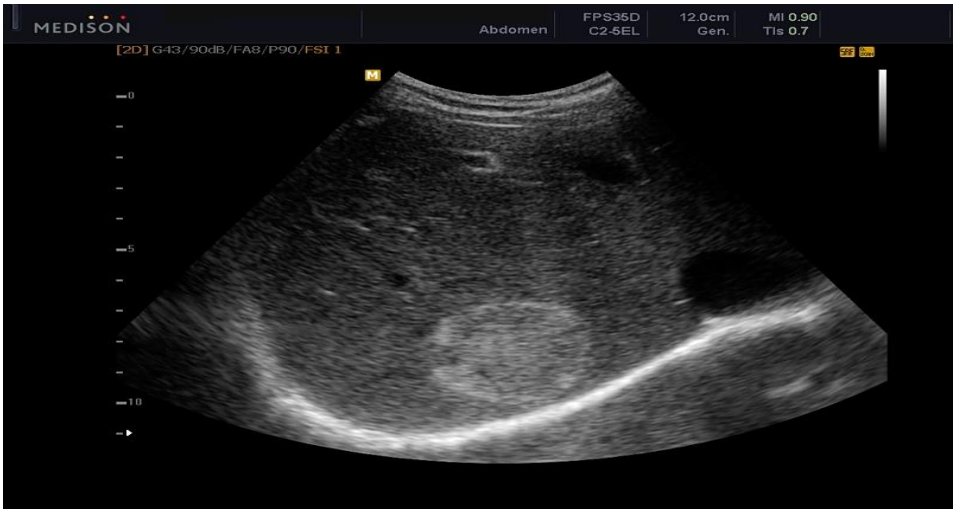
Case 11:

What is the modality?
- Ultrasound

What is the findings?
- Shrink, nodular surface, hyperechoic texture, ascites.

What is the diagnosis?
- Liver cirrhosis

Case 12:



What is the modality?

- U/S

What is the findings?

- Hyper-echoic focal well-demarcated hepatic nodule

What is the diagnosis?

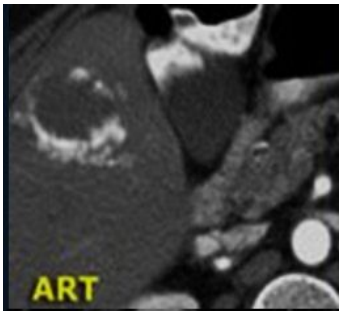
- hemangioma

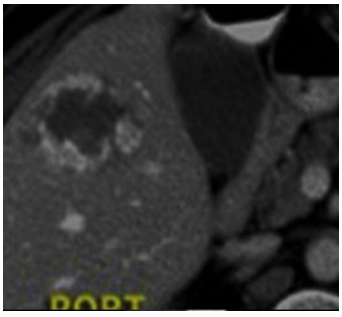
What is other imaging modality to confirm the diagnosis?

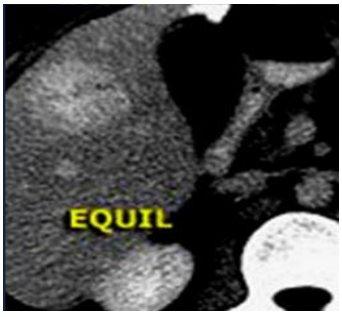
- Triphasic liver CT scan
- MRI

Case 13:

Triphasic liver CT scan of the same patient







- In arterial phase there is **peripheral nodular enhancement**
- there will be **wash in** the venous phase
- finally there will be **homogenous enhancement** in delayed phase this represent **typical hemangioma**

What is the modality?
- Triphasic liver CT scan

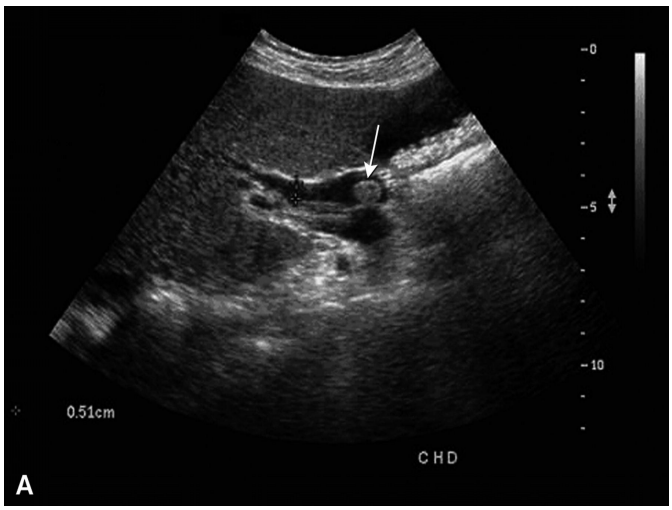
What are the findings?
- Focal hepatic lesion with fill-in enhancement

What is the diagnosis?
- HCC

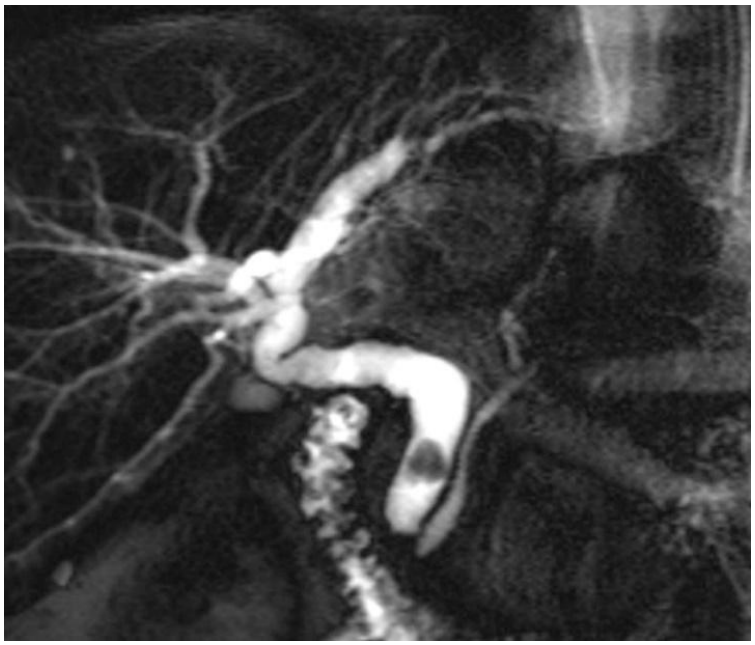
- In the **arterial phase** there is early enhancement
- then there will be iso-enhancement in the **venous phase (same as the surrounding tissue)**
- and the **late phase** it will be washout of the contrast and this represent hepatocellular carcinoma or metastasis

Case 14:

What is the modality?
U/S
What is the findings?
Hyperechoic lesion in CBD
What is the diagnosis?
CBD stone
What is the expected symptoms and signs the patient has?
Yellow discoloration. RUQ pain. Hyper-bilirubinemia.



Case 15:



This is **MRCP**

- There is a stone impacted in distal CBD and dilatation of the bile ducts

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Case 16:

This is **ERCP** shows large filling defect of gall bladder which is large gall stone and we can see the contrast around the stone (white arrows)
the gall bladder causes compression and dilatation of the common hepatic or common bile ducts by **indirect obstruction** (from outside) it is called **Mirizzi's syndrome**